

Analysis of Dental Morbidity in Choosing the Methods and Approaches of Individual Prevention of Dental Caries and Periodontal Diseases

Galina Vladimirovna Emelina,

Marina Nikolaevna Suvorova,

Sergey Mihailovich Gerashchenko,

Ekaterina Alexandrovna Koretskaya,

Elena Sergeevna Emelina

Penza State University, 440026, Russian Federation, Penza, Krasnaya Str., 40

Abstract

Prevention of dental diseases is based on oral hygiene. It is the primary preventative care for dental diseases. Regular oral hygiene reduces the risk of dental caries. Daily teeth brushing and removing dental plaque contribute to the physiological process of tooth enamel maturation. Thorough and regular removal of dental plaque from the surface of teeth and gums using a variety of hygienic tools is necessary to reduce the number of dental diseases. In order to achieve the best efficiency from the oral hygiene measures, it is necessary to use various tools and items for dental care. It is also necessary to get professional oral hygiene at the dental office, and consistently apply the chosen methods of care along with daily teeth brushing.

Key words: caries, oral hygiene.

INTRODUCTION

Timely and quality provision of dental care depends not only on the level of dental science development and the content of preventive care programs, but on forms of dental care organization as well [1; 2]. To date, efficient methods of primary prevention of dental caries in adult population have not been established, and efficient restorative materials for managing dental caries have not been substantiated. These issues, with the exception of certain works, have not yet found detailed coverage in literature.

The main method of primary prevention of dental diseases is oral hygiene [3; 4; 5]. Currently, there are many methods of preventing dental diseases [6; 7] for improving oral hygiene through a variety of products that have the highest preventive effect in solving dental problems.

It has been found that regular oral hygiene has only a preventive effect that leads to reduction of prevalence and occurrence rate of dental caries [4; 5; 8].

MATERIAL AND METHODS

The statistical aggregate was formed by random observation. The study involved 350 adults from the working population of Penza and the Penza region in the age between 20 and 60 years.

Oral hygiene was assessed with the use of the simplified oral hygiene index by Greene-Vermillion [9] (Table 1) and the index of Y. A. Fedorov and V. V. Volodkina [10] (Table 2).

The status of oral hygiene was studied with the use of indicators of plaque (5% solution of erythrosine pink, 2% solution of methylene blue) by counting the universal oral hygiene index by Greene-Vermillion (OHI).

Table 1. Criteria for assessing oral hygiene index by the Greene-Vermillion (GV)

Values of dental plaque and calculus	The level of oral hygiene
0.0 – 0.6	Good
0.7 – 1.8	Satisfactory

1.9 – 3.0	Bad
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The Fedorov-Volodkina Index: vestibular surfaces of the six lower anteriors (43, 42, 41, 31, 32, 33) were stained with the Schiller – Pisarev solution. Intensity of dental plaque staining was assessed as follows:

- 1 point – no coloration;
- 2 points – coloration of 1/4 of the surface of the crown;
- 3 points – coloration of 1/2 of the surface of the crown;
- 4 points – coloration of 3/4 of the surface of the crown;
- 5 points – coloration of the entire surface of crown.

Table 2. Criteria for assessing oral hygiene index by the Fedorov-Volodkina (FV)

Index value (points)	Oral hygiene level
1.1 – 1.5	Good
1.6 – 2.0	Satisfactory
2.1 – 2.5	Unsatisfactory
2.6 – 3.4	Bad
3.5 – 5.0	Very bad

The persons seeking dental care were questioned directly in the premises of hospitals. The questionnaire was handed to the patient before meeting the dentist, but was filled mostly after visiting the dentist.

The collected databases containing information about characteristics of patients and results of studies were subjected to statistical analysis with the use of software packages.

RESULTS AND DISCUSSION

Interviews were held with 350 adults (180 females and 170 males).

