

ORIGINAL RESEARCH PAPER

**RELATIONSHIPS BETWEEN ADOLESCENTS'  
SELF-ESTEEM, AGGRESSION, TOBACCO AND  
ALCOHOL CONSUMPTION AND INVOLVEMENT IN  
SPORT ACTIVITIES AND GENDER**

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**Abstract**

*Involvement in sport activities has a positive effect on the adolescent's self-esteem, encourages the development of their identity and positive self-respect. It stimulates communication with their peers, helps to develop their physical abilities, shapes their character, encourages creativity, forms the system of values, prevents from bad habits and fosters their integration into society. The aim of our study was to determine the relationships between adolescents' self-esteem, aggression and tobacco and alcohol consumption and involvement in sport activities and their gender. The study was carried out at some comprehensive and specialized sport schools in Kaunas. The study applied questionnaire survey. The analysis did not reveal any statistically reliable differences in smoking habits with regard to sport activities and gender. Alcohol drinking habits differed in relation to gender and sport activities. The comparison of the respondents with respect to their gender revealed the differences in alcohol drinking and physical aggression. Boys distinguished themselves in a considerably higher physical aggression than girls. The sport involved female demonstrated lower hostility among their peers. The comparison of the indexes of self-esteem, smoking, physical and verbal aggression and anger among sport involved adolescents and the non-sport-involved ones did not reveal the statistically significant differences between the tested groups. Sport involved female demonstrated lower hostility than non-sport-involved peers. Sport involved male used alcoholic drinks more frequently than non-sport-involved peers. In the analyzed sample, the statistically reliable relations between the adolescents' sport achievements and their self-esteem and aggression were not determined.*

**Key words:** *adolescents, aggression, self-esteem, tobacco and alcohol consumption, sport, gender.*

## **Introduction**

Involvement in sport activities has a positive effect on the adolescents' self-esteem, encourages the development of their identity and positive self-respect. It stimulates communication with their peers, helps to develop their physical abilities, shapes their character, encourages creativity, forms the system of values, prevents from bad habits and fosters their integration into society.

Socialization can take place through participation in sports since sports provide learning environments where participants have the opportunity to learn competition, cooperation, roleplaying and discipline regarding rules, regulations, and goals. In this sense, sports can be seen as a laboratory of human experience. The structure of social relations in organized sports can give participants experience in various roles and group interaction, and contribute to the development of social characteristics that integrate them into existing larger social structure (Nucci, Young-Shim, 2005).

Unfortunately, a "win-at-all-costs" philosophy has often led to unethical and aggressive behaviors, impacting negatively and destructively on the development and well-being of young athletes and of society at large (Willemse et al., 2011). Research on behaviors of adolescents engaged in sports show that during a match cases of aggressive behavior are more common than those of pro-social behaviors (Kavussanu et al., 2009). Besides, older adolescent athletes display more frequent antisocial and less frequent pro-social behaviors (Romand, Pantaléon, Cabagno, 2008), they tend to view aggression as more acceptable behavior (Chow, Murray, Feltz, 2009). Some studies also indicated that males and females did not differ in pro-social behaviors, but males engaged in more antisocial acts than females (Kavussanu et al., 2009).

The links between health behaviors and sporting activities are very well documented. The use of psychoactive substances plays an important part in the studies. Ethnological and epidemiological studies have been conducted on different types of subject: athletes (Peretti-Watel 2001) and adolescents (Guilbert, Baudier 1998). In particular, the relationship between physical activity and tobacco consumption in youth has been explored and studies have found that the most active adolescents were less likely to smoke (Donato *et al.* 1997), particularly among girls (Aaron *et al.* 1995). Other researchers have drawn attention to the need for further analysis to

explore the effects of exercise on smoking cessation (Nishi *et al.* 1998; Usher *et al.* 2000). Concerning alcohol, similar studies have sometimes led to contradictory results.

