

Knowledges of Bucharest schools pupils concerning oral health

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Abstract

Objectives: Our study's main target was to assess the level of knowledge about oral hygiene of schoolchildren in two of Bucharest's schools regarding toothbrushing, auxiliary methods of oral hygiene and carioprotective and cariogenic diet factors.

Materials and methods: Our study is a statistical analysis of questionnaires filled by 97 pupils from two schools in Bucharest, one in downtown and one from a peripheral area of the town. There were 34 questions: some with a scale of 5 possible values and some with one possible answer.

Results: We consider the level of knowledge to be average, the main score on a scale from 1 to 10 being 6.11.

Conclusions: The oral health education and knowledge of the children has to be improved through efficient education programmes.

Key words: oral hygiene, knowledge, pupils, questionnaire.

Introduction

Knowledge represents the data base for the human brain. It is achieved during lifetime by learning and, along with habits, it determines human behavior, expressing individual education.

Education is the process of constructing and shaping the basic characteristics of human being: physical, psychical, ethical and aesthetical. It is the result of all activities meant to grow the youth according to a society pattern. Parents have a decisive role in growing children. They are the main source of information and have the greatest responsibility in the education of their children [2].

Medical knowledge and education are very important for the prevention of disease. Education for dental hygiene and prevention often determines dental pathology. Poor education for oral hygiene leads to a high caries index and to periodontitis.

A good instrument for assessing knowledge is the questionnaire. It can collect a wide range of information. Its language is quite important for the results it gives: it has to be simple, direct and in must not give any room for misunderstanding [3].

Our study's target was to assess the level of knowledge regarding oral hygiene of schoolchildren and how important is this knowledge for dental health.

This pilot study brings information regarding children's oral hygiene knowledge and can support further and larger studies and preventive programs.

Materials and methods

Our research is a statistical compilation of questionnaires and evaluates the level of knowledge and habitude regarding the preservation of oral health.

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The study was developed in two schools from Bucharest, one in downtown and one from a peripheral area of the town. The subjects were 97 pupils in the 5th and 6th grades with ages between 11 and 13 years. We had 48 male and 49 female subjects. The age distribution was: 36 subjects at the age 11, 53 subjects at the age 12 and 7 subjects at the age 13. The subjects were chosen randomized in both schools. The pupils filled the questionnaires in school after classes with the help and approval of the schools' principals and a number of teachers.

The questionnaires were constructed alongside with specialists in sociology and biostatistics in order to be sure that the questions and answers are statistical relevant. The questions referred to the main issues that in our opinion define the basics in oral hygiene and pathology. There were 34 questions: 31 multiple variable questions (each variable had a scale of 5 possible values that resulted in 5

tables) and 3 single variable questions (with one possible answer). Our statistical analysis of the questionnaires evaluated the total score and the percentage analysis to each separate answer. We present the 5 tables and the values assigned to each answer:

1. What are the benefits of toothbrushing ? *Table 1.*

2. Which of the following are important for a good oral hygiene ? *Table 2.*

3. Which of the following are important for the prevention of dental caries ? *Table 3*

4. What is the contribution of the following factors in the developing of dental caries ? *Table 4.*

5. What is the source of the information you used in order to fill this questionnaire ? *Table 5.*

We assigned the answers to questions 1 to 31 two kinds of scores. The first one (presented in the tables) has scores of 0 to 2 points, 0 to 3 points and

Table 1

	Is a very small or is not a benefit	Is a small benefit	Is not a small and neither important one	Is an important benefit	Is a very important benefit
Breath refreshing	0	1	2	3	2
Bacteria removing	0	1	2	3	4
Teeth bleaching	2	3	2	1	0
A beautiful smile	2	3	2	1	0
Correct speech	4	3	2	1	0

Table 2

	Has a very small importance	Has a small importance	So and so	Is't important	It's very important
Dental floss	0	1	2	3	4
Mouthwash	0	1	2	3	2
Tooth brush and paste	0	1	2	3	4
Toothpick	2	3	2	1	0
Mouth rinse with water	0	1	2	1	0

Table 3

	Is/are not important at all	Is/are a little bit important	So and so	Is/are important	Is/are very important
Fruits	0	1	2	1	0
Fluor	0	1	2	3	4
Milk	0	1	2	3	2
Vegetables	0	1	2	2	0
Vitamin C	2	3	2	1	0
Calcium	2	3	2	1	0
Tooth paste	0	1	2	3	4

