



Knowledge, Awareness about Dental Flossing Among Young Adult Population in Kerala

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I. INTRODUCTION

Oral hygiene is must to maintain proper oral health. Oral hygiene methods have developed since the origin of oral hygiene aids such as toothpaste and toothbrushes. Moreover, oral hygiene aids are supplemented by dental floss and mouthwashes adding an advantage in protecting oral tissue(1).

Dental floss is used to remove plaque from the interproximal areas of teeth. They are also indicated for use after fixed denture placement(2).

Promoting oral health via patients' education is a key point of the dental student's education as it improves the overall compliance in the communities, and being efficient in their own oral hygiene can reflect positively on their ability to motivate and educate the patients.(3)

The process of maintaining a healthy mouth by regular cleaning that is by brushing and flossing is called oral hygiene. Oral hygiene is used to prevent tooth decay and gum disease. According to good oral health is a condition that is free from chronic oral, facial pain, type of oral cancers, oral sores, cleft lip and palate, gum diseases, tooth decay, and tooth loss.(4)

Approximately 50% of the population over the age of 30 years has some form of gingivitis. Although mechanical plaque control can be an effective strategy for preventing the progression of periodontal diseases, most individuals do not adequately brush their teeth, and only 11%-51% of the population admits to using dental floss or some type of interdental cleaning device on a daily basis.(5)

Hence the awareness about dental flossing is to be made among the patients to avoid periodontal and gingival diseases.(6)

The use of dental floss as interdental cleaning option has varying viewpoints. Many researchers suggest that dental floss is technique sensitive and does not yield significant results in plaque removal(7).

In order to eradicate the dental disease from the population, it's essential to determine the status of the attitude and knowledge about the dental flossing technique among the adult population. Thus the present study aims to identify the knowledge, awareness about dental flossing among young adult population in Kerala.

II. METHODOLOGY

A study was conducted among the young adult population in Kerala.

Inclusion criteria: Young adult population in Kerala. The study was conducted from October to November 2022. The study was conducted using online survey over google form.

All the participants who consent to participate and submit the questionnaire within November 2022 was included in the study.

Questionnaire consist of 19 questions covering the knowledge, awareness about dental flossing technique.

III. RESULTS

The study was completed with 177 responses of which 79.1 percentage of respondents were female and 20.9 percentage of respondents were male.

TABLE 1: FREQUENCY OF VARIABLES

Table I shows the frequency of variables.

SLNO:	QUESTION	OPTIONS	Frequency	Percent
1	How often do you clean your tooth	once a day	58	32.6
		twice a day	116	65.2
		three times a day	3	1.7



2	How do you clean your tooth	toothbrush & toothpaste	175	98.3
		mouthwash	1	.6
		toothbrush & toothpowder	1	.6
3	What type of toothbrush method you employ to brush your teeth?	circular	102	57.3
		horizontal	48	27.0
		vertical	27	15.2
4	What secondary methods you use for plaque control?	dental floss	35	19.7
		tooth pick	85	47.8
		interdental brushes	9	5.1
		any pointed object	22	12.4
		none	26	14.7
5	What do you mean by Dental floss?	a thread to clean between teeth	142	79.8
		an aid to whiten your teeth	6	3.4
		a drug	1	.6
		none	28	15.7
6	Do you know how to use dental floss?	yes	80	44.9
		no	97	54.5
7	Did anyone recommend you of dental floss?	yes	60	33.7
		no	117	65.7



8	Who recommended you of using dental floss?	dentist	111	62.4
		friend /relative	55	30.9
		at university /school	8	4.5
		medical doctor	3	1.7
9	Did your dentist explain to you how to use dental floss?	yes	59	33.1
		no	118	66.3
10	Do you think dental floss can make bleeding for the gum?	yes	91	51.1
		no	86	48.3
11	Did you see any video of correct way of dental floss before?	yes	43	24.2
		no	133	74.7
12	What was the reason to use dental floss?	oral hygiene	137	77
		dental disease	35	19.7
		bad breath	5	2.8
13	Type of dental floss used?	don't know	136	76.4
		flavored type	12	6.7
		unflavored	13	7.3
		waxed type	14	7.9
		unwaxed type	3	1.7
14	When do you use dental floss?	don't focus	116	65.2
		after brushing	48	27.0
		before brushing	14	7.9
15	How often do you floss your teeth?	rarely	61	34.3
		once a day	18	10.1



