

## Characteristics of adolescent excessive drinkers compared with consumers and abstainers

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### Abstract

**Introduction and Aims.** This study aimed at comparing adolescent abstainers, consumers and excessive drinkers in terms of family characteristics (structure of family, socioeconomic factors), perceived social support, personality characteristics (extraversion, self-esteem, aggression) and well-being. **Design and Methods.** Cross-sectional data were obtained from 3694 elementary school students in the 8th and 9th grades from several cities in Slovakia (mean age 14.5, 49.0% men; response rate 93%). Respondents completed questions on the use of alcohol and on family structure (parental divorce), the socioeconomic position of the family (parents' education and family affluence), perceived social support, extraversion, self-esteem, aggression and psychological well-being. They were split into three groups based on the pattern of alcohol use—abstainers, consumers and excessive drinkers (i.e. being drunk at least once during the past 4 weeks). **Results.** The results showed significant differences between abstainers, consumers and excessive drinkers in almost every characteristic explored. A risky pattern of alcohol consumption occurs more frequently among adolescents who have divorced parents, higher socioeconomic position, higher scores for perceived social support from friends, extraversion, negative self-esteem and aggression, and lower scores for social support from family and for well-being. **Discussion and Conclusions.** A risky pattern of alcohol consumption is more likely among relatively easily identifiable groups of adolescents from high socioeconomic position and divorced families. Their personalities and social networks have characteristics that could be accommodated in preventive interventions as well. [Tomcikova Z, Madarasova Geckova A, van Dijk JP, Reijneveld SA. Characteristics of adolescent excessive drinkers compared with consumers and abstainers. *Drug Alcohol Rev* 2011;30:157–165]

**Key words:** excessive drinking, social support, personality, well-being.

### Introduction

Excessive drinking is a relatively common behaviour, particularly among adolescents, and also has become a major public health concern. The results of the European school survey on alcohol and other drugs (ESPAD) [1] indicate that more than half of all students have consumed alcohol at the age of 13 years or younger. The proportion of students who reported having been drunk at the age of 13 or younger varies greatly across countries [1]. Slovak participants in this study placed approximately in the middle: 27% of boys and 17% of girls reported having been drunk at this

age. A wide variety of factors that may play a role as possible risk factors of hazardous alcohol drinking in adolescence could be divided into three groups: (i) factors related to family and social background of the adolescent—within this group we distinguish structural characteristics (e.g. structure of family) and psychosocial characteristics (e.g. social support); (ii) individual personality factors; and (iii) factors proximal to behaviour, such as immediate intentions, reasons or expectations related to alcohol drinking, but also one's immediate condition (e.g. well-being) [2]. Besides these groups of factors genetic and biological factors play an important role as well [3].

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### *Family factors*

Undoubtedly, family is one of the most significant contexts that determine the development of children and adolescents. Basic patterns of behaviour are formed in the family, as well as values, norms and attitudes. When a family is not complete, this may lead to developmental disturbances, including risk behaviour [4,5]. Many studies [6–10] have found that living in a single-parent family increases the risk of adolescent alcohol use. This may be explained by the decreased parental control in one-parent families [11,12], by the fact that single parents tend to have fewer financial resources and to suffer from greater social isolation [13] or through the immediate consequences of the disruption of the family structure (divorce) on adolescents (e.g. lowered self-esteem, increased levels of depression and anxiety) [14].

The socioeconomic position (SEP) of the family seems to play a role in adolescent alcohol use as well, although contradictory results about this association could be found. On one hand, the more financial resources are available to adolescents, the higher the rates of excessive drinking; but on the other hand, low levels of education are associated with more excessive drinking [15].

