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# Family Influences on Adolescent's Oral Health Behaviour and Sugar Consumption

Alice MURARIU<sup>1</sup>, Stela Carmen HANGANU<sup>2</sup>

## Abstract

This research had two objectives: the evaluation of teenagers' attitudes in relation with the risk factors for oral health, and the analysis of the parental model in the development of children's unhealthy behaviours. The study was developed in 2012 in two high schools having a different profile, namely general and medical profile, by using a special questionnaire elaborated by the World Health Organization. The research results demonstrate the existence of an exaggerated consumption of refined sweets and carbonated drinks with values that situate Romania above many European countries. The negative image is completed by the high prevalence of alcohol consumption and the scarce percentage of teenagers who resort to a correct dental brushing. For certain risk factors (smoking, alcohol consumption and refined sweets) we did not notice significantly statistic differences between the students of the two high schools what suggests that the decision to have an unhealthy life style is not influenced by the information offered by teachers. That is why, we tried to analyse the influence of the family in modeling teenagers' behaviour. For this purpose, the logistic regression model used showed that there is a higher risk for a youngster coming from a family of smokers, who drink alcohol and eat refined sweets in excess, thus having a precarious oral hygiene and a low educational level, to develop themselves the same behaviours. As a conclusion, it is necessary for the public health specialists, trainers and politicians to adopt a joint strategy regarding the oral health.

**Keywords:** adolescents; family influences; oral health behaviour; sugar consumption.

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## Introduction

Oral health is fundamental to general health and well-being. Oral disease can lead to pain and tooth loss, a condition that affects the appearance, quality of life, nutritional intake and, consequently, the growth and development of children. The burden of oral disease is considerable. Tooth decay and gum disease are among the widespread condition in human population, affecting over 80% of schoolchildren in some countries (Petersen, 2003). Poor oral health and frequent and abundant consumption of sugars have been known for many years to play a key role as behavioural risk factors for oral diseases, such as dental caries and periodontal disease (Axelsson, 2000). Moreover, the prevalence of other oral disease such as dental erosion caused by consumption of carbonated drinks is rising. The consumption of fruits and vegetables decreases the risk of developing degenerative chronic diseases, such as cardiovascular diseases and cancer. Tooth-brushing and other behaviours that comprise young people's lifestyles may directly or indirectly influence on their health in the short or long term (Pitts, 2004). Oral hygiene care and focus on a healthy diet are essential for the development of the effective oral health education programmes and practices targeted at young people (Kwan, Petersen, Pine, & Borutta, 2005). The oral health concern of an individual is dependent on the attitude of a person. These attitudes naturally reflect their own experiences, cultural perceptions, familial beliefs and other life situations and strongly influence the oral health behaviour. The broad categories of factors that may influence individual oral health behaviour include: knowledge, beliefs, values, attitudes, skills, finance, materials, time, and the influence of the family, friends, and community. Oral health outcomes for adolescents are grounded in their social environments and are frequently influenced by family, school and social level. Parents' health-related habits can affect adolescent well-being in several ways including providing positive or negative role models and by contributing to healthy or unhealthy physical and social environments. Parents' habits can also shape adolescent health behaviour by increasing easy access to cigarettes or alcohol in their home, or, on the positive side, increasing access to healthy food and good oral hygiene (Pearson, Timperio, Salmon, Crawford, & Biddle, 2009). The number of researchers worldwide has recognized the perspective of studies on child's and adolescent's health behaviour (Zaborskis, Milciuviene, Bendoraitiene, & Zaborskyte, 2004; Petersen, 2005; Singh, Kochhar, Mittal, Agrawal, Chaudhary, & Anandani, 2012).