		once a week	12	6.7
		I don't use floss	86	48.3
16	Rate the difficulty for using dental floss from 1 to 10	1	22	12.4
		2	17	9.6
		3	33	18.5
		4	19	10.7
		5	32	18.0
		6	22	12.4
		7	10	5.6
		8	10	5.6
		9	3	1.7
		10	9	5.1
17	Does dental flossing separate your teeth and make spaces	yes	79	44.4
		no	98	55.1
18	How important is flossing to you?	remove food remaining	76	42.7
		prevents calculus between teeth	17	9.6
		prevents stain between teeth	7	3.9
		all of the above	77	43.3
19	Do you advice others to use dental floss?	yes	93	52.2
		no	83	46.6

Most (65.2percentage) of people clean their tooth twice daily.98.3 percentage of people used toothbrush and toothpaste as cleaning aid. Most (57.3 percentage)of people following circular method for brushing their teeth.47.8

percentage of people used tooth pick as a secondary method for plaque control. Most (79.8 percentage) of people are aware that the dental floss is a thread to clean between teeth.54.5 percentage of people don't know how to use dental



floss.65.7 percentage of people said that no one recommended of dental floss.62.4 percentage of people responded that dentist recommended them of using dental floss. But 66.3 percentage of people said that their dentist doesn't explain how to use dental floss. About 51.1 percentage of people believe that dental floss will make bleeding gums. Most of people (74.7) didn't saw any video of correct way of dental floss. About 77 percentage of people said that oral hygiene is the reason for using dental floss. Most of people (76.4) don't know

about the type of floss they use .About 65.2 percentage of people don't focus on when they floss .Most of the person (48.3) are not using dental floss .About 18.5 percentage of people given rate 3 as difficulty for using dental floss. Most of people (55.1 percentage) doesn't believe dental flossing separate their teeth.43.3 percentage of people believes that dental flossing is for removing remaining food, prevent calculus between teeth and prevent stain between teeth. About 52.2 percentage of people advise others to use dental floss.

TABLE 2: COMPARISON OF AGE WITH ORAL HYGIENE PRACTICES

Table 2 showing the comparison of age with oral hygiene practices.

QUESTIONS	OPSIONS	AGE		p VALUE
		<20	>=20	
How often do you clean your tooth	once a day	23.5	33.8	p=0.285
	two times a day	70.6	65.0	
	thrice a day	5.9	1.3	
How do you clean your tooth?	Toothbrush & toothpaste	94.1	99.4	P=0.008*
	mouthwash	5.9	0.0	
	Toothbrush & toothpowder	0.0	0.6	
What type of toothbrush method you employ to brush your teeth?	circular motion	47.1	58.8	P=0.232
	horizontal motion	23.5	27.5	
	vertical motion	29.4	13.8	
What secondary methods you use for plaque control?	dental floss	5.9	21.3	P=0.007*
	toothpick	52.9	47.5	
	interdental brushes	0.0	5.6	
	any pointed object	0.0	13.8	
	none	41.2	11.9	
What do you mean by dental floss?	a thread to clean between teeth	64.7	81.9	P=0.012*
	an aid to whiten your teeth	5.9	3.1	
	a drug	5.9	0.0	
	none	23.5	15.0	
Do you know how to use dental floss?	yes	47.1	45.0	P=0.871
	no	52.9	55.0	