### *Social support*

Besides the above-mentioned effects of the family environment, social support from the family is an important buffer against stressful life events and plays a considerable role in coping with demanding life situations [16–18]. This also holds true, to a lesser degree, for social support from other sources. Concerning excessive drinking, several studies have found that less parental support (support from family) is associated with greater alcohol use in adolescents [19–21], although not all studies have confirmed this association [22]. Besides the social support gained from the family, adolescents can receive support from peers (friends) and significant others as well [23]. Higher perceived social support from peer friends seems to be associated with greater alcohol use [24].

### *Personality factors*

Although many studies have confirmed the impact of social and environmental factors on alcohol use in adolescents, there is a growing body of evidence that personality highly determines someone's vulnerability to excessive drinking [25]. One personality trait that is of great importance in explaining hazardous drinking is extraversion, which is defined as gregariousness and sociability [26]. Some studies have found that people

scoring higher in extraversion are at higher risk to drink more frequently or more hazardously [25,27] and to have more tolerant attitudes towards alcohol use [28].

Another important personality factor regarding excessive drinking is self-esteem, typically defined as one's overall sense of worthiness as a person [29]. The role of self-esteem in alcohol use among adolescents is not clear. On one hand, it is known that positive self-esteem may function as a buffer against deviant behaviour by facilitating better psychological adjustment [30]. On the other hand, there are some inconsistent results from studies showing both abstainers and high/excessive users having higher levels of self-esteem [10,22,31].

A final personality trait that plays a role in excessive drinking is aggressiveness. Aggressive behaviour is, on one hand, a common result of problematic drinking [32], but on the other hand, aggressive tendencies in behaviour also predict excessive alcohol use [33].

### *Well-being*

It is well-known that problem drinking is associated with lower states of psychological well-being [34], meaning that in some cases, drinking alcohol (and particularly hazardous drinking) might function as a coping mechanism, as an example of an avoidance strategy [12,35,36], especially among women [34].

Research indicates that each pattern or stage of drinking may have its own predictors [37]. The movement from abstaining to 'non-risk' drinking may thus be influenced by different factors from the movement from 'non-risk' to 'risk' drinking. Therefore, we decided to examine three patterns of alcohol use in adolescence—abstainers, consumers ('non-risk') and excessive drinkers ('risk'). The aim of our study was to compare adolescent abstainers, consumers and excessive drinkers with regard to family characteristics (socioeconomic factors, structure of family), perceived social support, personality characteristics (extraversion, self-esteem, aggression) and well-being.

## **Methods**

### *Sample and procedure*

The total sample of our study consisted of 3694 elementary school students from 8th and 9th grades from three cities in Slovakia Bratislava (600 000 inhabitants, Western Slovakia), Zilina (156 000 inhabitants, Northern Slovakia) and Kosice (240 000 inhabitants, Eastern Slovakia), and several smaller towns in the Kosice region (10 000–40 000 inhabitants). The age range was from 13 to 16; mean age was 14.5 ( $\pm 0.5$ ). The sample was randomly selected after stratification

by region and gender (49.0% men, 51.0% women). The representation of the regions was as follows: 24.6% of the participants lived in Bratislava, 21.3% in Zilina, 32.1% in Kosice and 22.0% in several smaller towns in the Kosice region. This reflects the distribution of these types of areas across Slovakia, so that the sample can be considered to be representative for this country. Data were collected in autumn 2006 by a team of trained researchers and their assistants. The schools and classes were selected in every mentioned region or city randomly. We asked the directors of the schools for participation, and after their approval and approval from parents, we performed the data collection. Respondents filled in the questionnaire during two regular school lessons (45 min each) on a voluntary and anonymous basis, without the presence of the teacher. Response rate was 93.0%, with non-response due mainly to illness.

### Measures

*Questions concerning alcohol drinking.* Drinking alcohol: 'How many times in the last 4 weeks have you drunk alcohol?'—I haven't drunk during the last 4 weeks/1–2 times/3 and more times. Being drunk: 'In the last 4 weeks have you been drunk?'—no/1–2 times/3 and more times. Both questions were dichotomised, and based on the results; we divided the respondents into three groups: (i) total abstainers (had neither drunk alcohol nor been drunk); (ii) consumers (had drunk alcohol without being drunk during last 4 weeks); and (iii) excessive drinkers (had been drunk at least once during the last 4 weeks).

