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Parental divorce and adolescent excessive drinking

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Introduction

This thesis focuses on the role of the family environment in adolescents' excessive drinking, one of the most common adolescent risk behaviours. The main aim is to contribute to the understanding of how different factors of family life might act as risk or protective factors with regard to this particular risk behaviour. This chapter provides general information about excessive drinking in the adolescent population and the main dimensions of the family environment and describes the aim of the study and its research questions, as well as the structure of this thesis.

1.1. Excessive drinking in adolescents

Excessive drinking is a relatively common behaviour during adolescence and has therefore become a major public health concern. In Slovak society, alcohol is a highly tolerated psychoactive substance, relatively speaking, that is quite embedded in the culture. Slovak children have their first experiences with alcohol rather early in life. According to the most recent Health Behaviour in School-aged Children (HBSC) study (Currie et al., 2008), 9% of girls and 14% of boys reported drinking alcohol at least once a week at age 11, and this proportion increases with the age. For reference only, the average prevalence in 11-year olds across all HBSC countries was 3% of girls and 7% of boys. The average age of the first experience with drunkenness among Slovak adolescents is comparable with all other HBSC countries – at 15-years old 31% of girls and 39% of boys have already had the experience of being drunk, while the HBSC average was 30% for girls and 37% for boys. The overall prevalence of alcohol consumption among Slovak adolescents has been increasing in recent years in both genders, but the increase is larger in females (Pitel et al., 2010). Restrictions on selling alcohol to minors (under 18 years old) are insufficiently monitored, so it is not very difficult for adolescents to buy alcohol. Furthermore, pricing policies do not help in this context either, as in most bars it is cheaper to buy a beer than any soft drink, for example.

Alcohol use in general is considered to be one of the main global risk factors for diseases (Rehm et al., 2003). It contributes to every fourth death among Slovak males and every fifth death among Slovak females in productive age (Rosicova et al., 2010). It is often an important factor in fatal injuries, car crashes and suicides (Cherpitel et al., 2009; Connor et al., 2004; Miller et al., 1991; Rosicova et al., 2010). There is also a strong

association between excessive drinking and a range of other health-endangering behaviours and conditions such as smoking (Sayette et al., 2005), the use of illegal drugs (Kandel & Yamaguchi, 1993), risky sexual behaviour (Cooper, 2002; Kalina et al., 2009), violent behaviour (Blistein et al., 2005), eating disorders and obesity (Breslow & Smothers, 2005) and depressive disorders (Rohde et al., 1995). In addition to these negative consequences of alcohol use in general, there are also some that are particular for adolescents. For example, some studies have demonstrated that brain development continues well into early adulthood and that alcohol consumption can harm this development (Chambers et al., 2003; Giedd, 2008).

To study alcohol related behaviour among adolescents is important, as adolescence is a period of life during which substantial lifestyle patterns are established. Excessive alcohol use in adolescence is an important predictor of alcohol problems in adulthood, leading not only to alcohol dependence, but also to chronic physical and mental health problems in later life (Jefferis et al., 2005; Schmid et al., 2005). The heavier the use of the seemingly harmless substance in adolescence, the more likely that multiple substance use will occur later – alcohol use together with tobacco use are characterised as gateway drugs, as they often lead to more serious substance abuse (Perkins & Borden, 2003). Despite the well-known negative consequences of alcohol use, the positive effects prevail for a great proportion of adolescents; that is, experimenting with alcohol satisfies their curiosity and facilitates their socialisation (Schmid et al., 2005). Even experts agree that risk behaviour in adolescence can fulfil important social functions and can be understood as a manifestation of developmentally appropriate experimentation (Engels & Bogt, 2001; Hurrelmann & Richter, 2006).

In this study drunkenness is used as an indicator of excessive drinking. Drunkenness (i.e. drinking to intoxication) is a pattern of alcohol use that is particularly important in adolescence, and it seems to be correlated to other aspects of alcohol use such as frequency of drinking and the preference for spirits (Schmid et al., 2003). To measure excessive drinking in adolescents is rather difficult for several reasons; one is socially desirable answering in studies based on self-reports, which leads to either under-reporting or over-reporting. On one hand, the use of alcohol is illegal for adolescents, and thus it very often is a subject of social disapproval and the fear of reprisal might cause under-reporting (Brener et al., 2003). On the other hand, adolescents' reporting of alcohol use is likely to be influenced by peers, and in this context the use of alcohol might not be so embarrassing or undesirable; the norm might be even "pro-use" answering (Lintonen & Konu, 2004; Lintonen et al., 2004), which is likely to lead to over-reporting.

