

SCHOOLCHILDREN' KNOWLEDGE ABOUT ORAL DISEASE PREVENTION STUDY

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Annotation

The aim of the study is to assess and compare the schoolchildren's, living in different towns of Lithuania, knowledge about the prevention of oral diseases. A study was done in the three primary care centers in three cities of Lithuania. During the investigation were interviewed 313 schoolchildren from 10 to 18 years old who visited the primary care centers. The results of the study showed that schoolchildren' from the different towns of Lithuania knowledge about dental and oral care is weak.

Key words: schoolchildren, dental caries, dental diseases, knowledge.

Introduction

Oral disease - the most common illness in the any age of population often occurring in childhood. One of the most common causes of oral cavity diseases for schoolchildren – dental caries [3,7,2,16].

The rates of dental caries for schoolchildren reaches 98% in Lithuania [3,7]. The complications of dental caries is one of the main reasons of tooth loss for young people (43-63% grubbed teeth) [13,16]. The results of study by D. Drungilienė et al. (2011) showed that averages of school-age children 's dental caries intensity index range from 3,8 to 5,9. Dental caries and intensity – index EPI - D (dental caries and damaged, re-routed and grubbed tooth number on average per person) increases with age: between seven year-olds– 0,5, twelve year-olds – 3,42, and fifteen year-olds – 5,02 [15,20].

There is a trend that the prevalence and intensity of dental caries in the various countries are different [7,18]. The U.S., Scandinavia, Great Britain and Switzerland associated with a lower the prevalence of dental caries in schoolchildren, because they are very active in prevention programs, higher living standards, compared with the less developed countries, where living conditions are worse and dental care is not receiving enough attention [5,22].

The dental caries prevention programs that have started since 1982 in Lithuania helped to stabilize the prevalence of dental caries in schoolchildren in areas where it was installed [7]. However, when these indicators are compared with other European countries, the prevalence rates of oral and dental diseases remains high in Lithuania [15]. It might be related to the fact that prevention of oral diseases in Western countries is implemented through the education of schoolchildren, their parents and development of available preventive programs [17]. Meanwhile, there is a lack of schoolchildren, parents and general public interest and involvement in schoolchildren's' oral health maintenance and improvement processes. The treatment of schoolchildren oral cavity diseases is still viewed as a short-term process, during which the current disease is treated. The schoolchildren usually visit the dentists because of pain caused by dental caries. These visits are usually accompanied by the fear of dentists and their procedures.

Maybe we can say that, in order to improve the quality of schoolchildren' oral prophylaxis program results, schoolchildren' education on this subject must be carried out not only in a dental office, but also in the primary health care centers. On 2013 may 16 the Minister of Health of Lithuanian Republic order No. V-507, declares that the condition of child's teeth and jaws must be assessed, and this information should be available in the "Child's Health Certificate "form No 027-1/a [10].

Therefore, the nurses and doctors working in primary health care centers should also provide knowledge about dental care and dental caries prevention programs to schoolchildren and their parents.

The aim of the study - is to assess and compare the schoolchildren's from different regions of Lithuania knowledge about the prevention of oral diseases.

Methodology

The study was undertaken from January to October 2014, at primary health care centers (PHCC) in three towns of Lithuania: PI Kaunas Dainavos PHCC, PI Utena PHCC and PI Kedainiai PHCC. The medical settings have been selected from a list of institutions using the

common treatment method by the way of comfortable selection. The investigation started after consents from the heads of PHCC and Lithuanian University of Health Sciences Bioethics Center Commission's authorization were obtained. Research method - the single – moment anonymous questionnaire-based survey.

Investigation sample. During the investigation by targeted nonsampling selection way 313 schoolchildren aging from 10 to 18 years and visiting PI Kaunas Dainavos PHCC, PI Utena PHCC and PI Kedainiai PHCC were interviewed. Investigation sample – stochastic comfortable. There were interviewed 139 schoolchildren who visited general practitioner doctors (6835 students 10 to 18 years old have chosen this medical institution) in Kaunas PI Dainavos PHCC. There were interviewed 74 schoolchildren, who visited the primary care center general practitioner doctors (4506 students 10 to 18 years old have chosen this medical institution) in PI Kedainiai PHCC. There were interviewed 100 schoolchildren who visited the general practitioner doctors (5410 students 10 to 18 year old have chosen this medical institution) in PI Utena PSPC) (Table 1).