As we already mentioned in the Introduction, three main groups of factors that may play a role as possible risk factors of hazardous alcohol drinking in adolescence can be found in literature—social/family factors, personality factors and factors related to immediate condition of adolescents. In our study we explore following factors representing each of these groups:

*Family structure.* Respondents were asked to answer a question about whether their parents are divorced (legally), with the responses: no/yes, less than 12 months ago/yes, more than 12 months ago, but less than 3 years ago/yes, more than 3 years ago. A dichotomised variable was then constructed for the analysis—no/yes (any period since divorce).

*SEP of the family.* Two indicators of family SEP were used: the parents' education level and the family affluence. Parents' education level was defined as the highest level of education attained by the parents of the respondents: as high (university), medium (secondary school) or low (apprenticeship or primary school only).

Family affluence was measured using the Family Affluence Scale [5], which consists of four questions concerning possession of a car and computer in the family, the family going on holiday (longer than 5 days) during the past year and respondents having their own room. Possible answers were: no/yes, one/yes, two or more for the question about the car; none/one/two/three or more for the question about the computer; no/once/twice/three or more times for the question about the holiday and yes/no for the question about their own room. The score ranges from 0 to 7; the sum score was computed, and for the analysis we used a 3-point ordinal scale: low affluence (score = 0–3), middle affluence (score = 4–5) and high affluence (score = 6–7).

*Perceived social support.* Social support was measured using the Perceived Social Support Scale [23], which is a 12-item self-reported questionnaire assessing perceived social support in three dimensions (from the family, friends and significant others). A 7-point Likert-type format was used ranging from totally disagree (1) to totally agree (7). The score for each of the 4-item subscales ranges from 4 to 28, with a higher score indicating a higher level of perceived social support. Internal reliability was satisfactory; Cronbach's alpha coefficient for the social support from family dimension was 0.91, for the social support from friends dimension 0.91 and for the social support from significant others dimension 0.85.

*Extraversion.* Extraversion was assessed with the Ten Item Personality Inventory [38], a brief measure of the Big-Five personality dimensions. For the purposes of this study, we used the extraversion dimension saturated by two items. A 7-point Likert-type format was used, ranging from strongly disagree (1) to strongly agree (7). The score ranges from 2 to 14, with a higher score indicating a higher level of extraversion. Cronbach's alpha coefficient was 0.31, and the mean inter-item correlation was 0.19. According to the guidelines of Briggs and Cheek [39,40], the mean inter-item correlation should range around 0.20, but not be less than 0.15 [39,40].

*Self-esteem.* Self-esteem was measured with the Rosenberg Self-Esteem Scale [41], a widely used measure of global self-esteem in adolescents. The scale consists of 10 items rated on a 4-point scale, with responses ranging from strongly agree (4) to strongly disagree (1). The Rosenberg Self-Esteem Scale could be divided into an equal number of positively and negatively worded items measuring positive and negative self-esteem [42]. Items were standardised and summed for the two subscales (positive and negative self-esteem), with the range of the sum score from 5 to 20

for each subscale. A higher score indicates higher positive or negative self-esteem. Cronbach's alpha coefficient for the positive self-esteem subscale was 0.73 and for the negative self-esteem subscale 0.64.

*Aggression.* Aggression was measured with the Aggression Questionnaire [43], which is a 29-item self-reported measure of four dimensions of aggression—physical aggression (nine items), verbal aggression (five items), anger (seven items) and hostility (eight items). We used a 5-point Likert-type score ranging from extremely uncharacteristic of me (1) to extremely characteristic of me (7), with a higher score indicating a higher level of aggression. The internal reliability coefficient for the physical aggression dimension was 0.80, for verbal aggression 0.64, for anger 0.64 and for hostility 0.75.