1.2. Factors influencing excessive drinking in adolescence

Several models have been used to schematise the various factors influencing risk behaviour (including alcohol consumption) among adolescents. Two of them are cited relatively often, and we have also used them as a framework for this thesis. The Problem behaviour theory (Jessor 1991) assumes that different kinds of problem behaviour can be explained by similar mechanisms. Some findings indeed indicate the clustering of several kinds of risky behaviour (Van Nieuwenhuijzen et al. 2009). The Problem behaviour theory distinguishes five categories of factors: (1) biological/genetic factors; (2) factors from the social environment; (3) factors from the perceived environment (e.g. patterns of risk behaviour); (4) personality factors; and (5) behavioural factors (e.g. involvement in school).

The work of Petraitis et al. (1995) is an attempt to perform a synthesis between several theoretical approaches. They distinguish three groups of factors: (1) social/interpersonal factors (influences of family and peers); (2) cultural/attitudinal factors (aspects of immediate surroundings and culture, general values); and (3) intrapersonal factors (personality traits, affective states and behavioural skills). Moreover, ultimate, distal and proximal factors are distinguished within each category. In this thesis we focus in particular on factors related to family, but to produce a more comprehensive picture of what is behind adolescent excessive drinking, some other factors (personality, well-being and peer influence) are taken into account as well.

1.3. Family environment in the context of adolescent excessive drinking

Family environment is a very important context for adolescent development, as the most important basic values, attitudes and patterns of behaviour are formed here. In adolescence, despite the growing influence of peers, family remains a strong factor affecting the behaviour and shaping the lifestyle of young people. The influence of the family is essential also in regards to adolescent excessive drinking for several reasons. First, in most cases the introduction to alcohol consumption takes place in the family in the form of small occasional toasts at family events (Settertobulte et al., 2001). Second, the continuation of alcohol consumption and further excessive drinking is dependent on the range of family-based risk factors (Settertobulte et al., 2001; Kuntsche & Kuending, 2006). Various family-related factors which might be risky for excessive drinking have been identified in research, such as structural characteristics of the family or the characteristics of family relationships. The following sections provide

a brief description of some of the family factors that will be explored in this thesis.

1.3.1. Family structure – parental divorce

An incomplete family structure may lead to developmental disturbances among those children affected by it, including risk behaviour (Currie et al., 2004). Many studies (e.g. Kuntsche & Kuending, 2006; Fisher et al., 2007) have found that living in a single-parent family increases the risk of adolescent alcohol use. Several pathways that might explain this fact, such as decreased parental control in one-parent families, fewer financial resources or the immediate consequences of divorce on adolescents (e.g. increased levels of depression and anxiety), might be applied. The increasing divorce rate in Slovakia (in 2003 more than 41% of marriages ended in divorce in Slovakia compared with 32% in 1995) emphasises the great public health implications of this issue (Mladek et al., 2006).

1.3.2. Socioeconomic position of the family

The socioeconomic position of the family seems to play a role in adolescent alcohol use as well, although findings about the direction of this association are contradictory. Several studies have confirmed the association between lower socioeconomic position and higher probability of risk behaviour in general (Williams & Debaeky, 1992; Romelsjo & Lundberg, 1996; Geckova et al., 2002; Andersen et al., 2008). However, the results regarding alcohol use are inconsistent. On one hand, the more financial resources are available to adolescents, the higher the rates of excessive drinking (Littlejohn, 2001); but on the other hand, low levels of parental education (Arvantidou et al., 2007) or low levels of family affluence (Zambon et al., 2006) are also associated with more excessive drinking. Differences regarding the pattern of alcohol use can be found as well – while excessive drinking is associated with lower socioeconomic group, regular, but moderate drinking is more common in higher socioeconomic groups (Romelsjo & Lundberg, 1996). Inconsistent findings were also seen across genders – the traditional socioeconomic gradient (the lower the socioeconomic position, the higher the prevalence of potentially harmful health-related behaviour) was found among males, while a reverse gradient was found among females (Salonna et al., 2008).

1.3.3. Social support from family

Social support from the family is an important buffer against stressful life events and plays a considerable role in coping with demanding life situations (Geckova et al., 2003; Murberg & Bru, 2004). Regarding adolescent excessive drinking, several studies have found that less parental

support (support from family) is associated with greater risk of alcohol use in adolescents (Shucksmith et al., 1997; Windle & Miller-Tutzauer, 1997), though not all studies have confirmed this association (Lifrak et al., 1997).

1.3.4. Parental monitoring

Parental monitoring is one of the processes through which the family facilitates the adjustment of adolescents, by providing them with necessary supervision and guidance (Smetana & Daddis, 2002). It is conceptualised as the parents' knowledge of their child's whereabouts, activities and friends (Jacobson & Crockett, 2000). Even if an adolescent is exposed to risk factors outside the family (peer influences, going out with friends, etc.), adequate parental control can act as protective factor (Nash et al., 2005). During adolescence, monitoring is more a matter of mutual communication between parents and adolescents than a matter of direct observation (Clark et al., 2008). Therefore, the effectiveness of parental monitoring is dependent on the quality of parent-adolescent communication. A second issue that makes parental monitoring in adolescence rather specific is adolescents' increasing need for autonomy and independence and the fact that they spend more time outside their parental home in comparison to previous years (Loukas & Prelow, 2004). Several studies have confirmed that the less an adolescent has been monitored by his/her parents, the more likely he/she is to be involved in alcohol use (Griffin et al., 2000; Beck et al., 2004).

