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Do family environment factors play a role in adolescents' involvement in organized activities?



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ABSTRACT

The study assessed the association of family environment factors with adolescents' participation in organized leisure-time activities (OLTA). We used data on 10,472 Czech adolescents aged 11–15 years (49.2% boys) from the 2013/2014 Health Behaviour in School-aged Children study. The associations of family support, the presence of parental screen-time rules and joint family activities with participation in at least one OLTA were assessed using logistic regression. High family support and the presence of parental screen-time rules were associated with higher odds of OLTA participation. Moreover, adolescents playing sports, indoor games and going for walks with their families at least weekly were more likely to participate in OLTA. Conversely, those spending time in joint family TV/video watching on most days were less likely to do so. A supportive family environment and direct parental involvement in their adolescent children's leisure are associated with OLTA participation in early to middle adolescence.

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1. Introduction

When adolescents attempt to explore their own identity and gain more independence from their parents ([Koepke & Denissen, 2012](#)), the parent-child interaction starts to change. Youth tend to spend more time with peers and start to form cliques ([Gifford-Smith & Brownell, 2003](#); [Larson & Verma, 1999](#)). This happens at the expense of shared family time, which becomes rarer with increasing age ([Vokacova, Badura, Pavelka, Kalman, & Hanus, 2016](#); [Zaborskis, Zemaitiene, Borup, Kuntsche, & Moreno, 2007](#)). Consequently, parental control and knowledge about their children's friends and activities decreases, and adolescents might disclose less to their parents ([Keijsers & Poulin, 2013](#)).

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Parents, however, continue to be essential for healthy adolescent development (Viner et al., 2012), despite the natural process of children separating from parents. Parents influence most aspects of an adolescent's life, including the content of their leisure time. They seem especially to value organized leisure-time activities (OLTA) as a meaningful way of their children's spending their after-school hours (Weininger, Lareau, & Conley, 2015). Parents across social strata, besides appreciating that participation in OLTA yields instant benefits (being fun and healthy for their children), perceive them as an 'investment in future' (Holloway & Pimlott-Wilson, 2014).

Indeed, OLTA have been both theoretically and empirically linked to healthy youth development (Lerner, 2005). Adolescents participating in OLTA report having better physical and mental health (Badura, Geckova, Sigmundova, van Dijk, & Reijneveld, 2015; Zambon et al., 2010), performing better at school (Badura et al., 2016; Fredricks, 2012), and having higher educational aspirations (Beal & Crockett, 2010; Chesters & Smith, 2015). They also engage less in risky behaviours (Takakura, 2015; Zambon et al., 2010). Parents' beliefs in the positive long-term effects of structured leisure time are also supported by studies showing that participation in OLTA leads to better later educational attainment (Beal & Crockett, 2010; Martin et al., 2015).

Excessive engagement in unstructured and unsupervised leisure activities, in contrast, is often associated with problematic outcomes. Unstructured peer-oriented activities might be related to higher rates of delinquency (Weerman, Bernasco, Bruinsma, & Pauwels, 2015), substance use (Kiesner, Poulin, & Dishion, 2010) or poor psychosocial adjustment (Trainor, Delfabbro, Anderson, & Winefield, 2010). This applies especially to adolescents from families with low levels of parental monitoring (Kiesner et al., 2010; Kristjansson, James, Allegrante, Sigfusdottir, & Helgason, 2010). In addition, positive feeling about adolescents' own family decreases the likelihood of joining such activities, or buffers the potential risks of joining them (Persson, Kerr, & Stattin, 2007).

