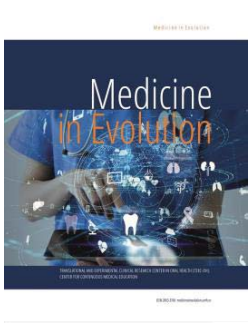
Knowledge and behaviors regarding cariogenic nutrition in a group of adolescents from Bucharest



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Abstract

The study aims to assess the level of knowledge and behavior regarding eating habits of adolescents aged 15 to 19 years old. In this cross-sectional study were included 111 adolescents, with mean age 16.91 years old (SD ± 0.44), from Bucharest. Subjects completed a questionnaire about their food preferences, sweets consumption and knowledge related to the impact of cariogenic diet on the oral cavity. Results: Most teenagers (93.7%) consume sweets between and after meals, and 22.5% consume sweets every day. Among the respondents, 62.1% know that sugars affect tooth enamel and can cause dental decay. Conclusion: it was identified the need to promote oral health education on cariogenic diet in schools and dental offices.

Keywords: eating habits, health promotion, adolescents

INTRODUCTION

Adolescence is a fragile period and the risk of adopting unhealthy behaviour is high. Risky behaviours regarding their health are alcohol and tobacco consumption, cariogenic diet and physical inactivity. Adolescents' lifestyle is easily and usually influenced by socio-environmental factors, such as friends, colleagues, family and the media. Adolescents are a population group in which the possibilities to improve health are great, so increasing the understanding of the nutritional concept will lead to healthy eating habits and can prevent any diseases developed in adulthood. Health education programs in schools are the first step in assessing adolescents' nutritional knowledge and improving their habits.

Aim and objectives

The objectives of the study were to assess the level of knowledge about nutrition and eating behaviour among a group of adolescents; also, identifying the need for health education in schools and dental offices, according to the results obtained.

MATERIAL AND METHODS

This cross-sectional study included 111 adolescents aged 15-19 years. The target group consists of 10th and 12th grade students from the "Ştefan Demetrescu" Adventist Theoretical High School, from Bucharest. The questionnaire was distributed in electronic format, through the Google Forms platform and included questions to determine students' knowledge and behaviour related to cariogenic nutrition and the assessment of food preferences, as well as socio-demographic data. The subjects were assured of data confidentiality.

RESULTS

The mean age of the students was 16.91 years (SD ± 0.44), and 60.3% were females. Socio-demographic data are presented in Table I.

Table I. Socio-demographic characteristics of adolescents included in the study

Variables	N (%) all subjects	10th grade students (N)	12th grade students (N)
Gender			
Female	67 (60.3%)	34	33
Male	44 (39.7%)	22	22
Age			
15 years	4 (3.6%)	4	-
16 years	45 (40.5%)	45	-
17 years	20 (18%)	7	13
18 years	41 (37%)	-	41
19 years	1 (0.9%)	-	1

Schoolchildren' preferences regarding the types of sweets consumed show that most students consume chocolate (45%), 18% claiming to eat any type of sweets, while 10% say they do not consume sweets at all (Table II).

Table II. Types of sweets consumed by teenagers

	N (%) all subjects	10th grade students (N)	12th grade students (N)
Chocolate	50 (45%)	21	29
I don't eat sweets	11 (10%)	5	6
Any kind of sweets	20 (18%)	13	7
Jellies, cakes, cookies,	21 (18.9%)	14	7

snacks			
Dark chocolate, homemade sweets	5 (4.5%)	2	3
Fruits	4 (3.6%)	1	3

The percentage of students who prefer natural fruit juices is 34.3%, while 38.7% prefer soft drinks and a small number of students (7.2%) prefer plain water (Table III).

Table III. Types of drinks consumed by subjects

	N (%) all subjects	**10th grade students (N)**	**12th grade students (N)**
Natural fruit juices	38 (34.3%)	23	15
The water	8 (7.2%)	5	3
Milk/sweetened tea	5 (4.5%)	3	2
Sugar-free drinks	7 (6.3%)	3	4
Soft drinks	43 (38.7%)	18	25
Natural fruit juices / milk/sweetened tea	10 (9%)	4	6

Nearly half (42.4%) of the subjects consume sweets two or three times a week. There is a considerable percentage of students (22.5%) who consume sweets every day and a small group of students (5.4%) who do not consume sweets at all (Table IV). Regarding the time of day when teenagers consume sweets, the majority (93.7%) consume between and after meals (Table V).