1.3.5. Communication between parents and adolescents

One of the crucial elements of family functioning is adequate communication between parents and their children, which has been shown to be an important protective factor (Currie et al., 2008). On one hand, good quality communication with parents is an indicator of social support from parents and of family connectedness (Laursen, 1995). On the other hand, poor parent-child communication was found to be associated with a higher risk of youth substance use (Currie et al., 2008; Griffin et al., 2000). Adolescence is a unique period with regard to communication with parents – children speak less often with their parents about themselves, and communication becomes generally more difficult (Barnes & Olson, 1985). In evaluating the quality of parent-adolescent communication, adolescents usually perceive it to be less open and more problematic than their parents do, and mothers perceive communication with adolescent children more positively than fathers (Rosnati et al., 2007). Typically, communication with the mother is easier than with the father for both adolescent boys and girls (Noller & Callan, 1990; Rosnati et al., 2007). However, a study by Ackard et al. (2006) demonstrated that girls more

than boys felt unable to talk to their father about problems, whereas boys and girls felt equally comfortable talking to their mother about problems. Based on these findings it has been hypothesised that communication with the father and with the mother may play different roles in substance use of among adolescents (Chocquet et al., 2008; Luk et al., 2010). And, indeed, the association between the quality of mutual communication and substance use outcomes seems to be stronger in females (Chocquet et al., 2008).

1.3.6. Adolescents' feelings toward parents

Some theories (e.g. the attachment theory, parenting styles theories) have emphasised the central role of the relationship between parent and adolescent regarding risk behaviour (Canetti et al., 1997; Kerr et al., 2003; Newman et al., 2008). For example, adolescents raised in authoritative households are less likely to behave risky than adolescents from non-authoritative families (Newman et al., 2008). However, the quality of a parent-adolescent relationship is very likely to be influenced *inter alia* by parental divorce. This is why it is preferable to measure the adolescent's feelings toward a parent that is no longer present as well (Phares & Renk, 1998). A positive relationship (affect) in this context is defined as the experience of warmth, support and acceptance, and it also involves the communication of positive feelings between two persons. A negative relationship (affect) on the other hand is the experience of hostility, stress and rejection (Duhig & Phares, 2009). A positive relationship with parents has been shown to be a protective factor against adolescent risk behaviours, including alcohol use, in several studies (Simons-Morton et al., 1999; Suris et al., 2005). Additionally, a negative relationship with parents also has an indirect impact on adolescent risk behaviour, as it is related to problematic peers (Ary et al., 1999).

1.4. Personality factors and adolescent excessive drinking

Although many studies have confirmed the dominant impact of social and environmental factors on alcohol use in adolescents, there is also evidence that personality determines someone's vulnerability to excessive drinking (Merenakk et al., 2003). Several personality traits have been found to be associated with excessive alcohol use in adolescents (Petraitis et al., 1995; George et al., 2010). In this thesis three personality factors are explored with regard to excessive drinking: (1) extraversion, (2) aggressiveness, and (3) self-esteem.

Extraversion, which is defined as gregariousness and sociability (Kuntsche et al., 2006), was found to be related with more frequent or more hazardous drinking and also with more tolerant attitudes toward

alcohol use in several studies (Francis, 1996; Merenakk et al., 2003). *Aggressiveness*, and more specifically aggressive behaviour, is on one hand a common result of problematic drinking, but on the other, aggressive tendencies in behaviour also predict excessive alcohol use (Gerra et al., 2004). *Self-esteem* is typically defined as one's overall sense of worthiness as a person (Rosenberg, 1979). 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 (Schweitzer, 1992). On the other hand, there are some inconsistent results from studies showing both abstainers and excessive users having higher levels of positive self-esteem (Fisher et al., 2007). The role of negative self-esteem was partially confirmed in other types of risk behaviour as well (Veselska et al., 2009).

1.5. Well-being and adolescent excessive drinking

Well-being in general is a construct describing a subjective state in which positive feelings predominate. Basically, it refers to contentment, satisfaction, or happiness derived from optimal functioning, or conversely, to the absence of negative feelings (McDowell, 2010). It is known from literature that problem drinking is associated with lower states of psychological well-being (Pitkanen, 1999), meaning that in some cases, drinking alcohol (and particularly excessive drinking) might function as a coping mechanism, as an example of an avoidance strategy, especially among women (Pitkanen, 1999). On the other hand, health-related risk behaviour, and in particular alcohol consumption, might contribute to lower well-being (Geckova et al., 2000).

