

Social skills and their relationship to drug use among 15–16-year-old students in Estonia: An analysis based on the ESPAD data

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ABSTRACT

AIM – to investigate the relationship between levels of social skills and drug use among 15–16-year-old students in Estonia. **METHODS** – A total of 2,460 Estonian schoolchildren, born in 1995, participated in the ESPAD study in 2011. Individual social skills levels were measured with questions on prosocial and antisocial behaviours assessing how children perform within their social milieu. The relationship between social skills levels and drug use was estimated using chi-squared tests and logistic regression analysis. Odds ratios (OR) were adjusted for gender, parents' education and financial well-being, and 95% confidence intervals (CI) were used to estimate risks of drug use by social skills level. **RESULTS** – Students with lower social skills were at greater risk of starting smoking and smoking daily (50% risk increase). Students with low social skills had a higher risk of lifetime use of cannabis (OR=1.4; 95%CI 1.1–1.9), sedatives/tranquillisers without a prescription (OR=2.3; 1.4–3.9), and inhalants (OR=1.9; 1.2–3.0). The number of students with lower social skills was significantly higher among boys than girls: 35% vs 19%. **CONCLUSIONS** – Students' social skill levels were related to their licit and illicit drug use. A low level of social skills can increase adolescents' vulnerability to drug use. As boys' social skills levels appeared much lower and their drug use higher than that of girls, we suggest that gender-related risk prevention programmes of social skills training could be beneficial in preventing drug use.

KEYWORDS – social skills, prevention, ESPAD, Estonia

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Introduction

The European School Survey Project on Alcohol and Other Drugs (ESPAD) study among 15–16-year-old students has shown that lifetime use of illegal drugs has increased in several Eastern European countries, including Estonia (Hibell et al., 2012; Ter Bogt et al., 2014). According to ESPAD data, in 1995 in Estonia, 7% of students reported lifetime use of illegal drugs, but by 2011 this proportion had risen to 32%

(Kobin et al., 2012). Possible reasons behind this change could be that throughout these years several socio-economic changes have taken place in Estonia and the availability of illegal drugs has increased drastically. This underlines a serious need for prevention programmes aimed at all age groups, with children and youth as the main target.

Universal prevention strategies address

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the entire population within a particular setting (schools, colleges, families, community). The universal prevention strategies that focus on youth address mainly the family and schools: work in both of these spheres has shown promising outcomes (Botvin, 2000; Faggiano et al., 2005; Soole et al., 2008; Foxcroft & Tsertsvadze, 2011a). Family-based programmes contribute to the development of parenting skills such as parental support, nurturing behaviours, establishing clear boundaries or rules, and parental monitoring (Foxcroft & Tsertsvadze, 2011a). Several reviews and meta-analyses (Botvin 2000; Tobler et al., 2000; Faggiano et al., 2005; Soole et al., 2008; Foxcroft & Tsertsvadze, 2011b) have identified the characteristics of school-based drug prevention programmes with significant and beneficial impacts on preventing drug abuse. One of the most promising school-based approaches appears to be a competency enhancement programme, which emphasises the teaching of generic personal and social skills (communication skills, decision-making, problem-solving and coping skills as well as stress management, assertiveness, normative education, etc.). These programmes include the Life Skills Training Program in the United States (Botvin, 2000), the Unplugged programme in Europe (Faggiano et al., 2010) and the Good Behaviour Game in both the United States and Europe (Poduska et al., 2008).