Did anyone recommend you of dental floss?	yes	29.4	34.4	P=0.681
	no	70.6	65.6	
Who recommended you of using dental floss?	dentist	58.8	63.1	P=0.555
	friend/relative	29.4	31.3	
	at university/school	5.9	4.4	
	medical doctor	5.9	1.3	
Did your dentist explain to you how to use dental floss?	yes	41.2	33.3	P=0.471
	no	58.8	66.7	
Do you think dental floss can make bleeding for the gum?	yes	52.9	51.2	P=0.894
	no	47.1	48.8	
Did you see any video of correct way of dental floss before	yes	5.9	26.4	P=0.061
	no	94.1	73.6	
What was the reason to use dental floss?	oral hygiene	52.9	80.0	P=0.040*
	dental disease	41.2	17.5	
	bad breath	5.9	2.5	
Type of dental floss used?	don't know	70.6	77.5	P=0.866
	flavoured type	5.9	6.3	
	unflavoured	11.8	6.9	
	waxed type	11.8	7.5	
	unwaxed type	0.0	1.9	
When do you floss?	don't focus	70.6	64.4	P=0.587
	after brushing	17.6	28.1	
	before brushing	11.8	7.5	
How often do you floss your teeth?	rarely	35.3	34.4	P=0.932
	once a day	5.9	10.6	
	once a week	5.9	6.9	
	I don't use floss	52.9	48.1	
Rate the difficulty for using dental	1	23.5	11.3	
	2	5.9	10.0	
	3	11.8	19.4	



floss from 1 to 10	4	5.9	11.3	
	5	23.5	17.5	
	6	0.0	13.8	
	6	11.8	5.0	
	7			
	8			
	9			
Does dental flossing separate your teeth and make spaces	yes	47.1	44.4	P=0.832
	no	52.9	55.6	
How important is flossing to you?	remove food remaining	41.2	43.1	P=0.311
	prevents calculus between teeth	0.0	10.6	
	prevents stain between teeth	0.0	4.4	
	all of the above	58.8	41.9	

Most of the population (70.6%) below 20 years of age and most of the people (65%) of people above 20 years of age clean their tooth 2 times a day. In the total population 94.1% of the people below 20 years of age and 99.4% of people above 20 years of age uses toothpaste and tooth brush to clean their tooth which is seen to be significant (p-value=0.008). Of these 47.1% of peoples below 20 years of age and 58.8% of people above 20 years of age employing circular method to brush their teeth. 52.9% of people below 20 years of age and 47.5% of people uses toothpick as the secondary method for plaque control and it is seen to be significant (p-value = 0.007). Most of the people below 20 years of age(64.7%) and most of the people above 20 years of age (81.9%) are aware that the dental floss is a thread to clean between the teeth and it is seen to be significant (p-value =0.012). Of the population 52.9% of the people below 20 years of age and 55% of the people above the age of 20 years don't know how to use dental floss. Most of the people, 70.6% of people below the age of 20 and 65.6% of people above age of 20 said that no one recommended them of using dental floss. 58.8% of people below 20 years of age and 63.1% of people above 20 years of age said that their dentist recommended them of using dental floss. Of the total population 58.8% of people below the age of 20 years and 66.7% of people above the age of 20 years said that their dentist did not explain to them about how to

use a dental floss. Mos of the people, 52.9% below 20 years of age and 51.2% above 20 years of age thinks that use of dental flossing can make bleeding from the gums. Of the total population 94.1% of the people below 20 years of age and 73.6% above 20 years of age didn't seen any videos about the correct way of dental flossing and it seems to be significant(p-value = 0.061). Most of the people, 52.9% below 20 years of age and 80.0% of people above 20 years of age use dental floss as an oral hygiene aid and it seen to be significant (p-value=0.040). of the total population 70.6% of people below 20 years of age and 77.5% of people above 20 years of age don't know the type of dental floss they are using. Most of the people, 70.6% of people below the age of 20 years and 64.4% of people above the age of 20 years don't focus about when they are flossing their teeth. Most of the people, 52.9% of people below 20 years of age and 48.1% of people above 20 years of age don't floss their teeth. Most of the people, 52.9% of people below 20 years of age and 55.6% of people above the age of 20 years aware that the use of dental floss doesn't separate their teeth and make spaces between their teeth. Most of the people, 58.8% of people below the age of 20 years and 41.9% of people above 20 years of age thinks that the dental floss will remove the food remaining, prevent calculus between the teeth, and prevents stain between the teeth.



TABLE 3: COMPARISON WITH GENDER

Table 3 reflects the frequency of comparison with gender.