1.6. Peer influence and adolescent excessive drinking

Adolescence is a period when peers are becoming a more significant factor when compared to previous years. Peer context is considered to be a prime instigator of new behaviours and lifestyle (Kerr et al., 2003). While health-related risk behaviours established in earlier stages are likely to be influenced by the family context, behaviours which initiate in adolescence might be more embedded in a peer context (Hurrelmann & Richter, 2006). A range of studies has confirmed that one of the most powerful predictors of adolescent alcohol use is the behaviour of a youth's best friends (e.g. Borden et al., 2001; Bot et al., 2005). In this thesis two aspects of peer context are explored: (1) perceived social support from peers and (2) risky leisure time activities with peers.

Social support in general has a considerable impact on health, including health-related risk behaviour (Geckova et al., 2003). One of

the most significant sources of social support, even in this period of life, is family, but a network of peer relationships also provides necessary support for young people (Kerr et al., 2003). Findings from the literature suggest that in contrast to social support from family, higher perceived social support from peers seems to be associated with greater alcohol use (Engels & ter Bogt, 2001).

The most pursued *leisure time activities* of adolescents are social activities, which are also the most important from developmental perspective (Kerr et al., 2003). Besides the undeniable positive role of these activities, they also carry certain risks, because they often involve an adolescent in behaviours that might be developmentally maladaptive (e.g. alcohol drinking) (Caldwell & Darling, 1999). Moreover, these activities usually take place outside the parental home, and therefore they become more difficult to be monitored by parents during adolescence (Loukas & Prelow, 2004).

1.7. Aim of the study and research questions

The main aim of the present study is to explore the relationship between adolescent excessive drinking and several characteristics of family life, as well as some other contributing variables (personality, well-being, leisure time activities, social support from peers). Regarding family characteristics, both more distal, structural characteristics (family structure, socioeconomic position), and more proximal, psychosocial characteristics (social support, parental monitoring, parent-adolescent communication, adolescents' feelings toward parents) will be explored.

Based on the literature as described, the following research questions (RQ) have been formulated:

(RQ1) Do adolescents with different patterns of alcohol use differ in family characteristics (family structure, socioeconomic position), perceived social support, personality characteristics (extraversion, self-esteem, aggression), and well-being? (*Chapter 3*)

(RQ2) Is there an association of parental divorce with adolescent drunkenness? How do socioeconomic position, family structure, social support from family and well-being contribute to this association? (*Chapter 4*)

(RQ3) Is there an association between participation in risky leisure time activities, parental monitoring and adolescent drunkenness? Do adolescents who participate in risky leisure time activities and report having been drunk differ in the level of parental monitoring from those who participate without having been drunk? (*Chapter 5*)

(RQ4) Is there an association between family structure, quality of communication with both parents and adolescent drunkenness? Is there

an association between family structure, quality of communication with both parents and adolescent frequent alcohol drinking? Do age and gender contribute to these associations? (Chapter 6)

(RQ5) Is there an association between parental divorce and adolescent drunkenness? How do adolescents' feelings toward their parents contribute to this association? (Chapter 7)