Such programmes aim to reduce individual-level developmental and societal risks and to enhance protective factors known to be associated with adolescent drug use (Botvin, 2000). The promotion of social skills has an effect on the ability of young people to not only protect themselves

from substance abuse, but also to build competencies to adopt positive health behaviours, and make safer and informed choices about relationships (WHO, 2003). Social confidence, positive social relationships and age-appropriate assertiveness are all considered necessary for successful transition to adulthood (Scheier et al., 1999). For adolescents, ineffective social skills can result in incommunicativeness or being ostracised or bullied, because others consider their behaviour odd and inappropriate (Caldarella & Merrell, 1997). At the same time, the lack of social skills in communication with peers and teachers may be manifested in destructive coping mechanisms such as antisocial behaviour, including drug use (Botvin 1999; 2012). It has been shown that lower levels of social skills, in interaction with other individual and environmental factors, may increase experimental or regular use of drugs (Botvin & Kantor, 2000). Similarly Scheier et al. (1999) have shown that adolescents' poor social skills and poor refusal efficacy were significantly related to higher alcohol use.

Social skills have been defined in various ways, but generally refer to socially accepted learned behaviour which allows an individual to effectively communicate with others and prevent or avoid negative social relationships (Gresham, 2010). They have also been defined as specific behavioural skills used to respond in given social situations (Merrell, 2002). Danielson & Phelps (2003) point out that assessment efforts should be targeted at measuring whether a child actually performs these necessary skills. Thus, for the purposes of this study, we define social skills as interactions and tasks that a child performs

competently within his or her social milieu (Danielson & Phelps, 2003).

Although social skills training is a well-established intervention employed in school-based prevention programmes (Botvin, 2000; Faggiano et al., 2005; 2010), there is still discussion about what “really works” in drug prevention at the school level. The main criticism of preventive programmes based on social skills training is that solid evidence of data confirming the positive effects is missing, and there could be selective reporting that favours positive findings (Gorman, 2005; Pape, 2009). Inconsistent results have led to some hesitation in implementing prevention programmes for schoolchildren, and there have been calls to identify which factors are important in reducing drug use. Based on this discussion, we have aimed to investigate one theoretically validated factor: the level of social skills among Estonian teenagers. Given the importance of social skills, we have sought to quantify the current level of social skills among 15–16-year-old students in Estonia and to investigate the relationship between the level of social skills and drug use in Estonia.

Methods and data

For this study, we have used data from Estonian schoolchildren from the ESPAD study (Hibell et al., 2012). The ESPAD study was conducted from February to March in 2011 in 135 schools in Estonia (six schools refused to participate). A representative sample of 2,460 students born in 1995 answered the questionnaire

in either Estonian or Russian. The ESPAD methods are described in more detail in the Estonian report (Kobin et al., 2012). The full version of the ESPAD questionnaire is available on the ESPAD website (ESPAD, 2011).

Teenage licit and illicit drug use was estimated in the framework of the ESPAD study. To measure social skills, in addition to the ESPAD questionnaire, we used a questionnaire based on the Self-Report Social Skills Scale (Danielson & Phelps, 2003). The scale consists of 20 items designed to obtain information on students’ understanding of their social status and self-reported level of social skills. The scale comprised a series of statements, such as: “I look others in the face when they talk” and responses: “almost never, rarely, sometimes, most of the time, almost always”¹. The instrument contains questions about prosocial as well as antisocial behaviour, and therefore allows quantifiable information about a student’s social skill level to be obtained (Merrell, 2002). The scale was translated from English to Estonian and checked by back-translation, then piloted among 15–16-year-old students (n=57) in one school to see if the questions were easily and consistently understood and if the wording was appropriate for this age group. Based on the results of this pilot testing, three questions were left out as they were too complicated for students to grasp and the wording of three other questions was changed. Two questions on relationships with teachers were added, as it is recommended to study relationships with both coevals and adults

1 Some additional examples are: “I say when someone does something nice for me“, “I am bossy“, “I make friends easily“, “I walk up to others and start conversation“.

when measuring social skills (Merrell, 2002).

The psychometric qualities of the Self-Report Social Skills Scale have been found to be good in other studies, with an internal homogeneity, i.e. Cronbach's alpha, of 0.96, and a test-retest correlation of $r=0.74$ (Danielson & Phelps, 2003). The Cronbach's alpha of the Estonian version was 0.83 (Saat & Vorobjov, 2012). Scores were standardised (so that answers indicating poorer social skills got lower scores) and scores for all statements were summed to give a total social skills score. A lower score indicated a lower level of social skills and a higher score indicated a higher level; the possible range was from 20 to 100 points. Respondents who failed to answer five or more questions (out of twenty) were left out of the analysis.