On the one hand, some researchers have found that those most involved in sport have the lowest alcohol consumption (Donato *et al.* 1997), while other studies have shown that they consume more alcohol than others (Faulkner, Slaterry 1990; Machaud, Jeannin, Suris, 2006), especially among boys (Aaron *et al.* 1995). Other studies, more cautiously, failed to find a simple relationship between the two behaviors (Overman, Terry 1991). In order to try to go beyond those apparent contradictions, a curvilinear link between alcohol use and sporting activities has been mooted: as a whole, athletes drink less alcohol than those who perform no physical activity, but those who play sports intensively drink more than those who practice sports in moderation (Choquet, Hassler 1997).

*The aim of the study* was to determine the relationships between adolescents' self-esteem, aggression and tobacco and alcohol consumption and involvement in sport activities. In this study we extended previous research by (1) examining relationship between adolescent athletes' substance use and their self-esteem and aggression, and (2) evaluating adolescent substance use, self-esteem and aggression by gender.

We hypothesized (H1) that self-esteem and aggression would be negatively correlated with involvement in sport activities, and alcohol consumption values would be positively correlated with involvement in sport. Also we hypothesized (H2) that female athletes' scores on verbal aggression values would be higher than those of males, and scores on physical aggression would be lower.

## **Material and methods**

*Participants.* The total sample consisted of 609 adolescents (236 girls and 373 boys) from secondary schools and specialized sports schools in Kaunas. Their age ranged from 12 to 18 years (mean = 14.58; SD = 1.53). 262 adolescents (61 girls and 201 boys) were involved in various sport activities (basketball, track-and-field athletics, judo, boxing, and wrestling) while 347 adolescents (172 boys and 175 girls) were not involved. The adolescents involved in sport activities filled in their questionnaires at sports school after their training time; the adolescents uninvolved in sports – at school time during the breaks. The test procedure was performed with the permission of parents and school administration.

*Measures.* The survey-style assessment questionnaire was used in this study and it contained five sections. The first requested the participants'

gender and age. The other sections assessed adolescents' involvement in sports activities, self-esteem, aggression and substance use. (Each specific scale is described below).

Adolescents' involvement in sport activities was assessed by asking questions such as: "Are you playing any sport now?" Involvement in sports was considered as formal belonging to some sports club, school, circle, or group for a period longer than half a year, but did not include independent physical activities in leisure time.

Adolescents' level of self-esteem was determined by Rosenberg Self-Esteem Scale (1965). The 10 items of the RSES assess a person's overall evaluation of his or her worthiness as a human being (Rosenberg, 1979). Responses were coded on a 4-point scale ranging from 1 (*strongly disagree*) to 4 (*strongly agree*). Negatively worded items (3, 5, 8, 9, and 10) of the Rosenberg Self-Esteem Scale were reversed such that higher scores indicate higher levels of global self-esteem (Cronbach's  $\alpha=0.80$ ).

*The expression of aggression* was examined with the use of the Aggression Questionnaire (Buss, Perry, 1992), consisting of 29 items using a 7-point scale, ranging from *extremely uncharacteristic of me* (1) to *extremely characteristic of me* (7). AQ 29 items based on 4 factors: physical aggression, verbal aggression, anger and hostility (Cronbach  $\alpha=0.90$ ).

Alcohol drinking and smoking was determined with the Health Behavior in Schoolaged Children HBSC (*Variable List for HBSC Mandatory Questionnaire 2005/06*) questionnaire worked out for the international research concerning the state of the school-aged children's health and way of life. There were questions about smoking frequency and different kind of alcohol (beer, wine, champagne, vodka, weak alcoholic drinks, such as Fizz) usage frequency from „never” to „every day”.

*Statistical analysis.* The data were analyzed using SPSS for Windows 13.0 (*Statistical Package for Social Science 13 for Windows*). The differences of aggression were determined by a Mann-Whitney test for nonparametric data. Percentage distribution of tobacco and alcohol consumption was calculated using  $\chi^2$  statistic. Spearman's rank correlation coefficient ( $T_s$ ) was used in the relationship between variables. The results were considered statistically significant if  $p < 0.05$ .