Items in the questionnaire:

- Question 1 “How often do you visit your dentist?”
- Question 2 “When was the last time you visited the dentist?”
- Question 3 “What was the purpose of visiting the dentist?”
- Question 4 “How many times a year do you have dental plaque and calculus removed?”
- Question 5 “How many times a day do you brush your teeth with a toothbrush?”
- Question 6 “What other things than a toothbrush and toothpaste do you use?”
- Question 7 “What kind of toothbrush movement do you use when you brush your teeth?”
- Question 8 “How do you keep your toothbrush?”
- Question 9 “How did you learn about the teeth brushing rules?”
- Question 10 “What kind of food dominates in your diet?”

According to the questionnaire, the results were as follows:

Question 1 “How often do you visit your dentist?” had the following answers:

- A) 2 times a year – 85 (24.3%);
- B) 1 time a year – 108 (30.9%);
- C) when necessary -157 (44.9%).

The answers show that 44.9% of patients visit the dentist only when they feel pain.

Question 2 “When was the last time you visited the dentist?” had the following answers:

- A) 6 months ago – 98 (28%);
- B) 1 year ago – 125 (35.7%);
- C) 2 years ago or more - 127 (36.3%).

The data show that 81.7% of the respondents sought dental care within the last year, and 36.3% had not visited the dentist for two years or more.

Question 3 “What was the purpose of visiting the dentist?” had the following answers:

- A) tooth filling – 212 (60.6%);
- B) tooth filling and dental plaque removal – 122 (34.9%);
- C) tooth filling and dental plaque removal, coating of teeth with fluoride varnish – 16 (4.6%).

These data show that only 4.6% of respondents took both therapeutic and preventive measures.

Question 4 “How many times a year do you have dental plaque and calculus removed?” had the following answers:

- A) once a year – 198 (56.6%);
- B) once every 6 months – 67 (19.1%);
- In) never – 85 (24.3%).

These data show that most adults seek dentist assistance to have dental plaque and calculus removed (75.7%).

Question 5 “How many times a day do you brush your teeth with a toothbrush?” had the following answers:

- A) do not brush – 25 (7%);
- B) once a day 145 (41.4%);

- C) 2–3 times a day – 180 (51.4%).

The obtained data show that only 51.4% respondents brush teeth 2 times a day.

Question 6 “What other things than a toothbrush and toothpaste do you use?” had the following answers:

- A) dental floss – 85 (24.3%);
- B) toothpicks – 176 (50.3%);
- C) elixirs, rinsing solutions – 89 (25.4%).

These data show that all respondents use additional means of oral care.

Question 7 “What kind of toothbrush movement do you use when you brush your teeth?” had the following answers:

- A) from the gum to the occlusal surface – 88 (25%);
- B) horizontal, vertical – 137 (39%);
- C) circular and varied – 125 (35.7%).

These data show that only 25% of respondents brush their teeth correctly, while 39% damage the periodontal tissues and teeth when brushing.

Question 8 “How do you keep your toothbrush?” had the following answers:

- A) in a closed case – 79 (22%);
- B) in a glass, head up – 143 (40.9%);
- C) in a glass, head down – 128 (30.8%);

These data show that almost half of the respondents (40.9%) store their toothbrushes properly.

Question 9 “How did you learn about the teeth brushing rules?” had the following answers:

- A) from ads – 94 (26.9%);
- B) was trained by dentists – 115 (33%);
- C) this is the habit in the family – 141 (40.3%).

These data show that only 33% of respondents learned about the teeth brushing rules from the dentist.

Question 10 “What kind of food dominates your diet?” had the following answers:

- A) soft – 96 (27%);
- B) rigid – 102 (29%);
- C) mixed – 152 (43.4%).

These data show that the diet is dominated by mixed food (Table 3).

The data in Table 3 show that women's and men's answers to the questions were different. Women had higher level of knowledge about preventive care, compared to men.

Questioning adults showed that 36.3% had not visited a dentist for over two years, and 60.6% of the visits had involved emergency cases. Only 4.6% received comprehensive treatment. A disheartening fact is that only 25% of respondents know how to properly brush teeth; 33% gained knowledge about dental care from the dentists, and only 51.4% regularly brush teeth.