Based on quartiles, social skills scores were divided into three groups: low, medium and high. We then compared differences between students with low (lower quartile) and high (upper quartile) social skills level. Descriptive statistics, including mean, standard deviation (SD) and range were used for continuous variables. For categorical variables, percentages and absolute (n) frequencies are presented. Chi-squared tests were used for categorical variables to explore differences between social skills levels and different characteristics. Students' t-test was used to assess differences between means. P-values of less than 0.05 were considered statistically significant. Adjusted odds ratios (OR) and 95% confidence intervals (95%CI) were used to compare characteristics and risk factors between groups. Logistic regression models were applied to analyse odds ratios. ORs were calculated and ad-

justed for gender, as there was a statistically significant difference between the social skills levels of girls and boys. Social background was also considered as a confounder (Ter Bogt et al., 2014). ORs were adjusted for educational level of mother and father (the highest level of schooling your mother/father completed – “completed primary school” and “some secondary school” together formed the first category, “completed secondary school and some college or university” was the second category, and “completed college or university” was the third category). ORs were also adjusted for the family's financial situation (how well off is your family compared to other families? – very much, much and better off formed one category; less, much less and very much less well off was another category, and about the same was the third category). Statistical analyses were carried out using Stata for Windows (version 11.2) (Stata 2009).

Results

Social skills score and gender-related differences

A score could be calculated for 2,440 of the 2,460 participants. The average social skills score was 76.4 (SD=9.5); the range was 39–99 points; the average score was 74.2 points for boys (SD=10.0) and 78.5 points for girls (SD=8.4). The proportion of students with low social skills was significantly higher among boys (35%) than among girls (19%) (Table 1).

Cigarette smoking and use of alcohol

There was no difference between boys and girls regarding smoking: nearly a third (28% (n=345) of girls and 31% (n=371) of boys said that they smoked every day,

Table 1. Distribution of students based on gender and level of social skills (based on Estonian ESPAD data).

Level of social skills	Boys			Girls			p-value*
	n	%	mean	n	%	mean	
Low (score 39–71)	417	34.9	63.6	238	19.1	65.9	<0.001
Medium (72–82)	542	45.4	76.7	594	47.7	77.5	<0.001
High (score 83–99)	235	19.7	87.4	414	33.2	87.3	0.678
Total	1194	100.0		1246	100.0		

*p-value for the mean

while 71% of all students were non-smokers. Students with lower social skills were significantly more likely to be daily smokers (37%) than those having higher social skills (24%). Also, students with lower social skills tended to have started smoking when they were younger: 9% (n=56) of students with lower social skills and 5% (n=34) of students with higher social skills reported starting smoking between the ages of 9 and 12 years (p<0.001, chi-squared test) (Figure 1).

More than half (55%) of the respondents reported that they had been drunk at least once during their lifetime. There were no

differences between girls and boys (54% vs. 55% respectively). When comparing the social skill level groups, there was no statistically significant difference in the proportion of students who responded that they had never been drunk. However, the proportion who had been drunk for the first time at a younger age was considerably higher among students with lower social skills than those with higher social skills: 21% (n=136) vs. 14% (n=91) of the students respectively reported having been drunk at the age of 9 to 12 years (p=0.005, chi-squared test) (Figure 2).

Figure 1. Smoking and age of starting daily smoking based on the level of social skills, % (based on Estonian ESPAD data).