Table 1

Schoolchildren sample, involved in the study, change before and after the demand survey

Primary health care centers	Handed out questionnaires for analyses	Returned questionnaires after polls	Frequency of responses
PI Kaunas Dainavos PHCC	364	139	38,2 %
PI Kedainiai PHCC	354	74	20,9 %
PI Utena PHCC	359	100	27,9 %

Research ethics. The investigation was the observed with ethical principles. The leaders of the health care institutions, investigative and their parents had the right to decide on participation in the investigation. Each respondent before the questioning was introduced with the purpose of the research and the trial. The investigation and analysis of the collected data have been followed by the principle of confidentiality not to disclose the identity of the persons involved in the survey.

Instrument of survey. The researchers created questionnaire "Assessment of students' dental and oral care knowledge" was used for the study. The purpose of this questionnaire was to reveal schoolchildren' knowledge on the care of teeth and oral cavity.

The questionnaire consists of two parts. The aim of the questions in the first part was to assess the sociodemographic data (sex, age), the subjective state of the schoolchildren' oral cavity, how many teeth was harmed by dental caries at that time. Moreover, this part of questionnaire elucidates the main reasons what disturb to see a dental doctor and people who give knowledge about the dental and oral care and teeth cleaning skills.

In the second part of the questionnaire there were submitted 10 questions, with aim to evaluate the schoolchildren' knowledge their skills in the oral cavity care. Each question contained a number of response options with the only one correct. The answers of each respondent were evaluated in the framework of ten points (10 points - excellent; 9 points – very well; 8 points - well; 7 points - well enough; 6 points - satisfactory; 5 points - weak; 1-4 points - very weak).

The questionnaire was tested before the investigation trial in order to assess its reliability and comprehensibility, interviewing 30 students. After the evaluation of the pilot questionnaire were adjusted a few questions.

The statistical analysis of data. Quantitative data analysis was performed by SPSS (Statistical Package for Social Sciences) statistical package, version 21.0 . To verify hypotheses, there were used descriptive statistics, Kruskal – Wallis test and take χ^2 criteria for independent samples. We have selected significance level of 0,05.

Study results and discussion

The characteristics of the sample

The study involved 313 schoolchildren aging from 10 to 18. There were 228 boys (72,8 %) and 85 girls (27,2 %). Schoolchildren distribution according to sex and age are presented in table 2.

Table 2

The characteristic of schoolchildren who participated in the study

Factors	PRIMARY HEALTH CARE CENTERS		
	PI Kaunas Dainavos PHCC <i>n (%)</i>	PI Kedainiai PHCC <i>n (%)</i>	PI Utena PHCC <i>n (%)</i>
Sex:			
Boy	96 (69,1)	56 (75,7)	76 (76)
Girls	43 (30,9)	18 (24,3)	24 (24)
Age (year):			
10-13 year	41 (29,5)	33 (44,6)	37 (37)
14-18 year	98 (70,5)	41 (55,4)	63 (63)

The difference of distribution by sex and age of enrolled schoolchildren was not statistically significant ($p > 0,05$).

Dental and oral health care of secondary school students in different cities of Lithuania

At the beginning of the study we were aiming to figure out how schoolchildren rate their oral health and dental condition by themselves. Table 3 depicts the subjective self-assessment of oral cavity by schoolchildren in the different cities of Lithuania.

Table 3

A subjective evaluation of the status of mouth, schoolchildren in three towns of Lithuania

Oral health status	Kaunas n=139	Kedainiai n=74	Utena n=100	p
	<i>n (%)</i>			
Very good	0 (0)	1 (1,4)	0 (0)	0,401
Good	109 (78,4)	55 (74,3)	81 (81,0)	
Satisfactory	30 (21,6)	18 (24,3)	19 (19,0)	

The results of the study showed that the vast majority of all regions - Utena, Kaunas, Kedainiai schoolchildren the condition of the oral cavity rated as "good". The lesser part rated as "satisfactory" and the only one student rated it as "very good" (Table 3).