Information about the oral health knowledge, attitudes and behaviour among Romanian children is very limited, especially for rural area. Such a study was completed in Romania in 1993 in Iasi and Bucharest, continued in 2003 in Iasi (Petersen, Danila, & Samoila, 1995; Danila, Evghenikos, Petersen, Salavastru, & Stan, 2005), in 2009 in Constanta (Nuca, Amariei, Badea, & Jipa, 2009) and in 2011 in Sibiu county (Boitor, Fratila, Stanciu, Pitic, & Acu, 2011). From the

viewpoint of public health, there is a recent tendency exerting a strong negative influence on the general health, especially the oral health. We are speaking about the increasing number of smokers and alcohol consumers at earlier ages as well as the exaggerated consumption of carbonated drinks and concentrated sweets by children and youngsters (Stanescu, 2011). From this point of view, the public health specialists must cope with this challenge: to understand the causes of this alarming phenomenon, on one hand, and to find the necessary methods to prevent it, on the other hand.

In this context, there comes the logic question: does family play any longer an important role in children's education in terms of transmission of healthy knowledge and attitudes? From this perspective, the aim of this study is to appreciate the knowledge and attitudes of a teenager group from 2 high schools, a medical high school of Iasi and a general high school of Suceava, in relation with oral health, and to analyse the influence of the parental model over the teenagers' behaviour. The research results become important for the public health specialists as long as they may contribute to the adoption of a strategy for the reduction of risk factors for the oral health by acting both at family level and at the level of schools and communities.

### **Materials and methods**

Before commencement of the study, ethical approval was obtained from the competent authorities, and all adolescents gave informed consent. The study was carried out between March and May 2012 in two schools, „Spiru Haret” in Suceava with a general knowledge profile, and „Grigore Ghica Voda” with medical profile in Iasi, as a cross-sectional survey. It was conducted to determine the oral health knowledge, attitudes and behaviour associated with the family practices among a group of adolescents and young people, 15-20 year old.

#### ***Sample***

The study sample comprised of 284 adolescents, 144 (51%) from „Spiru Haret” School and 140 (49%) from Sanitary School, 126 (44%) boys, mean age 16.4, SD =0.6 years, and 158 (56%) girls, mean age 16.8, SD=0.6 years. According to the educational level of one of the parents, it was found that 188 (66.1%) were without university degree, and 96 (33.8%) had university degree. In addition, 195 (68.66%) had average/below average financial status-less than 450 € /month, and only 89 (31.34%) reported very well and quite well off-greater than 450 € / month.

### ***Study instrument***

All adolescents taking part in the study were invited to complete a structured questionnaire on socio-behavioural risk factors. The construction of questionnaire was based on experiences gained from surveys carried out by a special WHO research program: The Health Behaviour in School-aged Children -HBSC (Currie, Gabhain, Godeau, Smith, Currie, D. et al., 2008). The questionnaire was designed to evaluate the oral health attitude and behaviour of adolescents and their family which included 19 questions divided in three sections as follows:

1. *Socio-demographic information*: comprised 3 items about: age, family financial status and parent's education.

2. *Financial status* was determined by the question: „How well off do you think your family is?” Possible answers were: „very well and quite well off”, or „average/below average”. The education of the parents was determined by the question: „What is your father's/mother's education?” The alternatives given were: „less than university degree”, or „university graduate”.

3. *Dietary habits*: the 7 questions included consumption of sugary and carbonated drinks, sweets and fresh vegetable and fruits for both, family and children. The structured questions were: (1) How often do you eat fruits? (2) But your parents? The options are: „daily”, or „not daily”; (3) How often on day do you eat sweets? (4) But your parents? „more than once a day”, or „once a day”; (5) How often on day do you drink carbonated drinks? (6) But your parents? „more than once a day”, „once a day”, or „less than once a day”; (7) What kind of food do you prefer for snack between meals? „sweets”, „fruits” and „salt foods”.

