

Differences regarding health risk behaviours between sport club participants and non-participants among Romanian high school students

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Abstract

This study focused on assessment of health risk behaviours among Romanian high school boys from Cluj-Napoca, Romania and to the best of our knowledge is the first Romanian study which makes a clear distinction between three categories of participants: high school boys involved in intense sport training and competition (football players), high school boys participating at least once per week in a sport club (sport club participants) and the male high school students who do not do participate at least once per week in a club sport (sport club non-participants). A cross sectional study was performed among 113 male high school students aged 15-18 from grades IX-XI of three high schools from Cluj-Napoca (31 sport club participants, 82 sport club non-participants) as well as among 40 male high school students 15 to 18 years old, participating in a competition football club from the city (football players). Health risk behaviours were assessed through means of anonymous questionnaires. The results show that both football players and sport club participants had statistically significant more involvement in physical activity and better nutritional habits when comparing with sport club non-participants- they had the tendency to eat more frequent the breakfast, fruits and vegetables, while eating less frequent sweets. With regard to smoking and alcohol use as well as violence related behaviour, no significant differences were found between sport club participants and non-participants, while football players behaved differently than the other two groups with regard to several issues; smoking, electronic cigarette use and alcohol use were less frequent among football players, but they were more frequent exposed to verbal aggression as well as to offended messages sent by phone or social media platforms. This article presents an exploratory study which shows several differences with regard to health risk behaviours of Romanian high school boys based on their involvement in different types of sport training, offering information for guiding future research and health education in this field.

Key words: risk behaviours, Romanian adolescents, football players, sport club participants,

Introduction

There is solid evidence on the detrimental effects on health and well-being of inappropriate body weight as well as various forms of risk behaviours, such as inappropriate nutritional habits and sedentary lifestyle, active and passive smoking, excessive alcohol use, various forms of violence [1-8]. These health-compromising behaviours are often started in adolescence and while some adolescence do not engage in health risk behaviours or just experiment some of them and learn to avoid them, data from several countries underline that variable percentages of adolescents seriously involve themselves in risk tacking behaviours which persist many times also into adulthood [1, 6].

Different studies underline that ongoing efforts to develop effective prevention strategies reveal the complexity of these public health problems as well as the need for more discriminating research to inform those efforts [9]. One valuable distinction can be made, for example, between adolescents who are involved in organised sport activity (participation in sport clubs) and those who are not as they have very different experiences that could affect their health risk behaviours [9-11].

Although they account for only a small portion of time, organized leisure-time activities (OLTA) seem to protect against several risk behaviours [12]. A recent study from Czech Republic based on data from the 2013/2014 Health Behaviour in School-Aged Children study on 10,279 11-, 13-,

and 15-year-old Czech adolescents (49.2% boys) show that OLTA participants were less likely to smoke, get drunk repeatedly, or skip school and, in contrast, more likely to get injured and fight repeatedly. The associations with lower occurrence of risk behaviours were the strongest for artists, while none was significant for adolescents participating only in team sports [1].

The perceived and objective benefits of participation in sports for adolescents are numerous and affect multiple domains, including physical, physiological, and social development [13].

Moreover, several studies showed that adolescents involved on regular bases on sport activities, such as participation in sport clubs have the tendency to be more active, to have better nutritional habits and body composition. With regard to the influence on smoking, consumption of alcohol and involvement in violent acts the results are mixed, depending on several socio-demographic characteristics of the adolescents (country, age, gender, and ethnicity) as well as kind of sport which is

practised, level of involvement and competition type of sport activity [9-11, 13,14].

The objective of this study is the evaluation of several health risk behaviours in sport club participants and non-participants among Romanian high school boys from Cluj-Napoca, Romania.

Methods

Study sample and procedure

A cross sectional study was performed in the school year 2015-2016 in Cluj-Napoca, a big city from North-West Romania.

