

THE EFFECTIVENESS OF THE ORAL HYGIENE AS A PREVENTIVE FACTOR FOR DENTAL CARIES IN CHILDREN 4-12 YEARS OLD

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ABSTRACT:

Aim: To evaluate caries prevalence according to the dental hygiene, dental controls, social background and level of education of parents in children 4-12 years.

Materials and methods: We included 322 children, 49% females and 51% males during September 2016- February 2017. The study was conducted in five private clinics in Vlore city – Albania. The data was collected by a questionnaire with questions and a dental chart for the objective examination data.

Results: 54.3% students brush their teeth once or twice a day, 45.6% do not. We see a linear correlation, the more children brush their teeth during the day, the lower the extractions, from 17% to 12.7%. So, only by brushing the teeth the negative effects of caries reduce to 31% ($\sigma=31$). The number of children with caries is higher on children who consume sugar products three times a day $\bar{x}=2.89$. The distribution of the children who consume sugar products is normal, with the mean 2.89 close to 3. We noticed that the from 322 children, only 22 know and use dental flossing.

Conclusions: Regular teeth brushing every day and dental profesional cleaning may reduce significantly the caries prevalence.

Keywords: oral hygiene, caries, pacifier, dental floss.



INTRODUCTION:

Modern improvements are made to prevent the caries and the sensibilize the importance of teeth preservation, as many teeth are extracted before the right time.^{[15],[16]} Teeth extraction may lead to: occlusion disorders, esthetical problems, phonetic and functional problems, permanent or temporary, social and psychological problems.^[16] The main etiological factors that affect the caries formation are: fermenting carbohydrates, cariogenic

microorganisms, the morphology of chewing surface and the saliva. The damaging effects of sugars are related to the amount of absorbed sugar, the chemical content of sugar, the form and consistency, the frequency of consuming etc.^[13] The new teeth enamel is still not matured and is affected from these factors. The role of oral hygiene in the prevention of dental caries is indisputable. A good hygiene affects the removal of different depositions of food

waste which cause the microorganism growth.^[7-8] Oral hygiene also has a kind of mechanic effect on increasing the gingival flux and keratinisation of the protective paradontal tissue.^[5] Also, the use of dental floss to clean the areas between the teeth is as important as the use of 0.12% chlorhexidine to reduce the biofilm.^[19-20] The socio economic factor is a risk factor for oral diseases and in the most part is combined with other factors. In patients with good oral hygiene and who have dental controls periodically, is noticed that the presence of caries is reduced significantly. This happens because the local factors that contribute on the disease development do not exist.^[2]

Aim: To evaluate the prevalence of caries according to the level of oral hygiene, dental controls, social background and the parents level of education in children 4-12 years old.

MATERIALS AND METHODS:

In our study we included 322 children, 49% females and 51% males during the time period September 2016- February 2017. The study was conducted in five private clinics in the city of Vlore – Albania. The data was collected by a questionnaire. The first part of the questionnaire contained some questions and the second part was a dental chart for the objective examination data. The questionnaire and the chart are developed to determine the correlation between caries and oral hygiene depending on socio economic level,

parent's education, oral care, teeth brushing, use of dental floss, the time of bottle feeding, the check ups to the dentist. In order to use the data from the questionnaires and the clinical examination we got the parents consent.

RESULTS:

We included 322 children for the city of Vlore. According to the data we found out that there are 175/322 or 54.3% children who brush their teeth 1 or 2 times a day, and 147/322 or 45.6% never do.

We notice a linear correlation, with the increase of oral hygiene in a day the number of extractions reduces from 17% to 12.7 %. In relation to the oral hygiene we see that the children with satisfactory hygiene have less caries and less extractions. From the 322 cases the amplitude between the negative effects of caries-extraction goes to 100 (147-47) or 31%. Oral hygiene reduces the negative effects of caries to 31% ($\sigma=31$). Regular oral hygiene includes the children who brush their teeth more than one time a day and the poor oral hygiene includes the children who do not brush their teeth at all.