The results of the study showed that the vast majority of enrolled schoolchildren have had dental caries with the number of affected tooth rating from 1 to 4-5 (Table 4).

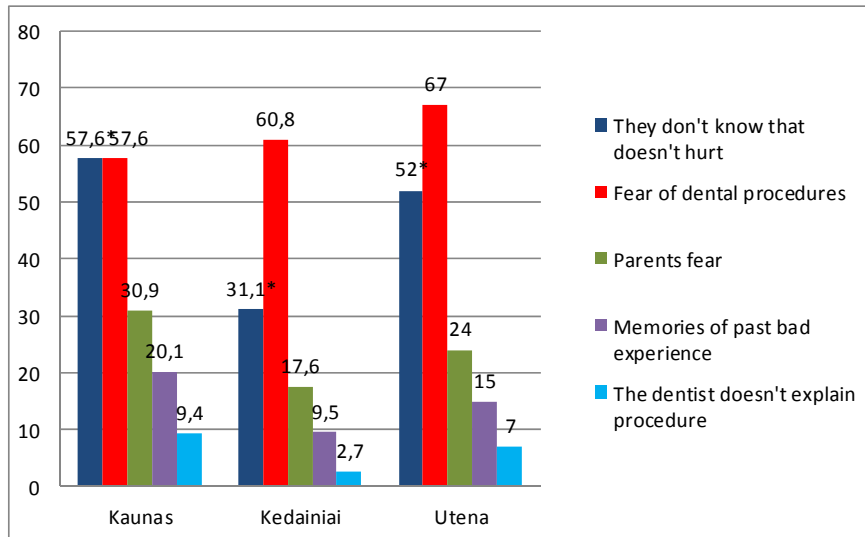
Table 4

Damaged dental caries and tooth number of students in three towns of Lithuania

The number of decayed teeth	Kaunas n=139	Kedainiai n=74	Utena n=100
	<i>n (%)</i>		
4-5	30 (21,6)	12 (16,2)	16 (16,0)
2-3	81 (58,3)	23 (31,1)	54 (54,0)
One	28 (20,1)	28 (37,8)	24 (24,0)
All teeth are healthy	0 (0)	10 (13,5)	6 (6,0)
Don't know	0 (0)	1 (1,4)	0 (0)

Only the minor part of schoolchildren in Kedainiai (13,5 %) and Utena (6 %) pointed that they have all healthy teeth. Any student in Kaunas marked as having all healthy teeth (table 4). Our study showed that despite evaluation of the condition of oral cavity as "good" or "satisfactory" students have dental caries. Our study confirms observations of other researchers stating that up to 98% of school aged students in Lithuania have dental caries [3,7,13,15].

In order for students to maintain healthy teeth for as long as possible, it is necessary to visit dentists at least twice a year even if toothache is absent [27]. According to researchers, the main reason for schoolchildren to visit the dentists is toothache, rather than preventive dental examination [19]. We aimed to clarify the reasons of secondary school students' retardation to visit the dentist. The results of the study showed that the main reason of retardation is fear of painful dental procedures (Figure 1). Schoolchildren of Utena and Kaunas significantly less than Kedainiai schoolchildren know that modern odontology procedures are painless ($p < 0,05$) (Figure 1).