4. *Oral health behaviour*: included brushing habits (such frequency, flossing), smoking, regular dental visit, use fluoridated toothpaste, for adolescents and their parents. The 9 questions used were: (1) How often do you/your parents brush your teeth? „once a day”, „more than once a day”, or „less than once a day”; (2) Have you/ your parents visited a dentist during the last year? „Yes”, or „No”; (3) What are the reasons for visiting dentist? „routine control”, or „oral pain”; (4) Do you smoke? „Yes”, or „No”; (5) Does your family smoke? „Yes”, or „No”; (7) Do you drink alcohol? „Yes”, or „No”; (8) Does your family drink alcohol? „Yes”, or „No”; (9) What kind of toothpaste do you used? „fluoridated”, or „non-fluoridate”; (10) Have you flossing the teeth? „Yes”, or „No”.

The questionnaire was formulated in English, translated into Romanian and pre-tested among 40 students in a pilot study, in order to check the reliability.

### ***Statistical analysis***

Data entry and analysis were performed using the SPSS 17.0 system for Windows (SPSS Inc. Chicago, IL, SUA). Statistical significance of the bivariate analyses of the answers was assessed by the Pearson chi-square. Logistic regression analysis was used to assess the associations between oral health negative behaviours and habits among adolescents and family factors (family financial status, parent's education, smoking status, tooth brushing, visit dentist and some diet habits, like eating fruits, sweets and carbonated drinks) (Howitt and Cramer, 2006).

### **Results**

After the questionnaire has been filled in, we identified both positive and negative aspects related to the attitude and behaviour regarding the oral health (table1).

*The positive attitudes* regarding the oral health are the following: (1) of a total of 284 students, only 40 declared that they are smokers, thus the value of smoking prevalence being 14.2%; (2) almost half of the questioned students brush their teeth twice a day, namely 145 students (51.3%) and the number of those who brush their teeth less than once a day is low, only 55 (19.0 %); (3) 278 students (98.1%) use fluoride toothpaste that has protective effects on the dental enamel.

*The negative aspects* of the life style of teenagers who participated in the study are: (1) a large number of students, namely 217 (76.6%) have an unhealthy diet by the huge consumption of sweets several times a day and the consumption of carbonated drinks, 168 students (59.5%); (2) 192 students (67.7 %) go to the dentist only for oral pain; (3) the prevalence of alcohol consumption is much higher than that of smoking, namely 34.6%; (4) very few students, only 40 (14.2%), use the flossing as an additional measure to dental brushing.

If we take into consideration the high school profile, we could notice significantly statistic differences meaning that the students coming from the medical high school have positive behaviours and attitudes regarding the dental brushing made twice a day ( $p=0.004$ ) and the use of flossing ( $p=0.023$ ). As for the regular visits to the dental office, 21.1% of the students from the medical high school declared that they got for a routine control as compared to 10.3% of the students attending a general high school ( $p=0.002$ ). We did not find statistical differences in terms of smoking, alcohol consumption or unhealthy eating habits: sweets.

The significantly statistic differences *between the male and female* respondents refer to the following aspects: (1) as for the dietary habits, the sweets consumption is more frequent among the female respondents, 43.9% as compared to 32.7%

male respondents ( $p=0.012$ ); (2) girls go to the dental office for a prophylactic control in a higher percentage 23.1% than boys 9.3% ( $p=0.001$ ); (3) there are more male respondents who consume alcohol than female respondents, ( $p=0.003$ ); (4) significant statistic differences were also identified for the tooth brushing made twice a day ( $p=0.032$ ) or the use of flossing ( $p=0.027$ ), girls being more conscientious than boys.