Table IV. Behaviour regarding the frequency of consumption of sweets

	N (%) all subjects	**10th grade students (N)**	**12th grade students (N)**
Daily	25 (22.5%)	14	11
Two or three times a week	47 (42.4%)	28	19
Once a week	33 (29.7%)	12	21
I don't eat sweets	6 (5.4%)	2	4

Table V. Behaviour regarding the time of day when consuming sweets

	N (%) all subjects	**10th grade students (N)**	**12th grade students (N)**
Before meals	4 (3.6%)	0	4
After meals	39 (35.2%)	27	12
Between meals	50 (45%)	24	26
After and between meals	15 (13.5%)	5	10
Anytime during the day	3 (2.7%)	0	3

Among the respondents, more than half know that sweets can cause tooth decay. However, there is a percentage of 9.9% who do not know the causal relationship, and 2.7% do not consider sugar to be a causal factor (Table VI). Regarding the students' knowledge about the effect that soft drinks have on the teeth, 40.6% consider that they affect the tooth enamel, but 4.5% consider that it does not affect the tooth at all, and 13.5% state that they do not know the effects (Table VII).

Table VI. Knowledge of the impact of sweets on teeth

	N (%) all subjects	**10th grade students (N)**	**12th grade students (N)**
Sweets cause cavities	60 (54%)	29	31
Sweets affect the tooth	21 (19%)	15	6

Sweets affect the enamel	9 (8.1%)	3	6
I don't know	11 (9.9%)	8	4
Sweets favour the multiplication of bacteria and alters the pH	4 (3.6%)	0	4
Sweets change the colour of the tooth	3 (2.7%)	0	3
Does not affect the tooth	3 (2.7%)	2	1

Table VII. Knowledge of the effect of soft drinks on teeth

	N (%) all subjects	**10th grade students (N)**	**12th grade students (N)**
Soft drinks cause cavities	18 (16.2%)	7	11
Soft drinks affect the enamel	45 (40.6%)	22	23
Soft drinks affect the teeth	10 (9%)	7	3
Soft drinks change the colour of the teeth	6 (5.4%)	2	4
Does not affect the teeth	5 (4.5%)	2	3
Soft drinks promote tooth sensitivity	9 (8.1%)	6	3
I don't know	15 (13.5%)	10	5
Soft drinks affect the gums	2 (1.8%)	0	2
Soft drinks cause the formation of bacterial plaque	1 (0.9%)	0	1

Most adolescents (96.4%) know that sugars, oral hygiene and plaque are the causative factors of tooth decay (Table VIII). Among the subjects, 71.2% consume plain water before bed, but 28.8% say they consume soft drinks or snacks (Table IX).

Table VIII. Knowledge related to the causal factor in the occurrence of dental caries

	N (%) all subjects	**10th grade students (N)**	**12th grade students (N)**
Diet (sugar)	43 (38.8%)	22	21
Oral hygiene	35 (31.5%)	18	17
Nutrition and oral hygiene	25 (22.5%)	13	12
I do not know	3 (2.7%)	2	1
Nutrition, oral hygiene and genetic factors	2 (1.8%)	0	2
The causative factor is not sugar	1 (0.9%)	1	0
Bacterial plaque	2 (1.8%)	0	2

Table IX. Adolescents´ behaviour related to eating habits after tooth brushing in the evening

	N (%) all subjects	**10th grade students (N)**	**12th grade students (N)**
Plain water	79 (71.17%)	34	45
A snack	12 (10.8%)	7	5
A snack and plain water	11 (9.9%)	10	1

Soft drinks	9 (8.1%)	5	4

When teenagers were asked if they thought chewing gum helped reduce cavities, 69.4% said no, and 26.1% said they did not know (Table X).

Table X. Adolescents' knowledge about the role of chewing gum in preventing tooth decay

	N (%) all subjects	**10th grade students (N)**	**12th grade students (N)**
Yes	5 (4.5%)	1	4
No	77 (69.4%)	39	38
I do not know	29 (26.1%)	16	13

DISCUSSIONS

Although there have been numerous attempts to prevent oral health problems, sugar consumption is increasing, which has led to an increase in the incidence of tooth decay (1). It is noted that a decrease in the amount and frequency of sugar consumption is fundamental for a low carious occurrence (2).

In this study, it was observed that most subjects consume sweets two or three times a week, 25 of them consume sweets daily and only six adolescents do not consume sweets at all. More alarming results were indicated in adolescents in Iaşi, where the daily consumption of sweets was 56.8% of the studied group (3).

The present study shows that most adolescents (65.7%) are aware of the negative effects of diet on tooth enamel. By comparison, a survey of adolescents in Bucharest showed that only a third of them know the risk factors associated with dental caries and less than 10% are familiar with the causal factors of periodontal disease. Following these results, it was also found that the level of knowledge is directly proportional to the level of personal dental hygiene (4).

CONCLUSIONS

Adolescents in the study group have some knowledge about the impact of diet on dental conditions, but their behaviour is not appropriate. Personal beliefs about eating habits and their perception of oral health need to be improved.

Future research directions should include changing unhealthy behaviours towards oral health in adolescents, as well as improving the level of knowledge about cariogenic potential nutrition. In addition, in accordance with the above, there is a need for oral health education among adolescents, in schools and dental offices that aims to increase interest in adopting a healthy lifestyle and motivate to choose a non-cariogenic diet in daily life.

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