

Appearance of Conscious Health Behaviour among Elementary School Students in Nyíregyháza

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The results of the year 2010 of the cross-national study titled '*Health-Behaviour in School-aged Children*' in cooperation with the World Health organization (WHO) clearly stated that the improvement of the quality of the nutrition of young people should seriously be considered in international framework. Among elementary school children in Hungary the ratio of those who thought themselves to be overweight was higher than in most countries of Europe (Németh, 2010). The risk behaviour factors include, among others, the average frequency of smoking. The ratio of those who consume alcohol on a weekly basis can be rated as medium compared to the European average (Schmid & Fotiou, 2008). As opposed to this, it can also be stated that considering international suggestions (Strong et al, 2005), young people in Hungary do not do sports as much as it would be appropriate (Halmai & Németh, 2010), although physical activity positively correlates with conscious health behaviour (Tari-Keresztes, 2009).

The aim of our study is to explore the health behaviour of children in the age group of 10-14 years compared to literature, what kind of harmful habits are present among them, what is the quality of their nutrition. Furthermore, we have studied their habits concerning doing sports, and their free-time activities.

The research was conducted in the form of a self-completing questionnaire in four different institutions in Nyíregyháza (N=285), in May 2014. During evaluation, we have used the multivariate function analysis besides frequency researches and cross table reference.

According to our results 85.8% of the students have never smoked a cigarette, but in the case of alcohol consumption, significant differences can be seen related to sex and grade. 43.2% of the students have breakfast on each of the schooldays of the week. The girls consume significantly more vegetables and fruits than the boys; however, doing sports regularly is more frequent among the latter (Pearson Chi-Square=0.000).

Theoretical background – The concept of health

It is widely known that it is easier to specify illness than health, because the opposite of illness is not health but not-illness, and health is completely another notion (Könczei, 1987). Numerous researchers from a number of fields of research have been preoccupied with determining the complex notion of health and the exact determination thereof. In our study we set *Bíró*'s (2004) definition of the notion of health as standard. According to the author, if health is considered to be the balanced state of the individual physically, mentally and socially, then at the same time it also means that health has physical, mental and social prerequisites which shall act together in harmony in the personality.

Health awareness means the formation of such elements of health behaviour that promote health improvement and influence one's state of health rationally, via cognitive control (Huszár & Bognár, 2006). Health behaviour is affected by psychological and socio-cultural factors. In the case of psychological factors Matarazzo distinguishes two types of health behaviour. The preventive type (healthy eating, physical activity, safe travelling, safe sexual behaviour) where cognitive elements are of primary importance, and the pathogen type (smoking, alcohol consumption and drug abuse) (Fürediné, 2008). According to *Prisztóka* (1998) health is a physical-mental state of wellbeing commonly determined by the biological characteristics of the person, the factors of natural and artificial and the socio-economical environment. Health expresses the stabilizing properties of the body against external effects, and thus means the state of the overall physical, mental and social wellbeing (Insel et al., 1998). The worth of health – when it is still possible to maintain it – is not usually associated with any power persuading the person to act (Takács, 1989). Health behaviour and worth of health of the individuals clearly depend on the culture they live in, therefore, the value- and norm system of the society significantly contributes to the shaping and forming thereof (Ferron, 1997). Despite the fact that physical activity is of beneficial effect to health and general way of feelings, inactivity became the major factor contributing to illnesses in societies that follow an essentially inactive way of life (Vouri, 2004).

In improving health, society, school and family shall take a joint effort which includes maintaining, keeping and improving health determined in the childhood (Nyerges & Laki, 2004). Healthy lifestyle enables us to preserve health which however is not born with us (Bábosik, 2004). Its state is in close connection to age, ability to

work, physical and mental maturity, how one is nurtured, and it is influenced by social, individual factors and the natural environment (Makszin, 2002).

Health behaviour among adolescents

In 2010, a cross-national study of the research titled '*Health-Behaviour in School-aged Children*' in cooperation with the World Health organization (WHO) was completed on a sample of 8096 students and it is concerned in detail with the health behavioural habits of school-aged children from the upper grades of elementary school and of high school. We deem it important to introduce the results of this research and study in our paper, complemented by the results of other Hungarian and international researches.

