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The evaluation of kindergarten teachers' preparation to promote oral health among children

Abstract

Introduction. The problem of high caries prevalence among preschool children has been widely discussed in Poland. Studies show unsatisfactory level of children's oral health. A reason of this situation could be insufficient health education.

Aim. The aim of the study was to evaluate kindergarten teachers' preparation to promote oral health among children.

Material and methods. Ninety-seven preschool teachers from Lublin (96 women and 1 man) participated in the study. Teachers were asked to fill survey forms concerning: oral health education campaigns launched in the kindergarten, meals consumed by kids and basic issues of oral hygiene.

Results and discussion. The majority of examined teachers (96.91%) confirmed that oral health education campaigns were executed at their workplace. Significantly less people confirmed execution of fluoridation programs. Half of the subjects (53.61%) rated their knowledge of oral health diseases prevention as good. Passing on the knowledge about oral hygiene during lessons with children was confirmed by 96.91% subjects. A great proportion of the subjects (71.13%) think that launching regular oral health education campaigns among teachers would help to improve oral health level of children.

Conclusions. Kindergarten teachers have general, but not expert knowledge of oral health. Trained teachers could play an important role in raising children health status.

Keywords: caries prophylaxis, kindergarten children, kindergarten teachers, oral health promotion.

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INTRODUCTION

The problem of high caries prevalence among kindergarten children has been a long discussed subject in Poland. Numerous studies revealed poor oral health status of preschoolers [1]. Oral health has a great impact on general health and quality of live, therefore taking special care measures should start from infancy and be continued on for life. Nevertheless, the condition of Poles' teeth is not satisfactory. The extent of the problem is shown in the epidemiological research „Oral Health Monitoring" carried by The Ministry of Health. The study pointed to the main problems in this field, which are as follows:

1. Untreated milk teeth caries and lack of regular dental check-ups. According to the report from 2012 year, only 14.40% of 6-year-olds are caries free [2]. It is necessary to mention that the group of Polish experts have set a goal according to which this proportion should increase to 60% by 2015 year [3].
2. Caries-implicated teeth extraction in the schoolchildren. The percentage of 18-year-olds with at least one permanent tooth extracted because of caries complication is 10.1% [4].
3. High and rising rate of adults who are edentulous or suffering from periodontal disease. A study from 2012 year revealed that 35-44 year-old Poles' periodontal health status is one of the worst in Europe [5].

These problems should be associated with poor health awareness of the society and lack of effective health education or state-managed prevention programmes. Unequal access to public dental care could also be the reason of the situation [6].

Measures, which should be taken to alleviate the problems, are based on health promotion. These include introduction or intensification of health education among children and their parents, popularization the habit of brushing teeth after main meals and intensification of group fluoridation programmes. Improving access to public dental services for children and youth is also important [7].

Health promotion, by the definition of the Ottawa Charter is the process of enabling people to increase control over their health and its determinants, and thereby improve their health [8]. Marc Lalonde, former Canadian Minister of National Health and Welfare attempted to sub-divide the main

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factors influencing one's health. In his report (1974), Lalonde presented his own concept of "Health Fields", which are: Human Biology, Environment, Lifestyle and Health Care Organization [9]. The author did not determine the share of each field in forming peoples' health, but indicated the need of putting particular attention to the first three fields in order to reduce costs of treating the diseases, which could have been prevented in the first place. The rate of each field in forming the health was presented in the research studies of others. These authors usually attributed about 50% to Lifestyle, 20% to equally Human Biology and Environment. Health Care Organization was ascribed as low as 10% for [10].

When adapting Lalonde's Health Fields for dentistry, it can be said that individual's behaviour regarding dentition has the greatest impact on oral health. Faults in health care organization exclusively cannot bear responsibility for Poles' poor oral health status. Shown data indicates potential benefits that can be achieved by proper health education, especially among children, youth and their parents.