Rates of participation in OLTA vary certainly depending on several features of the family environment. Youth from incomplete or reconstituted families are less likely to participate in OLTA (Chesters & Smith, 2015; McMillan, McIsaac, & Janssen, 2016), while those from families with higher income and parental education are more likely to do so (Holloway & Pimlott-Wilson, 2014; Mahoney, Harris, & Eccles, 2006; Weininger et al., 2015). However, family functioning and climate appear to play their roles too, besides family structure and socioeconomic status. The quality of parent-adolescent relationships has been shown to promote adolescents' OLTA participation (Bohnert, Martin, & Garber, 2007). Similarly, rates of OLTA participation are higher in families in which parents provide emotional support and encourage their children to participate (Mahoney & Eccles, 2005; Simpkins, Davis-Kean, & Eccles, 2005). It has been suggested that the family environment enhances OLTA participation through multiple mechanisms, ranging from affecting adolescents' cognitions (Bohnert et al., 2007) over parents' own involvement in leisure-time activities to simple material support (Simpkins et al., 2005). This indicates that the role of parents in adolescents' leisure-time choices is very complex and distinct factors of the family environment act as important determinants of adolescents' involvement in OLTA.

Since OLTA participation is linked with a range of healthy developmental outcomes (Bohnert, Fredricks, & Randall, 2010), it is of interest to better understand what particular parental actions could potentially promote such participation. However, studies on the topic are rare. To the best of our knowledge, none of the studies thus far has also focused on shared family time – particular joint family activities – in combination with OLTA participation in adolescents. In the present study we assessed whether there is an association of family support, presence of parental rules and joint family activities with adolescents' OLTA participation. Based on the existing evidence, we assumed that adolescents whose parents are supportive of them, regularly spend time in joint leisure-time activities with them, and impose rules limiting time spent at the screen, would be more likely to participate in OLTA. Moreover, given the reported gender and age differences in both adolescents' relationships with parents (Kenny, Dooley, & Fitzgerald, 2013; McGue, Elkins, Walden, & Iacono, 2005) and their OLTA participation (Badura et al., 2015; Mahoney et al., 2006), we also assessed whether gender and age moderated these associations.

2. Methods

2.1. Sample and procedure

The data for this study were collected between April and June 2014 within the Health Behaviour in School-Aged Children (HBSC) study in the Czech Republic. After stratification by region and type of school (the ratio of primary vs. secondary schools), 244 schools were selected at random from the database of Ministry of Education, Youth and Sports of the Czech Republic, and 243 out of them agreed to take part in the survey (response rate 99.6%). One class from the 5th, 7th and 9th grades was then randomly selected at each of the schools. Trained research assistants administered the questionnaires during regular class time. The teacher was absent from the classroom at the time of the survey in order to reduce response bias. Participation in the study was voluntary and anonymous and respondents were not offered any incentives to participate. Prior to administration of the questionnaires they were informed about the opportunity to opt out. The study design was approved by the Ethics Committee of the Faculty of Physical Culture, Palacky University, Olomouc (No. 57/2014).

Out of 16,298 pupils registered in the classes enrolled in the survey, we collected questionnaires from 14,539 (response rate 89.2%); 1732 were absent from school at the time of the survey (mostly due to illness) and 30 pupils declined to participate. Then, according to the HBSC protocol, only the 11-, 13-, and 15-year old adolescents were selected ($n = 10,795$). Finally, we excluded respondents who failed to report data on gender, all six OLTA items and all family environment variables, and those who provided several unlikely responses throughout the HBSC questionnaire (such as contradictory responses on

substance use in the past month versus lifetime). Moreover, we excluded those whose age did not correspond with the grade they attended (e.g. a 15-year-old completing the questionnaire version for 11-year-olds). This led to the final sample of 10,472 adolescents (49.2% boys).

2.2. Measures

We investigated participation in six types of OLTA (team sports, individual sports, art school, youth organizations, leisure centres or after-school clubs, and church meeting/singing) with a dichotomous response of *yes/no* (Bosakova et al., 2016). The participants were then categorised as *active* (involved in at least one OLTA) or *inactive* (not involved in any OLTA).