The regular use of feeding bottle dipped in sugary products forms a habit for the child. We notice more often the number of children that eat more than three sugary products a day $\bar{x}=2.89$. The distribution of children who consume sugary products is normal, with the 2.89 close to 3. There are a few children who eat sugary products more than 5 times a

day. In our study the sum of the quadratic deviation $\sqrt{S}=0.26$. There is a positive correlation between the sugar consumption and caries.

With 99% precision we can say that one occasional child consumes sugar not less than 2.11 times a day and not more than 3.67 times a day. $\bar{x} - 3\sigma < x < \bar{x} + 3\sigma$.
 $2.11 < x < 3.67$

With 95% precision we state that: $\bar{x} - 2\sigma < \bar{x} + 2\sigma$: $2.37 < x < 3.41$. With 95% precision we can say that the occasional child consumes sugary products not less than 2.37 times a day and not more than 3.41 times a day.

One of the phenomena that we noticed in our study and was confirmed from the data was that with the increase of the caries (because of the sugar consumption) the number of extractions is higher. There is a linear correlation. $R^2=0.999$. The correlation between the number of sugar consumption and caries presence is positive and strong. With the increase of sugar consumption there is an increase of the number of extractions. $R^2=0.96$

The literature shows that all the children who use the bottle have caries. The children who use the bottle more than one year need to have teeth extractions. We saw this in four year old children. The ratio bottle-caries is changed. During the first year they had caries but no extractions, and so on, the number of children with caries is reduced and the number of children with extractions is increased.

One of the factors for caries development is poor oral hygiene and especially the use of dental floss. From the questionnaires of 322 children we saw that only 22 children knew and used dental floss. The other children did not know the dental floss or had never used it. We think that the use of dental floss in the oral hygiene is too far to include a large number of children.

Another factor of caries presence was the level of parent education. Our study shows that the higher the parents education, the lower the % of children with caries. From the detailed data we noticed that parents education has a direct influence in our study. A great effect on the general health and particularly the oral health showed the parents education of the children that participated in our study. So, the children whose parents have higher education level have lower caries prevalence in comparison to parents with elementary education level.

DISCUSSION:

There are many etiologic factors that enable the caries development, but we have taken into consideration some of these factors that prevent its prevalence [10], [14]. Breast feeding, controlled diet, oral hygiene, periodical controls to the dentist since the first year of life prevent the caries [3],[5]. Our study was conducted in five dental clinics in the city of Vlore. The data showed a high level of caries. This is in concordance to the way of food consumption and parents level

of education[4],[11]. Parents with low level of education are found to have low socio economic level and their children have not had profilactic treatment such as fluoride use [4],[9],[18]. There is a disparity between the children of educated parents and children who come from a mid level and low education and economic level. Treating their children might be very difficult for them, as it is expensive. Nevertheless, we think that the low educated parents is one of the main factors of bad oral hygiene in their children. The fact that the parents are poor does not justify the possibility to buy a toothpaste with fluoride in it. But the prices for dental visits, treatment, caries treatment and other means of prevention such as fluorization are affordable from all

patients. We still have to study the dynamics of health care in children who only go to the dentist when they are in pain or when an infection is present [3].

CONCLUSION:

With the child getting older, it is increased the level of knowledge on oral health and oral checks to the dentist. The children of educated and employed parents show a higher level of knowledge and oral care. Regular teeth brushing and professional cleaning at the dentist may reduce significantly the caries prevalence. The profilactic measures for little children should be the reduction of feeding sweet foods and the parents orientation in modifying the cariogenic contents of child foods.