*Psychological well-being.* Psychological well-being was measured using the 12-item version of General Health Questionnaire [44]. The General Health Questionnaire-12 is a widely used self-reported questionnaire assessing psychological illness. It has been divided into two subscales: social dysfunction and depression/anxiety. The factor 'depression/anxiety' consists of items about loss of sleep, being under strain, overcoming difficulties, feelings of unhappiness and a loss of self-confidence. Items about concentration, playing a useful part, making decisions, enjoying activities, facing up to problems and feeling happy are components of the 'social dysfunction' factor [42]. We used a 4-point Likert score to score the items, which were then summed for the two subscales (depression/anxiety and social dysfunction), with the range of the sum score from 6 to 24 for each subscale. A higher score indicates higher levels of depression/anxiety and social dysfunction, thus worse well-being. Cronbach's alpha coefficient for depression/anxiety was 0.82 and for social dysfunction 0.65.

#### *Statistical analysis*

Data were analysed using SPSS, version 14. We first assessed the characteristics of the sample. To compare adolescent abstainers, consumers and excessive drinkers regarding family characteristics, social support, personality traits and well-being we compared means and proportions, depending on the measurement scale. Differences were then tested using *F*-tests and  $\chi^2$ -tests, respectively. Additionally, post-hoc tests were computed to determine which means differ significantly.

In the next step we compared the two most extreme groups—abstainers and excessive drinkers ( $n = 2565$ )—regarding consumption pattern, leaving out the consumers group. We analysed, using logistic regression,

the degree to which excessive drinking was more likely among specific groups of adolescents. We only included characteristics that showed statistically significant differences in the bivariate analyses. Five models were constructed, all adjusted for gender. In the first model we analysed the effect of family characteristics that were significant in previous analyses (affluence and divorce). In the second step we analysed the effect of perceived social support from family and friends. In the third model we analysed the effect of the personality characteristics (extraversion, self-esteem and aggression) and in the fourth we analysed the effect of well-being. In the last model we analysed the effect of all characteristics that were significant in previous steps, simultaneously.

To acquire the information on the group of consumers as well, we repeated the analyses comparing them with abstainers, constructing the same five models.

Because the data were collected in entire school classes, a clustering of the students' outcomes per class might affect our findings. To account for this clustering, we performed all binary logistic analyses using MIWin 2.02 [45]. The other analyses were done using SPSS version 14.

## **Results**

Table 1 shows the differences between the three groups in social support, extraversion, self-esteem, aggression and psychological well-being. The higher the score in aggression, extraversion, perceived social support from friends and negative self-esteem, and the lower the scoring in social support from family and well-being, the more risky the pattern of alcohol consumption. Furthermore, Table 1 shows the proportion of highest family education, family affluence and family structure in the three explored groups. Adolescents from divorced families and those from families with higher affluence are significantly more likely to be excessive drinkers.

The results of multilevel logistic regression comparing the groups of abstainers and excessive drinkers are shown in Table 2. In the first four models we analysed separately the effect of four groups of factors (family characteristics, social support, personality characteristics, well-being) on excessive drinking. Low family affluence, parental divorce, social support from family, social support from friends, extraversion, negative self-esteem, physical aggression, anger, hostility, depression/anxiety and social dysfunction all showed to have an effect on the probability of excessive drinking. In the final model we analysed the effect of all these significant characteristics together. All of them except negative self-esteem, anger and depression/anxiety remained significant. In general, the multilevel analyses showed a significant clustering of the students' outcomes per class, as shown by the

