

BEHAVIORAL HEALTH RISK FACTORS AMONG SCHOOLCHILDREN AGED 14-18

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ABSTRACT

The current study is a part of “Healthy children in healthy families” project – children component of CINDI Program.

The objective is to study the impact of behavioral health risk factors (smoking, alcohol consumption, unhealthy diet, low physical activity) among adolescents aged 14-18 years.

Material and methods: a total of 3369 students (49.4% boys and 50.6% girls) from 36 randomly selected schools in 4 Bulgarian districts are covered. An individual interview by standard questionnaire is performed.

Results show that each third student is a regular smoker, daily alcohol users are 10.7% of boys and 4.2% of girls, and 1/3 of adolescents demonstrate low level of physical activity and unhealthy diet

Conclusion: The presented risk profile has an important role in the pathogenesis of numerous chronic non-communicable diseases later in life. The implementation of activities focused on health promotion and healthy life style changes even from early childhood, is of extreme importance.

Keywords: Health risk factors, students, CINDI, healthy lifestyle.

INTRODUCTION

Chronic noncommunicable diseases (NCD) are major cause of the global burden of diseases in the European region (86.0 % of the 9.6 million deaths and 77.0% of the 150.3 million DALYs). Common risk factors (RFs) in their genesis are smoking, alcohol consumption, unhealthy diet, low physical activity. NCD often originate in childhood and adolescence, and tend to increase with age (1,2).

The results of 2013/2014 HBSC survey, which collected data from almost 220 000 young people in 42 countries in Europe and North America show high behavioral risk factors prevalence among adolescents. The results show that at age 15, on average, 17% of girls and 19% of boys smoke at least once a week. Ever if smoking remains high in some countries, the weekly smoking has declined in comparison to the previous HBSC survey in almost all (3). Alcohol use in school age has decreased in most European and North American countries and regions. Prevalence rates of weekly alcohol consumption and (early) drunkenness increase substantially with age (especially between 13 and 15) for boys and girls in all countries and regions (4).

As other studies have evidenced a significant part of adolescents demonstrate low level of physical activity and unhealthy nutrition - inadequate fruits and vegetables daily intake, frequent consumption of candy and other confectionery, soft drinks etc. (1,5,6).

In analogy with Europe and North America, lifestyle risk factors are also prevalent in our country. Data from the Global Youth Tobacco Survey, Bulgaria 2008 show that more than a half of the studied population (58.8%) has ever smoked cigarettes, to some extend more girls (61.3%), than boys (56.1%). About half of the adolescents who have experimented with tobacco (28.2%) are current cigarette smokers with girls slightly not significantly predominating (respectively 31.6% and 24.4%) and smoking more intensively (13.7%) than boys do (9.6%).

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The data revealed that about 2/3 of the studied population (71.9%) notify being exposed to secondhand smoke (SHS) at home. This pattern held for both boys and girls ($P>0.05$) (7).

Youth alcohol consumption is increasing in Bulgaria. The 2011 ESPAD survey demonstrated that 2/3 of Bulgarian 16-years old students had consumed at least one drink in the past 30 days and 20.4% had been drunk during that period at least once (8).

Unhealthy diet and its consequences are also pervasive issues. The negative characteristics model of the population has had an indisputable impact on children – the consumption rates of fries and chips, bakery snacks, sugar products, chocolates and confectionery, and soft drinks containing sugar are very high. The consumption of fruits and vegetables, dairy products and fish is insufficient (9). Alongside unhealthy diet patterns, low physical activity is also evident for the majority of the students (10).

Therefore, the prevalence of risk factors among children in country requires planning and implementing effective interventions to promote healthy lifestyle changes and to provide health-promotion environment for the youths.

MATERIALS AND METHODS

The presented results are part of “Healthy Children in Healthy Families” – children’s component of CINDI Program and **aim** to study the main behavioral risk factors (smoking, alcohol consumption, unhealthy nutrition, low level of physical activity) among students aged 14-18, with the intention to implement activities, focusing on health promotion and healthy lifestyle changes in mid-life from early childhood.