Table 1. *Distribution of items according to socio-demographic factors*

Dietary habits and oral health behaviour	Nr	%	School			Gender		
			General Profile (%)	Medical Profile (%)	p value	Girls (%)	Boys (%)	p value
<b>Eating fruits</b>								
▪ daily	63	22.3	11.3	11	0.553	11.9	10.4	0.255
▪ not daily	221	77.7	39.7	38		44.1	33.6	
<b>Eating sweets</b>								
▪ more than once a day	217	76.6	39	37.6	0.350	43.9	32.7	0.012*
▪ once a day	67	23.4	12	11.4		12.1	11.3	
<b>Carbonated drinks</b>								
▪ more than once a day	168	59.5	32.5	27	0.029*	31.8	27.7	0.068
▪ once a day	82	29	14.8	14.2		18	11	
▪ less than once a day	34	11.5	3.7	7.8		6.2	5.3	
<b>Snack between meals</b>								
▪ sweets	199	70	37	33	0.705	38	32	0.750
▪ fruits	7	9	4	5		5	4	
▪ salt foods	78	21	10	11		13	8	
<b>Visited dentist during the last year</b>								
▪ yes	130	45.5	21.3	24.2	0.560	25	20.5	0.442
▪ no	154	54.5	31.2	23.3		31	23.5	
<b>Reasons for visiting dentist</b>								
▪ routine control	92	32.4	10.3	21.1	0.002*	23.1	9.3	0.001*
▪ oral pain	192	67.6	40.7	27.9		32.9	34.7	
<b>Smoking status</b>								
▪ yes	40	14.2	6.9	7.3	0.312	6.7	7.5	0.551
▪ no	244	85.8	44.1	41.7		49.3	36.5	
<b>Drinking alcohol</b>								
▪ yes	98	34.6	15.8	18.8	0.107	11.8	22.8	0.003*
▪ no	186	65.4	35.2	30.2		44.2	21.2	
<b>Toothbrushing</b>								
▪ once a day	84	29.7	12.6	17.1	0.004*	19.4	10.3	0.032*
▪ more than once a day	145	51.3	19.4	31.9		32.4	18.9	
▪ less than once a day	55	19	19	0		4.2	14.8	
<b>Toothpaste used</b>								
▪ fluoridated	278	98.1	49.1	49	0.877	55	43.1	0.566
▪ non-fluoridated	6	1.9	1.9	0		1	0.9	
<b>Flossing the teeth</b>								
▪ yes	40	14.2	2.7	11.5	0.023*	10.7	3.5	0.027*
▪ no	244	85.8	48.3	37.5		45.3	40.5	

\*Pearson chi-square,  $p<0.05$

### ***Logistic regression analysis between family factors and oral health attitude among adolescents***

The use of the logistic regression analysis aimed at calculating the Odds ratio of a teenager to have an unhealthy behaviour depending on their parents' attitudes and habits regarding the oral health (table 2, 3, 4). We noticed a strong association between parents' low education level, on one hand, and the high consumption of sweets by their children, OR=3.14 (table 2). The same association was signaled about the low level of oral hygiene of the teenager coming from parents having a low level of education, OR=4.12 (table 3). Other strongly associated variables in the logistic regression model refer to the parents' unhealthy life style, (smokers, OR=3.55, alcohol consumers OR=2.11 and extra sweet products consumers, OR=3.78) (Table 4, 2). Furthermore, parents' lack of a correct oral hygiene is a risk factor for the acquirement of the same unhealthy behavior by the teenager, OR=6.23 (table 3). We did not identify significant statistic associations in terms of family's low financial situation ( $p < 0.05$ ).

Table 2. *Logistic regression-family factors associated with consumption of sweets (more than once a day) among adolescents*

<b>Family factors</b>	<b>p value</b>	<b>Odds ratio (OR)</b>	<b>Confidence Interval 95% (CI)</b>
<b>Financial status</b> ▪ average/below average ▪ very well and quite well off	0.271	0.21	0.993-2.310
<b>Father's/mother's education</b> ▪ less than university degree ▪ university graduate	0.013*	<b>3.14</b>	1.63-7.55
<b>Eating sweets</b> ▪ more than once a day ▪ once a day	0.002*	<b>3.78</b>	1.77-6.61
<b>Eating fresh vegetables and fruits</b> ▪ daily ▪ not daily	0.541	0.34	0.58-2.34
<b>Carbonated drinks</b> ▪ more than once a day ▪ once a day/ less than once a day	0.762	0.24	0.23-5.78

\* $p < 0.05$



Table 3. *Logistic regression-family factors associated with toothbrushing (less than once a day) among adolescents*