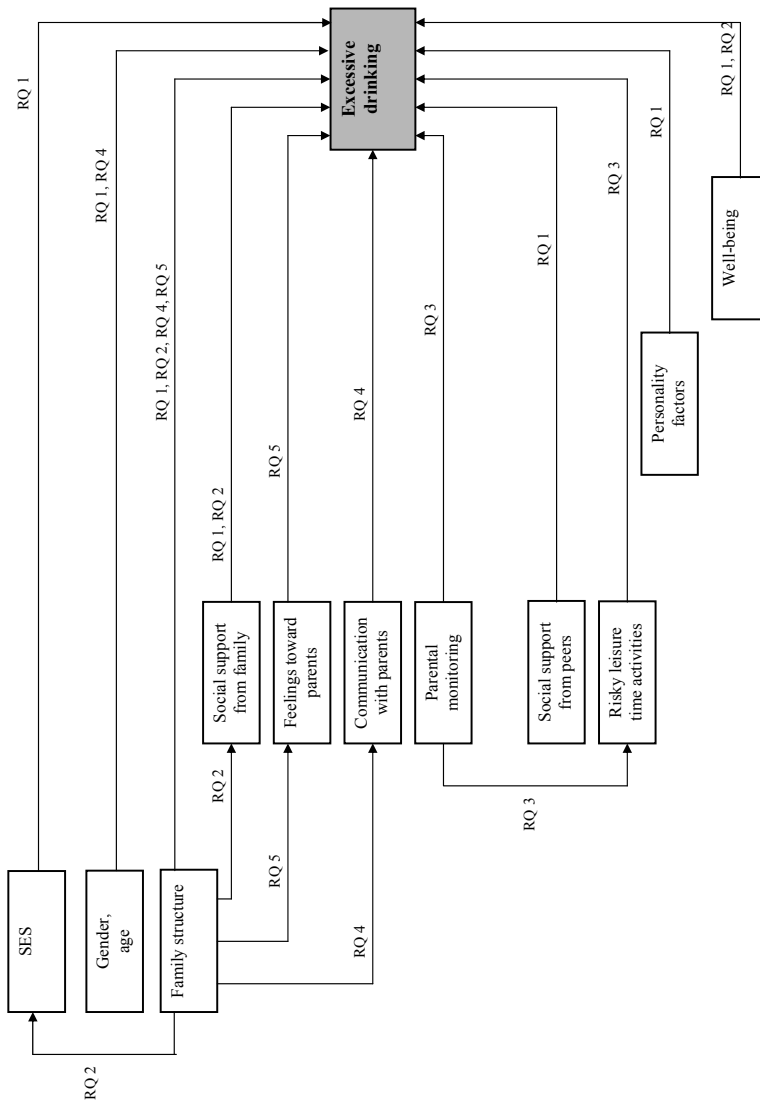


Figure 1 shows the relationships examined within this thesis.

1.8. Structure of the thesis

This thesis is divided into 8 chapters.

Chapter 1 provides general information about excessive drinking in the adolescent population and the main dimensions of the family environment. The aims of the study and the research questions are formulated in this chapter as well.

Chapter 2 provides information about the design of the study – it briefly describes the two research samples used in this thesis, as well as measures and statistical analyses.

Chapter 3 compares three groups of adolescents concerning the pattern of alcohol use (abstainer, consumer, and excessive drinker) in selected personality factors, family factors, social support and well being.

Chapter 4 focuses on family factors, exploring the associations between parental divorce and adolescent drunkenness and the contribution of socioeconomic position, family structure, social support from family and well-being.

Chapter 5 deals with the issue of leisure time activities of adolescents and parental monitoring of them and associations with adolescent excessive drinking.

Chapter 6 explores the role of family structure and the quality of communication between parents and their adolescent children in two patterns of alcohol use – frequent alcohol drinking and lifetime drunkenness.

Chapter 7 deals with the association between parental divorce and adolescent drunkenness again. Furthermore, the contribution of adolescents' feelings toward parents to this association is explored.

In *chapter 8* the main findings of the previous chapters are discussed, as are their strengths and limitations. Furthermore, implications for further research and recommendations for public health practice are proposed.

References

1. Ackard DM, Neumark-Sztainer D, Story M, Perry C: Parent-child connectedness and behavioral and emotional health among adolescents. *Am J Prev Med* 2006; 30: 59–66.
2. Andersen A, Holstein BE, Due P: Large-scale alcohol use and socioeconomic position of origin: Longitudinal study from ages 15 to 19 years. *Scand J Public Health* 2008; 36: 326–329.
3. Arvanitidou M, Tirodimos I, Kyriakidis I, Tsinaslanidou Z, Seretopoulos D: Decreasing prevalence of alcohol consumption among Greek adolescents. *Am J Drug Alcohol Ab* 2007; 33: 411–417.
4. Ary DV, Duncan E, Biglan A, Metzler CW, Noell JW, Smolkowski K: Development of adolescent problem behavior. *J Abnorm Child Psych* 1999; 27: 141–150.
5. Barnes HL, Olson DH: Parent-adolescent communication and the circumplex model. *Child Dev* 1985; 56: 438–447.
6. Beck KH, Boyle JR, Boekeloo BO: Parental monitoring and adolescent drinking: Results of a 12-month follow-up. *Am J Health Behav* 2004; 28: 272–279.
7. Blitstein JL, Murray DM, Lytle LA, Birnbaum AS, Perry CL: Predictors of violent behavior in an early adolescent cohort: Similarities and differences across genders. *Health Educ Behav* 2005; 32: 175–194.
8. Borden LM, Donnermeyer JF, Scheer SD: Extracurricular activities and peer influence on substance use. *J Adolescent Fam Health* 2001; 2: 12–19.
9. Bot SM, Engels RCME, Knibbe RA, Meeus WHJ: Friend's drinking behaviour and adolescent alcohol consumption: The moderating role of friendship characteristics. *Addict Behav* 2005; 30: 929–947.
10. Brenner ND, Billy JOG, Grady WR. Assessment of factors affecting the validity of self-reported health-risk behavior among adolescents: Evidence from the scientific literature. *J Adolescent Health* 2003; 33: 436–457.
11. Breslow RA, Smothers BA: Drinking patterns and body mass index in never smokers – National Health Interview Survey, 1997 – 2001. *Am J Epidemiol* 2005; 161: 368–376.
12. Canetti L, Bachar E, Galili-Weisstub E, De-Nour AK, Shalev AY: Parental, bonding and mental health in adolescence. *Adolescence* 1997; 32: 381–394.
13. Chambers RA, Taylor JR, Potenza MN: Developmental neurocircuitry of motivation in adolescence: a critical period of addiction vulnerability. *Am J Psychiat* 2003; 160: 1041–1052.
14. Cherpitel CJ, Borges G, Giesbrecht N, Hungerford D, Peden M, Poznyak V, Room R, Stockwell T. Alcohol and injuries. Emergency