**Table 1.** Family factors, social support, personality factors and well-being of adolescents, split by drinking behaviour

|   | Descriptive <sup>a</sup> |             |                      | Differences       |                        |
|---|--------------------------|-------------|----------------------|-------------------|------------------------|
|   | 1 abstainers             | 2 consumers | 3 excessive drinkers | $\chi^2/F$ -value | Post hoc <sup>b</sup>  |
| Highest education of parents <sup>a</sup> |                          |             |                      |                   |                        |
| Low                                       | 362 (20)                 | 235 (21)    | 101 (16)             | 12.0 NS           |                        |
| Medium                                    | 984 (53)                 | 579 (51)    | 347 (53)             |                   |                        |
| High                                      | 462 (25)                 | 296 (26)    | 193 (30)             |                   |                        |
| Family affluence <sup>a</sup>             |                          |             |                      |                   |                        |
| Low                                       | 787 (43)                 | 406 (36)    | 230 (36)             | 21.3***           |                        |
| Medium                                    | 740 (41)                 | 485 (44)    | 277 (43)             |                   |                        |
| High                                      | 292 (16)                 | 218 (20)    | 135 (21)             |                   |                        |
| Family structure <sup>a</sup>             |                          |             |                      |                   |                        |
| Divorced                                  | 335 (18)                 | 209 (19)    | 180 (28)             | 30.3***           |                        |
| Not divorced                              | 1483 (82)                | 906 (81)    | 458 (72)             |                   |                        |
| Social support family <sup>b</sup>        | 22.1 (5.3)               | 21.5 (5.3)  | 20.9 (6.1)           | 11.1***           | 1-2*, 1-3***           |
| Social support friends <sup>b</sup>       | 21.5 (5.4)               | 21.5 (5.4)  | 22.4 (5.7)           | 6.0*              | 1-3**, 2-3*            |
| Social support others <sup>b</sup>        | 22.1 (5.2)               | 22.0 (5.2)  | 22.2 (5.7)           | 0.3 NS            | NS                     |
| Extraversion <sup>b</sup>                 | 9.1 (2.8)                | 9.6 (2.8)   | 9.7 (2.9)            | 13.5***           | 1-2***, 1-3***         |
| Positive self-esteem <sup>b</sup>         | 15.1 (2.3)               | 15.0 (2.4)  | 15.1 (2.6)           | 0.1 NS            | NS                     |
| Negative self-esteem <sup>b</sup>         | 11.8 (2.8)               | 12.0 (2.8)  | 12.4 (2.9)           | 11.5***           | 1-3***, 2-3*           |
| Physical aggression <sup>b</sup>          | 22.2 (6.6)               | 24.4 (7.18) | 28.1 (7.7)           | 156.7***          | 1-2***, 1-3***, 2-3*** |
| Verbal aggression <sup>b</sup>            | 14.7 (3.8)               | 15.4 (3.9)  | 16.2 (4.2)           | 36.7***           | 1-2***, 1-3***, 2-3*** |
| Anger <sup>b</sup>                        | 17.1 (4.8)               | 18.1 (4.9)  | 19.7 (5.1)           | 61.4***           | 1-2***, 1-3***, 2-3*** |
| Hostility <sup>b</sup>                    | 21.1 (6.1)               | 22.0 (6.0)  | 22.8 (6.6)           | 18.2***           | 1-2**, 1-3***, 2-3*    |
| Depression/anxiety <sup>b</sup>           | 11.5 (4.2)               | 11.8 (4.1)  | 12.6 (4.6)           | 16.9***           | 1-3***, 2-3***         |
| Social dysfunction <sup>b</sup>           | 11.6 (2.5)               | 11.7 (2.5)  | 12.0 (3.0)           | 5.2**             | 1-3**, 2-3*            |

\* $P < 0.05$ ; \*\* $P < 0.01$ ; \*\*\* $P < 0.001$ . <sup>a</sup>Descriptives in columns 1, 2 and 3 concern the number of respondents (percentage of the sample). <sup>b</sup>Post hoc; 1 = abstainers, 2 = consumers, 3 = excessive drinkers. NS, not significant.

random variances that are indicated in the bottom row of Table 2. This clustering hardly affected the estimates concerned, however. For instance, the odds ratio (95% confidence interval) for the effect of social support from family in the final model 5 in Table 2 was 0.93 (0.90–0.96), compared with 0.93 (0.91–0.96) for the ordinary logistic regression.