Table 4

	Is no contribution at all	Small	Medium	Large	Very large
Cakes	0	1	2	3	4
Chocolate	0	1	2	1	0
Sugar-free chewing gum	4	3	2	1	0
Bacteria	0	1	2	3	4
Lack of toothbrushing	0	1	2	3	4
Caramelas	0	1	2	3	4
Fruits	0	1	2	1	0
Cooling drinks with sugar	0	1	2	3	2

Table 5

	Is not a source	It's a small source	It's a medium source	Is't an source important source	Is't a very important source
Family	0	1	2	3	4
School teacher	0	1	2	3	4
Dentist	0	1	2	3	4
TV, newspapers, magazines	0	1	2	3	4
Friends	0	1	2	3	4
Internet	0	1	2	3	4

0 to 4 points. This kind of score was meant to allow the calculation of a total score for each of the pupils. The maximum score was 89. As you can see in the tables there may be different wrong answers that have the same score: 1 or 2 below the score of the correct answer (n-1 or n-2, n being the score assigned to the correct answer. We can't calculate the percentage for each scale of values because for a certain score of a question there may be different answers that led to this score. Given this situation we „cloned” our database in order that for the same question (variable) we could obtain two different scores, one for each database: we used the scoring described above for the database that was used to calculate the total score and a second scoring in the second database. This second scoring had different values for the answers to the same questions (0 to 4) and was used to calculate the percentage of answers to each scale of values. *Table 5* only contains this second scoring method.

Here are the 3 single variable questions and their scores:

1. Choose one answer regarding electric toothbrushes:

- Never heard of them (0)
- They are better than the manual ones (3 – correct answer)
- I don't believe they are better than the manual ones (2)

d. I've heard of them but I don't have an opinion (1)

2. Choose one answer regarding dental floss:

- Never heard of it (0)
- I don't use it (1)
- I use it daily (3 – correct answer)
- I use it occasionally (2)

3. What causes gingival bleeding ?

- Inappropriate use of toothbrush (2)
- Eating hard, solid food (1)
- Incorrect and incomplete toothbrushing (3 – correct answer)
- Another reason, which is ? ... (0)

Every answer had a different value, so the questions above had only one score assigned (0 to 3) and we could use this score for both database to calculate both the total score and the percentage of the answers. The correct answer's score was 3 points, the obvious wrong one's was 0 points and the other two were 1 and 2 according to their closeness to the correct one.

The collected data were analyzed with the WHO EpiInfo program, version 3.3.2. The first database was used to determine the total score of the pupils in both schools and the second one gave us the percentage of all the answers.

Results

Here are the answers of the pupils:

At the first question table the answer's percentage was: *Table 6*

At the second question table the answer's percentage was: *Table 7*

At the third question table the answer's percentage was: *Table 8*

At the fourth question table the answer's percentage was: *Table 9*

The last question table answer's percentage was: *Table 10*

The answers to the question about electric toothbrush are represented in *Figure 1*.

The answers to the question about dental floss are represented in *Figure 2*.

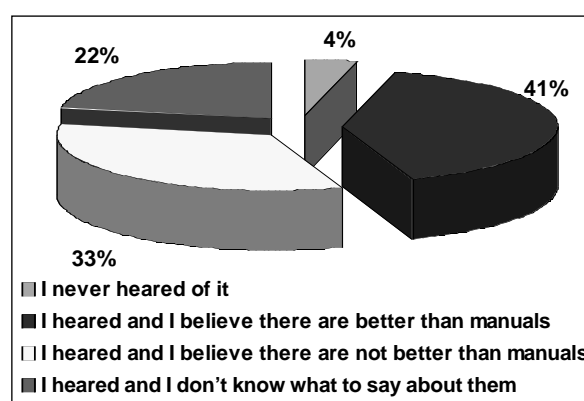


Figure 1.