The current research covered 36 randomly selected schools within the Bulgarian CINDI zone (Veliko Tarnovo, Gabrovo, Dobrich, Lovech and Rouse). The sample of students is representative for both age and gender in these municipalities. The survey covers 3369 children

(49.4% boys and 50.6% girls), aged 14-18. The percentage of represented children aged 15, 16 and 17 years was approximately equal (23.3%, 26.7% and 26.1%). The percentage of students aged 14 and 18 years is lower because of the age they have started school.

Data about the most common risk factors among students are collected by interview. A standardized 52-item questionnaire is utilized, identical for all countries in CINDI's network in Europe. The process of interviewing and gathering the data is performed by specialized trained teams of Regional Health Inspectorates.

The study complies with the ethical principles of the Declaration of Helsinki and is conducted following the approval of the Ethical Committee in National Center of Public Health and Analysis.

Data processing is carried, using software package SPSS 17.0 for Windows with a level of significance $P < 0.05$.

RESULTS AND DISCUSSION

Diet and food intake do not correspond to healthy eating recommendations and requirements. Four out of ten students (41.4%) do not have breakfast in the morning on a regular basis, with the number of girls being higher than that of boys (47.7% and 34.9% respectively). Never eat morning breakfast 12.3% of the respondents, without significant gender differences. Never have lunch on a daily basis 23.4% of boys and 38.5% of girls. Over 80.0% of the respondents eat dinner every day. For a hot lunch daily report 43.8 % of children, daily hot meal at dinner – 74.2%. No hot food at lunch and dinner is reported by 8.8% and 3.1% respectively.

The data about different foodstuffs intake show that most students do not drink milk or drink it once a week or less (81.3% of boys and 86.0 % of girls). Only 34.1% of the respondents consume yogurt every day, while 62.1% of them, predominantly girls, consume it once a week,

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less frequently or never. Over two thirds of the students (76.9%) included in their diet cheese, yellow cheese or other dairy products once a day or more frequently, and 35.8% of them - rarely or never.

Generally meat is consumed once a week or less frequently. Occasional or never is beef intake in 76.7% of the students, pork – in 58.0%, and chicken – in 23.7% of them. Meat products (cold cuts, salami and sausages, etc.) are consumed once a day or more frequently by 55.4% of boys and 47.4% of girls. The fish intake is insufficient. About 31.0% of students consume fish once a week, while about twice more students (69.0) - rarely or never. Eggs intake is consumed once or more times on a daily basis or almost every day in 16.6% of cases but every third adolescent eats eggs rarely or never (33.1%). Grain legumes (beans, peas, etc.) are included in the weekly menu by half of the students and in the daily menu by 8.1% of boys and 5.2% of girls, while 41.2% of the students eat legumes rarely or never. Rice and pasta are mostly consumed once a week. Once a day or more frequently eat peanuts, walnuts, almonds, etc. - 35.6% of boys and 25.1% of girls. Bread is the most consumed grain product (over 80.0% eat white bread, only 33.8%– rye, wheat, etc.). Boys consume more bread than girls. The average daily intake of white bread is 8.8 slices among boys and 4.2 among girls, and respectively for other types of bread 5.1 and 2.9 slices. Boiled /roasted potatoes are included in the menu once a week for 51.0% of boys and 58.2% of girls, while 22.4% of boys and 18.7% of girls consume potatoes on a daily basis or more often. Over half of students (55.3%) and predominantly boys (62.7%) consume once a day or more often pasta and fatty foods (donuts, cheese patties, sandwiches, etc.). Almost every third (27.9%) ate fries/chips. The intake of sugar and sugar-containing products and beverages is frequent.