- department studies in an international perspective. World Health Organization 2009.
15. Choquet M, Hassler C, Morin D, Falissard B, Chau N: Perceived parenting styles and tobacco, alcohol and cannabis use among French adolescents: Gender and family structure differentials. *Alcohol Alcoholism* 2008; 43: 73–80.
 16. Clark DB, Kirisci L, Mezzich A, Chung T: Parental supervision and alcohol use in adolescence: Developmentally specific interactions. *J Dev Behav Pediatr* 2008; 29: 285–292.
 17. Connor J, Norton R, Ameratunga S, Jackson R: The contribution of alcohol to serious car crash injuries. *Epidemiology* 2004, 15: 337–344.
 18. Cooper ML: Alcohol use and risky sexual behaviour among college students and youth: evaluating the evidence. *J Stud Alcohol* 2002; 14: 101–117.
 19. Currie C, Gabhainn SN, Godeau E, Roberts Ch, Smith R, Currie D, Picket W, Richter M, Morgan A, Barnekow V: Inequalities in young people's health. Health behaviour in school-aged children (HBSC) study: International report from the 2005/2006 survey. Health Policy for Children and Adolescents; 2008. Report No. 5.
 20. Currie C, Roberts Ch, Morgan A, Smith R, Settertobulte W, Samdal O, Barnekow Ramussen V. Young people's health in context. Health behaviour in school-aged children (HBSC) study: International report from the 2001/2002 survey. Health Policy for Children and Adolescents; Report No. 4, 2004.
 21. Duhig AM, Phares V: Positive and negative affect in parents and adolescents: gender and assessment method consideration. *J Psychopathol Behav* 2009; 31: 347–357.
 22. Engels RCME, ter Bogt T: Influences of risk behaviors on the quality of peer relations in adolescence. *J Youth Adolescence* 2001; 30: 675–695.
 23. Fisher LB, Williams Miles I, Austin SB, Camargo CA, Colditz GA: Predictors of initiation of alcohol use among US adolescents. *Arch Pediat Adol Med* 2007; 161: 959–966.
 24. Francis LJ: The relationship between Eysenck's personality factors and attitude towards substance use among 13–15- year-olds. *Pers Indiv Differ* 1996; 21: 633–40
 25. Geckova A, Pudelsky M, Tuinstra J, van Dijk JP: Vplyv fajčenia, konzumovania alkoholu, užívania drog a nedostatku fyzickej aktivity na zdravie adolescentov (*The influence of smoking, alcohol use, drug use and lack of physical activity on adolescent health*) *Československá Psychologie* 2000; 44: 132–147.
 26. Geckova A, van Dijk JP, Groothoff JW, Post D: Socio-economic differences in health risk behaviour and attitudes towards health risk behaviour among Slovak adolescents. *Soc Prev Med* 2002; 47: 233–239.