The answers to the question regarding the sources of information are represented in *Figure 3*

Table 6

	Is a very small or is not a bennefit	Is a small bennefit	Is not a small and niether important one	Is an important bennefit	Is a very important bennefi
Breath refreshing	1%	2,1%	15,6%	43,8%	37,5%
Bacteria removing	0%	1%	4,2%	16,7%	78,1%
Teeth bleaching	1%	4,2%	9,3%	41,7%	43,8%
A beautiful smile	3,1%	7,2%	8,2%	42,3%	39,2%
Correct speech	35,1%	17%	8,5%	14,9%	24,5%

Table 7

	Has a very small importance	Has a small importance	So and so	Is't important	It's very important
Dental floss	7,4%	20,3%	34%	28,7%	9,6%
Mouthwash	5,4%	18,3%	31,2%	29%	16,1%
Tooth brush and paste	1,1%	0%	6,5%	12,8%	79,8%
Toothpick	32,3%	28,1%	27,1%	9,4%	3,1%
Mouth rince with water	11,6%	17,9%	17,9%	30,5%	22,1%

Table 8

	Is/are not important at all	Is/are a little bit important	So and so	Is/are important	Is/are very important
Fruits	8,5%	16%	10,6%	33%	31,9%
Fluor	12%	6%	27,7%	24,1%	30,2%
Milk	7,4%	12,8%	22,3%	26,6%	30,9%
Vegetables	9,6%	14,9%	23,4%	25,5%	26,6%
Vitamin C	4,2%	15,6%	27%	20,8%	33,3%
Calcium	1,1%	8,5%	7,4%	28,7%	54,3%
Tooth paste	3,1%	1%	4,2%	15,6%	76,1%

Table 9

	Is no contribution at all	Small	Medium	Large	Very large
Cakes	7,3%	6,3%	15,6%	33,3%	37,5%
Chocolate	9,4%	5,2%	7,3%	32,3%	45,8%
Sugar-free chewing gum	33%	21,3%	24,5%	9,6%	11,6%
Bacteria	7,4%	3,3%	13,8%	23,4%	52,1%
Lack of toothbrushing	8,3%	5,2%	6,3%	17,7%	62,5%
Caramelas	11,7%	4,2%	8,4%	36,8%	38,9%
Fruits	52,1%	18,8%	13,5%	6,2%	9,4%
Cooling drinks with sugar	12,8%	16%	23,4%	30,9%	16,9%

Table 10

	Is not a source	It's a small source	It's a medium source	Is't an source important source	Is't a very important source
Family	7,2%	19,6%	23,8%	24,7%	24,7%
School teacher	18,9%	26,3%	28,5%	16,8%	9,5%
Dentist	2,1%	5,2%	6,2%	29,8%	56,7%
TV, newspapers, magazines	32,6%	33,7%	12,6%	11,6%	9,5%
Friends	57,3%	20,7%	11,5%	6,3%	4,2%
Internet	62,1%	16,8%	8,4%	4,2%	8,5%

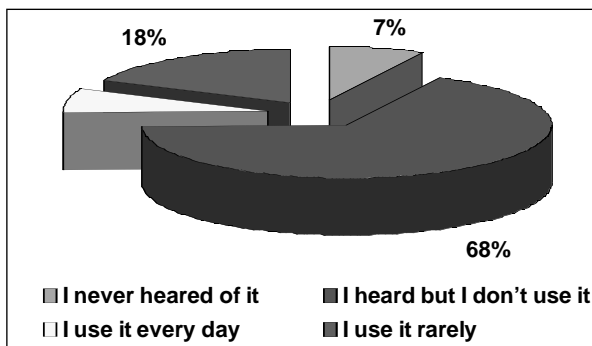


Figure 2.

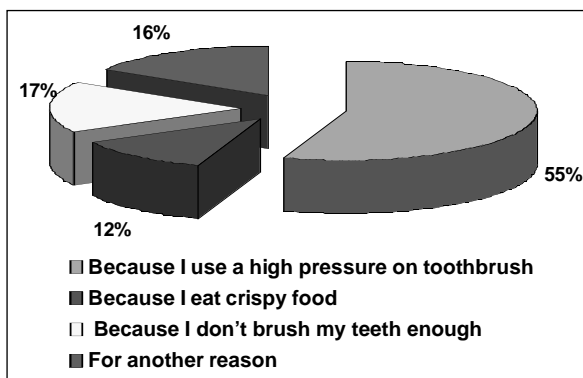


Figure 3.