Family factors	p value	Odds ratio (OR)	Confidence Interval 95% (CI)
<b>Financial status</b> ▪ average/below average ▪ very well and quite well off	0.113	0.05	0.331-2.116
<b>Father's/mother's education</b> ▪ less than university degree ▪ university graduate	0.001*	<b>4.12</b>	3.213-12.563
<b>Smoking status</b> ▪ yes ▪ no	0.188	0.03	0.554-1.980
<b>Visited dentist last year for routine control</b> ▪ yes ▪ no	0.048*	1.25	1.225-2.887
<b>Toothbrushing</b> ▪ once a day and more than once a day ▪ less than once a day	0.001*	<b>6.23</b>	4.855-13.122

\*p<0.05

Table 4. *Logistic regression-family factors associated with smoking status and regularly alcohol drinking among adolescents*

Family factors	p value	Odds ratio (OR)	Confidence Interval 95% (CI)
<b>Financial status</b> ▪ average/below average ▪ very well and quite well off	0.445	0.231	0.775-1.276
<b>Father's/mother's education</b> ▪ less than university degree ▪ university graduate	0.059	0.123	0.112-1.913
<b>Smoking status</b> ▪ yes ▪ no	0.002*	<b>3.55</b>	2.336-11.913
<b>Alcohol drinking</b> ▪ yes ▪ no	0.003*	<b>2.11</b>	1.765-5-225

\*p<0.05

## Discussion

### *Dietary habits*

The daily consumption of the sugary products is a clear behavioral risk factor for dental caries (Sheiham, 2001). Several studies have also linked high soft-drink consumption to the risk of other chronic diseases, like diabetes, obesity and cardiovascular disease (Johnson, Segal, Sautin, Nakagawa, Feig, & Kang, 2007). As for the sweets consumption, the statistic data at national level showed that there has been a behavioral modification in recent years in terms of sweets consumption meaning that the consumption of these products by children has increased to which we add the carbonated drinks. Per capita consumption of sugar has increased in Romania from 21.1kg in 1994, to 27.5kg in 2005 (Stanescu, 2011).

The study results confirm this hypothesis through the high percentage of teenagers, namely 76.6% who declared they eat sweet products more than once a day. In terms of gender distribution, there are significant statistic differences ( $p=0.012$ ) between boys and girls regarding the sweets consumption, a fact also confirmed by other specialized surveys such as those from Kuwait, India and Laos (Honkala, Behbehani, & Honkala, 2012; Singh et al, 2012; Jürgensen & Petersen, 2009).

One of the reference surveys is Cross-National Survey on Health Behaviour in School-aged Children-World Health Organization Collaborative Study-HBSC carried out every four years in more and more countries. The last round was run in 2010 and 43 countries participated in it, Romania being involved in the last two rounds (2005/2006 and 2010/2011(Currie et al, 2008). According to the data supplied by this survey, there are variations between countries in terms of the daily sweets consumption by children and teenagers from 9% in Finland, 11% in Denmark, 15% in Sweden and Norway, up to 49% in Ireland, 52% in Malta, and 70% in Poland. The same trend has been noticed in this survey for the consumption of carbonated drinks, but with a lower percentage, since 59.5% teenagers declared a daily consumption of such drinks without significant statistic differences in terms of gender distribution ( $p=0.068$ ). Correlated with the data supplied by World Health Organization, Romania is closer to Finland where the percentage is 51% or Israel with 56%. At the opposite site, the healthy habits meaning the daily consumption of fresh fruits and vegetables are reduced in terms of frequency, only 22.3% of teenagers as compared to other countries such as Belgium 47% and France 45%.