*- statistically significant difference

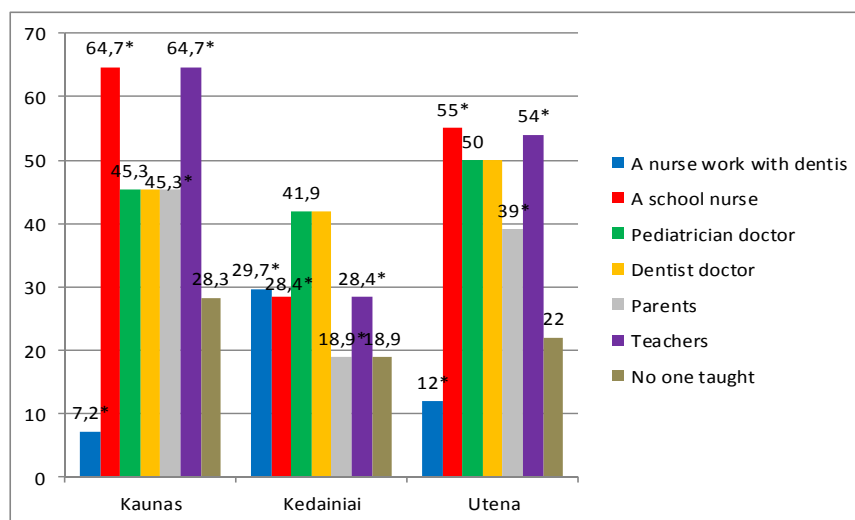
Fig. 1. The main reasons of schoolchildren's retardation to visit the dentist in three towns of Lithuania

Study of R. Raciene (2009) demonstrated that fear and anxiety of dental therapy is widely spread between schoolchildren of 12–15 years. De Jongh et al. (1995) has found that fear of dental treatment occupies fifth place in overall list of fears. There are many signs of evidence that indicators of oral health are weaker of those children that are afraid of dental therapy in comparison than those are not [2]. Children who are afraid more often miss visits to the dentist. Usually they visit dentists in case of toothache and necessary aid [23].

Our study showed that schoolchildren of Kedainiai had fewer unpleasant experiences and has less negative beliefs about dental treatment comparing with Utena and Kaunas students. This finding may suggest that dentist in Kedainiai are paying more attention to the training/education process of the patient. Parents are less fearful of dental procedures and their experience is passed on to the children. There are studies, showing that children from families that emphasize the importance of oral hygiene have better oral hygiene skills than children whose families are not focused on oral hygiene [12,8].

One of the objectives of the study was to reveal the main source of knowledge on dental and oral cavity care.

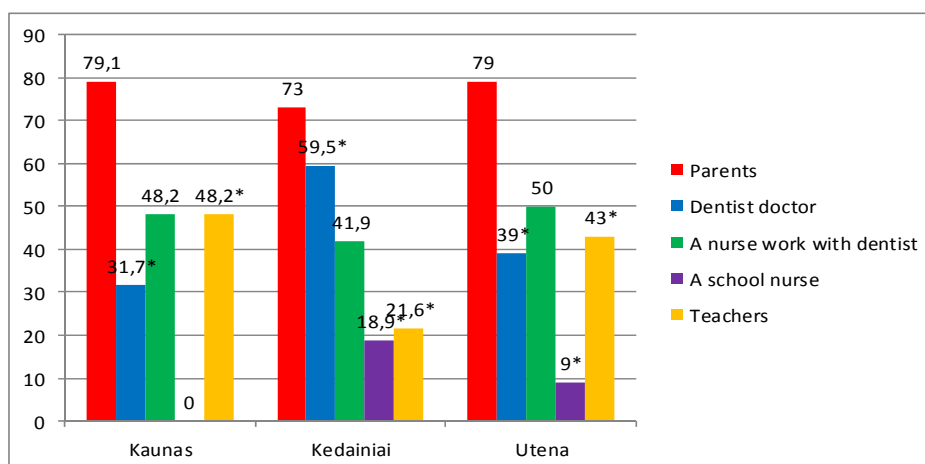
We have revealed that the most effective information on dental care was provided by teachers and school nurses in Kaunas and Utena. Most information about dental and oral care Kedainiai city schoolchildren gave them a pediatrician doctor and dentist (below 41,9%) (Figure 2).



*- statistically significant difference

Fig. 2. Persons who have gave information of dental and oral care, among schoolchildren of different Lithuanian cities

There is a tendency that schoolchildren involved in our study were taught on dental cleaning skills mainly by parents (Kaunas 79,1%, Kedainiai 73%, Utena 79%) rather than professionals (Figure 3).