Items on the family environment represented independent variables in the analyses. We used the family support subscale from the Multidimensional Scale of Perceived Social Support (Zimet, Dahlem, Zimet, & Farley, 1988). The subscale consists of four items, with seven response categories ranging from *Strongly disagree* (1) to *Strongly agree* (7). The responses were summed up, divided by four and then dichotomized as those perceiving *high support* (5.1–7.0) vs. the remaining respondents, i.e. those perceiving *moderate* (3.0–5.0) or *low support* (1.0–2.9) as proposed by the developer of the scale (Zimet, 2016). The family support subscale showed an internal consistency in our sample with a Cronbach's α of 0.90.

Joint family activities were measured using a list of eight activities that adolescents do with their parents in their leisure time (Sweeting, West, & Richards, 1998), with five response categories (*everyday, most days, about once a week, less often, never*). These activities were dichotomized according to the trend studies on the topic (Vokacova et al., 2016; Zaborskis et al., 2007) as *about once a week or more often vs. lower frequency*, except for joint TV watching and eating a meal together (*most days or more often vs. lower frequency*).

Finally, we assessed parental rules regarding screen-time of their children using 3 items. The participants were offered four response categories (*never, rarely, usually, always*) to report how often their parents limit the time spent (a) *watching TV*, (b) *playing PC games*, and (c) *on the Internet (except for schoolwork)*. The participants were then split into two groups – those having at least one of the rules applied usually or always vs. those with such rules applied only rarely or never.

The Family Affluence Scale (FAS), as a covariate, was used to measure socioeconomic status of the respondents' families (Currie et al., 2014). The scale examines the *number of cars owned by the family, having one's own bedroom, number of computers in the household, number of foreign family holidays, number of bathrooms, and dishwasher ownership*. The summary score (0–13) was converted into a fractional rank (ridit) score, in line with a recent large-scale cross-national study on socioeconomic inequalities (Elgar, Gariépy, Torsheim, & Currie, 2017). This scoring effectively transforms ordinal data to an interval scale with a normalised range (from 0 to 1, with higher score indicating higher socioeconomic position) and distribution. The use of the ridit scoring was recommended within the HBSC network because it facilitates cross-national comparison of findings.

2.3. Statistical analysis

First, we described the composition of the sample, its OLTA participation, self-reported family support, frequency of joint family activities and parental rules. Gender- and age-differences in these family environment variables were assessed using chi-square tests. Next, we analysed the associations between the family environment variables and adolescents' OLTA participation using multiple logistic regression models. We first assessed the crude associations of perceived family support, a set of eight joint family activities, and the presence of at least one parental rule, with OLTA participation as a dependent variable. Second, the analyses were adjusted for gender, age categories and socioeconomic status, as indicated by FAS.

To assess the stability of our results, we ran the analyses again using number of OLTA in which adolescents participated concurrently and also the pattern of OLTA involvement, i.e. the combination of distinct types of OLTA they were involved in, derived by cluster analysis (Badura et al., 2015), as outcomes. This led to very similar results. For the sake of brevity, we decided to use the simple dichotomized measure of OLTA participation in line with Persson et al. (2007). Similarly, we assessed the impact of dichotomisation for the independent variables. We did factor analyses for joint family activities (8 items) and parental screen-time rules (3 items). In both cases, we obtained a single factor, and the latent factors were associated with a higher rate of OLTA participation in the same manner as the dichotomous measures. Next, we also repeated the analyses using alternative categorizations of FAS (categorised fractional rank score and categorised summary score), which again yielded virtually the same findings.

Last, we checked the interaction effects of gender and age on these associations. The interaction terms of gender with all the family environment variables were entered into the multiple regression model simultaneously. Next, the same was done for categorised age. IBM SPSS 22 for Windows (IBM Corp. Released 2013. Armonk, NY) was used for statistical analyses.

3. Results

About 20% of the adolescents ($n = 1965$) were not involved in any OLTA. Prevalence rates of self-reported family support, joint family activities and parental rules by gender and age are shown in Table 1. The vast majority of the respondents perceived high support from their families. Eating a meal and watching TV/video were the most frequent activities done together with parents, while playing sports and going places were the least frequent activities. Approximately 55% of adolescents had at least one screen-time rule imposed by their parents, with rules restricting the time spent on the PC being

Table 1

Adolescents' OLTA participation, family support, joint family leisure-time activities and parental rule setting: rates by gender and age.