The additional analyses comparing the group of abstainers with the group of consumers showed that most of the variables that were associated with excessive drinking were associated with consuming, although associations were mostly slightly weaker. One important exception was parental divorce, however. This had hardly any association with consuming, whereas it had with excessive drinking (both compared with abstaining).

## Discussion

The current study explored the differences between adolescent abstainers, consumers and excessive drinkers in regards to their family characteristics, social support, personality characteristics and well-being. We found differences between all three explored groups. Adolescent abstainers and excessive drinkers differed in

every explored characteristic except for positive self-esteem and social support from others. Moreover, we found differences between consumers and abstainers in extraversion, aggression and social support from family; and between consumers and excessive drinkers in negative self-esteem, aggression, well-being and social support from friends. After mutual adjustment, eight differences remained statistically significant between excessive drinkers and abstainers, the former being more likely to have divorced parents, to be from families with higher affluence, to perceive less social support from family but more social support from friends, to report higher levels of extraversion, physical aggression, hostility and social dysfunction.

Our finding regarding family structure confirms the findings of several other studies that explored this issue [6,7,9,46]—adolescents living in divorced families are at higher risk of excessive drinking. One of the explanations for this fact might be an often decreased parental control after divorce, but this hypothesis needs to be proved by further research.

Findings in the literature about the association between SEP and hazardous drinking among adolescents are contradictory [47–50]. In our study we assumed that lower SEP would be associated with a

**Table 2.** Associations of family factors, perceived social support, personality factors and psychological well-being with excessive drinking

|   | Excessive drinking OR (95% CI) |                            |                               |                             |                             |
|---|--------------------------------|----------------------------|-------------------------------|-----------------------------|-----------------------------|
|   | Model 1<br>Family factors      | Model 2<br>Social support  | Model 3<br>Personality traits | Model 4<br>Well-being       | Model 5<br>Final model      |
| Family affluence  |                                |                            |                               |                             |                             |
| High  | 1 (Ref)                        |                            |                               |                             | 1 (Ref)                     |
| Medium  | 0.89 (0.64–1.24)               |                            |                               |                             | 0.87 (0.60–1.25)            |
| Low   | <b>0.66 (0.47–0.94)***</b>     |                            |                               |                             | <b>0.66 (0.45–0.97)**</b>   |
| Family structure  |                                |                            |                               |                             |                             |
| Intact  | 1 (Ref)                        |                            |                               |                             | 1 (Ref)                     |
| Divorced  | <b>1.95 (1.47–2.58)***</b>     |                            |                               |                             | <b>1.65(1.21–2.26)***</b>   |
| Social support from family                                    |                                | <b>0.91 (0.88–0.93)***</b> |                               |                             | <b>0.93 (0.90–0.96)***</b>  |
| Social support from friends                                   |                                | <b>1.10 (1.07–1.13)***</b> |                               |                             | <b>1.10 (1.06–1.13)***</b>  |
| Extraversion  |                                |                            | <b>1.08 (1.03–1.13)***</b>    |                             | <b>1.06 (1.01–1.11)***</b>  |
| Negative self-esteem  |                                |                            | <b>1.08 (1.03–1.13)**</b>     |                             | <b>1.02 (0.96–1.08)</b>     |
| Physical aggression   |                                |                            | <b>1.11 (1.09–1.13)***</b>    |                             | <b>1.12 (1.09–1.14)***</b>  |
| Verbal aggression   |                                |                            | 1.00 (0.96–1.04)              |                             | —                           |
| Anger   |                                |                            | <b>1.04 (1.01–1.08)**</b>     |                             | 1.03 (0.998–1.07)           |
| Hostility   |                                |                            | <b>0.97 (0.94–0.99)**</b>     |                             | <b>0.97 (0.94–0.99)**</b>   |
| Depression/anxiety  |                                |                            |                               | <b>1.05 (1.02–1.08)***</b>  | 1.03 (0.99–1.07)            |
| Social dysfunction  |                                |                            |                               | <b>1.06 (1.003–1.12)***</b> | <b>1.06 (1.003–1.13)***</b> |
| Random variation at class level (standard error) <sup>a</sup> | 0.427 (0.124)                  | 0.423 (0.297)              | 0.404 (0.129)                 | 0.395 (0.119)               | 0.400 (0.132)               |