The maximum score was 89 points. The highest recorded score was 70 points and the lowest was

24 points. The mean score was 54.38 points, which means 6.11 on a scale of 1 to 10. The pupils from downtown had a mean of 57.06 points (6.41) and the pupils from the peripheral area had a mean of 51.92 (5.83)

We could find a correlation between score and school. We compared the means of the two variables as it follows: the Bartlett test has $p=0,0008$, so we have to take in consideration a non-parameter test; we used the Kruskal-Wallis test which had $p=0,0327<0,05$, so we can reject the null hypothesis and there is a correlation between the two variables.

Discussions

The oral hygiene knowledge of our subjects is at a medium level. On a scale of 1 to 10 their score was 6.11. There was a difference between the two schools: the downtown school had higher score (6.41) than the peripheral one (5.83) as was shown by the Kruskal-Wallis test. So we have a higher educational level at the downtown school where there are more parents with graduate and postgraduate studies.

At the first table question, the one about the benefits of toothbrushing, most of the children chose the correct answer, the one that stated removal of microorganisms (78.1%). Almost 86% believe that toothbrushing leads to toothwhitening, which is not

quite true. 35% considered that toothbrushing has no influence on the phonetics, but 25% believe it does. The last ones either had wrong information or believed that "toothbrushing is good for everything". Over 80% consider that toothbrushing helps them to have a fresh breath.

Regarding the second table question, 93% believe that the toothbrush and the toothpaste are very important for a good oral hygiene. However, only 38% see dental-floss as an important mean to clean their teeth. Over 50% overestimate the benefits of oral rinsing and over 60% are correct when they say that the toothpick isn't very important for oral hygiene any more.

At the question regarding protection against dental caries, over 90% believe that toothpaste is very important through its compounds.

83% stated that calcium is protective against caries. They see it as a mineral that hardens teeth. It is important for bone tissue but it only attaches to teeth during their growth and development period. Fruits are seen as more carioprotective than vegetables though we know that they have more sugar. We chose not to interpret the answers about fluoride because we learned at a later time that they only study it in the 7th grade in chemistry. We present however the answers in Table 8. Almost 60% of the pupils are correct about the milk being protective against caries.

At the question regarding what produces dental caries 80% are correct to believe that bacteria and the lack of toothbrushing are responsible. It is interesting that almost 80% believe that chocolate is highly cariogenic though its cariogenicity is lower compared to other refined sweets. Caramels for instance are believed to be less cariogenic than chocolate. We concluded that the pupils associate sweets and dental caries in a quantitative way rather than in a qualitative one and, because they probably eat more chocolate than caramels they believe that the first one is more cariogenic. Fruits and sugar-free chewing gum are correctly believed to be carioprotective and not cariopreventive. About half of our pupils believe that cooling drinks with sugar are cariogenic and they made a clear distinction between solid and liquid sweets (which are not so cariogenic).

References

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The question regarding electric toothbrushes had inconclusive answers, some pupils considering them to be more efficient than the manual ones (41%) and a close percentage (33%) believing the manual toothbrushes to be better.

68% of the pupils admit not using dental floss, which is not good and shows us their lack of information and education on interdental cleaning.

The main cause of gingival bleeding is believed to be the excessive brushing pressure (55%). This also seems to be the expression of poor information about the relationship between oral biofilm and gingival inflammation and bleeding. The brushing traumatism may cause gingival bleeding but it is far from being the main cause for gingival bleeding.

The main education source for oral hygiene was considered to be the dentist (the question made no distinction between the school dentist and other dentists). 86.5% of the pupils considered that the dentist had a very important part in their education for oral hygiene. The second education and information source is the family. Teachers have an average part in dental education while mass-media and internet are not a source of information for the pupils. This shows us that internet and media are used by pupils to collect other but medical information. It also shows a poor interest in medical information, education and prevention.

Conclusions

We concluded that pupils' education for oral health, whether it is done by the dentist or by family, is rather poor. Most of the children know that toothbrushing is important but their behavior regarding oral hygiene isn't right: most of them brush for 3 to 5 minutes but they use mainly wrong techniques (horizontal and vertical moves) [1].

Dental floss is very important for oral health but the children know very little about it. The pupils also lack knowledge about carioprotective and cariogenic factors. It is important for the children to improve their oral hygiene and to have a healthy diet because this is the way to have a good oral health.

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