## Results

The results of the analysis did not reveal any statistically significant differences in smoking habits with regard to sport activities and gender. 51.5% sport activities involved adolescents and 53% non-sport-involved ones claimed that they had never tried smoking; among them 56.4% female

and 49.9% male. During the research 90.8% sport activities involved adolescents and 87% non-sport-involved ones, among them 89.3% boys and 87.7% girls admitted that they were no-smokers.

Alcohol drinking habits differed in relation to gender. Boys drank alcoholic drinks, such as beer ( $\chi^2 = 17.84$ ;  $df = 4$ ;  $p < 0.01$ ) and vodka ( $\chi^2 = 18.64$ ;  $df = 4$ ;  $p < 0.01$ ) more frequently. Girls drank champagne ( $\chi^2 = 11.66$ ;  $df = 4$ ;  $p < 0.05$ ). Boys admitted more cases of alcohol intoxication frequency ( $\chi^2 = 27.08$ ;  $df = 4$ ;  $p < 0.01$ ). 6.5% sport involved adolescents and 6.1% non-sport-involved ones were alcohol intoxicated for more than 10 times, among them 6.8% boys and 2.5% girls. 53.8% sport involved adolescents and 59.7% non-sport-involved adolescents claimed that they had never been alcohol intoxicated, among them 53.1% male and 63.6 % female.

The comparison of the indexes of physical or verbal aggression, anger, self-esteem did not show statistically significant differences between the sport activities involved adolescents and the ones non-sport-involved ( $p > 0.05$ ). It is interesting to note that between the sport involved and non-sport-involved adolescents the difference was discovered only in hostility ( $p < 0.01$ ) (Tab. 1).

**Table 1**

Distribution of girls, boys and sport- involved and non-sport-involved adolescents by aggression and self-esteem

Variable	Involvement in sport		p	Gender		p
	Involved in sport R	Non-sport-Involved R		Boys R	Girls R	
Physical aggression	317.09	295.87	0.14	345.42	241.12	0.000**
Verbal aggression	290.09	316.26	0.69	292.93	324.08	0.03*
Anger	307.87	302.83	0.73	307.31	301.35	0.68
Hostility	281.33	322.87	0.004**	293.31	323.48	0.04*
Self-esteem	305.63	304.52	0.94	313.81	291.08	0.12

Notes. R — mean rank. \* —  $p < 0.05$ . \*\* —  $p < 0.01$ .

Next we explored differences of adolescent aggression and self-esteem by their involvement in sport (Tab. 1). Research results did not reveal statistically significant differences comparing physical, verbal aggression and anger. But adolescent involved in sport scores in hostility was significantly higher than non-sport involved ( $p < 0.01$ ). Research results did not reveal statistically significant differences comparing self-esteem by involved and non-involved in sport adolescents.

The comparison of the respondents with respect to their gender revealed the differences in physical and verbal aggression and hostility. Boys distinguished themselves in a considerably higher physical aggression than girls ( $p < 0.01$ ). Girls distinguished themselves in higher verbal aggression and hostility than the boys ( $p < 0.05$ ). Meanwhile, the differences between the indexes of smoking habits and self-esteem with regard to gender were not determined ( $p > 0.05$ ).

In order to find out the differences under the impact of sport activities, the sport involved female were compared with the non-sport-involved ones and the sport involved male with the non-sport-involved ones (Tab. 2).

**Table 2**

Distribution of sport-involved and non-sport-involved boys and sport-involved and non-sport-involved girls by aggression and self-esteem

Variable	Boys		p	Girls		p
	Involved in sport R	Non-sport-involved R		Involved in sport R	Non-sport-involved R	
Physical aggression	185.00	189.33	0.70	118.2	118.61	0.97
Verbal aggression	179.57	195.68	0.15	117.08	118.99	0.85
Anger	188.98	184.69	0.70	117.58	118.82	0.90
Hostility	179.37	195.91	0.14	103.51	123.73	0.046*
Self-esteem	182.24	192.56	0.36	123.28	116.83	0.52

Notes. R— mean rank. \* —  $p < 0.05$ .