SL NO	QUESTION	OPTIONS	GENDER		p – value
			MALE	FEMALE	
1	How often do you clean your tooth	Once a day	62.2 %	25.0 %	0.000
		Twice a day	37.8 %	72.9 %	
		Three times a day	0.0 %	2.1 %	
2	How do you clean your tooth?	Toothbrush and tooth paste	100.0%	98.6%	0.765
		Mouthwash	0.0%	0.7%	
		Toothbrush and tooth powder	0.0%	0.7%	
3	What type of toothbrush method you employ to brush your teeth?	Circular motion	48.6%	60.0%	0.460
		Horizontal motion	32.4%	25.7%	
		Vertical motion	18.9%	14.3%	
4	What secondary methods you use for plaque control?	Dental floss	10.8%	22.1%	0.202
		Toothpick	45.9%	48.6%	
		Interdental brushes	2.7%	5.7%	
		Any pointed object	16.2%	11.4%	
		none	24.3%	12.1%	
5	What do you mean by Dental floss?	A thread to clean between teeth	67.6%	83.6%	0.093
		An aid to whiten your teeth	8.1%	2.1%	
		A drug	0.0%	0.7%	
		none	24.3%	13.6%	
6	Do you know how to use dental floss?	Yes	29.7%	49.3%	0.034
		no	70.3%	50.7%	
7	Did anyone recommend you of dental floss?	Yes	35.1%	33.6%	0.858
		no	64.9%	66.4%	
8	Who recommended you of using dental floss?	Dentist	54.1%	65.0%	0.470
		Friend/ relative	40.5%	28.6%	
		At university/	2.7%	5.0%	



		school			
		Medical doctor	2.7%	1.4%	
9	Did your dentist explain to you how to use dental floss?	Yes	35.1%	32.9%	0.794
		no	64.9%	67.1%	
10	Do you think dental floss can make bleeding for the gum?	yes	54.1%	50.7%	0.718
		no	45.9%	49.3%	
11	Did you see any video of correct way of dental floss before?	Yes	25.0%	24.3%	0.929
		no	75.0%	75.7%	
12	What was the reason to use dental floss?	Oral hygiene	62.2%	81.4%	0.043
		Dental disease	32.4%	16.4%	
		Bad breath	5.4%	2.1%	
13	Type of dental floss used?	Don't know	75.7%	77.1%	0.347
		Flavored type	0.0%	7.9%	
		Unflavored type	10.8%	6.4%	
		Waxed type	10.8%	7.1%	
		Unwaxed type	2.7%	1.4%	
14	When do you use dental floss?	Don't focus	62.2%	65.7%	0.359
		After brushing	24.3%	27.9%	
		Before brushing	13.5%	6.4%	
15	How often do you floss your teeth?	Rarely	35.1%	34.3%	0.644
		Once a day	13.5%	9.3%	
		Once a week	2.7%	7.9%	
		I don't use floss	48.6%	48.6%	
16	Rate the difficulty for using dental floss from 1 to 10	1	8.1%	13.6%	0.226
		2	18.9%	7.1%	
		3	29.7%	15.7%	
		4	8.1%	11.4%	
		5	16.2%	18.6%	
		6	5.4%	14.3%	
		7	2.7%	6.4%	



		8	5.4%	5.7%	
		9	2.7%	1.4%	
		10	2.7%	5.7%	
17	Does dental flossing separate your teeth and make spaces	Yes	59.5%	40.7%	0.041
		No	40.5%	59.3%	
18	How important is flossing to you?	Remove food remaining	48.6%	41.4%	0.348
		Prevents calculus between teeth	13.5%	8.6%	
		Prevents stain between teeth	0.0%	5.0%	
		All of the above	37.8%	45.0%	
19	Do you advice others to use dental floss?	Yes	55.6%	52.1%	0.714
		no	44.4%	47.9%	

Of the population 62.2% of the males clean the teeth once a day while 72.9% of the females clean twice a day. 100% of the male population and 98.6% of the female population use toothbrush and toothpaste for cleaning the teeth. 48.6% of males and 60.0% of the females use circular motion method to brush their teeth. Majority of the population of male (45.9%) and female (48.6%) population use toothpick as a secondary method to control plaque. 67.6% of the male and 83.6% of the female population thinks dental floss as a thread to clean between the teeth. Of the population majority of males (70.3%) and females (50.7%) don't know how to use dental floss which is significant. Majority of the male (64.9%) and female (66.4%) population did not recommend dental floss for anyone. A significant amount of males (54.1%) and females (65.0%) was recommended by the dentist for the use of dental floss. 64.9% of the male and 67.1% of the female population was explained by the dentist about the usage of the dental floss. 54.1% of the male population and 50.7% of the female population think dental floss can make bleeding for the gum. Majority of the male (75.0%) and female (75.7%) population did not see any video of