	Gender				Age ^a						No. of missing values
	Boy		Girl		11		13		15		
	n = 5150; 100%		n = 5322; 100%		n = 3314; 100%		n = 3534; 100%		n = 3624; 100%		
	n	%	n	%	n	%	N	%	n	%	
OLTA participation											
At least one activity	4225	82.0	4282	80.5	2886	87.1	2954	83.6	2667	73.6	0
Perceived family support											
High family support	4279	83.9	4205	79.4	2894	88.1	2851	81.2	2739	76.0	70
Joint family activities (about once a week)											
Watch TV/video ^b	2935	57.2	2967	55.9	2141	64.9	2011	57.1	1750	48.4	39
Play indoor games	2126	41.6	1894	35.8	1840	55.9	1386	39.4	794	22.0	61
Eat a meal ^b	3261	63.8	3077	58.3	2374	72.3	2213	63.2	1751	48.6	82
Go for a walk	2468	48.4	2624	49.6	2129	65.0	1763	50.3	1200	33.2	87
Go places	1855	36.4	1782	33.8	1399	42.8	1292	36.8	946	26.3	93
Visit friends/relative	3316	64.9	3399	64.2	2332	71.0	2329	66.3	2054	57.0	72
Play sports	1896	37.2	1805	34.1	1502	45.8	1262	36.0	937	26.0	81
Sit & talk together	3275	64.0	3487	65.8	2324	70.7	2245	63.8	2193	60.7	54
Parental rules (always or usually)											
Limited TV	2000	39.0	1832	34.5	1730	52.6	1406	39.9	696	19.3	43
Limited PC gaming	2669	52.3	2103	39.9	2057	62.9	1743	49.6	972	27.0	92
Limited Internet	1992	39.0	1909	36.2	1741	53.2	1380	39.4	780	21.7	98
At least one rule	3010	59.3	2611	49.9	2352	72.6	2057	58.9	1212	33.9	158

Statistically significant ($p < 0.05$) differences by gender are indicated in bold – based on χ^2 tests.^a All differences both between 11-year-olds and 13-year-olds, as well as 13-year-olds and 15-year-olds were statistically significant ($p < 0.05$) regarding all the variables in the Table – based on χ^2 tests.^b The relative number of adolescents engaged in 'watching TV/video' and 'eating a meal' on most days or more often is presented, unlike in other joint family activities.

reported as the most common. The number of adolescents reporting high family support, regularly spending time in joint family activities and restricted by one or more parental rules was, in general, higher in boys and decreased with age.

Table 2 shows odds ratios (OR) and 95% confidence intervals (CI) for the associations of all family environment factors simultaneously with OLTA participation by multiple logistic regression. In the crude analyses, we observed six out of the eight joint family activities to be significantly associated with adolescents' OLTA participation in the case of high family support and the presence of at least one screen-time rule. Adjustment for gender, age and FAS resulted in rather minor changes of the ORs of the explored associations. Accordingly, changes in statistical significances were also small; only the associations of joint eating of meals and visiting friends/relatives with OLTA participation became non-significant, as compared with the crude model. We found that adolescents involved in sports, playing indoor games and going for walks with their families at least weekly were more likely to participate in OLTA, with joint sports showing the strongest association (OR 1.81, 95% CI 1.57–2.07). Additionally, when having one or more screen-time rules and perceiving high support from their family, they had higher odds of participating in OLTA, as well. In contrast, youth who engaged in joint family TV/video watching on most days were less likely to be OLTA participants (OR 0.84, 95% CI 0.75–0.94).

Table 2

Associations of family environment factors with organized leisure-time activities participation: odds ratios (OR) and 95% confidence intervals (CI) for being involved in organized leisure-time activities resulting from multiple logistic regression analyses.

