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Original Article

Evaluation of an educational programme on the influenza in elementary schools

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Abstract:
Elementary school students' knowledge on various health matters is of high importance in order to prevent the appearance of various diseases. The influenza appears mainly to school children and is a disease, the frequency of which could be greatly decreased with the appropriate education and application of effective personal care. This study focuses on whether the elementary school students' knowledge on the influenza has been improved or not after the implementation of an educational programme. In addition, the role of certain demographic features regarding elementary school students' knowledge before the implementation of the educational programme is also analysed. The sample consisted of 116 elementary school students between 8 and 13 years old attending primary education schools in the Prefecture of Attica. Response rate was 100%, the average rate of correct answers before the implementation of the educational programme was 73.1% (±15), whereas afterwards correct answers' rate was 88.4% (±12), presenting a statistically important increase ($p<0,001$), a fact that demonstrates the efficiency of the educational programme. Moreover, it was noticed that the most informed students were those that had already discussed about the influenza with their teachers ($p=0.006$), with their family/friendly environment ($p=0.002$), students of Greek origin ($p=0.05$) and children of older age ($p=0.02$). This study is a primary step regarding the efficiency of educational programmes in relation to elementary school students' knowledge on health matters. The essential improvement of students' knowledge demonstrates the necessity for the implementation of appropriate educational programmes in elementary schools in order for the knowledge of elementary school students to be increased and their state of health to be improved. Personal care measures and health education are the basic conditions for the decrease in the frequency of various diseases, such as the influenza; in particular regarding elementary school students.
Key words: Influenza, educational programme, children, prevention.

Introduction

The history of influenza virus dates back in 412 BC when Hippocrates described an epidemic influenza-like illness (Scholtissek et all, 1978). The influenza is an acute infectious viral disease appearing all around the world. There is an often confusion between the influenza and rhinorrhea, which is a simple cold. This confusion usually occurs due to the similar clinical symptoms, although the cause and epidemiology of the influenza are clearly different from the common cold. The influenza is an acute feverish disease, which enters the human organism abruptly and causes headaches, as well as other heavier symptoms of the respiratory system or muscle pains. The influenza virus, unless complicated with other infections caused by pathogenic schizomycophyta, such as the Staphylococcus aureus, the Streptococcus pyogenes and the Haemophilus influenzae, lasts 3 to 5 days. Except of the evident infections, in the various types of epidemic influenza, many cases of atypical forms of the disease are being noticed. The number of atypical and asymptomatic forms of the disease is equal or higher than the number of the typical disease forms. The atypical forms of the disease cause low fever and light or no symptoms at all (Koutsogiannopoulos, 1997).

The international term used to describe the flu is "influenza", because in the past, during some extensive epidemic attacks it was believed that the disease was caused by complications in the sky. In Greece, it is called "gripi" from the respective French word "Grippe". Cause of the influenza is the homonymous virus. The influenza virus is an RNA virus and belongs to the myxoviruses. First isolation of the virus was conducted in England in 1933 (Koutsogiannopoulos, 1997).

Actually, there are three types of the influenza. The isolated type of 1933 is type A. Later on, two more types were isolated. Type B was isolated in 1940 and type C in 1947. The three types are antigenically different. Type A consists of subtypes A0, A1 and A2, however, all of them share antigenic differences. The previous division is a basic one. By isolating new antigenic type of the influenza virus the classification is altered and so

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is the viruses' characterization. A basic characteristic of the influenza virus is its antigenic alterations. This capacity of the virus, mainly regarding type A, is of great epidemical importance, because easy antigenic alterations of the virus cause extensive influenza epidemics (Katsougiannopoulos, 1997).

The disease in question is an airborne infection and the influenza virus is spread through excretions of the pharynx nose. Via speech, sneeze and mainly cough particles full of viruses are being ejected. Contamination is conducted by breathing infected particles. Contaminated dust does not seem to be a major means of the virus spread. The virus is being quickly destroyed by the dried excretions and is attached to the mucous membranes of the airways, causing damages to the ciliary epithelium (Koutsogiannopoulos 1997). According to the Hygiene and Social Medicine (Koutsogiannopoulos, 1997) only humans are receptors of the influenza virus. This belief is questioned after isolation of certain influenza strains from swines and horses that are antigenically similar to human strains of the influenza virus. The disease is transmitted just before the clinical symptoms are evident, as well as possibly 3-4, days after deterioration. Due to the fact that the number of sub-clinical types in epidemic periods is extremely high, the role of asymptomatic carriers is really significant regarding the disease contagion. The influenza incubation time is 1-3 days.