The sport involved girls distinguished themselves in lower hostility ( $p < 0.05$ ) and drank fizz more frequently than the non-sport-involved girls ( $\chi^2 = 11.12$ ;  $df = 3$ ;  $p < 0.01$ ). Sport involved boys drank beer ( $\chi^2 = 16.43$ ;  $df = 4$ ;  $p < 0.01$ ), champagne ( $\chi^2 = 11.84$ ;  $df = 4$ ;  $p < 0.05$ ) and vodka ( $\chi^2 = 10.53$ ;  $df = 4$ ;  $p < 0.05$ ) more frequently than non-sport involved ones. The indexes showing smoking and self-esteem did not differ statistically significantly ( $p > 0.05$ ). It is interesting to note that between the sport involved and non-sport-involved boys the difference was discovered only in alcohol drinking that was discussed above. Sport involved boys drank beer ( $\chi^2 = 16.43$ ;  $df = 4$ ;  $p < 0.01$ ), champagne ( $\chi^2 = 11.84$ ;  $df = 4$ ;  $p < 0.05$ ) and vodka ( $\chi^2 = 10.53$ ;  $df = 4$ ;  $p < 0.05$ ) more frequently than non-sport-involved ones.

The research was aimed at the determination of the relations between self-esteem, aggression, smoking and alcohol consumption, sport activities

and gender. They were analyzed according to the Spearman's correlation coefficient ( $T_s$ ) (Tab. 3).

**Table 3**

Relationships (Spearman's) between adolescents' self-esteem, aggression, tobacco and alcohol consumption, gender and sport Achievements

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13
1.PA	1												
2.VA	0.51**	1											
3.A	0.61**	0.58**	1										
4.H	0.45**	0.44**	0.62**	1									
5.SE	-0.09*	0.00	-0.16*	-0.29**	1								
6.G	-0.29**	0.07	-0.04	0.06	-0.05	1							
7.SF	0.2**	0.13**	0.16**	0.11**	0.05	0.02	1						
8.AIF	0.34**	0.22**	0.23**	0.05	-0.01	-0.16**	0.45**	1					
9.BDF	0.27**	0.17**	0.2**	0.05	-0.04	-0.21**	0.34**	0.66**	1				
10.WDF	0.12**	0.14**	0.14**	0.03	-0.05	-0.01	0.17**	0.34**	0.55**	1			
11.CHDF	0.15**	0.18**	0.16**	0.09*	-0.02	0.05	0.27*	0.37**	0.48**	0.66**	1		
12.FDF	0.20**	0.12**	0.18**	0.1*	-0.07	0.03	0.33**	0.41**	0.51**	0.55**	0.53**	1	
13.VDF	0.29**	0.19**	0.24**	0.08	0.02	-0.22**	0.35**	0.61**	0.66**	0.56**	0.54**	0.53**	1

Notes. PA – Physical aggression, VA – Verbal aggression, A – Anger, H – Hostility, SE – Self-esteem, G – Gender, SF – Smoking frequency, AIF – Alcohol intoxication frequency, BDF – Beer drinking frequency, WDF – Wine drinking frequency, CHDF – Champagne drinking frequency, FDF – Fizz drinking frequency, VDF – Vodka drinking frequency. \*— $p < 0.05$ , \*\*— $p < 0.01$ .