27. Geckova A, van Dijk JP, Stewart R, Groothoff JW, Post D: Influence of social support on health among gender and socio-economic groups of adolescents. *Eur J Public Health* 2003; 13: 44–50.
28. George SM, Connor JP, Gullo MJ, Young RMCD: A prospective study of personality features predictive of early adolescent alcohol misuse. *Pers Individ Differ* 2010; 49: 204–209.
29. Gerra G, Angioni L, Zaimovic A, Moj G, Bussandri M, Bertacca S, Santoro G, Gardini S, Caccavari R, Nicoli MA: Substance use among high-school students: relationship with temperament, personality traits and parental care perception. *Subst Use Misuse* 2004; 39: 345–67.
30. Giedd JN: The teen brain: insights from neuroimaging. *J Adolescent Health* 2008; 42: 335–343.
31. Griffin KW, Botvin GJ, Scheier LM, Diaz T, Miller NL: Parenting practices as predictors of substance use, delinquency, and aggression among urban minority youth: Moderating effects of family structure and gender. *Psychol Addict Behav* 2000; 14: 174–184.
32. Hurrelmann K, Richter M: Risk behaviour in adolescence: the relationship between developmental and health problems. *J Pub Health* 2006; 14: 20–28.
33. Jacobson KC, Crockett LJ: Parental monitoring and adolescent adjustment: an ecological perspective. *J Res Adolescence* 2000; 10: 65–97.
34. Jefferis BJMH, Power C, Manor O: Adolescent drinking level and adult binge drinking in national birth cohort. *Addiction* 2005; 100: 543–549.
35. Jessor R: Risk behavior in adolescence: A psychosocial framework for understanding and action. *J Adolescent Health* 1991; 12: 597–605.
36. Kalina O, Madarasova Geckova A, Jarcuska P, Orosova O, van Dijk JP, Reijneveld SA: Psychological and behavioural factors associated with sexual risky behaviour among Slovak students. *BMC Public Health* 2009; 9: 15.
37. Kandel D, Yamaguchi K: From beer to crack: Developmental patterns of drug involvement. *Am J Public Health* 1993; 83: 851–855.
38. Kerr M, Stattin H, Biesecker G, Ferrer-Wreder L: Relationships with parents and peers in adolescence; in Lerner RM, Easterbrooks MA, Mistry J (eds): *Handbook of psychology*. New Jersey: John Wiley & Sons, Inc, 2003, vol. 6.
39. Kuntsche E, Knibbe R, Gmel G, Engels R: Who drinks and why? A review of socio-demographic, personality and contextual issues behind the drinking motives in young people. *Addict Behav* 2006; 31: 1844–57.
40. Kuntsche E, Kuendig H. What is worse? A hierarchy of family-related risk factors predicting alcohol use in adolescents. *Subst Use Misuse* 2006; 41: 71–86.

41. Lifrak PD, McKay J, Rostain A, Alterman AI, O'Brien CHP: Relationship of perceived competencies, perceived social support, and gender to substance use in young adolescents. *J Am Acad Child Psy* 1997; 36: 933–940.
42. Lintonen T, Ahlstrom S, Metso L: The reliability of self-reported drinking in adolescence. *Alcohol Alcoholism* 2004; 39: 362–368.
43. Lintonen T, Konu A: The misperceived social norm of drunkenness among Finish adolescents. *Health Educ Res* 2004; 19: 64–70.
44. Littlejohn C: Does socio-economic status influence the acceptability of, attendance for, and outcome of, screening and brief interventions for alcohol misuse: a review. *Alcohol Alcoholism* 2006; 41: 540–545.
45. Loukas A, Prelow HM: Externalizing and internalizing problems in low-income Latino early adolescents: Risk, resource, and protective factors. *J Early Adolescence* 2004; 24: 250–273.
46. Luk JW, Farhat T, Iannotti RJ, Simons-Morton BG: Parent–child communication and substance use among adolescents: Do father and mother communication play a different role for sons and daughters? *Addictive Behaviors* 2010; 35: 426–431.
47. McDowell I. Measures of self-perceived well-being. *J Psychosom Res* 2010; 69: 69–79.
48. Merenakk L, Harro M, Kiive E, Laidra K, Eensoo D, Allik J, Oreland L, Harro J: Association between substance use, personality traits, and platelet MAO activity in preadolescents and adolescents. *Addict Behav* 2003; 28: 1507–14.
49. Miller NS, Mahler JC, Gold MS: Suicide risk associated with drug and alcohol dependence. *J Addict Dis* 1991; 10: 49–61.
50. Mladek J, Kusendova D, Marencakova J, Podolak P, Vano B: Demogeographical analysis of Slovakia. Bratislava, Comenius University, 2006.
51. Murberg TA, Bru E: Social support, negative life events and emotional problems among Norwegian adolescents. *School Psychol Int* 2004; 25: 387–403.
52. Nash SG, McQueen A, Bray JH: Pathways to adolescent alcohol use: family environment, peer influence, and parental expectations. *J Adolescent Health* 2005; 37: 19–28.
53. Newman K, Harrison L., Dashiff C, Davies S. Relationships between parenting styles and risk behaviors in adolescent health: an integrative literature review. *Revista Latino-Americana de Enfermagem* 2008; 16: 142-150.
54. Noller P, Callan V: Adolescents' perceptions of the nature of their communication with parents. *J Youth Adolescence* 1990; 19: 349–362.
55. Perkins DF, Borden LM: Positive behaviors, problem behaviors, and resiliency in adolescence; in Lerner RM, Easterbrooks MA, Mistry J (eds): *Handbook of psychology*. New Jersey: John Wiley & Sons, Inc, 2003, vol. 6.