Spread of the virus and its symptoms after infection are crucial factors when deciding on the measures to be taken against the epidemic. Published studies (Carrat et al 2008) describe the course of the infection caused by the influenza virus in a virtual medicine. A total of 56 different studies on 1,280 healthy participants examined the spread of the virus, which was essentially increased between 0.5 and 1, a day after the infection and has reached peak the second day. The average duration of the viral excretion for over 375 participants was 4.80 days (95% confidence interval: 4.31, 5.29. The frequency of the symptomatic infection was 66.9% (95% confidence interval: 58.3, 74.5). A higher temperature was noticed in a percentage of 37.0% of A/H1N1, 40.6% of A/H3N2 *(p* = 0.86), and 7.5% of B infections *(p* = 0.001). The score of total symptoms is increased on the first day and reaches its peak on the third day. There is no respective information for children or the elderly; however, epidemiological studies show that natural history might differ. This analysis confirms the previous expert opinion regarding the duration of viral excretion or the frequency of the asymptomatic influenza infection; extents to an in advance knowledge about the dynamic virus spread and its symptoms; and presents initial results in relation to the frequency of the respiratory symptoms or fever. Influenza epidemics occur during colder winter months and early autumn to mid spring. Epidemics during time become pandemic and spread all over the world.

As far as the influenza pandemics are concerned, we should mention that in the last 100 years, three huge pandemics have been recorded (Koutsogiannopoulos, 1997). The first influenza pandemic started in 1889 and lasted until 1982. During this epidemic a Gram bacterium, Haemophilus influenza, was isolated by Rishard Pheiffer in 1982. This bacterium was mistakenly considered as the cause of the disease. The second major epidemic was recorded in 1918-19. More than 200,000,000 people ailed around the world and demises were more than 20,000,000. This pandemic was characterized as "Spanish Influenza", after its place of breakout.

From 1918 to 1957 several small influenza epidemics were recorded every two or three years. However, in summer 1956 a type of influenza virus, A2, appeared in China and in 1957 was spread gradually all around the world, causing the pandemic known as "Asian influenza". In Greece, the first cases of Asian influenza were recorded in the early autumn of 1957 and soon the disease became epidemic, covering the whole Greek state with thousands of cases. Between 1957 and 1990 a high number of disease outbreaks were recorded, however, not like the 1957 pandemic (Koutsogiannopoulos 1997).

The most recent pandemic caused by an antigenic alteration of the influenza virus is H1N1. This specific virus type resulted from the recombination of swine genes in N. America, Europe and Asia, genes from the avian flu and genes from the seasonal human flu. Consequently, H1N1 influenza virus is a four-part recombination of other influenza viruses (Solovyov et all, 2009).

Method

Scope of Study

Scope of this study is to examine whether or not the knowledge of elementary school students on the influenza has been improved after implementation of the educational programme. Moreover, the role of certain demographic characteristics regarding the knowledge of elementary school students before implementation of the educational programme was also examined. These demographic characteristics were the following:

- Gender
- Age
- School
- Nationality
- Father's occupation, classified in the following categories: employee (private, civil), health scientist, blue collar worker, freelancer, unemployed.
- Mother's occupation, classified in the following categories: employee (private, civil), health scientist, blue collar worker, freelancer, unemployed/housewife.

- Father's educational level, classified in the following categories: elementary graduate, junior high-school graduate, high school graduate, university graduate.
- Mother's educational level, classified in the following categories: elementary graduate, junior high-school graduate, high school graduate, university graduate.

Methodology of study

For the present study a sample of 116 children between 8 and 13 years old attending primary schools in Attica was used. Defining the source-population is highly important in order for the permissible generalities to be limited. The response rate was 100%, as 116 questionnaires were handed out and filled in as well.

Type of study

It is a quasi experimental study and the educational programme's implementation constitutes an experimental intervention in order for the improvement of elementary school students' knowledge on the influenza to be examined.

Areas of study

The study took place in 2 Elementary Schools of the prefecture of Attica, in the 6th Elementary School of Elefsina and the 9th Elementary school of Aspropyrgos. Students attending classes D, E and F of these schools were questioned. The school principals were informed in writing and orally about the purpose and methodology of the study and agreed, giving the relative permission for the study carryout.