Statistically highly reliable relations ( $p < 0.01$ ) of medium strength were determined among all the types of aggression: physical and verbal aggression ( $T_s = 0.51$ ), physical aggression and anger ( $T_s = 0.61$ ), physical aggression and hostility ( $T_s = 0.45$ ), verbal aggression and anger ( $T_s = 0.58$ ), verbal aggression and hostility ( $T_s = 0.44$ ), and anger and hostility ( $T_s = 0.62$ ). Another medium strength highly reliable relationship was determined between the frequency of alcohol drinking that reached the level of intoxication and smoking frequency ( $T_s = 0.45$ ). Alcohol intoxication was on the average related with the frequency of weak alcoholic drinks usage, such as Fizz, etc. ( $T_s = 0.41$ ), wine ( $T_s = 0.34$ ), champagne ( $T_s = 0.37$ ), stronger drinks, such as beer ( $T_s = 0.66$ ), and strong beverages, such as vodka ( $T_s = 0.61$ ). Significant relations were distinguished between a number of factors: smoking and beer ( $T_s = 0.34$ ), champagne ( $T_s = 0.27$ ), weak alcoholic drinks ( $T_s = 0.33$ ) and vodka ( $T_s = 0.35$ ) drinking frequency. Significant relations had also been found between smoking and physical aggression ( $T_s = 0.2$ ). It is worth stressing that self-esteem was inconsiderably negatively related only with hostility ( $T_s = -0.29$ ). The analysis of the relations between aggression and gender revealed an inconsiderable relation between physical aggression and male gender ( $T_s = 0.29$ ).

## Discussion

In this study, we surveyed the following issues: what were the adolescent self-esteem, aggression and bad habits, whether they differed among boys and girls and in the groups of different physical activity and which relationship existed between adolescent self-esteem, aggression, tobacco and alcohol consumption, gender and sport activities.

K. C. Kling, J. S. Hyde, C. J. Shower, B. N. Buswell (1999) analyses provide evidence that males score higher on standard measures of global self-esteem than females, but the difference is small. They take the assumption that potential reasons for the small yet consistent effect size are discussed. In our study the statistically reliable differences between gender and self-esteem were not determined.

Our findings in adolescent aggression regard those reported in the literature in which male adolescents reportedly have significantly higher estimates of physical aggression (Buss, Perry, 1992; Sullivan, 2005; Willemsse, Smith, van Wyk, 2011). L. Leoschut and P. Burton (2006) proposed that increased exposure to violence may enable adolescent males to learn physical aggression through modeling, vicarious observation and social sanctioning. This study agrees with reported findings in the literature where female adolescents were shown to have significantly higher estimates of hostility (Bjorkvist et al., 1992; Buss, Perry, 1992). It might be deduced that girls tend to show their aggression in a more socially appropriate and indirect manner to avoid possible social sanctions being imposed on them. On the other hand, boys may be more physically aggressive because the context demands it and it becomes necessary for them to defend themselves physically.

Dunn and co-authors (2011) found that over 40% of males and females adolescents had tried alcohol in their lifetime and over 34% of both gender had tried cigarettes. We established a similar trend in our research over 40% adolescents, among them 52% boys and 44% girls had tried cigarettes in their lifetime and about 40% adolescents claimed that they had tried alcohol in their lifetime, among them 50% male and 37 % female.

A. Bielskutė and J. Zaborskis (2005) revealed in their research that the alcohol addiction of schoolchildren at higher grades is very prevalent and correlates with smoking. Our results are consistent to their opinion. The relationship was determined between the frequency of alcohol drinking that reached the level of intoxication and smoking frequency.

The analysis of alcohol drinking habits showed that sport involved boys drank beer, champagne and vodka more frequently than non-sport-involved ones. Sport involved girls drank Fizz more frequently than non-



sport-involved ones. Such trends were also determined in previous studies (Martens, Dams-O'Connor, Beck, 2006). They found that participating on sports teams were correlated with the higher rates of alcohol use, supporting the negative stereotypes between athletics and alcohol consumption.

#### *Conclusion and perspectives*

The comparison of the indexes of self-esteem, smoking, physical and verbal aggression and anger among sport involved adolescents and the non-sport-involved ones did not reveal the statistically significant differences between the tested groups. Sport involved female demonstrated lower hostility than non-sport-involved peers. Sport involved male used alcoholic drinks more frequently than non-sport-involved peers. Our research results suggest that sports activities may decrease one type of aggression – hostility, especially among girls.

M. Dunn et al. (2011) had found that the more risk factors an adolescent has (e.g., poor family communication, peer pressure, lack of family support) the likelihood increases of being involved in risk behaviors such as substance abuse. Future studies on adolescent aggression, substance abuse and involvement in sport activities should use multivariate designs in an effort to better identify this research area.

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