56. Petraitis J, Flay BR, Miller TQ: Reviewing theories of adolescent substance use: Organizing pieces in the puzzle. *Psychol Bull* 1995; 117: 67–86.
57. Phares V, Renk K: Perception of parents: A measure of adolescents' feelings about their parents. *J Marriage Fam* 1998; 60: 646–659.
58. Pitel L, Madarasova Geckova A, van Dijk JP, Reijneveld SA: Gender differences in health-related behaviour diminished between 1998 and 2006. *Pub Health (accepted)*
59. Pitkanen T: Problem drinking and psychological wellbeing: a five-year follow-up study from adolescence to young adulthood. *Scand J Psychol* 1999; 40: 197–207.
60. Rehm J, Room R, Graham K, Monteiro M, Gmel G, Sempos CT: The relationship of average volume of alcohol consumption and patterns of drinking to burden of disease: an overview. *Addiction* 2003; 98: 1209–1228.
61. Rohde P, Lewinsohn PM, Seeley JR: Psychiatric comorbidity with problematic alcohol use in high school students. *J Am Acad Child Adolesc Psy* 1995; 35: 101–109.
62. Romelsjo A, Lundberg M: The changes in the social class distribution of moderate and high alcohol consumption and of alcohol-related disabilities over time in Stockholm County and in Sweden. *Addiction* 1996; 91: 1307–1323.
63. Rosenberg M: *Conceiving the self*. New York: Basic Books, 1979.
64. Rosicova K, Madarasova Geckova A, Rosic M, Speybroeck N, Groothoff JW, Van Dijk JP: Socioeconomic factors, ethnicity and alcohol-related mortality in regions in Slovakia. What might tree analysis add to our understanding? *Health & Place (submitted)*
65. Rosnati R, Iafrate R, Scabini E: Parent-adolescent communication in foster, inter-country adoptive, and biological Italian families: Gender and generational differences. *Int J Psychol* 2007; 42: 36–45.
66. Salonna F, van Dijk JP, Madarasova Geckova A, Sleskova M, Groothoff JW, Reijneveld SA: Social inequalities in changes in health-related behaviour among Slovak adolescents aged between 15 and 19: A longitudinal study. *BMC Public Health* 2008; 8: 57–68.
67. Sayette MA, Martin CS, Wertz JM: The effects of alcohol on cigarette craving in heavy smokers and tobacco chippers. *Psychol Addict Behav* 2005; 19: 263–270.
68. Schmid H, Fotiou A, Godeau E, Simons-Morton B, Hublet A: HBSC Research Protocol for 2005/06 Survey. Section 2, scientific rationales for focus areas: Alcohol use. Available at: www.hbsc.org.
69. Schmid H, ter Bogt T, Godeau E, Hublet A, Dias SF, Fotiou A: Drunkenness among young people. A cross-national comparison. *J Stud Alcohol* 2003; 64: 650–661.

70. Schweitzer RD, Seth-Smith M, Callan V: The relationship between self-esteem and psychological adjustment in young adolescents. *J Adolescence* 1992; 15: 83–97.
71. Settertobulte W, Bruun-Jensen B, Hurrelmann K: Drinking among young Europeans. WHO European Ministerial Conference on Young People and Alcohol, Stockholm 2001; WHO Regional Office for Europe, Copenhagen 2001.
72. Shucksmith J, Glendinning A, Hendry L: Adolescents' drinking behaviour and the role of family life: a Scottish perspective. *J Adolescence* 1997; 20: 85–101
73. Simons-Morton B, Crump AD, Haynie DL, Saylor KE, Eitel P, Yu K: Psychosocial, school and parent factors associated with recent smoking among early-adolescent boys and girls. *Prev Med* 1999; 28: 13–148.
74. Smetana JG, Daddis C: Domain-specific antecedents of parental psychological control and monitoring: The role of parenting beliefs and practices. *Child Dev* 2002; 73: 563–580.
75. Suris JC, Nebot M, Parera N: Behaviour evaluation for risk-taking adolescents (BERTA): an easy to use and assess instrument to detect adolescent risky behaviours in a clinical setting. *Eur J Pediatr* 2005; 164: 371–376.
76. Van Nieuwenhuijzen M, Junger M, Klein Velderman M, Wiefferink KH, Paulussen TWGM, Hox J, Reijneveld SA: Clustering of health-compromising behavior and delinquency in adolescents and adults in the Dutch population. *Prev Med* 2009; 48: 572–578.
77. Veselska Z, Madarasova Geckova A, orosova O, Gajdosova B, van Dijk JP, Reijneveld SA: Self-esteem and resilience: The connection with risky behavior among adolescents. *Addict Behav* 2009; 34: 287–291.
78. Williams GD, Debakey SF: Changes in levels of alcohol consumption – United States, 1983–1988. *Brit J Addict* 1992; 87: 643–648.
79. Windle M, Miller-Tutzauer C: Confirmatory factor analysis and concurrent validity of the Perceived Social Support – Family Measure among adolescents. *J Marriage Fam* 1997; 54: 777–787.
80. Zambon A, Lemma P, Borraccino A, Dalmaso P, Cavallo F: Socio-economic position and adolescents' health in Italy: the role of the quality of social relations. *Eur J Public Health* 2006; 16: 627–632.