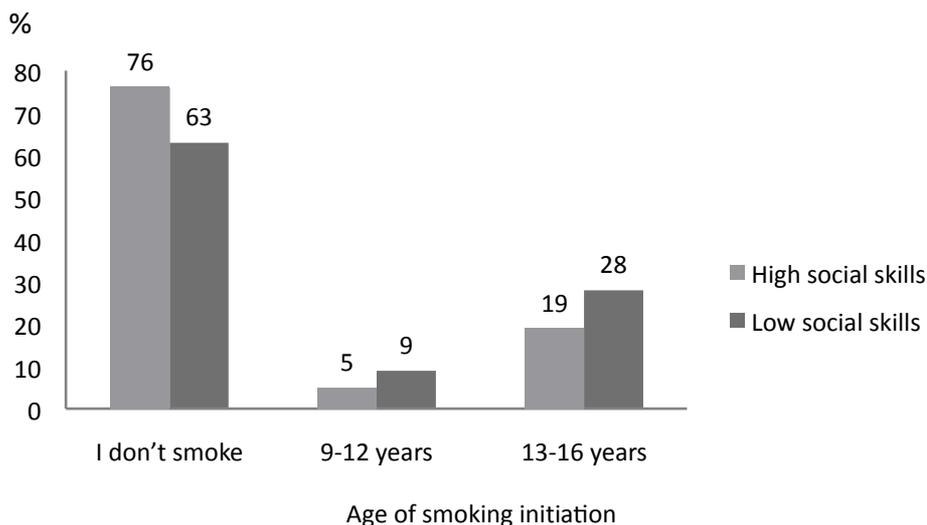
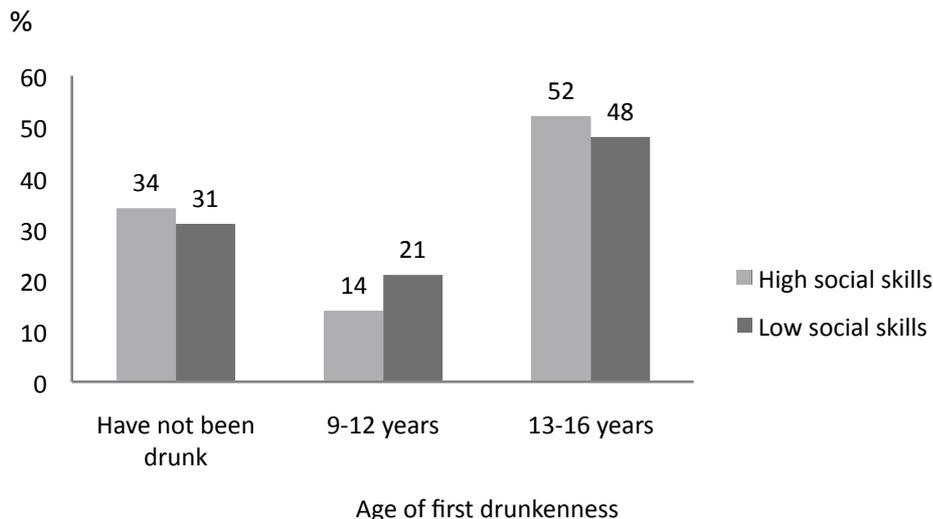


Figure 2. Distribution of having experienced drunkenness and age of first drunkenness based on the level of social skills, % (based on Estonian ESPAD data).



Use of other substances (cannabis, inhalants, tranquillisers, alcohol together with pills and stimulants)

Of the other substances mentioned, cannabis and inhalants were most prevalent (lifetime use 24%, n=601 and 15%, n=361, respectively). Fewer than one in ten had used tranquillisers (8%, n=209), alcohol together with pills (4%, n=107), amphetamines (3%, n=67), or ecstasy (3%, n=72).

Significantly more boys than girls had used cannabis products (30% vs. 19%). The proportion that had used cannabis was 28% among students with low social skills and 21% among students with high social skills, (p=0.003, chi-squared test) (Figure 3).