\*\* $P < 0.01$ ; \*\*\* $P < 0.001$ . OR/CI values are based on multilevel logistic regression. <sup>a</sup>For the empty model, this was 0.415 (0.121). CI, confidence interval; OR, odds ratio; Ref, reference category. Figures in bold are statistically significant.

higher probability of excessive drinking. However, our results do not support this assumption: excessive drinking respondents were those with higher family affluence; parents' education did not show a significant association with excessive drinking. A speculation might be that the roots of the association between higher SEP and the higher probability of excessive drinking might be found in the particular youth subculture related to high SEP (particularly the attitude to drinking alcohol) rather than in the possession of more financial resources available for buying alcohol. In Slovakia, alcohol is very cheap, much cheaper than soft drinks [e.g. typical price of a beer (0.3 L) is €0.50 and of a soft drink (0.3 L) is €1 in a pub], making it rather cheap to get drunk. However, we cannot fully exclude that financial means plays a role.

Our results concerning perceived social support from family are in line with studies that have found an association between low support from family and alcohol use in adolescents [19–21]. We also confirmed the association between high perceived support from friends and excessive drinking [24]. However, this does not necessarily mean that the relationships among peers themselves are risky; such relationships are an essential part of healthy socialisation during adolescence [51]. Places where alcohol is sold (bars, pubs, discos, etc.) are where these relationships with peers take place, so maintaining a social network in adolescence is strongly connected with places or situations in which alcohol is easily obtainable.

Extraversion as personality trait is often found to be associated with risk behaviours, including hazardous alcohol drinking [25,27]. Our results supported this assumption only partly—extraversion makes one more likely to be a consumer, but not an excessive drinker. This means that extraversion stimulates the participation in social activities, but as we stated above, the real risk of excessive drinking is more related to the context in which these activities are taking place. Drunkenness was found to cluster per class, but it has hardly an effect on model outcomes. This may be interpreted as meaning that classroom-bound factors do not affect drunkenness in an important way, but children in a given class share common background characteristics like family support and divorce background to some degree.

The present study has several strengths and limitations. Its main strengths are the size of the study sample, the high response rate and the proportional representation from several different regions of Slovakia. A main limitation of our study is that it relies on the self-report of our respondents. However, the answers were filled out anonymously, which has been shown to lead to rather valid self-reports [52]. Another limitation that has to be taken into account is that although

parents are not legally divorced, it does not necessarily mean they still live together and this might have the same impact on their children as divorce. And, finally, cross-sectional data may not provide us with sufficient information about the causal mechanisms.

As the design of this study was cross-sectional, the implication for further research might be to examine longitudinal data to confirm the hypothesised causal mechanisms with regard to hazardous drinking. Two main targets for practice could be tackled in this study. Our results show that particular groups (children of divorced parents, adolescents from families with higher affluence, those with lower social support from family but higher from friends, those with higher levels of physical aggression and hostility and those with lower well-being) run a higher risk of becoming excessive drinkers and thus need particular attention in prevention. The second implication arises from the results on peer support. We have already mentioned above that peers usually meet in an environment that is not alcohol-free. The prevention strategy might be to support alcohol-free, safe environments for these peer interactions on one hand and to limit the availability of alcoholic drinks in environments that are frequented by young adolescents (e.g. to increase the age limit for selling alcohol to adolescents in public places) on the other.

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