Questionnaire

The questionnaire used for this study included 17 questions (see Annex 1):

I. Questions about the knowledge (questions 1-5).
II. Questions about prevention (questions 6 και 7).
III. Questions about information (questions 8-13).
IV. Questions about demographic features (questions 14-17).

Procedures and data collection method

This study examines, through the Health Education Programme implemented in classes D, E and F of the 6th Elementary School of Elefsina, the knowledge of elementary school students on the influenza, as well as the preventive measures in their daily life. Five days before filling in the questionnaire, all students were informed (orally and in writing by handing out the study protocol and the school principals' permission) about the study purpose and methodology, so that they have the time to discuss with their families whether they are willing to participate in the survey, without disclosing their personal information (Name/Surname), a fact that ensures their anonymity. The questionnaire was filled in before the lesson started without time limitation, so that the participants were not pressured in terms of time, a fact that might have lead to rushed answers. Each questionnaire was placed in a transparent file, which could be accessed only by the study conductor. Then, interventional programme "e-Bug- Students in the land of germs" took place, which also lasted for 6 weeks. The material consisted of nine units divided in four subject pivots, which could be used either as an integrated programme or separately as single in-class activities. Every activity lasted around 40 minutes. Every unit included general information for teachers, detailed class instructions, work sheets for students and photocopies with information for home, as well as activities based on creative research promoting active learning; teaching targets enhancing comprehension of students on the importance of micro-organisms, health retention and medicines; and messages motivating students to be more responsible with their personal care. Finally, students filled in the same questionnaire handed out before the educational programme.

Statistical Analysis

Data process and statistical analysis was conducted by using an SPSS 18.0 software package for Windows. An analysis of variance, ANOVA test, a *t* test for independent samples and the Kolmogorov-Smirnov test for the examination of regular distribution of quantitative variants also took place. The level defined for the statistic importance in all statistic tests was 0.05. Therefore, values $p<0.05$ were considered as statistically important.

Results

Table 2. Collective table of absolute and relative frequencies before and after intervention with questions about knowledge.

QUESTION	BEFORE		AFTER		Value p
	Absolute Frequency (n)	Relative Frequency (%)	Absolute Frequency (n)	Relative Frequency (%)	
Virus is a micro-organism					
Correct answer	61	52.6	111	95.7	<0.001
Wrong answer	55	47.4	5	4.3	
Virus is a disease					

Correct answer	82	70.7	106	91.4	<0.001
Wrong answer	34	29.3	10	8.6	
The influenza virus only infects humans					
Correct answer	39	33.6	9	7.8	<0.001
Wrong answer	77	66.4	107	92.2	
The virus can cause fever					
Correct answer	105	90.5	113	97.4	0.032
Wrong answer	11	9.5	3	2.6	
The virus can cause a sore throat					
Correct answer	87	75	111	95.7	<0.001
Wrong answer	29	25	5	4.3	
The virus can cause a head ache					
Correct answer	100	86.2	112	96.6	0.007
Wrong answer	16	13.8	4	3.4	
The virus appears in Europe					
Correct answer	86	74,1	107	92.2	<0.001
Wrong answer	30	25,9	9	7.8	
The virus appears in Asia					
Correct answer	67	57.8	109	94	<0.001
Wrong answer	49	42.2	7	6	
The virus appears in America					
Correct answer	75	64.7	109	94	<0.001
Wrong answer	41	35.3	7	6	
The virus appears in Africa					
Correct answer	76	65.5	112	96.6	<0.001
Wrong answer	40	34.5	4	3.4	
The virus infects children					
Correct answer	100	86.2	112	96.6	0.007
Wrong answer	16	13.8	4	3.4	
The virus infects adults					
Correct answer	101	87.1	110	94.8	0.038
Wrong answer	15	12.9	6	5,2	
The virus infects the elderly					
Correct answer	101	87.1	108	93.1	0.127
Wrong answer	15	12.9	8	6.9	

Table 3. Collective table of absolute and relative frequencies before and after intervention with questions about prevention.

QUESTION	**BEFORE**		**AFTER**		**Value p**
	Absolute Frequency (n)	Relative Frequency (%)	Absolute Frequency (n)	Relative Frequency (%)	
Sneeze using a tissue or my elbow					
Yes	113	97.4	113	97.4	0.99
No	3	2.6	3	2,6	
Throw my tissue right away					
Yes	114	98.3	113	97.4	0.657
No	2	1.7	3	2.6	
Often wash my hands with soap					
Yes	107	92.2	105	90.5	0.639
No	9	7.8	11	9.5	
Touch my mouth, nose and eyes					
Yes	17	14.7	3	2.6	0.001
No	99	85.3	113	97.4	
Eat fruits and vegetables					
Yes	107	92.2	112	96.6	0.167
No	9	7.8	4	3.4	
Sneeze in my hands					
Yes	14	12.1	7	6	0.127
No	102	87.9	109	94	

Table 4. Collective table of absolute and relative frequencies before and after intervention with questions about information.