It involved 113 male high school students aged 15-18 from grades IX-XI of three high schools of the city (the study involved 3 classes of students for each grade) as well as among 40 male high school students 15 to 18 years old, participating in a competition football club from the city (they participate in intense sport training and sport competitions).

The study received informed consent from the directors of the high schools as well as the management of the football club.

Table 1. Weight, nutrition and physical activity related behaviours

	Football players N=40 %	Sport clubs participants N=31 %	Sport clubs non-participants N=82 %
Being overweight	10	19.4	18.3
Performing at least one hour of physical activity/day	100 ^b	96.8 ^c	81.7
Eating breakfast at least 5-6 times/week	100 ^{a,b}	83.9 ^c	53.7
Eating fruits at least 5-6 times/week	50 ^b	48.6 ^c	25.6
Eating vegetables at least 5-6 times/week	45 ^b	29 ^c	13.4
Eating sweets at least 5-6 times/week	0 ^{a,b}	38.6 ^c	53.7
Drinking sugary beverages at least 5-6 times/week	0 ^{a,b}	38.6	34.1
Drinking coffee at least 5-6 times/week	0 ^{a,b}	25.8	34.1

a-statistically significant differences between football players and sport clubs participants at chi² tests

b- statistically significant differences between football players and sport clubs non- participants at chi² tests

c- statistically significant differences between sport clubs participants and non-participants at chi² tests

Students were informed that participation is voluntary and were asked to fill in an anonymous questionnaire assessing several socio-demographic characteristics as well as health risk behaviours. The data presented in this article refers to nutritional behaviour and involvement in physical activity, smoking behaviour and electronic cigarette use, alcohol use and involvement in different forms of violence. The nutritional behaviour includes the consumption of breakfast, fruits, vegetables, sweets, sugary beverages and coffee at least 5-6 times a week.

The involvement in physical activity was assessed by asking high school students about number of days in the last week when they were involved in vigorous physical activity (A) and moderate physical activity, including walking (B) as well as how long (how many minutes) was the duration of vigorous activity (C) and moderate activity (D). Similar with other studies, we considered that 30 minutes of vigorous physical activity were equivalent to 60 minutes of moderate physical activity [15]. The medium number of minutes per day (PA) of moderate physical activity was calculated according with the following formula: $PA = [2(A \times C) + (B \times D)]/7$.

Participation at least once per week in a sport club was also investigated and 31 students out of the 113 high school students declared this weekly involvement in a sport club.

Weight and height were also measured. Weight was measured in minimal clothing, without shoes, to the nearest 0.1 kg, with an electronic step scale; height was measured to the nearest 0.5 cm in the same condition using a stadiometer.

Data analyses

Body mass index (BMI) was calculated from weight and height measurements, based on the following formula: $BMI = \text{weight (kg)}/\text{height (m)}^2$. Normal nutritional status, underweight, overweight, obesity were established based on the World Health Organization (WHO)

recommendations regarding BMI for age and sex (z-scores) [16]:

-Overweight: $>+1SD$ (equivalent to BMI 25 kg/m^2 at 19 years)

-Obesity: $>+2SD$ (equivalent to BMI 30 kg/m^2 at 19 years)

-Thinness: $<-2SD$

This article is also presenting the prevalence of several health risk behaviours among the study sample.

The data are presented separately for football players (N=40), for high school students participating at least once per week in a sport club (sport club participants; N=31) and the high school students who do not do this (sport club non-participants; N=82). χ^2 tests were used to assess the differences between the three groups with respect to the investigated issues.

Results

Weight, nutrition and physical activity related behaviours

Table 1 shows that 10% of the football club participants were overweight (including obesity), while the percentage was double among both high school students who participate or do not participate to sport clubs on weekly bases.

All of the football players and almost all of the sport club participants were performing at least one hour of physical activity every day, while three thirds of sport club non-participants did so.