Risk behaviour threatening health (smoking cigarettes, alcohol consumption)

Smoking and alcohol consumption are the two most common types of harmful substance consumption among adolescents (Pikó, 2010). There is a strong correlation between the two, and their joint appearance can often be observed (Johnson et al., 2000). The first attempts and trying out of these substances is often completed by the age of 8-14 years, but it happens most often in the age group of 11-13 years, that is, in the age group we are concerned about (Franzkowiak, 1986).

Skukélti was studying upper grade elementary school and high school students in 2005 (N=634) in Szeged. The result stated that almost half of the students smoke cigarettes occasionally or somewhat regularly, but the figures of alcohol consumption were far more devastating: 30% of the children are regular drinkers of alcohol (even to the extent of 1 to 2 times per week). In the same year *Székely* (2005) conducted three researches among school-aged children in Szeged (N=340) and we were informed that half of the students in high school smoke cigarettes, even if frequency is different. They show the greatest interest in drinking alcohol, therefore this age group is the most threatened in this respect. A Hungarian study from 2007 states that the parental education level is negatively affecting the alcohol consumption habits of their children. The children of parents (father and mother together) with higher levels of education drank more alcohol than those of lower levels of education (Pikó & Fritzpatrick, 2007). In the next year *Schmid and Fotiou* (2008) found that the ratio of those who consume alcohol on

at least weekly basis can be rated as medium compared to the European average; every third child in grade 5 has drunk alcohol at least once. *Mikulán and Pikó* (2012) studied the substance consumption of the adolescents who also regularly do sports, where the average age was 15.5 years. It was found that smoking habits of girls and boys do not differ considerably, but boys drink more alcohol and they do it more frequently than the girls. The parental education level also influenced frequency of harmful habits: those children who do sports and their parents have higher levels of education drank more alcohol more frequently than those of lower levels of education. According to the data of Health Behaviour in School-Aged Children (HBSC) 30% of the European 15 year-old children smoke cigarettes daily, and 29% of them consume alcohol on a weekly basis (Currie et al., 2008). We can state that the ratio of regular smokers (on a weekly basis) in Hungary on the complete sample is 21%, but in higher grades results are significantly higher, and there are major differences in the results of boys and girls too (Halmai & Németh, 2010).

Health protective behaviour (nutrition, physical activities)

Appropriate nutrition includes regular intake of protein (amino acid), vitamin and minerals in the ratio that is adjusted to one's biological needs (Farkas, 2004). According to *Malina and Bouchard* (1991) physical activity that is closely connected to the growth of a healthy child is 60 minutes, or even better, 90 minutes every day. Most of our children do not even get close to this ratio. It would be a vast overgeneralization of the situation of course if we drew a direct and straight connection between being overweight and physical activity, but with the help of the medical statements we can easily say that healthy eating and the appropriate physical activity is very much needed in order to achieve healthy growth (Farkas, 2004).

Nutrition

The role of nutrition is of essential importance both in the case of positive bio-psycho development and also in the case of shaping healthy adult lifestyle (Mathieson & Koller, 2006). In most developed countries nutrition can be correlated with the phenomenon of being overweight, and in the developing or poor countries the malnutrition is more frequent and pose a greater problem. The former is characterized by large amounts of energy intake, consumption of

food that is of high calories, and at the same time, fighting against obesity with a number of dietary methods (Farkas, 2004).

Among the main courses breakfast is the most important, because researchers have found that the appropriate amount of food consumed in the morning, at the beginning of the day, is essentially important for the school-aged children. 29.2% of the children never eat breakfast on schooldays, but 48.5% of them do eat breakfast on every school day. Data do not differ significantly in grade 5 concerning boys and girls, but they do in grades 5 (62.9%) and 7 (43.5%) among boys. Concerning weekend days, only 9.2% of the children answered that they do not eat breakfast even on Saturday and Sunday, but 77.2% eat breakfast on both days (Németh, 2010).