QUESTION	BEFORE		AFTER		Value p
	Absolute Frequency (n)	Relative Frequency (%)	Absolute Frequency (n)	Relative Frequency (%)	
Do you believe that vaccination against the influenza is necessary?					
Yes	45	38.8	100	86.2	<0.001
No	71	61.2	16	13.8	
Do you go to school when you have the influenza symptoms?					
Yes	8	6.9	18	15.5	0.049
No	108	93.1	98	84.5	
Have you discussed about the influenza with your teachers?					
Yes	102	87.9	112	96.6	0.018
No	14	12.1	4	3.4	
Have you discussed about the influenza with your family?					
Yes	91	78.4	104	89.7	0.027
No	25	21.6	12	10.3	
Have you been informed about the influenza from TV, newspapers or magazines?					
Yes	96	82.8	105	90.5	0.072
No	20	17.2	11	9.5	
Have you been informed about the influenza from the internet?					
Yes	44	37.9	97	83.6	<0.001
No	72	62.1	19	16.4	

Relation between the average rate of correct answers and the educational programme.

There were 13 questions from which the rate of correct answers resulted. The correct answers followed the regular distribution, therefore parametric statistical methods applied. The questions on which the total score is based are the following: 1st : Viruses are micro-organisms; 2nd ; Virus is a disease; 3rd : The influenza virus; only infects humans; 4th : The virus can cause fever; 5th : The virus can cause a sore throat; 6th : The virus can cause a head ache; 7th : The virus appears in Europe; 8th : The virus appears in Asia; 9th : The virus appears in America; 10th : The virus appears in Africa; 11th : The virus infects children; 12th : The virus infects adults; 13th : The virus infects the elderly.

The average rate of the correct answers before the educational programme implementation was 73.1% (±15), whereas afterwards it was 88.4% (±12), presenting a statistically important increase ($p<0.001$, t test). The average rate of correct answers was increased in 15.3% (95% confidence interval = 11.8 to 18.8).

A statistically important relation was noticed between the correct answers' average rate and the cases in which the students had already discussed about the influenza with their teachers ($p=0.006$, *t* test). The average rate of correct answers for the students that had already discussed the matter was 75.2% (±13), whereas for the students that had not discussed the subject was 55.7% (±20.1). The deviation with respect to the average rate of correct answers was 17.5% (95% confidence interval = 5.8 to 29.4).

Moreover, there was a statistically significant relation between the correct answers' rate and the cases in which the students had already discussed about the influenza with their friends/family ($p=0.002$, *t* test). The average rate of correct answers for the students that had already discussed the matter was 75.4% (±13.6), whereas for the students that had not discussed the subject was 64.9% (±17.5). The deviation with respect to the average rate of correct answers was 10.5% (95% confidence interval = 4 to 17).

In addition, there was a statistically significant relation between the correct answers' average rate and the school class. The correct answers' average rate for students attending higher classes was also high ($p=0.02$, ANOVA test). The average rate of correct answers for D class students was 66.7 (±17.6), for E class students 74.5 (±13.6) and for F class students 76.3 (±13.2).

Table 5 presents the descriptive data in relation to the correct answers.

Table 5. Descriptive data in relation to the correct answers.

	Correct answers' rate-before	Correct answers' rate-after
Average	73.1	88.4
Median	71.4	92.9
Standard deviation	15.1	11.7
Minimum value	29	21
Maximum value	100	100

Discussion and conclusions

The school is the first important step of socialisation. Nowadays, children have to deal with their daily change, as well as the social, cultural and environmental alterations and pressure. At school and within the school community, children can be trained in a series of social and personal skills that will help them be developed and become stronger. (Kiritsi and Tsiotra, 2004).

Apart from teachers, parents and students, the prevention programme against the influenza virus also appeals to the general social environment. Purpose of this programme is to emphasise on the positive behaviour and motivate children to make choices that are not harmful for their physical and mental health.