AIM

The purpose of the study was to evaluate kindergarten teachers' preparation to promote oral health among children. The research was inspired by the work of Dental Students' Association, Medical University of Lublin, the activities of which consist in organizing oral health education events for preschoolers in Lublin, Poland.

MATERIAL AND METHODS

The survey was conducted between July and November 2013, using the questionnaire form prepared by the researchers. The study group comprised 97 teachers from selected kindergartens from Lublin, 96 women (98.97%) and 1 man (1.03%) who agreed to participate in the survey. According with the given responses, 40% of the teachers were working in a public kindergarten and 60% in private ones. They were aged 23-65 with the average of 37 years.

The respondents were asked to fill in a form, which included questions about:

- Prophylactic education actions taking place at the kindergarten;
- Meals consumed by the children in the kindergarten;
- Advice on oral health they give to children;
- Basics of oral hygiene and teething.

The obtained results were analysed by the descriptive statistics method.

RESULTS

Almost all subjects (91.75%) had higher education – 79.38% masters and 12.37% bachelors. Only 5.15% of respondents declared that they had secondary education and 2.06% – primary. Lack of data was recorded for 1.03% of respondents. The majority of the study participants (62.89%) had their own children aged 7-15. Most of them declared that they went to the dentist with their children once in 6 months. The groups of pre-schoolers consisted of 6 to 30 pupils aged 3-7 years.

A greater proportion of the subjects (96.91% people) declared that oral health educational actions were conducted at their workplace. People who pursued these actions were teachers (85.57% replies), dentists (38.14% replies), dental hygienists (9.28% replies) and dental students, nurses or parents.

Measures used by the teachers for passing on the knowledge of oral hygiene are presented in Figure 1.

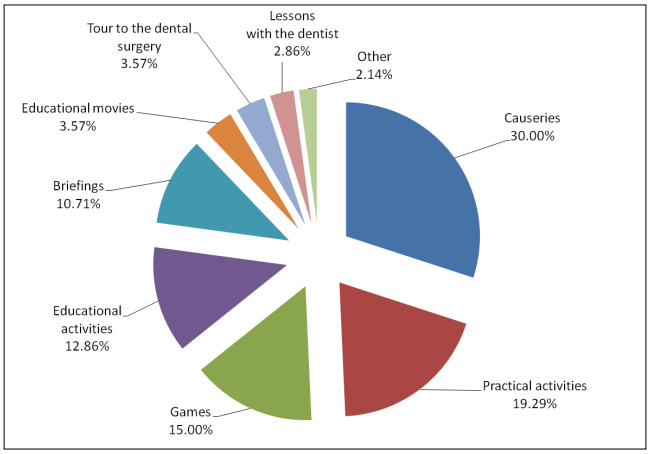

FIGURE 1. Ways the teachers pass on the oral hygiene knowledge to children during classes.

The most often used form of communication with children were causeries (30.0%) and practical activities (19.29%). Additionally, the teachers listed games, educational activities, briefings, educational movies, tours to the dental surgery, lessons with the dentist and other.

Considerably worse situation was recorded for the fluoride programs. As many as 38.14% teachers indicated that no fluoride program was conducted at their workplace. A great number of subjects (27.83% people) did not answer this question. Respondents who confirmed launching of such programs at their workplace (34.02% people), as persons conducting fluoridation program indicated: kindergarten officers (11.34% people), dentists (7.22% people), dental hygienists (3.09% people) and nurses (1.03% people). The most frequent measures of fluoridation program were fluoride drops (71.43%), gels and mouth rinses (9.52% both) as well as tablets and foams (4.76%) both.

Educational actions were carried out significantly more often than fluoride programmes. It is presented in Figure 2.