There was no significant difference between boys and girls regarding lifetime use of inhalants: nearly 12% had inhaled some substance (aerosol, glue, etc.) in order to get intoxicated. The proportion reporting inhaling chemical substances was

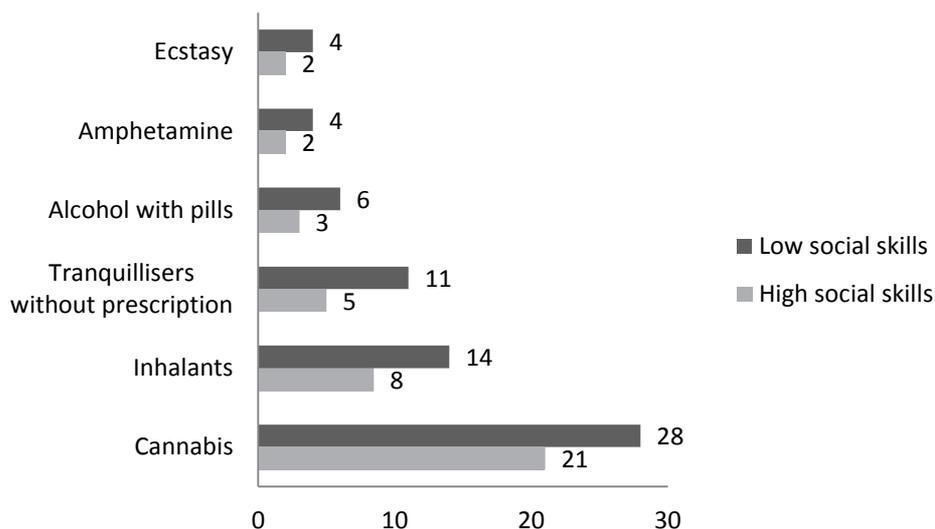
significantly higher among students with low social skills (14% vs. 8%) (Figure 3).

Girls more often reported having used tranquillisers (10%) than boys (7%), (p=0.001, chi-squared test). Students with low social skills were more than twice as likely to have taken sedatives or tranquillisers without a doctor's prescription (11%) than students with higher skills (5%) (p=0.001, chi-squared test), (Figure 3).

Students with low social skills were more likely to report having consumed alcohol together with pills in order to get high than those with high social skills (6% vs. 3%, p=0.023, chi-squared test) (Figure 3). There was no difference between the proportions of girls (5%) and boys (4%) who had consumed alcohol together with pills at some time.

Lifetime use of amphetamine and ecstasy for both boys and girls was approximately 3%. Students with lower social

Figure 3. Lifetime use of illicit drugs based on the level of social skills, % (based on Estonian ESPAD data).



skills were slightly more likely to have tried amphetamine (4%) than those with higher social skills (2%) ($p=0.031$, chi-squared test) (Figure 3). The same tendency was also observed for lifetime use of ecstasy (4% vs. 2% for low and high skills groups respectively, $p=0.013$, chi-squared test) (Figure 3).

Our results indicate that students with low social skills had higher lifetime use of all types of drugs than students with high social skills.

Multivariate analysis

Students' social skills and daily smoking were significantly related in the logistic regression model. After adjusting for gender, parents' education and family financial status, students with low social skills had a 50% higher risk of being daily smokers. Similarly, after adjusting for possible confounding factors, it appeared that students with low social skills had a 50% higher

risk of starting regular smoking between 13–16 years of age. However, an early age (9–12 years) of starting daily smoking was not significantly related to social skills after adjusting for family background factors (OR 1.6, 95%CI 0.9–2.8) (Table 2).

After adjusting only for gender, students with low social skills had a 40% higher risk of reporting having been drunk at an early age, but when adjusted for factors related to social background this difference disappeared. Social skills were not significantly related to first drunkenness between the ages of 13–16 years in all models (Table 2).

The associations between social skills and lifetime use of cannabis, tranquillisers or sedatives without prescription, and of using inhalants were significant in all models. After adjusting for gender and family background, we found that students with low social skill levels had approximately twice the risk of using tranquillis-

Table 2. Drug use by social skills level (based on Estonian ESPAD data).