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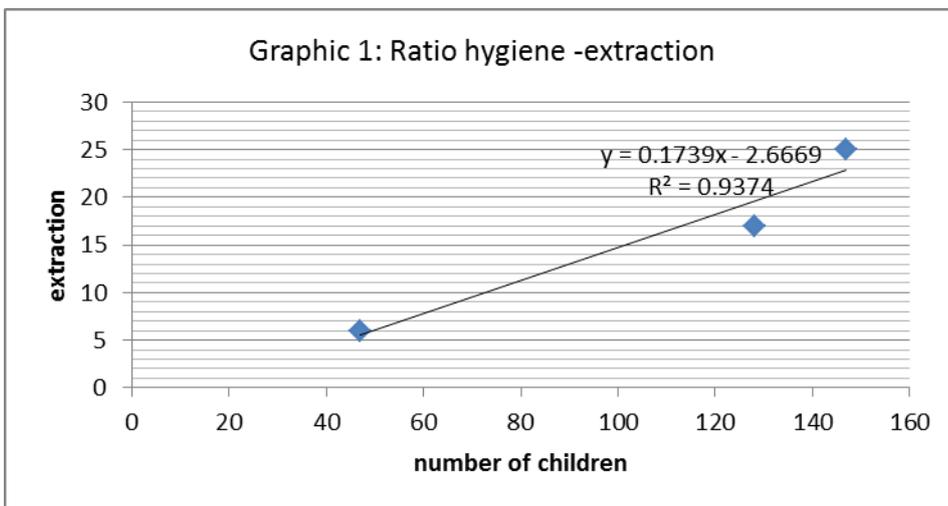
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TABLES AND GRAPHS

N of times teeth brushing a day	N of children
0 times a day	147
1 times a day	128
2 times a day	47
Total	322

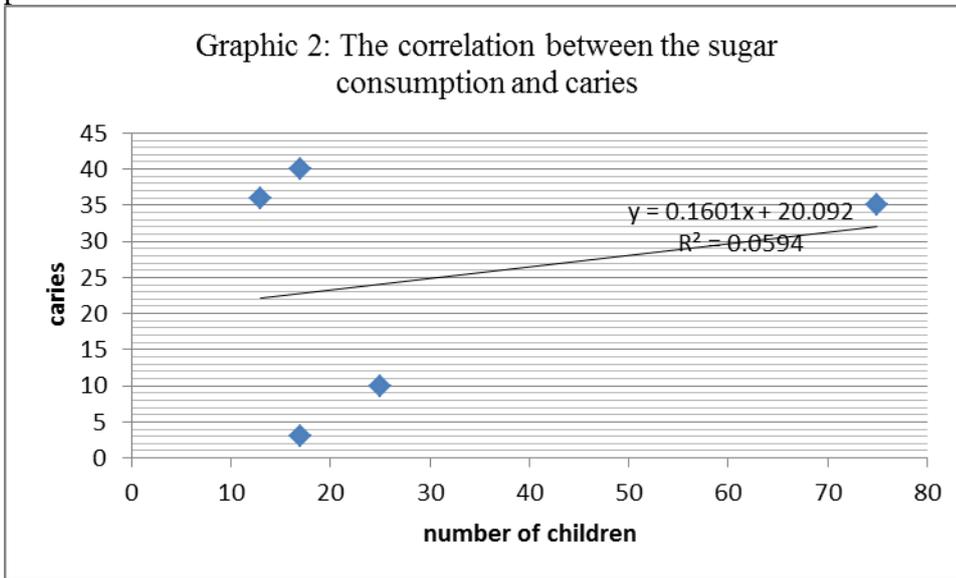
Table 1: The correlation between the oral hygiene and number of children



Graph 1: The abscises axe presents the number of children that brush their teeth two times a day, one time and 0 time a day. In the ordinates axe is presented the number of teeth extractions.

Number of times the children consume sugar	1	2	3	4	5
Number of children that consume sugary products	17	25	75	17	13

Table 2: The ratio of times of children who eat sugar and number of children who eat sugar products