Despite our expectations, the students from the medical high school did not have a more encouraging attitude as compared to their colleagues from the other high school. This affirmation relies on the finding that the significant statistic

differences which were noticed only focused on the consumption of carbonated drinks ( $p=0.029$ ), where the percentage of those consuming such drinks *more than once a day* is higher for the students from the general high school than the students from the medical high school, more precisely 32.5% versus 27%. These much higher values than in other European countries draw the attention of public health specialists who must rapidly find efficient ways to stop this alarming phenomenon. A similar situation to that of Romania was described by Jürgensen in Laos or by Varrenne in Burkina Faso, countries having a low economic status (Jürgensen et al, 2009; Varenne, Petersen, Peng, Tai, & Bian, 2008).

### ***Oral health behaviour***

Oral health correctly made in terms of frequency, method and type of toothpaste used is indisputably a veritable factor in the prevention of dental caries and gum diseases. It is clear that once acquired, this habit may no longer change and the primordial role is first incumbent on the family (Koivusilta, Honkala, Honkala, & Rimpela, 2003). If the situation is encouraging in terms of the use of fluoride toothpastes meaning that 278 (98.1%) of teenagers use such toothpastes, we may not say the same thing about the dental brushing. There is still a high percentage of students (29.7%) who brush their teeth only *once a day* or, even worse, 19% of students declared that they brush their teeth *less than once a day*. 51.3% of teenagers declared that they brush their teeth *more than once a day*. The situation is less favorable than in countries such as Switzerland, where 88.7% of girls and 79.8% of boys brush their teeth at least twice a day, but it is more encouraging as compared to the teenagers from other countries such as Greece, 40%-boys, Spain 42%-boys, Ukraine 38.7%-boys, and Malta 25.1%-girls and 14.5% boys (Zaboriskis et al, 2004). Just like in the results of HBSC survey, in this survey we may notice that girls have a more healthy behaviour than boys and the differences noticed in terms of brushing made twice a day are statistically significant ( $p=0.032$ ).

Other additional methods of oral hygiene such as flossing are unfortunately very little known of and they are used only by 14.2% of the questioned students. According to the data from Eurobarometer questionnaire regarding the oral health, Romanians occupy one of the last places in terms of the visits to the dentist (Special Eurobarometer 327, 2010). Thus, only 34% of them go to the dentist at least once a year whereas 83% of Dutch went at least once a year to the dentist, followed by the Danish (78%) and Germans (77%). The survey also shows that half of Europeans declared that they were to the dental office for a routine control (Special Eurobarometer 277, 2009). In this survey, we noticed that most youngsters go to the dentist in a percentage of 45.5% and 67.6% go only for oral pain. The significant statistic differences ( $p=0.002$ ) identified between the students from the two high schools in terms of their preventive visit to the dental office

sustain the idea that teenagers that are correctly informed about the prophylactic methods of oral disorders are also more motivated to use them.

### ***Smoking and alcohol consumption***

Smoking together with the alcohol and illicit drug consumption represent a risk factor acting not only individually, but they represent a community issue by the high social costs they impose on the society (Petersen, 2005). According to a World Health Organization report, about 30% of the teenagers aged between 15 and 18 are smokers (World Health Organization, 2012). In Romania, according to the data supplied by the specialized institutions, the prevalence of smoking among teenagers is 24.24% with an ascending trend in recent years (Abraham, 2005). In this survey, the prevalence of smoking has much lower values as compared to the national average of 14.2%. Unlike the adult population where the prevalence of smoking is higher for men than women, for teenagers the prevalence is equal for both sexes. In this survey, we don't identified statistic significance differences ( $p > 0.05$ ) in terms of smoking for girls (6.7%) as compared to the boys (7.5%). Unfortunately, we noticed the same trend for both high schools, suggesting that the decision to smoke is not influenced by the information offered by teachers, but it results from a complex of factors such as attitude, social norms, company or one's own convictions.