Breakfast consumption at least 5-6 times/week was statistically significant higher among football players (100%) and sport club participants (83.9%) than sport club non-participants (53.7%). At the same time, eating fruits and vegetables at least 5-6 times/week was statistically significant higher among football players and sport club-participants than sport club non-participants. None of the football players declared eating sweets, sugary drinks and coffee at least 5-6 times per week, while all these three behaviours were more frequent among sport club participants (one third of them eat sweet and sugary drinks 5-6 times

a week and one quarter drink coffee at least 5-6 times a week) and sport club non-participants (half were eating sweets at least 5-6 times/week, while soft drinks and coffee consumption at least 5-6 times per week were declared by one third of them) (see Table 1).

Table 2 shows that football players had lower percentages than the other high school students regarding smoking at least once in the lifetime (20%) and in the last month (20%), intention to smoke in the next year (7.5%) as well as exposure to second hand smoke at least once in the last week in public places (47%) and at home (10%). Among sport club participants and sport clubs non-participants similar percentages were observed with regard to smoking behaviour (around half have smoked at least once in the lifetime and one third did so in the last month) and intention (one out of

three students intend to smoke in the next year) and exposure to passive smoking in public places (two thirds) or at home (almost one third).

The majority of students heard about electronic cigarettes (e-cigarettes), but while football players did not try this type of products and do not intend to try them in the future, both among sport club participants and non-participants around half of the students tried them at least once in the lifetime and 13% did so in the last month.

Consumption at least once per week of different alcohol drinks was 0% for football players, while for sport club participants and sport clubs non-participants the percentages were varying between less than 10% for strong drinks to one quarter or even more for beer and wine (see table 2).

Table 2. Other health risk behaviours

	Football players N=40 %	Sport clubs participants N=31 %	Sport clubs non-participants N=82 %
Smoking at least once during lifetime	20 ^{a,b}	54.8	50
Smoking in the last month	20	35.5	36.6
Intention to smoke in the next year	7.5 ^{a,b}	35.5	30.2
Exposure to passive smoking at home in the last week	10 ^{a,b}	29	31.7
Exposure to passive smoking in public places in the last week	47.5 ^b	67.7	68.3
Heard about e-cigarettes	80	83.9	90.2
Used e-cigarettes at least once in the lifetime	0 ^{a,b}	48.4	48.8
Used e-cigarettes in the last month	0 ^{a,b}	12.9	13.4
Intention to use e-cigarettes in the next year	0 ^{a,b}	12.9	7.3
Drinking beer at least once a week	0 ^{a,b}	19.4	24.4
Drinking wine at least once a week	0 ^b	25.8	30.5
Drinking distilled drinks at least once a week	0	12.9	7.3
Alcohol intoxication at least once during lifetime	50	55.8	69.5
Alcohol intoxication more than three times during lifetime	10 ^{a,b}	29	31.7
Being involved in a physical fight in the last year	15	22.6	18.3
Being aggressed verbally in the last year	85 ^{a,b}	51.6	53.7
Being aggressed through messages sent by phone or social media platforms in the last year	50 ^{a,b}	25.8	25.6

a- statistically significant differences between football players and sport clubs participants at chi² tests

b- statistically significant differences between football players and sport clubs non-participants at chi² tests

c- statistically significant differences between sport clubs participants and non-participants at chi² tests

At the same time, half of the football players and sport club-participants have experienced alcohol intoxication at least once during lifetime, while 10% of the first group and 29% of the second group have done this more than three times during lifetime. Among sport club non-participants alcohol intoxication at least once during lifetime and more than three times during lifetime was declared by two thirds, respectively almost one third of the group.

On the other hand similar percentages of all three groups declared involvement in physical fights in the last year (less than one in five high school students), while football players declared more frequent than the other two groups that they were aggressed verbally or through messages received by phone or social media platforms (see Table 2).