Over 60% of respondents consume once a day or more often chocolate, candies, cream, cake, biscuits and 18.5% - jam, honey, etc. Most of the students drink soft drinks, tea/coffee with 3 or more teaspoonful of sugar on a daily basis (86.1%).

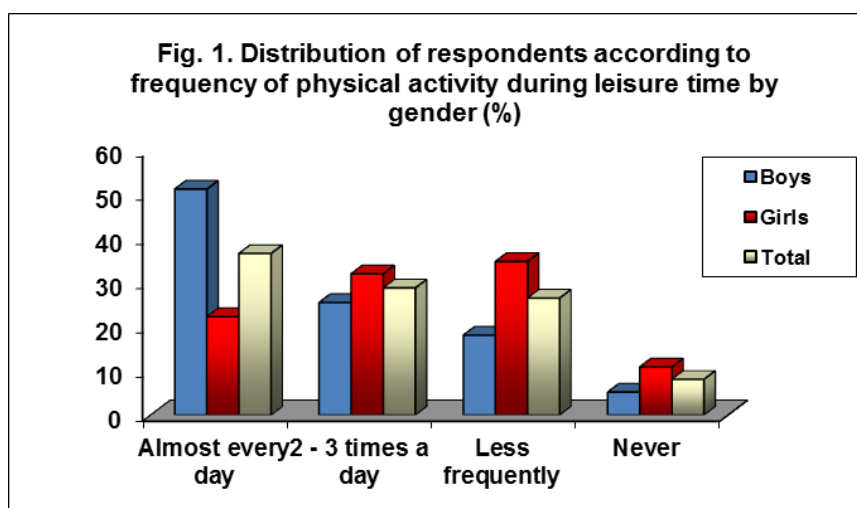
Fresh fruits and vegetables are consumed every day and more frequently by 60.0% of students.

The fruit intake is insufficient among 40.0% of boys and 34.1% of girls and that of vegetables - among 44.5% and 34.0%, respectively. About half of students drink once a day or more often juices, nectars, stewed fruits and other brands of canned fruits and 13.2% – canned vegetables.

The average daily consumption of water is 8.3 cups for boys and 7.2 cups for girls.

On a diet are 16.4% of boys and 32.6% of girls and respectively 1.9% and 2.2% are dieting for health reasons. The part of children being on a diet voluntarily increases with age, reaching maximum rates among the 18-year-olds (31.8% of boys and 35.7% of girls).

Physical activity levels are commonly low in all age groups. As it can be seen at figure 1, 36.6% of respondents are engaged in sport or leisure time physical activity almost every day, 28.8% – 2-3 times per week and the others (26.5%) – once per week or less frequently (Fig. 1). Because of various reasons, including illness or disability 8.1% of students never practice sports.



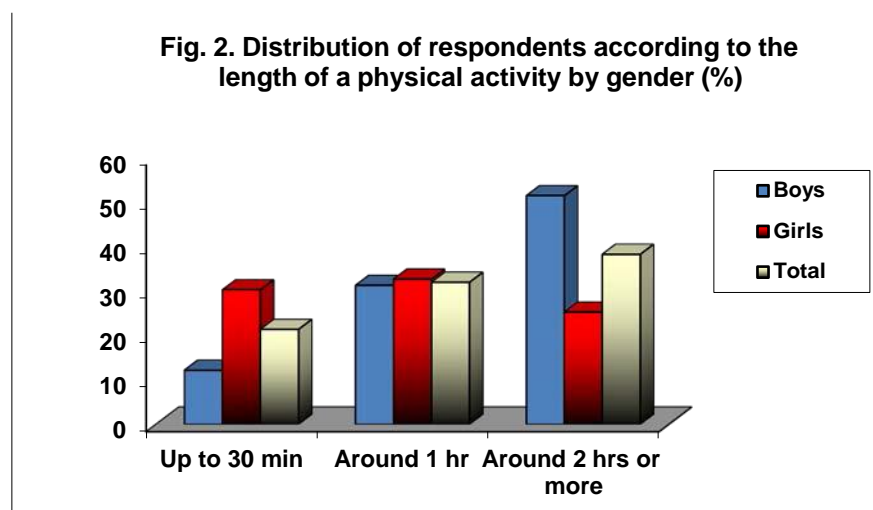
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It can be noted that one third of the students (45.7% of girls and 23.3% of boys) demonstrate low or no physical activity during their leisure time.