During the analysis, it was found that all respondents (both women and men), regardless of the correctness of the teeth brushing technique, used a toothbrush and toothpaste, every second used a toothpick, but only every fifth used dental floss and mouth elixirs and rinses.

Data about the status of oral hygiene are based on the results of selective inspection of individual groups of population (Table 4, Table 5).

Analysis of the obtained data showed that the oral hygiene status in adult men and women had no difference in various age groups.

Table 3. Responses by gender

No. of question	Variants of answers:	Females		Males		P
		Abs.	%	Abs.	%	
1.	a) 2 times a year	55	30.6	30	17.6	>0.05
	b) once a year	57	31.7	51	30.0	>0.05
	c) as needed	68	37.8	89	52.4	>0.05
2.	a) 6 months ago	59	32.8	39	22.9	>0.05
	b) 1 year	75	41.7	50	29.4	>0.05
	c) 2 years or more	46	25.6	81	47.6	>0.05
3.	a) teeth filling	104	57.8	108	63.5	>0.05
	b) tooth filling and dental plaque removal	67	37.2	55	32.4	>0.05
	c) tooth filling and dental plaque removal, coating of teeth with fluoride varnish	9	5.0	7	4.1	>0.05
4.	a) once a year	104	57.8	94	55.3	>0.05
	b) once in 6 months	40	22.2	27	15.9	>0.05
	c) never	36	20	49	28.8	>0.05
5.	a) do not brush	11	6.1	14	8.2	>0.05
	b) once a day	65	36.1	80	47.1	>0.05
	c) 2-3 times a day	104	57.8	76	44.7	>0.05
6.	a) dental floss	48	26.7	37	21.8	>0.05
	b) toothpicks	102	56.7	74	43.5	>0.05
	c) elixirs, rinsing solutions	30	16.7	59	34.7	>0.05
7.	a) from the gum to the occlusal surface	54	30	34	20.0	>0.05
	b) horizontal, vertical	54	30	82	48.2	>0.05
	c) circular and varied	72	40	54	31.8	>0.05
8.	a) in a closed case	35	19.4	44	25.9	>0.05
	b) in a glass, head up	91	50.6	52	30.6	>0.05
	c) in a glass, head down	54	30.0	74	43.5	>0.05
9.	a) from ads	47	26.1	47	27.6	>0.05
	b) was trained by the dentist	69	38.3	46	27.1	>0.05
	c) this is the habit in the family	64	35.6	77	45.3	>0.05
10.	a) soft	44	24.4	52	30.9	>0.05
	b) rigid	41	22.8	61	35.9	>0.05
	c) mixed	95	52.8	57	33.5	>0.05

Table 4. Indicators of the oral hygiene status in adults in the first population group

Age (years) Gender	FV points		GV points	
	M	W	M	W
20-24	2.1	1.9	2.4	2.2
25-34	2.4	1.9	2.4	1.9
35-44	2.6	2.2	2.6	2.2
45-54	2.6	2.4	3.3	2.6
55 and older	2.9	2.5	3.1	2.8
On the average	2.5	2.2	2.8	2.3
Average groups	2.4		2.5	

Table 5. Indicators of the oral hygiene status in adults in the second population group

Age (years) Gender	FV points		GV points	
	M	W	M	W
20-24	2.2	1.9	2.3	2.4
25-34	2.4	2.1	2.4	2.1
35-44	2.7	2.4	2.7	2.4
45-54	2.7	2.4	3.3	2.6
55 and older	2.9	2.5	3.1	2.8
On the average	2.6	2.3	2.9	2.5
Average groups	2.4		2.7	

CONCLUSION

The level of adult population of Penza motivation towards treatment and preventive care is quite low, as evidenced by the results of questioning of 350 adults. Based on the preliminary results, it is necessary in the coming years to develop and implement a comprehensive program for preventive dental care, and personal, social and health education.

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