Discussions

This study focused on assessment of health risk behaviours among Romanian high school boys from Cluj-Napoca and to the best of our knowledge is the first Romanian study which makes a clear distinction between three categories of participants: high school boys involved in intense sport training and competition (football players), high school boys participating at least once per week in a sport club (sport club participants) and the male high school students who do not do participate at least once per week in a club sport (sport club non-participants).

The results show that one of five sport club participants as well as non-participants were overweight, while only one out of ten football players were overweight. Another Romanian study performed a pooled analysis of cross-sectional studies published between 2006 and 2015 assessing physical development of Romanian children and adolescents and showed that the prevalence of overweight (including obese) subjects was 28.3% [17].

With regard to involvement in physical activity our study show that the majority of study sample respect the recommendations of performing at least one hour of physical activity every day[8], with sport club participants and football players performing statistically significant better with respect to this issue than sport club non-participants.

At the same time, both football players and sport club participants had statistically significant better nutritional habits when comparing with sport club non-participants-had the tendency to eat more frequent the breakfast, fruits and vegetables, while eating less frequent sweets. Nevertheless the consumption of fruits and vegetables at least 5-6 times per week was modest or low for all three groups- only half of the football players and sport club participants and one quarter of the sport club non-participants declared eating fruits at least 5-6 times/week, while the consumption of vegetables with this frequency was declared by less than half of the football players, one third of the sport club participants and less than 15% of sport club non-participants. Other studies performed among Romanian adolescents and other age groups also underline that many Romanian people do not respect the recommendations of eating fruits and vegetables every day [18, 19].

None of the football players recognised the consumption of sugary beverages and coffee at least 5-6 times/week, while around one third of the sport club participants and non-participant did so.

With regard to smoking and alcohol use as well violence related behaviour, no significant differences were found between sport club participants and non-participants, while football players behaved differently than the other two groups with regard to several issues.

Several studies underline that smoking among Romanian high school adolescents is an important public health problem while the use of electronic cigarettes is a new concerning issue [20, 21]. In our study, football players had the tendency to declare less often smoking during lifetime (20% of the football players vs. half of the other two groups) and in the last month (20% of the football players vs. one third of the other two groups), as well as intention to smoke in the next year (7.5% of the football players vs. one out of three subjects from the other two groups). Exposure to passive smoking is another issue of concern, with 10% of the football players and one third of the other two groups being exposed to passive smoking at home, while half of the football players and two thirds of the other groups being exposed to passive smoking in public places. The study was performed before the come into force of the new legislation which prohibits smoking in closed public places in Romania, while

the study did not make a differentiation between closed and opened public spaces.

None of the football players tried e-cigarettes, while half of the students from the other two groups did so, while around 13% of them used e-cigarettes in the last month. Another study performed among Romanian high school students (both girls and boys) in 2013 found a prevalence of e-cigarette use during lifetime and in the last month of 28.9% and 3%, but e-cigarette experimentation and use among adolescents is rising in several countries [21].

None of the football players declared consumption of alcohol drinks at least once a week, while the percentage of the other two groups who did so varied between 7% and 24%, depending on the type of alcohol drink.

Physical fight as well as **bullying** involvement in any form can have lasting physical and emotional consequences for adolescents and a big concern is raised by the risks of cyberbullying which might take the place or come together with the traditional bullying [22,23].

In our study less than 20% of the participants from all the three groups declared involvement in a physical fight in the last year, but comparing with the other two groups football players were more frequent aggressed verbally in the last year (85% vs. half of the other two groups) as well as through messages sent by phone or social media platforms (half of the football players vs. one quarter of the other two groups).

This study is subject of several limitations. It includes a limited sample of male high school students from Cluj-Napoca, Romania, which limits the generalization of results beyond its sample, while the results are based on information declared by participants. Future studies should include national representative samples of high school students involved in different types of sport training and should investigate in more detail several health risk behaviours as well as factors which influence them.

Nevertheless, this article presents an exploratory study which shows several differences with regard to health risk behaviours of Romanian high school boys based on their involvement in different types of sport training, offering information for guiding future research and health education in this field.

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