Students who performed some kind of sports almost every day are predominantly in the age group of 14 - 15 years (55.3% and 55.4%, respectively) with 2.3 times more boys than girls (51.2% vs. 22.3%) - $p < 0.001$ (Fig. 2)

Girls (32.0%), predominantly 14 and 15 years old, (37.1% and 37.7%) practiced physical exercises 2-3 times per week. Boys (5.2%), predominantly 14 years old and girls (10.9%) predominantly 17 years old never practice sports or other physical activities.

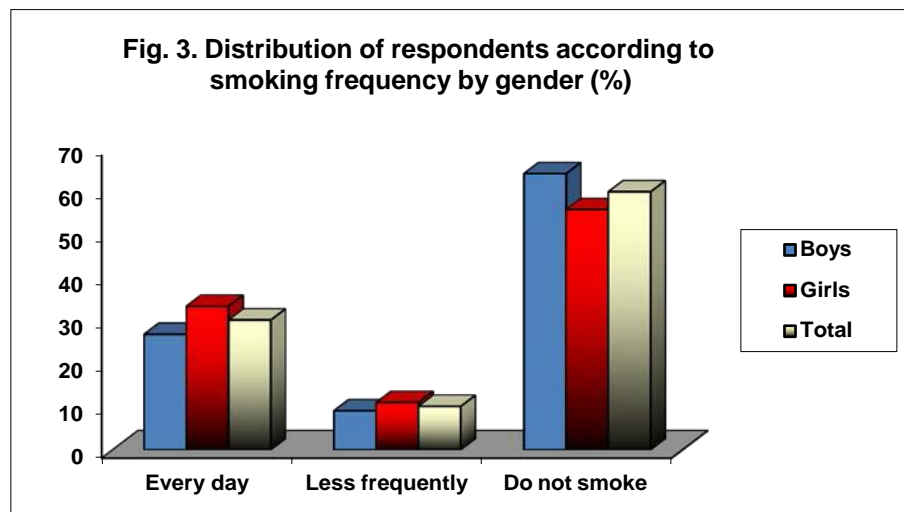
The average duration of physical exercises sessions is 2 hours or more for 38.3% of the students and about 1 hour for 32% of adolescents (Fig. 2). The physical activity duration is up to 30 min for 21.4% of respondents, which is insufficient and do not correspond to recommendations for physical activity in childhood children. The number of girls is 2.5 times greater than that of boys (30.3% vs. 12.2%) ($p < 0.001$).



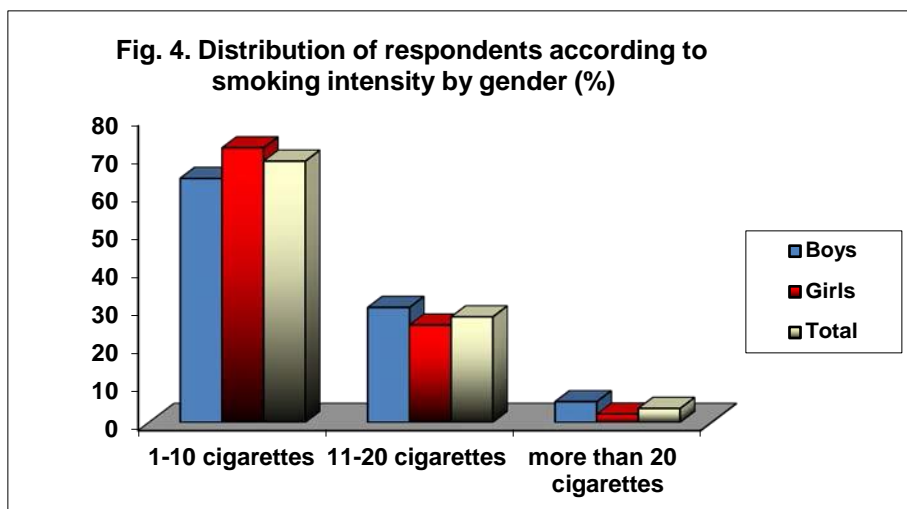
Smoking is one of the major behavioral health risk factors. The survey results indicate that over 80.0% of the respondents are exposed to SHS on a daily basis – 20.7% of them - for 1-2 hours. For more than two hours SHS exposure report 43.1% of boys and 56.7% of girls.