In 2011, in the national survey regarding the tobacco, alcohol and drug consumption, it has been found out that the average alcohol consumption among teenagers is 37.45%, with variations ranging from 32.98% in Banat to 40.08% in Moldavia (Stanescu, 2011). In the ESPAD survey 2011, one of the few international survey on youth alcohol consumption in Romania participants in, 49% of Romanian students aged 15-16 years indicated to drink alcohol in the past 12 month (ESPAD, 2011). In our research, we noticed that the prevalence of alcohol consumption has a close value to the national average, 34.6% , being higher for boys 22.8% as compared to the girls 11.8%, differences have a statistic significance  $p < 0.003$ . In other study developed in Pitesti in 2011, van Hoof and Moll found that the adolescents were drinking more than Romanian average (van Hoof and Moll, 2012).

### ***Family's role in the development of positive attitudes regarding the oral health***

Starting from the premise that the family plays an important role in the formation of children's healthy habits, the results of the survey demonstrate that the families where sweets are consumed in excess, or one parent is a smoker/alcohol drinker, the risk for the child to adopt the same life style is high. The proof of these affirmations is child's OR risk ranging between 2.11 where there is a parent

who drinks alcohol and 3.55 for a smoking parent and it reaches to 3.78 for the families where sweets are eaten daily. However, the highest OR value of 6.23 was signaled for the children coming from families who neglect their own oral hygiene by making an inadequate tooth brushing in terms of frequency and additional methods for oral hygiene such as oral floss. Other surveys carried out in Romania in 1993 and 2003 to identify the parents' and teachers' attitudes as compared to the oral hygiene methods showed an improvement of such phenomenon by a reduced increase from 87% to 89% of mothers who brush their teeth twice a day (Danila et al, 2005).

Despite the results shown by Danila in the previous survey, this research demonstrates that this phenomenon is far from being successful. Numerous research surveys sustain that in the families where parents have a low educational level and financial status, children adopt an unhealthy life style and a negative behaviour (Cojocaru & Cojocaru, 2011). In this survey, we noticed that parents' low educational level may be a risk factor for the adoption of an unhealthy behaviour by the children in case of the exaggerated sweets consumption (OR= 3.14) or in case of teenagers brushing their teeth less than once a day (OR= 4.12).

These results suggest that education for health must not only target the vulnerable groups such as teenagers, but also parents and teachers who could not acquire the rules of a healthy life style due to the lack of useful information. The positive or negative relationship between the parent and child may have a major influence on the development of teenagers' behavior. Thus, the surveys carried out by van Hoof regarding the alcohol consumption by the Romanian teenagers demonstrated that a bad parent-child relationship characterized by the lack of communication may determine the teenager to join the vulnerable groups outside the family (van Hoof et al., 2012). Other researches clearly show the existence of a significantly statistic association between the prevalence of tobacco consumption by teenagers and a smoking parent as well as with parents' level of permissiveness regarding the tobacco consumption by their own children (Abraham, 2005).

### ***The challenges to dental public health practices***

Over the past 20 years, a marked decline in the prevalence of oral disease has been observed in several Western industrialised countries. In children, improved oral health is seen in the systematic decline in dental caries and a continually growing number of caries free individuals. This is ascribed to changing life-styles and living conditions, a more sensible approach to sugar consumption, improved oral hygiene practices, use of fluorides in toothpaste and systematic school-based preventive programmes (Petersen, 2003). Such positive trends of lower dental caries experience in children are shown also for certain Eastern European countries where school oral health programmes were established and maintained up to recent time. For example, this is the case for Slovenia and Hungary (Szöke &

Petersen, 2000). However, the general pattern is that the prevalence rate of dental caries in children has remained high in most of Central and Eastern Europe: Romania and Poland (Wierzbicka, Petersen, Szatko, Dybizbanska, & Kalo, 2002).

As we have found out in this research, there are risk factors for oral health that situate us above the average of other European countries. If we add the lack of some special prevention programmes in schools, especially for the disadvantaged families, then it may be explained why the dental caries has not registered a decline in our country (Ionas, Marza, & Sabau, 2010). The public health specialists and the politicians must be aware of the alarming situation in which the young population is and to propose the implementation of some viable and realistic health programmers. If the World Health Organization has proposed and developed health promoting programmes in schools, there are a few actions for the involvement of the family in the promotion of children's oral health (Kwan et al, 2005). Such a programme that had positive results was implemented in Iowa, the USA (the Iowa Strengthening Families Program). It encourages the communication between teenagers and parents, on one hand, and it tries to identify the children with unhealthy life, on the other hand (Aufseeser, Jekielek, & Brown, 2006).