	Crude		Adjusted for gender, age and FAS	
	OR	95% CI	OR	95% CI
Perceived family support				
High family support	1.25***	1.10–1.42	1.19**	1.04–1.36
Joint family activities				
Watch TV/video (most days or more often)	0.83***	0.74–0.92	0.84**	0.75–0.94
Play indoor games (at least once a week)	1.31***	1.15–1.49	1.23**	1.08–1.41
Eat a meal (most days or more often)	1.18**	1.05–1.32	1.08	0.97–1.22
Go for a walk (at least once a week)	1.23**	1.09–1.40	1.21**	1.06–1.37
Go places (at least once a week)	1.08	0.94–1.23	1.01	0.88–1.15
Visit friends/relatives (at least once a week)	1.13*	1.01–1.26	1.11	0.99–1.24
Play sports (at least once a week)	1.98***	1.72–2.26	1.81***	1.57–2.07
Sit & talk together (at least once a week)	1.00	0.89–1.12	1.05	0.94–1.19
Parental rules				
At least one parental rule	1.43***	1.28–1.59	1.34***	1.20–1.509

Statistically significant odds ratios are indicated in bold and by asterisks (* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$); FAS - Family Affluence Scale; 622 cases missing in the model adjusted for gender, age and FAS.

Last, we assessed the interactions of gender and age on the associations between family environment variables and OLTA participation in the fully adjusted model. We observed only one interaction with gender and only one with age. The other interactions were not statistically significant. Regarding the model on screen-time rules that included an interaction with gender, the ORs for main effects were 1.07 (95% CI 0.82–1.40) for girls vs. boys, and 1.20 (95% CI 1.02–1.41) for having at least one screen-time rule vs. none. The OR for the interaction of gender and screen-time rules was 1.25 (95% CI 1.01–1.56), for girls in families with screen-time rules. This indicates that the odds for OLTA participation of both girls and boys were higher in families with parental rules on screen time anyhow, but even more so for participation of girls.

Regarding the interactions of age categories with family environment variables, we found an interaction of age with watching TV/video with their parents. In particular, 11-year olds who did so at least weekly had higher odds for involvement in OLTA than those who did so more frequently (OR 1.47, 95% CI 1.10–1.98), unlike their 15-year-old counterparts. In this model, the OR for the main effect of age category (15-year-olds vs. 11-year-olds) was 0.51 (95% CI 0.34–0.77) and for the main effect of joint TV/video watching was 0.67 (95% CI 0.53–0.85). Fig. 1 shows percentages of adolescents in cases where interactions of family environment factors with gender or age were statistically significant.

4. Discussion

The present study was aimed at assessing the associations of family support, joint family activities and parental control of their children's screen-time with adolescents' involvement in OLTA. All three mentioned family environment factors were associated with adolescents' participation in at least one OLTA, mostly regardless of gender or age and with positive associations. Only regarding screen-time rules and frequent TV/video watching with parents did associations vary by gender and age, respectively.

We found that adolescents in general are more likely to be involved in OLTA when their parents pay more attention to the content of their leisure, are more supportive of them and share more time with them. This confirms what [Jacobs and Eccles \(2000\)](#) suggested, i.e. that parenting styles and socio-emotional environment created by parents may influence adolescents' OLTA participation. Our finding is also in line with previous research showing that parents' behaviours, including parental warmth and openness, encouragement and own activity involvement, promote the participation of adolescents in activities ranging from sports or extracurricular academic activities to volunteering ([Denault & Poulin, 2008](#); [Mahoney et al., 2006](#); [Martin et al., 2015](#); [Simpkins et al., 2005](#); [Yao & Rhodes, 2015](#)). A possible explanation for this might be that parents who are more interested and engaged in the content of their children's leisure also realise the opportunity to boost their cultural, as well as social capital through involvement in OLTA, as sometimes conceptualised in research ([Jaeger & Breen, 2016](#)) and also empirically supported ([Covay & Carbonaro, 2010](#); [Larson, Hansen, & Moneta, 2006](#)). Parents also appraise OLTA as 'safe places' because they are adult-supervised ([Carver, Timperio, Hesketh, & Crawford, 2010](#)) and, thus, caring parents might see OLTA not only as developmental context, but also as a way to ensure the safety of their children.