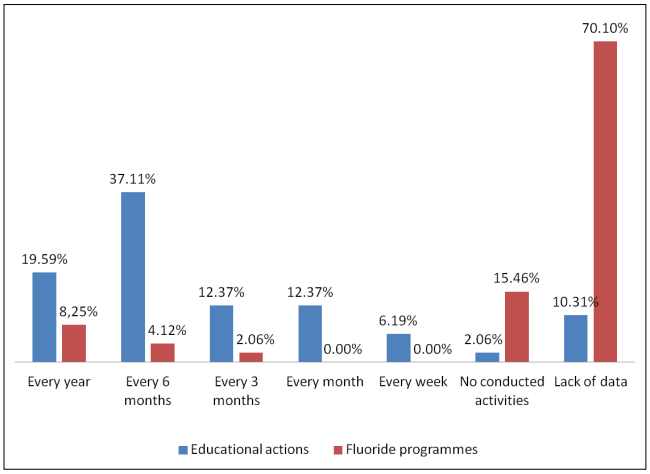

FIGURE 2. Frequency of conducting educational actions and fluoridation programmes at the kindergartens.

Another issue, which was addressed in the questionnaire was the frequency of food intake in kindergarten. According to the teachers, the preschoolers in the kindergarten usually have such meals: breakfast (97.94%), lunch (95.88%), tea (92.78%) and second breakfast (67.01%). They brush their teeth usually after lunch (74.23%) and the first breakfast (67.01%). Only in seldom cases, children brush their teeth after second breakfast and tea. Basing on the presented own findings it has been stated, that children in the kindergarten usually eat 4 meals and brush their teeth only after 2 of them. Children, who eat lunch at the kindergarten, never brush teeth after the lunch. Some of the respondents (3.09%) indicated, that at their workplace children do not brush their teeth after any meal whatsoever (Figure 3).

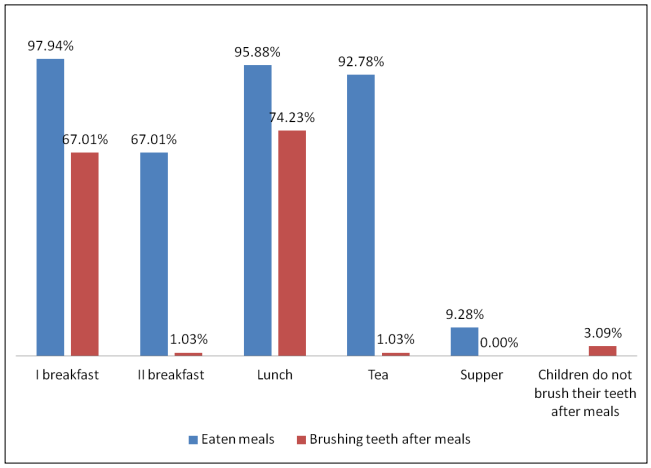

FIGURE 3. Eating meals and brushing teeth at the kindergartens.

In order to evaluate the subjects' knowledge, they were asked to answer some questions about the advice concerning oral hygiene they give to the children and their own attitude towards health. Almost all subjects (96.91%) confirmed passing on the knowledge about oral hygiene during lessons. The most popular ways of educating were causeries, games, tales and presentations about health.

Teachers usually guide children to replace their toothbrushes every 3 months (44.33%) or every month (24.74%). Noticeable group of respondents (23.71%) points out that except of the time of toothbrush use, the visible signs of wear should be the factor deciding of toothbrush replacement. Some teachers (3.09%) tell children to replace their toothbrush weekly and as low as 1.08% do not advice children about replacing toothbrushes. Soft-bristled toothbrush usage is recommended by over the half of respondents (59.79%), whilst medium-bristled by over a quarter (28.87%). No one recommends using a hard-bristled toothbrush. This subject was not raised by 10.31% of teachers.

The surveyed teachers recommended various brushing techniques as suitable for children by the age of 6. The most popular answer was circular motion (75.26% replies). Teachers also recommended sweeping (47.42% readings) and brushing (15.46% replies). Some people (3.09%) did not recommend any specific manner, considering the technique irrelevant. A high proportion of subjects (82.47%) reckoned that appropriate time of brushing teeth was 2-3 minutes. Not numerous teachers (3.09%) considered that brushing should last over 3 minutes or less than 2 minutes (7.22%). Some subjects (7.22%) did not answer this question (Figure 4).