Fruits and vegetables are important sources of fibre and vitamins; sweets and carbonated soft drinks are rich in calories, that is, in fat and carbohydrates but do not contain enough nutrients. In the case of fruits consumption, 31.1% of the students answered that they consume fruits on a daily basis, but the ratio of those who do not consume fruits, not even on a weekly basis, is 13%. It has turned out that the older the boys are, the less fruit they eat. The situation in the case of vegetables is far worse. Only 23.6% of the children said that he or she eats vegetables on a daily basis, and many more do not eat them not even once in a week (17%). The unfavourable tendency towards older children and higher grades is apparent here also. Daily consumption of soft drinks which contain sugar and of sweets is true to one third of the students (29.1% and 30.6%, respectively). Of students in grade 7 boys consume considerably larger amounts of soft drinks containing sugar than the girls (Németh, 2010).

Those who regularly eat breakfast consume larger amounts of fruits and vegetables (according to the recommendations of the WHO in 2008 400 grams of fresh fruits and vegetables are to be consumed every day), than those who only seldom eat breakfast. Those who regularly eat breakfast drink less soft drinks and eat less sweets than those who never eat breakfast or only at certain times. Breakfast habits of the Hungarian youth falls short of the average of the other countries taking part in the HSBC report, however, fruit and vegetable consumption is somewhere in the middle; thus as a summary we can state that the international quality of the nutrition of children is to be improved (Németh, 2010).

Physical activity

A number of scholars have called our attention to the importance of physical activity outside school (Kozma, 2001). This includes having fun, taking part in pre-organized events (church, scouting etc), and also activities of self-improvement (library visits, workshops, trainings) (Juhász & Forray, 2008; Pusztai, 2009).

Positive effects of regular physical activity during school years appear not only in later decades but also improve youth health state, and contribute to the bodily, mental and social wellbeing of adolescents (Donaldson & Ronan, 2006). However, its low level increases the risk of obesity, diabetes and cardiovascular diseases. (Strong et al., 2005). Moreover, a number of empirical research calls our attention to the positive effects of regular sport in somatic, psychological and psychosocial terms. Sports can be seen as values that contribute to health improvement and preservation, therefore they have a very important protective factor (Pikó & Keresztes, 2007). At the same time, there are constant reminders of researches that those who regularly do sports are more inclined to try out new harmful habits and consume harmful substances. In the case of adolescents, a number of authors (Page et al., 1998; Pikó, 2000) found that young people doing sports consume more alcohol and use more drugs than those of their peers. A similar conclusion was stated by Kovács (2014) in the case of researching students in tertiary education. By examining and analyzing the data of the Szeged Youth Research of Mikulán, Keresztes and Pikó (2010) concluded that the higher the level of free-time activity is, the lower is the level of smoking and the more conscious nutrition becomes (these show significant correlations) but these do not show any correlations to the frequency of alcohol consumption.

Ágnes Bihari et al. (1990) have categorized movement activity into three different subsections or levels when researching possibilities for young people to maintain and improve their health: active (doing sports outside school P.E. lessons), doing sports but not actively, and inactive (Bihari et al., 1990). We may categorize our empirical results according to these subsections, but we have chosen to break down the sports level of the sample to club, free-time activity and school as variables.

According to the results of the last twenty years, more than half of the youth in the age group from 7 to 25 years do only moderate physical activities, and more than 50% of those who do not do sports are active only for 1 to 2 hours per week. Nyerges and Laki (2004) found that 58.2% of the upper grades of high school students do sports outside school physical education lesson (P.E.). As opposed to this, a sad tendency is emerging from our research: only 42.2% of

the age group from 15 to 29 years do sports outside school, which further declines to 33.7% in the age group of 20-24 years, and it is found to be only 25% in the age group 25-29 years. Among the elementary school children asked in the sample 17.3% seems to do the necessary amount of physical activity, 30.7% has less thereof, and 34.5% has only a very little physical activity. 66% of the young have other types of physical activity outside school at least twice a week, although this ratio constantly decreases when they grow older. Considering international recommendations only 20% of the Hungarians have enough physical activity (Halmai & Németh, 2010; Strong et al., 2005). Taking into consideration a number of psychological factors contributing empirical studies, boys have advantage of regular sports as opposed to girls (Halmai & Németh, 2010; Ács, Borsos & Rétsági, 2011; Pikó & Keresztes, 2007), which was also reinforced by one of our earlier papers (Fintor, 2014).