	Low		High		OR	95%CI	OR*	95%CI	OR**	95%CI
	n	%	n	%						
<i>Daily smokers</i>	238	37	154	24	1.9	1.5–2.4	1.8	1.4–2.3	1.5	1.1–2.0
<i>Age of starting daily smoking:</i>										
I do not smoke	488	76	401	69	1		1		1	
9–12 years	34	5	90	7	2.0	1.3–3.1	1.7	1.1–2.8	1.6	0.9–2.8
13–16 years	120	19	302	24	1.8	1.4–2.4	1.8	1.4–2.4	1.5	1.1–2.0
<i>First drunkenness:</i>										
have not been drunk	201	31	219	34	1		1		1	
9–12 years	136	21	91	14	1.6	1.2–2.3	1.4	1.1–2.0	1.2	0.8–1.8
13–16 years	309	48	333	52	1.0	0.8–1.3	1.1	0.8–1.4	1.0	0.7–1.4
<i>Lifetime use of cannabis</i>	184	28	21	136	1.5	1.1–1.9	1.2	0.9–1.6	1.4	1.1–1.9
<i>Lifetime use of tranquillisers (without doctor's permission)</i>	69	11	35	5	2.1	1.4–3.1	2.4	1.5–3.7	2.3	1.4–3.9
<i>Lifetime use of amphetamines</i>	26	4	12	2	2.2	1.1–4.4	2.3	1.1–4.8	1.4	0.6–3.1
<i>Lifetime use of ecstasy</i>	29	4	13	2	2.3	1.2–4.4	2.0	1.0–4.0	1.5	0.7–3.3
<i>Lifetime use of inhalants</i>	94	14	55	8	1.8	1.3–2.6	1.8	1.3–2.6	1.9	1.2–3.0
<i>Lifetime use of alcohol with pills</i>	37	6	20	3	1.9	1.1–3.3	2.0	1.1–3.5	1.7	0.9–3.4

*adjusted for gender

** adjusted for gender, mother's and father's education and students' evaluation of family's financial status compared to other families

ers or sedatives without prescription and of using inhalants, and about a 40% higher risk of using cannabis (Table 2). The relationship between social skills and lifetime use of stimulants and alcohol use together with pills did not remain statistically significant after adjusting for factors related to family background. However, after adjusting only for gender, it appeared that students with low social skills had twice the risk of using stimulants or of using alcohol with pills.

Discussion and conclusions

Our objective was to examine the relationship between students' self-reported social skills and drug use. In the framework of the ESPAD study we estimated licit and illicit drug use among 15–16-year-old students in Estonia and assessed their social skill levels through additional questions based on the adapted version of the Self-Report

Social Skills Scale (measuring social rules, likeability and social-ingenuousness components).

Our analysis indicates that there are statistically significant differences between students with low and high social skills in the risk of several drug use indicators: daily smoking; age of starting daily smoking; first drunkenness; lifetime use of cannabis, tranquillisers or sedatives without a doctor's prescription; and use of inhalants.

We found that low social skills scores were significantly related to the risk of being a daily smoker and starting regular smoking between the ages of 13–16 years, but the risk of starting regular smoking at an early age (9–12 years) was not significantly associated with social skill level after adjusting for family factors. Our data therefore suggests that daily smoking is related to students' social skills levels, but at earlier ages family background appears to

be more important than the student's personal skills. By 13–16 years it seems that the role of the family may be diminished and the students' personal social skills become more important in preventing risk behaviours such as regular smoking. This result is in accordance with previous studies concluding that adolescent drug use is related to social influences from peers and the media (Brechtwald & Prinstein, 2011; Mercken et al., 2012; Green et al., 2013, Scull et al., 2014; Tucker et al., 2014). This is one reason why it is important to support students' social skills development: poor personal or social skills can increase the adolescent's vulnerability to social influences for experimental or regular use of drugs (Scheier et al., 1999; Botvin, 2000). Additionally, normative education should be one part of social skills training, as correcting normative expectations about prevalence and acceptability of drug use is crucial in preventive education (Botvin, 2000).