Such a prevention programme requires careful planning and preparation, attention to the school needs and its members, careful observation of the "secret" aspects of the school community, respect to the school balances, supportive intervention and not violation, planning according to the needs, co-operation among the individuals responsible for the prevention, the teachers and the parents, relationship building among individuals with different roles and in human level as well, and finally overall supervision (Kiritsi and Tsiotra, 2004).

Schools should function as part of a supportive network and other services aiming at the supplementary operation, covering the needs of young people and their families, and last but not least serving life itself. Prevention programmes and health promotion have to be combined with other programmes (e.g. environmental education, intercultural, etc.) and aim at the healthy development of children by being integrated in the daily routine of schools. Schools need institutional support for the implementation of prevention programmes, in a manner that focuses on diversity and the individual alike. Institutional support is required, however, not for supervising purposes regarding schools, teachers, children and parents, but as a tool to promote well-being. The timely spreading of accurate information can reduce unnecessary panic and can be the first essential step which will keep the community on guard (Kiritsi and Tsiotra, 2004).

The influenza virus itself is not considered dangerous. However, the complications that might be caused due to its appearance make it hazardous. Certain groups of people are more vulnerable to the influenza and its complications than others. These groups concern the elderly, people with heart conditions, diabetics and people suffering from long-term lung conditions. Children that are not vaccinated also belong to the high sensitivity groups, unless they are included in specific patient groups. Basically, a planned prevention strategy against the influenza focuses on vaccination of the high sensitivity groups of the population. The vaccine against the influenza is necessary for these population groups and according to specialists vaccination should take place in late September or early October, without excluding any other period, earlier or later in the year. The vaccine against the influenza is required for the immunity of the human organism, without any disease appearance.

The present study underlines the role of prevention through information about the influenza virus (what is it, what causes it, how can it be prevented), but also tests the knowledge level of children regarding the influenza virus. The interventional programme implemented, confirmed the willingness of children to learn beyond the standard analytical programme, as they seemed impressed with the new knowledge acquired by experimenting and actively participating in the interactive Health Education. In total the average rate of correct answers before intervention was 73.1%, whereas after the intervention was 88.4%, presenting a statistically important increase. The average rate of correct answers was increased in 15.3%. A study conducted on children 9-11 and 12-15 years old in three countries, England, France and Czech Republic, using the same interventional programme (e-Bug) with the present one, had the same results (Lecky et al, 2010). The study aimed at the evaluation of the e-Bug effectiveness in the improvement of children's knowledge, when the programme was integrated in the national curriculum of England, France and the Czech Republic. As far as the prudent antibiotic use and the improvement of the children's knowledge about germ transmission are concerned, students had to fill in the same questionnaires before the interventional programme, after the programme and six months after its completion, in order for the knowledge status alteration and its retention to be evaluated. The teacher implemented the programme in younger and older children. The results of the study through the e-Bug application showed a significant improvement on the primary school children in all class levels and there was no significant reduction in the students' knowledge after a six-month period. Knowledge improvement through e-Bug varies among the areas, although the students in England and Czech Republic had a remarkable improvement.

A similar study was also conducted (Kostkova et al, 2010) through e-Bug in 10 European countries. Purpose of the study was to evaluate the implementation of e-Bug via the internet for the improvement of children's knowledge on germs and personal care. The study results showed a significant improvement of knowledge and great interest of the children in interactive programmes about viruses and germs.

In this study, the e-Bug programme proved that socio-economic level and gender do not play a role in the knowledge level of students regarding the influenza virus, whereas nationality and class level affect their knowledge level to a great extend. In particular, students of older age and students of Greek origin were more informed. Consequently, age is a defining factor for their behaviour and knowledge about the influenza virus, because while growing up they become more responsible and choose to protect themselves through knowledge

and prevention rather than deal with the influenza virus as something unknown, which can be confronted only by drug administration.

Statistically, internet and television do not play an important role in the information of students about the influenza virus. Students that had already discussed about the influenza virus with their teachers, parents and friends were more informed. In addition, discussion in an *ask and answer* manner is a better way of learning and information regarding the influenza virus comparing to television and internet through which students acquire sterile knowledge because there is no interaction, discussion, active participation and therefore do not adopt a preventive behaviour in health matters, particularly regarding the influenza virus.

As far as the educational level of parents is concerned, it was noted that this did not affect the correct answers' rate. Consequently, higher or lower educational level of parents had no impact on the students' knowledge.

Unfortunately, no similar studies have been conducted regarding the effectiveness of educational programmes on the influenza virus. Therefore, the present study includes studies concerning the general knowledge of students on various health matters, as well as on the influenza with participants of older age.