Higher rates of OLTA participants were observed in families regularly spending time in joint activities. The joint family activities associated with adolescents' OLTA participation included playing sports, indoor games and going for walks, i.e. all the activities requiring a proactive attitude from parents. This finding extends those of [Lam and McHale \(2015\)](#). They found that parent-youth involvement in joint physical activities was associated with more time spent in such activities by adolescents. Parents seem to recognize shared family time as 'purposive leisure', as described by [Shaw and Dawson \(2001\)](#). Apart from valuing its enjoyable nature and facilitating effects on family interactions, parents engage in joint family activities to teach their children about healthy habits or values ([Shaw & Dawson, 2001](#)). Moreover, the skill-building character is also

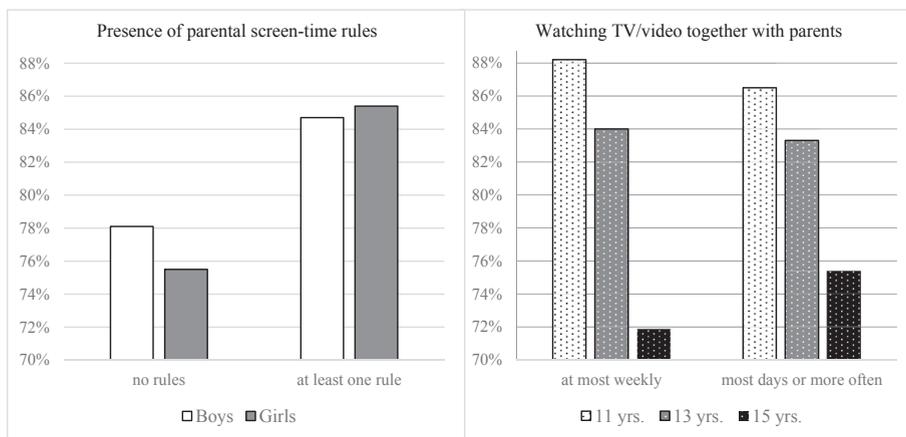


Fig. 1. Rates of adolescents who reported participating in at least one organized leisure-time activity per family environment variables regarding family factors which had a significant interaction with gender (left) or age (right). **Note:** The overall Wald test for the interaction term Age categorical \times joint TV/video watching was statistically significant ($p = 0.027$).

important for them, although this factor gets more pronounced with higher socioeconomic status (Harrington, 2015). Therefore, our findings indicate that parents who perceive joint family leisure time as beneficial for their children's future also wish them to profit from the contents of further leisure time, i.e. through OLTA participation.

We found that frequent joint TV watching and the absence of screen-time rules was associated with lower odds for OLTA participation, which is, to a certain extent, complementary to the previously discussed finding. Parents intentionally discouraging their children from spending too much time in front of the screen (either PC or TV) might be more aware of the strong link between excessive screen time and subsequent health risks, such as unhealthy dietary habits (Pearson & Biddle, 2011), increased risk of overweight/obesity, decreased fitness and socio-cognitive abilities (Tremblay et al., 2011) or lower life satisfaction (Boniel-Nissim et al., 2015). As a consequence, such parents might guide their children towards a healthy and active lifestyle (Lawman & Wilson, 2012), with OLTA as an integral part of it. Moreover, it fits in the picture that parental monitoring in combination with OLTA is associated with a lower occurrence of risk behaviours (Kristjansson et al., 2010).

Lastly, we observed the interaction effects of gender and age on the association of screen-time behaviour and rules with OLTA participation, respectively. Compared with boys, girls were significantly less likely to be involved in OLTA when having no screen-time rules applied by parents. The rate of participation in OLTA grew more in girls than in boys when they had at least one such rule. It is known that beliefs in the legitimacy of parental authority decline more in boys than in girls during adolescence (Kuhn & Laird, 2011). Thus, girls might be more willing to accept both the rules limiting their screen-time and potential stimuli to participate in OLTA. In addition, the association between joint family TV/video watching and OLTA participation diminished from age of 11 to 15 years, indicating that with increasing age some aspects of the family environment affect adolescents' lives to a lesser degree. Alternatively, it could also be that adolescents who are both active by themselves and together with parents, share common interests with them. Thus, they might still find more suitable programs to watch with their parents even when they get older, compared with inactive adolescents.