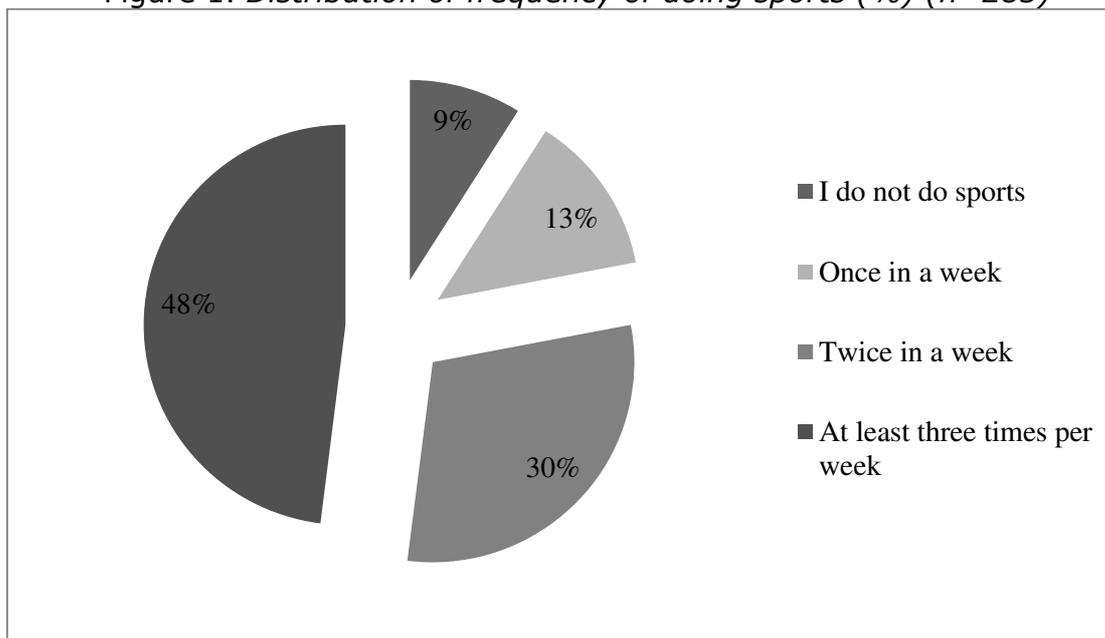
Apart from family, education can actively take part in promoting the fulfilment of health improvement aims (Frantz & Chandeu, 2011). Therefore it is important for the educational institutions to determine regular physical activities as values, to help forming positive reactions towards active life, and to promote commitment to regular physical activity (Csányi, 2010). Of the places of everyday life, apart from the healthcare institutions, educational institutions are the places which have a hundred-years old tradition in teaching their children to live healthier (Kéri, 1998).

Empirical research

Sample, data entry, methods

Data collection was accomplished in four different types of schools (state-funded, church-funded, ministry-funded (teacher-training), other (Waldorf)) in Nyíregyháza, in May 2014. Before data provision we have met the institution principals in person, and the completion of the questionnaire happened during school lessons which took about 20 minutes. Completion of the questionnaire was voluntary and anonymous. The sample consisted of a grade (senior classes) from each of the four schools, thus our research is representative (only) of the upper grades of the four schools. Item number of the sample was N=285. 49.8 % of those who provided answer were boys and 50.2 % were girls. In the case of grades the distribution is equal; considering the frequency of doing sports the ratio of those who do sports at least three times per week (outside school) is the largest (47.7%) (Figure 1). This remains less than what the researches of *Nyerges and Laki* (2004) found (58.2%).

Figure 1. *Distribution of frequency of doing sports (%) (n=285)*



Source: Author's own figures

Beyond socio-demographic factors the questionnaire also included questions related to free-time activities, sporting habits, habits that are harmful to health and preventive health awareness; for the latter the standardized questionnaire of the Health Behaviour in School-Aged Children, research in cooperation with WHO (*Az Iskoláskorú gyermekek egészségmagatartása című, az Egészségügyi Világszervezettel együttműködésben zajló kutatás*) was used. Our data were analyzed by the SPSS 20. questionnaire processing programme. During evaluation, we have used the multivariate function analysis besides frequency researches and cross table reference.