Indicatively, a study of Vassileiou and associates (2008) about the avial flu virus in 1,400 Greek university students showed that 1,081 (75.1%) knew what is the avial flu and only 349 (24.9%) were uniformed. In total, 885 (63.2%) were aware of the fact that humans have been infected by the avial flu. The participants were questioned whether cats could also be infected and 739 (52.9%) gave a positive answer. In the question, whether the vaccine against avial flu is effective 778 (55.6%) agreed and 622 (44.4%) disagreed. Interestingly, it has been noted that 1,004 (72%) students were informed about the avial flu from newspapers and television. The participants were questioned whether they were aware of the symptoms of avial flu, 652 (46.6%) answered that the symptoms are similar to the ones of common flu and 748 (53.4%) answered that they are different. As far as the avial flu symptoms are concerned, 1,101 students (78.6%) thought that humans do not suffer from the avial flu, whereas only 299 (21.4%) gave a positive response. In total, 1,088 (77.7%) mentioned that the avial influenza is transmitted from diseased birds to humans and only 312 (22.3%) believed that it is generally transmitted through birds. Moreover, 654 (46.7%) believed that the avial flu could be transmitted among humans. However, 1,087 (77.7%) of the participants mentioned that the avial flu is transmitted in the different countries due to infection among birds. When all information were classified based on gender, no statistically important difference was noted, except in the case of avail flu symptoms noticed in Greece; 485 (65,4%) men gave a wrong answer, whereas only 257 (34.6%) women answered incorrectly.

The important role of awareness is also evident through another study conducted (Kim et al, 2009) among 183 students in the fifth grade of elementary school. During this study, children were shown humorous and upsetting pictures on the internet regarding the avial flu. This programme aimed at the development of a health-conscious behaviour towards the avial flu virus and other influenza types as well. The results of the study showed that the programme demonstrating upsetting pictures about the avial flu virus was more effective than the one displaying humorous pictures in terms of improvement on understanding the danger of the avial flu virus and the development of a health-conscious behaviour towards the influenza virus.

A study conducted in six junior high schools (514 students) in Taif, Saudi Arabia regarding their knowledge on the Asian flu, showing that the implementation of the educational programme significantly improved their knowledge (Al-Shehri et al, 2006). Girls were more aware in relation to boys (correct answers rate 70.9% to 58.9%).

In a study of Legare and Gelman (2009) about the awareness of children in South Africa regarding treatment, prevention and the causes of AIDS and the influenza virus in a sample of 138 students, significant deficiencies in the knowledge of biological causal mechanisms have been found. In a study of Fawole et al (1999) conducted among 223 Nigerian junior high school students and in 217 students, who constituted the group under monitoring, after the interventional information programme about prevention from the HIV virus and its transmission, it was observed that the students informed acquired more knowledge about the transmission and the prevention from the HIV virus ($p=0.004$) in comparison to the students that weren't informed. Consequently, students can benefit from the special educational programmes providing important information, which is necessary in order to avoid dangerous behaviour and improve their knowledge and attitude towards AIDS.

Moreover, a programme of Health Education (Shenoy & Sequeira, 2010) was implemented on 415 children 12-13 years old in England. The programme included information on dental care and resulted in the improvement of children's knowledge, as well as their dental hygiene. However, the socio-economic level did not constitute significant evaluation index according to the results. After intervention, children's knowledge increased in the schools where more frequent information took place and the programme was shorter, while the socio-economic level contributed significantly in the improvement of knowledge existed before the intervention. Children's knowledge was evaluated by completing a questionnaire. Another study on dental hygiene conducted in London involving children aged 7-8 years old (Chapman et al, 2006). The purpose of this study was to implement and evaluate a curriculum based on national curriculum combined with information on dental health

in primary schools. The results of the study showed that children had a high level of knowledge before the intervention, while afterwards the level of knowledge was further increased.

A study regarding awareness programs for the general health of school children in Yugoslavia was conducted in 12 schools and 2 schools under monitoring (Zivković et al, 1998). The purpose of the study was to determine the change in the behaviour of students, teachers and the school environment through a Health programme, which ran from 1993 to 1996. The results of the study showed that schools were less crowded, cleaner and better preserved, and toilets were in better condition. The habits of children in relation to nutrition, exercise, oral hygiene, sleep and relaxation were significantly improved after the intervention program. On the other hand, the group under monitoring showed no significant improvement regarding these parameters.

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