*- statistically significant difference

Fig. 3. The persons' educated schoolchildren to brush their teeth of different cities of Lithuania

The results of the study showed that schoolchildren of Kedainiai were taught on dental cleaning skills by dental doctor significantly more when compared to the schoolchildren from Kaunas and Utena ($p < 0,05$) (Figure 3).

Analysis of schoolchildren' knowledge in the different towns of the dental and oral care

E. Smyth, etc. (2007) study showed that education of oral hygiene is an important factor leading to reduce of incidence of caries. In order to assess schoolchildren' knowledge and their skills on dental and oral cavity care, the questionnaire of 10 questions have been constructed.

Each correct answer was evaluated by one point. The maximum number of points - ten (perfect knowledge), and the minimum score - zero (no knowledge). The minimum number of points collected by students involved in the study was 2, and a maximum - 8 (average - 4.75 point (SD \pm 1.32) (Figure 4).

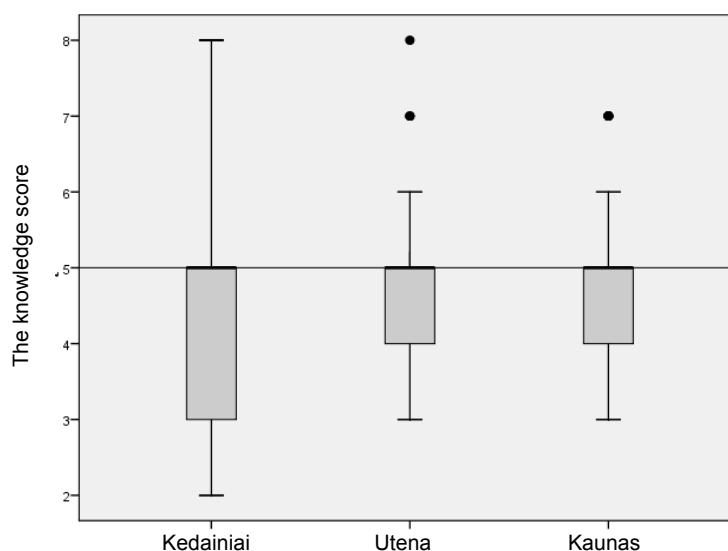


Fig. 4. General evaluation of schoolchildren' knowledge on dental and oral cavity care in three towns of Lithuania

The results of the study showed that general knowledge on dental and oral cavity care of Kaunas schoolchildren is 4.47 points (SD \pm 1,45). It was worse than knowledge of schoolchildren from other towns, as knowledge of schoolchildren living in Kedainiai was assessed in 4.75 points (SD \pm 1.20), and Utena - 4.89 points (SD \pm 1.33). We have revealed

that main skills and knowledge of dental and oral cavity care are mainly obtained from parents rather than specialists. Therefore, we speculate that it is the main reason of inadequate level of schoolchildren' knowledge. J. Andriulienė (2014) also states that diseases of schoolchildren's oral cavity are potentially linked to parents' inability to take care of child's teeth, and deficiency of knowledge of the proper oral cavity hygiene in Lithuania.

Moreover, we have found that schoolchildren in the different towns of Lithuania responses to questions submitted to test, between the towns were different (Table 5).

Table 5

The percentage of students in the different towns of Lithuania, by a distribution based on correct answers about dental and oral care

Test questions	Kedainiai n=74	Utena n=100	Kaunas n=139	p
	Incorrect n (%)	Incorrect n (%)	Incorrect n (%)	
Frequency visits to dental doctor	74 (100,0)	100 (100,0)	139 (100,0)	-
Regular teeth cleaning	13 (17,6)	5 (5,0)	0 (0)	0,0001
The frequency of teeth cleaning	31 (41,9)	32 (32,0)	44 (31,7)	0,278
The duration of teeth cleaning	41 (55,4)	33 (33,0)	29 (20,9)	0,0001
The exchange rate for dental brush	34 (45,9)	29 (29,0)	29 (20,9)	0,0001
The end of the teeth cleaning	59 (79,7)	92 (92,0)	139 (100,0)	0,0001
The quantity of toothpaste	54 (73,0)	68 (68,0)	82 (59,0)	0,197
Toothpaste choice	46 (62,2)	76 (76,0)	111 (79,9)	0,017
Suitable food products	0 (0)	0 (0)	0 (0)	-
Dental care following consumption of sweets	57 (77,0)	90 (90,0)	136 (97,8)	0,0001