Hypotheses

H1

- Considering boys and girls the former show larger proportions of harmful health behaviour (H1a).
- With the increasing of grades the frequency of alcohol consumption is increasing (H1b).
- Physical activity negatively correlates with alcohol consumption and smoking (H1c).

H2

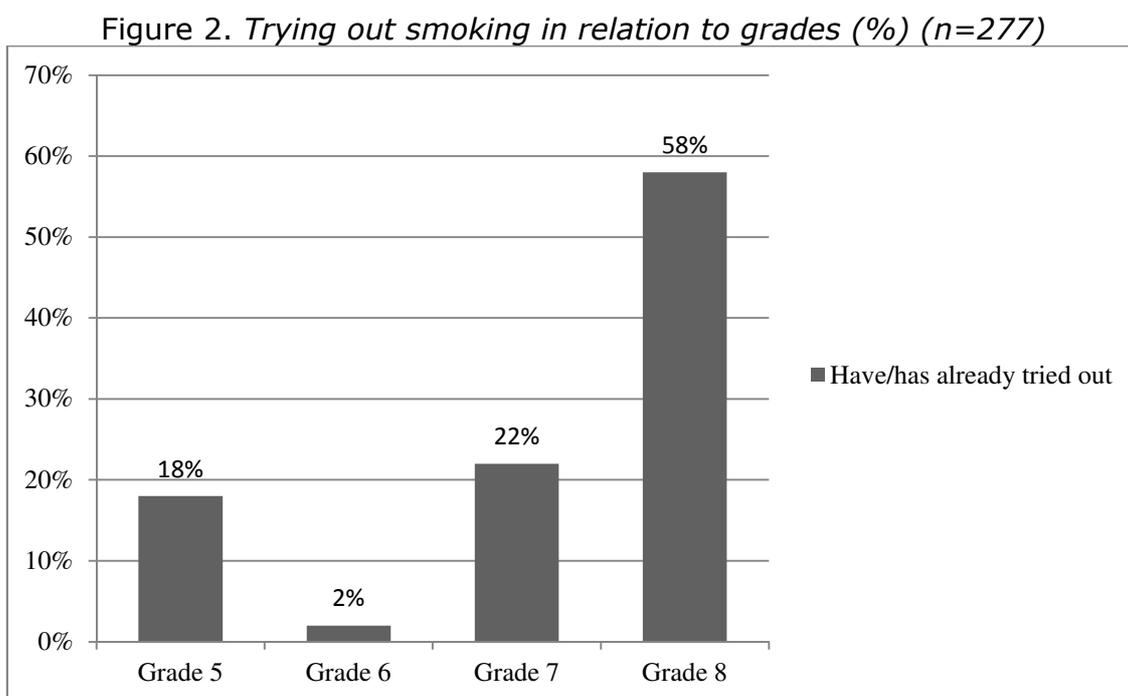
- At least half of the sample regularly eats breakfast (H2a).
- Girls consume more fruits and vegetables than boys (H2b).

- With being in higher grades students consume less sweets and soft drinks containing sugar (H2c).
- Those who do sports regularly (sportsmen) have a healthier nutrition than their peers who do not do sports (H2d).
- The vast majority of those who regularly do sports are boys. (H2e).
- Frequency of doing sports decreases with being in higher grades (H2f).

Results

Our first group of questions was concerned with the analysis of the harmful health behaviour habits (smoking, alcohol consumption). We have not found any essential differences in terms of boys and girls and frequency of doing sports when we have been studying smoking and trying out thereof.

We have not found any differences either in relation to grades which the students are in among those who do not smoke; the distribution of those who has never smoked is even. However, we could observe essential differences in the case of those who smoke 1 or two cigarettes and those who occasionally smoke when we have run the Kruskal-Wallis test (Chi-Square=24.943, $p=0.000$) (Figure 2.). Students in grade 6 are those who smoke the least and we have received outstanding results in the case of children in grade 8. (58%).