correct way of dental flossing. Of the population 62.2% of the males and 81.4% of the females use dental floss as a method of oral hygiene which is significant. Of the total population, male (75.7%) and female (77.1%) population don't know the type of dental floss used. Majority of the population 62.2% males and 65.7% females don't focus while flossing. 48.6% of the males and 48.6% of the females don't use floss. A significant amount of males (59.5%) said that flossing creates space between the teeth and females (59.3%) said that flossing does not cause space between the teeth. 48.6% of the males and 41.4% of the females use dental floss to remove food remains. Majority of the population 55.6% males and 52.1% of females advice others to use dental floss.

Table 4: Comparison between knowledge and awareness of people towards dental floss.

Table 4 shows the comparison between knowledge and awareness of people towards dental floss. On the total population most of the people (100 percentage) were not aware about dental floss they think that it is a drug which is used for oral hygiene and it seen to be significant (p-value=0.003)



Table 4: Comparison between knowledge and awareness of people towards dental floss.

		What was the reason to use dental floss			p - value
		Oral hygiene	Dental disease	Bad breath	
What do you mean by dental floss	A thread to clean between teeth	81.7%	15.5%	2.8%	0.003
	An aid to whiten your teeth	83.3%	0.0%	16.7%	
	A drug	100.0%	0.0%	0.0%	
	none	53.6%	46.4%	0.0%	

Table 5: Comparison between knowledge and awareness of people towards dental floss

Table 5 shows the comparison between knowledge and awareness of people towards dental floss. On the total population most of the people (86.3 percentage) uses dental floss for oral hygiene and they know how to use dental floss and it is seen to be significant (p-value=0.036)

Table 5: Comparison between knowledge and awareness of people towards dental floss.

		What was the reason to use dental floss			p - value
		Oral hygiene	Dental disease	Bad breath	
Do you know how to use dental floss	Yes	86.3%	12.5%	1.3%	0.036
	no	70.1%	25.8%	4.1%	

IV. DISCUSSION

Dental floss is defined as a thread used to remove plaque from the interdental areas of teeth. It should be used daily after brushing early in the morning or before retiring to bed. It has different types, waxed, non-waxed, with or without holder, medicated, or non-medicated. Use of dental floss is slowly gaining popularity among the Asian population, but it is not yet widely being used by everyone. Most of the disadvantage being the time consuming and relatively expensive as well. The dentist and dental health workers are responsible for educating to the patients about it and teaching the method and steps to use it. Before teaching and educating others, they themselves should be aware and adequately trained to give demonstration to the patients[2]. Our study was conducted to assess the level of knowledge and awareness about dental flossing among young adult population in Kerala.

Among 177 responds only 19.7% of people uses dental floss as a secondary method for plaque control. About 79.8% of people knows that dental floss is a thread to clean between teeth, similar results were derived from the study conducted by Osama Ahmad Almassri et al[1], but most of them (54.5%) don't know how to use it which is controversial to the study of Osama Ahmad Almassri et al[1]. About 65.7% of people said that no one recommended them of using dental

floss, which is controversial to the study of Osama Ahmad Almassri et al[1] and 62.4% of people responded that their dentist recommended them of using dental floss, which is similar to the study of Osama Ahmad Almassri et al[1]. But most of the dentist does not explain to them the proper way of using dental floss, which is similar to the study of Osama Ahmad Almassri et al[1]. Most of the people (51.1%) thinks that dental flossing can make bleeding from the gums, which is similar to the study of Osama Ahmad Almassri et al[1]. Among the total population, about 48.3% of people are not using dental floss which is similar to the study of Osama Ahmad Almassri et al[1]. On the total population most of the people were not aware about dental floss, they think that it is a drug which is used for oral hygiene and it is seen to be significant (p-value = 0.003).

V. CONCLUSION

We would conclude that there is a severe lack of knowledge and awareness among the young adult population in Kerala regarding the use of dental floss and it needs to be improved by taking oral health care programs for both the dentist as well as patients.

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