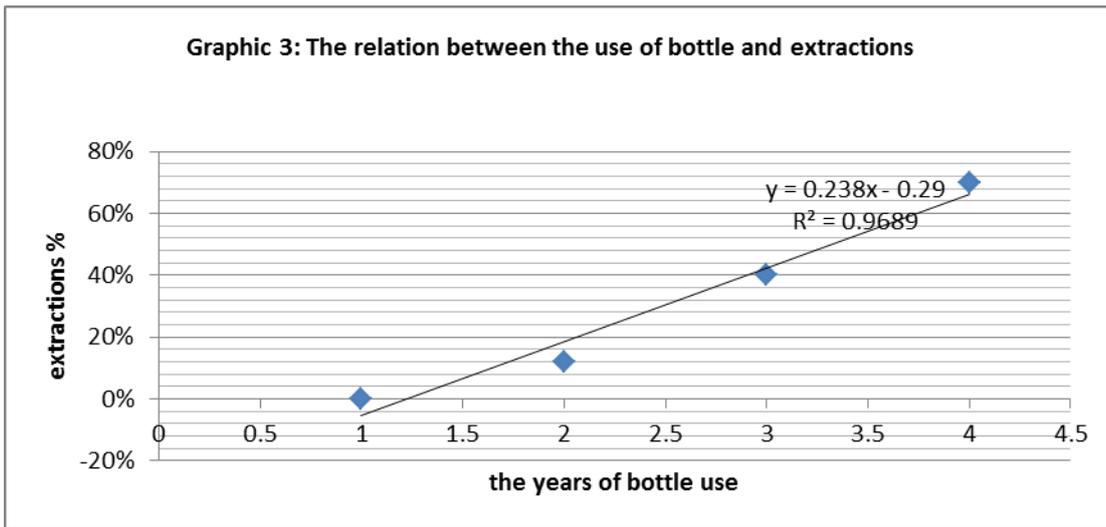
Graph 2: The correlation between the sugar consumption and caries

The feeding culture	Number of children with caries	Extraction	Total
Sugary products	124	25	149
Bottle use	101	17	118
No sugar	29	6	35
No bottle	20	0	20
	N=274	N=48	N=322

Table 3: The feeding culture in children

Number of children	17	25	75	17	13
Caries	15	22	63	14	10
Extraction	2	3	11	3	4
% caries	88%	88%	84%	82%	76%
% extractions	11%	12%	14%	17%	23%

Table 4: The relation between the number of children with caries and teeth extractions

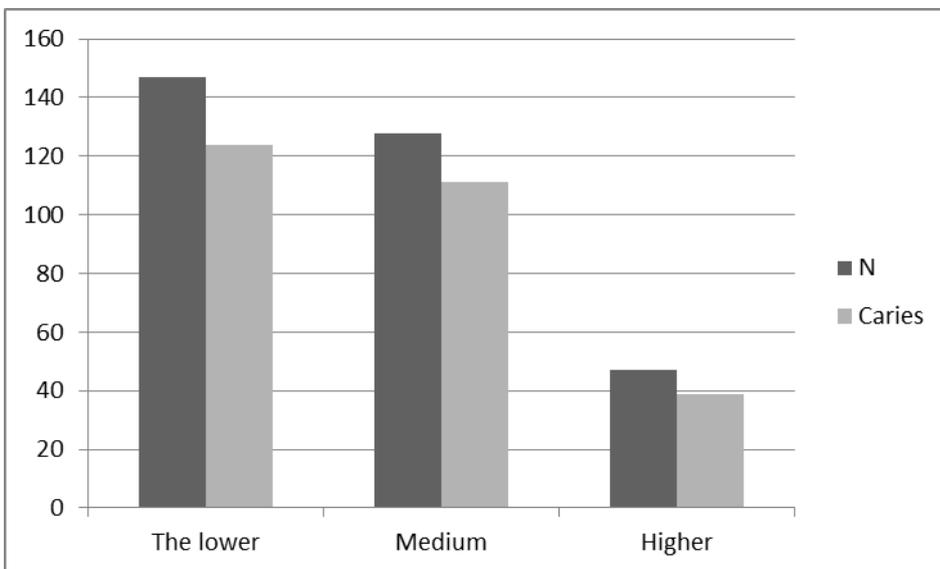


Graph 3: The relation between the use of bottle and extraction

Table 5: The number of children who use the dental floss (%)

Use the dental floss	N	%
Yes	22	6.8%
No	300	93.2%
Total	322	100%

Table 5: The number of children who use the dental floss (%)



Graph 4: The correlation between the caries development and parents education level