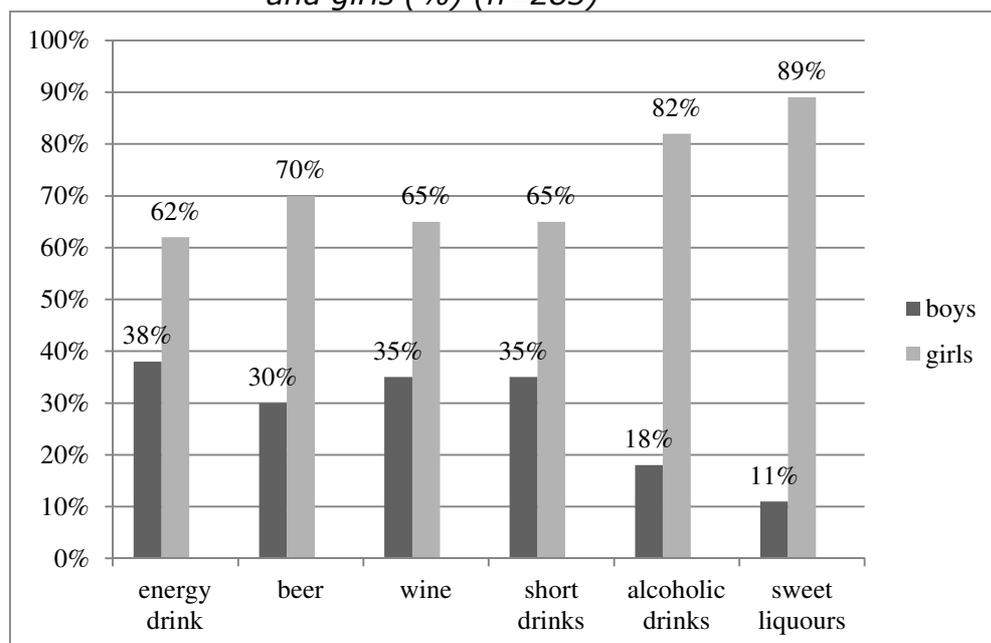


Source: Author's own figures

When examining the consumption of unhealthy drinks (energy drinks, beer, wine, spirits, alcoholic beverages, sweet liquors) we have found significant differences both in terms of boys and girls and grades. In this part of our analysis we have taken into consideration only those students who consume these substances in any forms or frequency. It is true to each kind of drinks that girls consume of it more than boys (Figure 3). 90% of those who consume energy drinks on a daily basis are girls. 65% of those who consume spirits at least on a monthly basis are girls, and with this we found that our hypothesis did not prove right (H1a).

In the case of grades it turned out that students in grade 6 consume less of these harmful substances, but students in grade 8 have extremely high results and thus our assumption was not proven (H1b).

Figure 3. *Distribution of monthly harmful substance consumption by boys and girls (%) (n=283)*