The results of the study showed that schoolchildren still have lack of knowledge in dental and oral care. Possibly the schoolchildren dentist visit too rarely, because none of the schoolchildren did not specify that they must visit a dentist twice a year for preventive examination (Table 5). However, in order to prevent early childhood tooth caries and its later complications, experts recommend to visit a dentist doctor regularly, twice a year, and in an emergency, according to an individual plan of the visit [24].

We have revealed that more than half of respondents in all studied regions (Kedainiai, Utena, Kaunas) failed to answer the questions regarding end of the teeth cleaning, the quantity of toothpaste when brushing a teeth, the suitable toothpaste choice and dental care follows consumption of sweets (Table 5). Schoolchildren of Kedainiai have significantly less knowledge on duration of teeth cleaning and exchange rate for dental brush when compared to Kaunas and Utena regions where correct answers were obtained in satisfactory level of 70-80 percent ($p < 0.05$) (Table 5).

The literature emphasizes that in order to remove the plaque from the tooth surface and not to reproduce the conditions for micro-organisms to evolve the oral cavity diseases, one need to brush teeth up to 3 minutes and more [14]. When cleaning the teeth it is necessary to clean all tooth surfaces: the sequence of cleaning is from one edge to the other edge of jaw, followed by another jaw in the direction from the side of vestibule to lingual sides, proceeding with occlusive surfaces. After cleaning the teeth, it is recommended to clean the tongue and cheeks, because a lot of bacteria and plaque is formed on the tongue. Cleaning the tongue and cheeks leads to improvement of mouth smell as the bacteria, producing sulphur compounds, accumulate mainly on the tongue and cheek [14].

The results of our study showed that students still prefer inadequate tooth-pastes with no fluorine or other healing properties, although the researchers have proven the anticaries effects of fluoride pastes for the students' oral cavity diseases prevention [11]. Fluoride is necessary for children dental tissue mineralization and dental caries prophylaxis – for strengthening tooth enamel, and may protect against mouth diseases in school-age period up to 50% [26].

The results of our study showed that the schoolchildren (especially in Kaunas town) do not know how to care for the teeth following consumption of sweets (Table 5). The lack of such knowledge could be related to the occurrence of dental caries in the near future. The literature indicates that the basic products that are capable to activate or to promote the oral cavity

diseases – sugar, food and drinks rich in carbohydrates. It is recommended to clean the teeth with the tooth paste and tooth brush following the consumption of sweets and sweet drinks [1,9,17].

In summary we can declare that schoolchildren in Lithuania have lack of knowledge about teeth and oral cavity care, so providing of such knowledge must be carried out not only at school or in the dental doctor's office, but also in PHCC centers, where mandatory "health certificate for the child" with evaluated condition of schoolchildren' teeth and jaws are issued.

Conclusions

1. Knowledge of teeth and oral cavity care for schoolchildren' from Kaunas and Utena towns mainly gave a school nurses and the teachers. Schoolchildren of Kedainiai city - pediatrician doctor and a dentist doctor.

2. Schoolchildren from different towns of Lithuania, tooth brushing skills the mostly taught by the parents and schoolchildren of the Kedainiai town significantly more often were taught by dentist doctor.

3. Lithuanian schoolchildren's knowledge about the teeth and oral cavity care are weak. More than half of respondents in all studied regions failed to answer the questions regarding end of the teeth cleaning, the quantity of toothpaste when brushing a teeth, the suitable toothpaste choice and dental care follows consumption of sweets. Schoolchildren of Kedainiai have significantly less knowledge on duration of teeth cleaning and exchange rate for dental brush when compared to Kaunas and Utena towns.

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