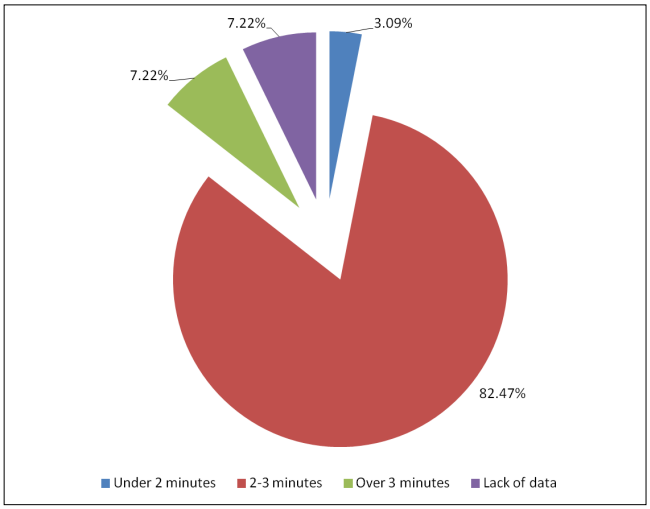

FIGURE 4 The proper duration of teethbrushing according to teachers.

The usage of fluoridated toothpaste by the children was recommended by 69.07% respondents. Fluoride-free toothpaste is recommended by 16.49% of the subjects, while 14.43% do not raise this subject during lessons (Figure 5). Those, who recommended fluoridated toothpastes, had difficulties in determining the proper level of fluorine in the toothpastes for children under the age of six. The most common answers were "according with the standards", "suitable for age", "low". Only a few subjects answered "500 ppm" or "1000 ppm". A high percentage of teachers (94.85%) instructed their pupils to use special toothpastes for children. No one recommended usage of "adult" toothpaste. This subject was not raised by 5.15%.

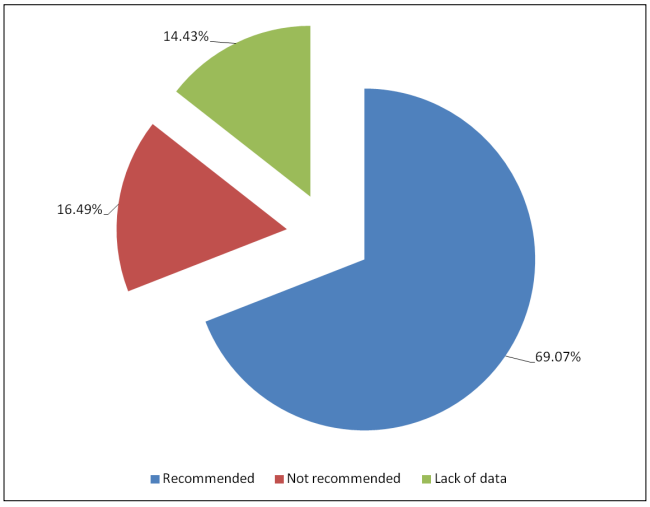

FIGURE 5 Teachers attitude towards recommending fluoridated toothpaste for children.

Respondents were asked about the average teething age for first permanent tooth. Majority of them (82.47%) indicated the range between 5 and 7 years. They were also asked to indicate, which permanent tooth erupts as first. A "tooth one" was pointed out by 65.98% of responders while 12.37% of them answered "tooth six", without pointing the exact tooth. This question was omitted by 15.46% of the subjects and 3.09% answered "I do not know".

Above 2/3 of the teachers (71.13%) believed that launching of regular oral health education campaigns among teachers would help to improve oral health level of children. They reckon that extensive knowledge would give them an opportunity to educate children in the better way, because it is easier to teach topics that one have expertise in.