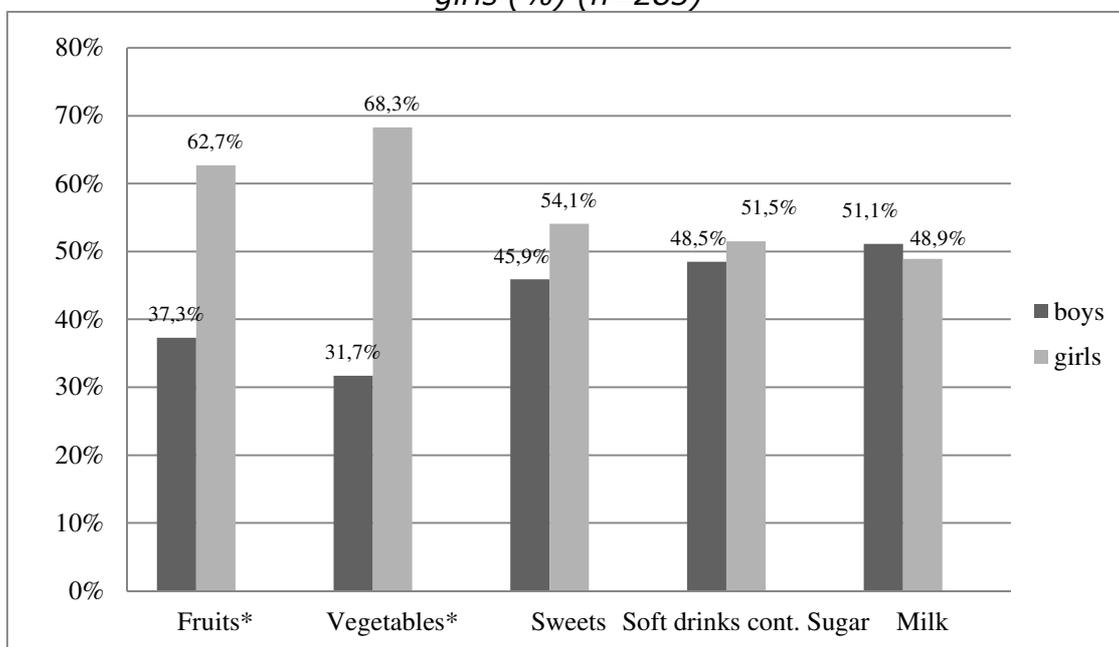
Source: Author's own figures

There was no significant difference in terms of boys and girls and frequency of doing sports in the answers given to the question: "Have you ever been drunk?"; however, there are essential differences in terms of grades (Mean Rank (5)=140.67, Mean Rank (6)=122.26, Mean Rank (7)=133.28, Mean Rank (8)=161.8, Chi-Square=23.069, $p=0.000$). It has been found here that the highest values were given by those students who are in grade 8. In terms of frequency of doing sports we have not found any major differences, thus our hypothesis proved wrong (H1c).

Our second group of questions was centred around nutrition as one of the health protection elements. There are significant differences between habits of students during weekdays and on the weekends in terms of eating breakfast (Pearson Chi-Square=31.559, $p=0.000$). 28.7% of them never eat breakfast during weekdays (which is the same as the results found by Németh in 2010), however, this value decreases to only 5.9% in the weekend. This means that 70% of those who do not eat breakfast in the morning on weekdays eats breakfast during the weekend. Everyday breakfast shows higher figures (83.1%) in the weekend (we have found higher results than Németh, 2010), than on weekdays (43.1%). Our hypothesis has been confirmed only partly because less than half of the sample eat breakfast in the morning during weekdays, however, this ratio rises above 50% in the weekend (H2a).

We have also examined the students' consumption of fruits, vegetables, sweets, soft drinks containing sugar and milk. We have found significant differences only in the case of fruits and vegetables consumption – girls consume essentially more of these than boys (Mann-Whitney $_{gy}=8593.5$, $p_{gy}=0.019$, Mann-Whitney $_z=7920.5$, $p_z=0.001$). 68.3% of those who consume vegetables on a daily basis and 62.7% of those who consume fruits on a daily basis, are girls (Figure 4). With this, our hypothesis is proven (H2b).

Figure 4. *Distribution of the daily consumption of food in terms of boys and girls (%) (n=283)*