None of the other interactions of the independent variables with gender and categorised age was statistically significant, indicating that family environment factors are associated with OLTA participation relatively independently of adolescents' gender and age. Given the number of tests, the interactions as found could easily be due to chance. Likewise, Simpkins et al. (2005) reported relations between parental behaviour and their children's participation in academic extracurricular activities similar for boys and girls. Moreover, a lack of age variance in the associations is complementary to the results of Persson et al. (2007). They found that positive feelings about the family environment predicted a lower dropout from OLTA regardless of adolescents' age. It therefore seems that the creation of a supportive and cohesive family environment may help keep both adolescent boys and girls involved in OLTA even in this life period, in which rates of OLTA participation decrease (Badura et al., 2015). It also fits the picture that supporting the participation of one's children in OLTA is a common part of 'good parenting practices' (Trussell & Shaw, 2012).

4.1. Strengths and limitations

The main strength of the present study lies in its large and representative sample. Moreover, we analysed data from the well-established and recognized HBSC study, which unconditionally complies with the international study protocol in terms of using a standardized questionnaire and data collection procedures.

However, our findings should also be interpreted in the light of some limitations. First, we cannot draw any definite conclusions on causality, as we worked with cross-sectional data. Second, all the measures were self-reported, which can be more prone to a respondents' bias (e.g. social desirability). However, the validity and reliability of the items used in the present study have, in general, been shown to be good (Bosakova et al., 2016; Zimet et al., 1988), or they have been used in previous research (Brindova et al., 2014; Zaborskis et al., 2007). Third, we used only a binary measure of OLTA participation (i.e. active vs. inactive), without information on the unique dimensions of OLTA (breadth, intensity, or engagement). These could have affected the associations observed. However, we repeated the analyses with OLTA as a total number of activities or pattern of involvement (the combination of distinct types of OLTA) and these analyses yielded results that were very similar to those using OLTA participation as a binary measure.

4.2. Implications

Generally, the findings of the present study demonstrate associations between family environment factors and adolescents' OLTA participation. A supportive family environment and direct involvement of parents in the content of their children's leisure time are therefore not only beneficial by themselves regarding strengthening of family relationships or promotion of healthy habits in adolescents (Shaw & Dawson, 2001). They also seem to promote higher rates of OLTA participation. If causal, promotion of OLTA participation as a potential booster of school performance or a component of interventions against risk behaviours should also take adolescents' family environment into account. The focus should especially be on adolescents from less supportive and cohesive families because they appear to be disadvantaged regarding participation in OLTA.

Further research is needed on the causality between family environment factors and OLTA participation, in particular, with an emphasis on its other dimensions, such as OLTA pattern and intensity. Moreover, given the possibility of occurrence of suppression effects in the multiple regression, it would be also desirable to conduct replication studies that would support or

falsify our findings. We would also recommend considering parent-reported data in addition to those of adolescents, as the parents' and adolescents' perception of family environment (e.g. regarding the rule-setting) might differ notably.

5. Conclusion

Adolescents perceiving high family support, spending time with their parents on a regular basis in playing sports, indoor games or going for walks, and having at least one parental rule limiting their screen time are more likely to be involved in at least one OLTA. Conversely, those frequently spending time in joint family TV/video watching are less likely to be OLTA participants. This pertained to younger adolescents (11-years old) but not to their older counterparts. Otherwise, adolescents' gender, age and socioeconomic status hardly modified the associations. A supportive family environment and direct parental involvement in the content of their children's leisure time are associated with higher odds for participation in OLTA in early to middle adolescence.

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