The second finding of our study was that the risk of first experiencing drunkenness in the age groups 9–12 or 13–16 was not significantly related to social skills after adjusting for family factors. This could show that social skills are related mostly to the frequency of alcohol use, not to experimenting with alcohol (Foxcroft & Tsertsvadze, 2011b). For example, evaluation of the "Unplugged" prevention programme, which includes the development of adolescent interpersonal skills, showed that the programme resulted in a lower prevalence of episodes of drunkenness in the past 30 days (Faggiano et al., 2010). Based on the ESPAD study, drunkenness seems to be one of the risk behaviours experienced mostly at the age of 14 and over

(Hibell et al., 2012), and the risk factors for this behaviour may include a wide variety of societal and personal factors. Our study was limited in its ability to analyse other possible confounding factors, as the study only included data on gender and some family background indicators.

We found that students' social skills levels were significantly related to lifetime use of cannabis, tranquillisers or sedatives without a doctor's prescription, and inhalants. Students with low social skills had significantly higher odds for using these drugs. However, the relationship between social skills and lifetime use of stimulants such as amphetamines and ecstasy, and alcohol with pills, did not remain significant after adjusting for factors related to family background. This could be because the number of students using stimulants and alcohol with pills was small, and it is therefore possible that our sample lacked statistical power to determine significance in adjusted models.

As our main findings indicate, the students' social skills levels were related to drug use. This finding is in line with previous studies that emphasise the importance of promoting generic and social skills as a possible factor in reducing risk behaviours (WHO, 2003; EMCDDA, 2011; 2013), including drug use (Botvin, 2000; Soole et al., 2008; Faggiano, 2010; Foxcroft & Tsertsvadze, 2011a). Our findings also demonstrate that levels of social skills were considerably lower among boys in this population. This gender-based contrast clearly needs attention in future studies. It appears from the results that drug use was more prevalent among boys. It has been proposed that boys and men are more exposed to risk behaviours than girls and

women due to the prevailing gender roles in society. It has also been proposed that drinking alcohol and drunkenness can be construed as masculine behaviours (Visser & Smith, 2007). Monk & Ricciardell (2003) have similarly found that alcohol and drug use in teenage boys is related to demonstrating masculinity. Drinking motivations, too, differ by gender; while boys engage in risk-taking and sensation seeking, girls tend to drink as a coping method (Kuntsche et al., 2006). We can therefore debate that taking into consideration gender-sensitive issues in drug prevention programmes could support young people in making their own informed choices and in reducing gender-related stress to resist the pressure to use drugs. Programme evaluation studies on content and delivery are therefore recommended.

Some limitations should be recognised when interpreting our results. First, we examined the relationship between social skills and substance use but considered as confounders only gender, parents' education and family financial status. However, several other factors may affect drug use, and the influence of the social background can be much wider. Other possible confounders should therefore be considered in further analyses. Second, the data was cross-sectional, which means we cannot determine the causal relationships between social skills levels and drug use. Third, the data was based entirely on self-reports and may thus be subject to recall bias on the onset of drug use and, given the sensitive nature of drug use behav-

iours, may be biased by socially desired responses. Despite these limitations, self-reported questionnaire studies remain common in large-scale studies for reasons of feasibility and cost.

In conclusion, we quantified social skills levels and demonstrated the relationships between both legal and illegal drug use and social skills levels in teenagers in Estonia. Although we cannot describe causal relationships, we conclude that higher social skills levels (measured in terms of social rules, likeability and social-ingenuousness) are related to reduced risk of drug use and could have preventive effects. Also, it is possible that gender-sensitive drug education could give additional benefits in preventing drug use. The development of these skills can support students' ability to manage in other aspects of their everyday lives.

Declaration of interest None.

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