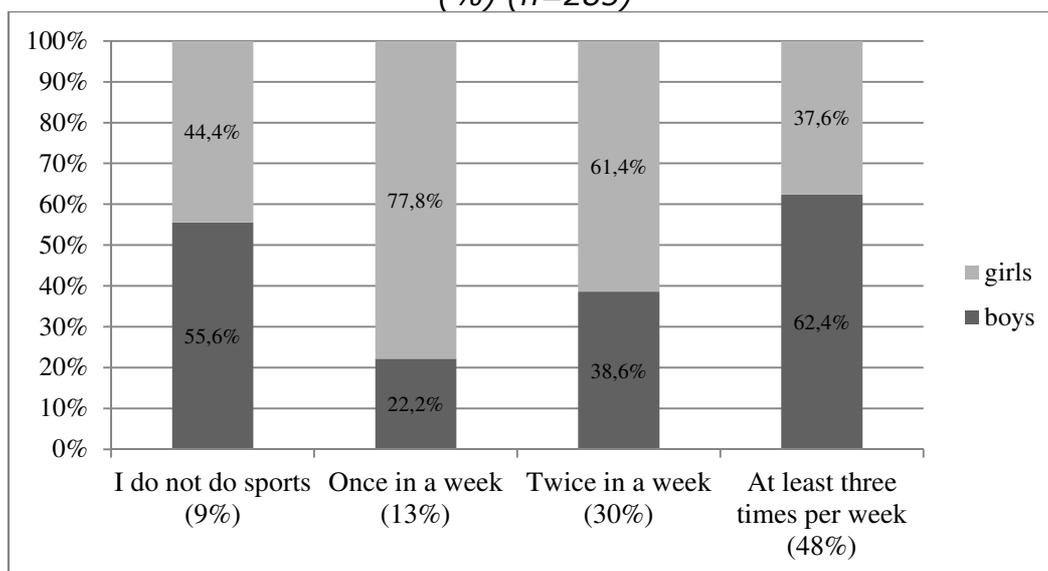
*= significance

Source: Author's own figures

We have also examined consumption habits in terms of grades. We have only found significant differences when examining the case of consuming sweets (Chi-Square=9.913, $p=0.019$) and soft drinks containing sugar (Chi-Square=13.406, $p=0.004$), because in grade 5 the consumption ratio of these is still extremely high, which gradually decreases with the increase of age, therefore our hypothesis has been proven (H2c). During evaluation of sporting habits we have not found any significant differences, which mean that frequency of physical activity does not influence nutrition habits of those in the sample (H2d).

Physical activity as a protective factor was also examined. 48% of the students do some kinds of sports three times per week (outside school), which can be qualified as regular; 62.4% of them are boys, and 37.6% of them are girls (Figure 5). The distribution of the frequency of doing sports in terms of boys and girls show significant value (Pearson Chi-Square=23.952, $p=0.000$). With this, our hypothesis was proven (H2e). Girls appear to have outstanding values when analyzing those who do sports once per week (77.8%).

Figure 5. *Distribution of frequency of doing sports in terms of boys and girls (%) (n=285)*



Source: Author's own figures

There is no traceable correlation between higher grades and frequency of doing sports. 29.3% of those who are in grade 6 do sports at least three times per week, and the ratio is 17.3% with students in grade 7. Thus our hypothesis did not prove right (H2f), as there is no essential decrease of the frequency of doing sports with increasing of age in this sample.

Summary

In our paper we have studied upper grade elementary school students from Nyíregyháza in terms of different aspects of health awareness behaviour. We have used smoking and alcohol consumption from the harmful habits, whereas we picked nutrition and physical activity and also spending free time from the health protection elements for research.

It is proven that adolescents are the most threatened in this age because trying out of smoking and alcohol consumption, the two most commonly used harmful substances, happen around that time. Researches are constantly calling our attention to the positive significance of physical activity, but parallel with this, healthy nutrition habits are also essential when striving to protect our health. Analysis of the 10-14 year old age group is extremely important because the examples and activities seen and internalized here may have an effect on the lives of the members of the growing generation. It is by no means unimportant how they spend their free time.

The hypotheses of our empirical study were collected and singled out on the basis of previous studies, which do not correlate in every sense. In the case of smoking and alcohol consumption we have not found significant differences with the increasing of age (in higher grades) (which is contrary to the researches conducted by Halmai & Németh, 2010). At the same time the values of students in grade 5 and grade 8 are significantly higher than the others. It was surprising to see that the girls are more exposed to harmful substances and consume more of these than the boys. 48% of the sample do sports at least three times per week, which does not decline in higher grades (on the contrary to the research of Ács, Borsos and Rétsági (2011). Regular physical activity as a protective factor is not present in their lives as opposed to the behaviour habits threatening health (this confirms the research of Kovács, 2014, but it does not correlate with the research of Pikó and Keresztes, 2007). In the case of health protective habits we have described significant differences concerning for example habits of eating breakfast on weekdays (43.1%) and in the weekend (83.1%). Most of those who consume vegetables (68.3%) and fruits (62.7%) on a daily basis are girls (this correlates with the researches conducted by Németh, 2010).

Our study strengthens our consciousness that we have to teach, to educate students to lead an active life, do sports. Our objectives can be reached the easiest way if we use the definition of health specified by Bíróné (2004), and see it as a huge correlation of physical, mental and social elements and factors.

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