Over 70.0% of respondents have ever smoked cigarettes (64.9% of boys and 75.5% of girls). The average age of smoking experimentation is 12.2 years for boys and 13.0 for girls.

About 4 out of ten students (40.2%) are current smokers (36.0% of boys and 44.3% of girls) with 30.1% being regular smokers (Fig. 3). Regular smokers are 26.8% of boys 33.3% of girls ($p < 0.05$). Girls predominated, with girls to boys' ratio being 1.5 times greater among students aged 15 years. Smoking increases with age, reaching the highest rates among students aged 18 years (39.2% boys and 42.0% girls).



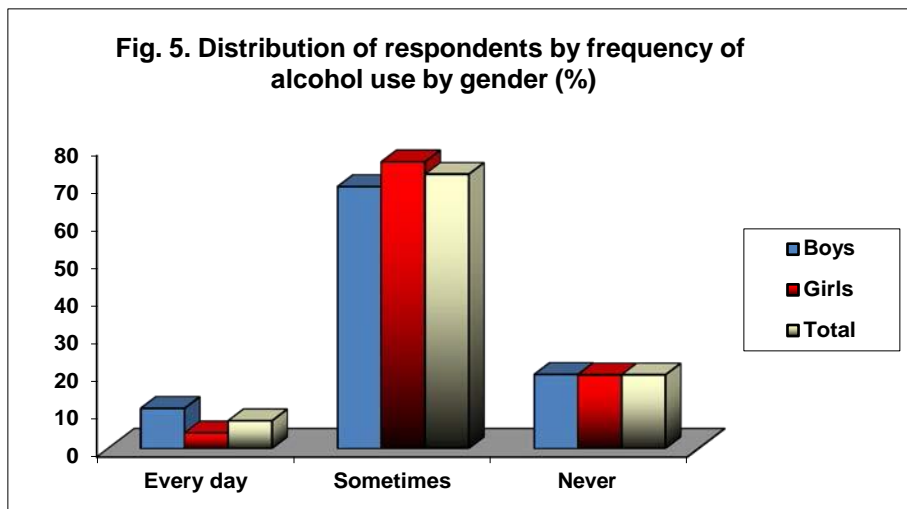
Most of respondents (68.6%) and especially 14-15-year-olds smoke 1-10 cigarettes per day; 30.3% of boys and 25.7% of girls, predominantly 17-18 years old smoke 11-20 cigarettes (Fig. 4).