DISSCUSION

The correlation between children's oral health level and their knowledge, hygienic and dietary habits was repeatedly emphasized in Polish and global literature [11-15]. These studies were also undertaken in Lubelskie Region.

The study conducted in Switzerland by Ramseier et al. showed that even a single, short (15 minutes) health education programme conducted among preschool children aged 4-6, resulted in the improvement of plaque control record (PCR) after 4 weeks [12].

Rong et al. researched effectiveness of a long-term prevention programme. The participants were preschool children, their teachers and parents. Every 3 months the teachers were participating in oral hygiene classes conducted by the dentists. Thereafter, teachers were organizing oral health education sessions for children and parents, every month during 6 months respectively. Additionally, the tested children brushing their teeth twice a day, using fluoridated toothpaste, under supervision of the teachers. After two years of the research, it was found that the number of children who brushed their teeth twice a day was higher and dmfs index was reduced in comparison to the control group [13]. Similar research was carried out in Lodz, Poland, where the education programme was executed every two months for 1 year. It confirmed the effectiveness of regular preventive programmes in raising the children's pro-health knowledge [15]. The oral health education session for children aged 3-5 should be based on plays and games. This form of education can be much more effective than presentation of didactic information alone [16]. In our study, the teachers also indicated this form as effective and used very often. Other research on teachers' attitude towards school-based prophylactic programmes revealed that they are eager to teach oral health topics, but what is important – they were not willing to take on administrative responsibilities. Teachers' acceptance of these duties was decreasing during time. It was not caused by the participation in the program itself, but presumably by a function of schools' financial difficulties. It indicates the need of establishing motivating measures to encourage teachers [17,18].

Available literature shows a large influence that preventive fluoridation has on oral health and the variety of available fluoridation measures [19-22]. It appears that the easiest, cheapest but also the most effective fluoridation preventive measure is parent-supervised and parent-aided tooth brushing, which should by pursued twice a day, using fluoridated toothpaste containing 1000 ppm of fluorine [22]. This is in agreement with our study as 69.07% of the examined teachers advised children to use fluoridated toothpaste. Parents should apply pea-sized amount of toothpaste on the child's toothbrush and prevent the child from swallowing the toothpaste. Aids such as dental floss and mouth rinses should be included in the daily hygienic habits. It could help in creating a proper hygienic behaviour, what would increase children's oral health level in future. Particular empathy should be put to the regular dental check-ups, which will help to determine individuals' caries risk and implement the professional prophylactic measures. The safest and most effective method of professional fluoridation is varnishing, as it creates the lowest increase of fluorine level in blood serum compared with other methods (such as fluoride gel) and long fluorine-enamel contact [19,22]. Motivation systems such as prizes, points, could convince children to improve their oral health, as it has proven to be effective in creating proper habits in children [23].

Unsatisfactory oral health level of the preschoolers is showed in numerous Polish research studies. It can be the result of the lack of state's preventive programmes or parents' low dental awareness level [1,17,24,25]. The problem could also lie in insufficient care about oral hygiene in the kindergartens (not brushing teeth after each meal, sparsely or ineffectively executed fluoride programmes and educational actions, lack of hygienic aids such as dental floss or mouth rinses among children) although in our study 96.91% examined teachers confirmed passing the knowledge to kindergarten children about oral cavity health.

One of the goals of Polish National Health Programme for years 2007-2015 is introducing or intensifying oral health education among children up to 7 years old and their parents. The particular goal for dentists is increasing up to 60% the proportion of caries-free 6-year-olds. It appears, that introducing regular oral health preventive programmes is essential, especially if we are to meet these expectations [6,7,17,25].

CONCLUSIONS

Conducted research indicates the fact that the majority of kindergarten teachers have general, but not expert knowledge of oral health. Teachers believe that broader knowledge would correlate with improvement of their pupils' oral health status.

It appears that trained teachers could play an important role in raising children health status, what would measurably benefit both financially and medically.

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