Starting from the recommendations of World Health Organization regarding the joint approach of the risk factors for the general an oral diseases, they may organize education sessions for the families in order to reduce the exaggerated consumption of sugar products by insisting not only on the risk for dental caries, but also on the serious illnesses that it may induce, such as diabetes mellitus (World Health Organization, 2002).

### ***What is the Romanian situation?***

There are some parent education programmes in Romania, providing only by several organisations but not for national authorities: Holt Romania (2010), Foundation Step by Step (2008), Foundation Our Children (2008), Save our Children (2008). These programmes aim chiefly to provide parents with information concerning children's rights, parental responsibilities, children's needs, hygiene, diseases and child care (Cojocaru, Cojocaru, & Ciuchi, 2011).

### ***Proposals for the improvement of teenagers' oral health***

Following the results obtained in this survey, we propose a series of measures that might ameliorate oral health, reduce the risk factors and promote a healthy life style. These include a wide palette of actions that must focus on a very solid strategy by the carrying out of the following actions: (1) improvement of familial support and the relations between children and parents by actions carried out within the vulnerable families (a low educational level, a low financial status, the

lack of a motivation regarding the education for oral hygiene ); (2) parent-oriented programmes to develop practical skills for a correct oral hygiene; (3) oral prophylaxis services that may be provided in the school dental office; (4) outpatient counseling and psychotherapy services for the teenagers having a high risk to develop an addictive behaviour; (5) complete strategies at the level of local community through the participation of all sectors involved in the health promotion: family, school, mass media, local authorities, church; (6) national media campaigns to inform and make population aware of the short and long-term risks of drug use (alcohol, tobacco, illicit drugs), of a precarious oral hygiene or the exaggerated consumption of refined sweets and carbonated drinks; (7) changes of the national policy to financially and legislatively sustain the introduction of efficient prevention programmes in schools.

## Conclusions

This survey draws the attention on the high prevalence of nutritional and behavioral risk factors, namely 76.6% for the sweets consumption and 59.5% for carbonated drinks, for the teenagers from Iasi and Suceava. If for smoking the registered value of 14.2% is below the national average, the situation is less favorable for the alcohol consumption since the percentage of teenagers who drink alcohol is 34.6% which is a value close to the national average.

An encouraging aspect is that half of teenagers brush their teeth more than once a day, 98% use a fluoride toothpaste and the number of those brushing their teeth less than once a day is below, 19%. At the opposite site, the students from both high schools have very little knowledge regarding the methods which supplement the dental brushing such as oral floss. Though the students from the medical high school have more knowledge and information about the prophylactic methods for the oral cavity diseases, we did not encounter a positive trend in terms of certain risk factors such as smoking and the exaggerated sweets consumption. Only 32.4% of teenagers go to the dentist for a routine control as compared to the European average which is 50%.

Starting from the research hypothesis of the survey, we noticed that parents' positive or negative attitudes regarding the risk factors for oral illnesses contribute to a large extent to the maintaining of health or, conversely, to the exacerbation of children's unhealthy behaviour. Otherwise, this research confirmed that parents' low educational level may also represent a risk factor for the health of their own children. Family's primordial role in the formation of a healthy life style is known because healthy attitudes are learnt from early ages and their subsequent modification is difficult to make. Therefore, the family needs both a specialized support and social protection to fulfill its essential role of an educative factor. Though there are not yet programmes addressed to the family for the change of non-



healthy attitude or prophylactic programmes addressed to the vulnerable families, the success obtained by other countries by such actions may be a real motivation for the Romanian politicians.

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