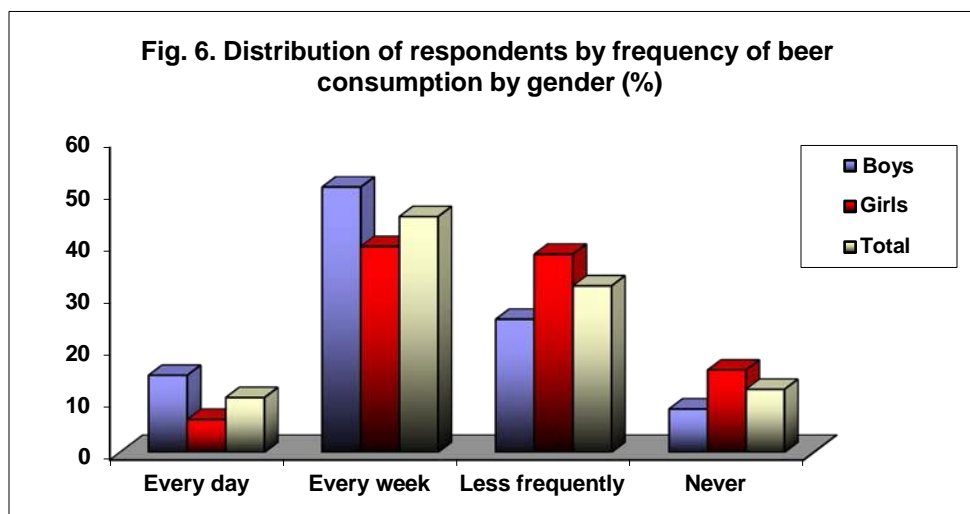
Heavy smokers (more than 20 cigarettes per day) are 5.5% of boys and 2.2% of girls ($p < 0.01$), mainly aged 18 years (9.6% boys and 3.8% girls). The average number of cigarettes smoked per day is 9.9 ± 7.9 .

Alcohol consumption is another indicator of children's unhealthy lifestyle. The survey's results show that 90.0% of students have ever tried beer, wine, spirits and other alcoholic beverages, more than half of them being girls (51.3%). The average age of the first consumption of alcohol is 11.8 for boys and 12.2 for girls.

Every eight out of ten students 80.0% drink alcohol, 10.7% of boys and 4.2% of girls being regular consumers ($p < 0.05$) (Fig. 5). The rate of 17-year-olds (14.8%) is higher among boys and that of 18-year olds (6.4%) among girls. 19.6% of students report to be abstainers.

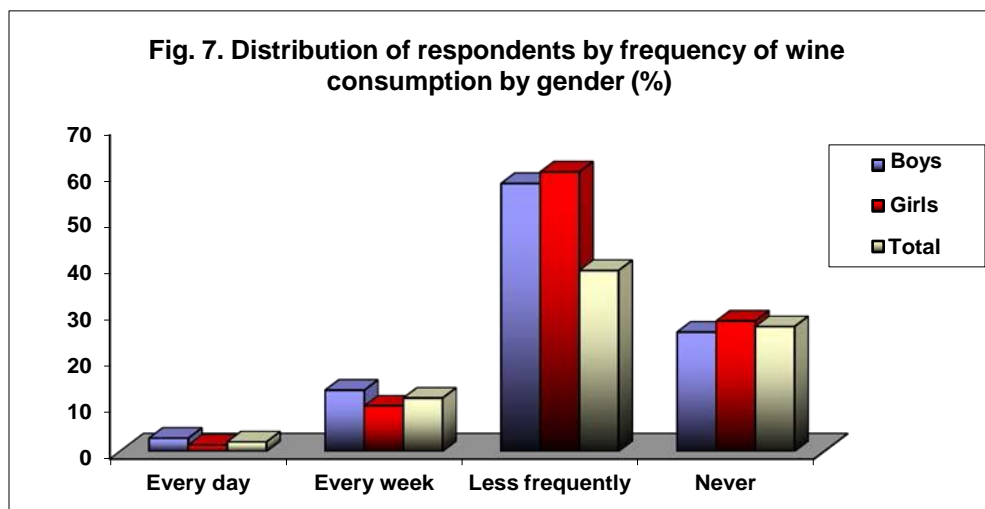


The distribution of respondents according to the frequency and type of alcohol consumed indicated that 10.6% of them drink beer on a daily basis (14.9% of boys and 6.4% of girls) and 45.3% - once a week (Fig. 6). In both cases, the rate of boys is greater ($p < 0.001$).

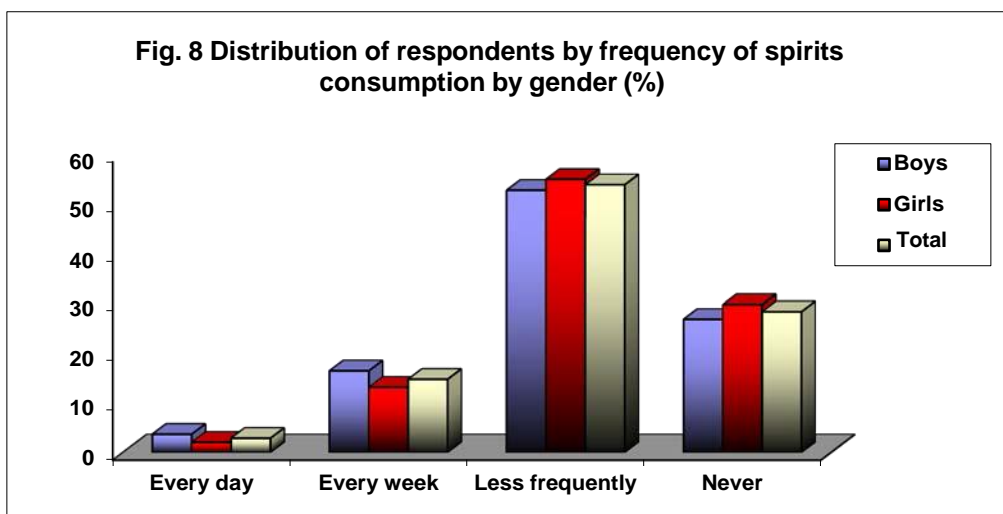


Wine is consumed on a daily basis by 2.1% of students, the number of boys being 2.1 times greater than that of girls; once a week - 11.6% ($p < 0.01$) (Fig. 7).

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Distilled beverages (brandy, whisky, vodka and others) are consumed on a daily basis by 2.9% of the students, once a week by 14.8% and once a month by 20.3% (Fig. 8). The rate of regular consumers among boys is 1.8 times higher than that of girls ($p < 0.001$).



It has to be pointed out that those students who consumed alcohol on a daily basis preferred beer and spirits to wine, the boys/girls ratio being lowest for spirit drinkers and highest for beer consumers (1.8:1 and respectively 2.3:1). Data on single average alcohol consumption indicated

3,3 bottles of beer; 265.1ml of wine; 176.4ml of spirits for boys, the average consumption among girls being lower –1.7 bottles of beer; 177.6 ml of wine; 126.5 ml of spirits, respectively ($p<0.001$).

More than 10 times during the year have been drunk 15.6% of students (22.3% boys and 9.1% of the girls) ($p<0.001$). From 4 to 10 cases of alcohol abuse are reported by 13.4% of respondents (15.1% of boys and 11.8% of girls), predominantly those aged 17 and 18 years old. Never have been drunk 21.7% of boys and 31.1% of girls.

CONCLUSION

Results of study of the main behavioral risk factors (smoking, alcohol consumption, unhealthy nutrition, low level of physical activity) among Bulgarian students aged 14-18 in the frame of “Healthy Children in Healthy Families” – children’s component of CINDI Program provide new and unique information about the this phenomenon among the Bulgarian students.

Regardless of the number of favorable policy changes during the last decade, the data are indisputable evidence, that children's lifestyle present a serious problem and a priority of public health issue in Bulgaria. It point on the need to lay the foundations of a national system for monitoring this problem. Results of the study offer important insights for designing gender and age-specific strategies to prevent behavioral risk factors during adolescence, focusing on its main social and environmental determinants.

The study results indicate the demand for developing and implementing an intervention program focused on health promotion, risk factors’ control and healthy changes in the living environment of children.

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