Family, School and Health in Children and Adolescents: Findings from the 2006 HBSC Study in Greece
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Family, School and Health in Children and Adolescents

Findings from the 2006 HBSC Study in Greece

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Abstract

The association between family, school and subjective health was examined in a large representative sample of Greek children and adolescents ($N=3034$). We hypothesized that (a) family and school factors are associated with health, even after controlling for gender and economic status; (b) family and school factors are directly related to satisfaction with life and health complaints, but indirectly to self-rated health. According to the findings, family and school factors were related to subjective health, even though this relation was weakening with age. Family and school factors were associated with self-rated health through health complaints and life satisfaction.

Acknowledgements. HBSC is an international study carried out in collaboration with WHO/EURO. The International Co-ordinator of the 2005/2006 survey was Professor Candace Currie and the Data Bank Manager was Dr Oddrun Samdal. The 2005/2006 survey was conducted by Principal Investigators in 41 countries: Austria; Belgium (Flemish); Belgium (French); Bulgaria; Canada; Croatia; Czech Republic; Denmark; England; Estonia; Finland; France; Germany; Greece; Greenland; Hungary; Iceland; Israel; Italy; Latvia; Lithuania; Luxembourg; Malta; Netherlands; Norway; Poland; Portugal; Rep. of Ireland; Romania; Russia; Scotland; Slovak Republic; Slovenia; Spain; Sweden; Switzerland; TFYR Macedonia; Turkey; Ukraine; USA; Wales. For details, see http://www.hbsc.org

Competing Interests: None declared.

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Keywords

- family
- perceived health
- school
GOOD HEALTH is a major resource for a productive life, and good health in adulthood is based on a healthy childhood (Currie et al., 2004). A major determinant of children and adolescents' physical and psychological health is the social environment in which they grow up and live, such as family and school (Bauman, Carver, & Gleiter, 2001; Brun Sundblad, Saartok, & Engström, 2007).

There is a large body of research demonstrating the strong relationship of family-related factors to children and adolescents' health. For example, a series of studies have shown that positive relationships with parents and family cohesion are inversely related to children’s emotional problems (e.g. Lucia & Breslau, 2006), whereas conflicts within family and family stress are positively related to such problems (Kovacs, 1997). Also, paternal involvement and support are related to positive mental health and psychosocial development (e.g. Flouri & Buchanan, 2003; Harter, 1999). On the other hand, unstable parenthood, insufficient monitoring and closeness to children are related to higher levels of health complaints, more physical symptoms and lower self-esteem (Karvonen, Vikat, & Rimpelä, 2005; Sweeting & West, 1995).

Moreover, parental influence, through modelling, supervision and reinforcement, is critical for the development of several health-related behaviours, including smoking (Bauman et al., 2001) and weight control (Crossman, Sullivan, & Benin, 2006). Also, family connectedness (that is, perceived parental support, caring and warmth) has extensively been examined and shown to be associated with a variety of physical and psychological well-being indices, such as health compromising behaviours or behavioural problems (e.g. Carter, McGee, Taylor, & Williams, 2007; Resnick, Harris, & Blum, 1993). However, it is possible that parental influence decreases with age, as in young adolescents personal attributes and relationships with peers are gradually becoming more important (e.g. Bauman et al., 2001).

Besides family, school also seems to be strongly related to students’ health. A variety of school climate indicators, such as liking school, a sense of belonging at school and good relationships with teachers and peers are associated with health. For example, they are related to less emotional and behavioural problems, as well as to more health promoting behaviours (Carter et al., 2007; Resnick et al., 1993; Ueno, 2005). They are also most important for health promotion (Patton, Bond, Butler, & Glover, 2003). On the contrary, increased educational demands are related to more distress, which in turn results in more health complaints (Karvonen et al., 2005). According to Samdal, Nutbeam, Wold and Kannas (1998), school can either facilitate or hamper health-related behaviours: students less connected to school are more likely to adopt unhealthy behaviours and exhibit more health problems, whereas students satisfied with school are more likely to be happy, enjoy things and have a better health.

The purpose of the present study was to replicate the findings of previous studies regarding the relation of school and family to subjective health in a large representative sample of children and young adolescents. Furthermore, our purpose was to extend existing findings (a) by examining the role of school and family context in three age groups (11, 13 and 15 years of age), but (b) after removing the strong associations of gender and socioeconomic status with health and well-being (Brun Sundblad et al., 2007; Sweeting & West, 2003), as well as (c) by examining different aspects of subjective health and their specific relations to family and school factors. The relations of family and school to health in different age groups have rarely been studied, while, according to some researchers, the role that parents and family play in shaping well-being decreases as children grow up (Bauman et al., 2001; Glynn, 1981). Additionally, as health is a complex and diverse phenomenon, in order to achieve a more sufficient assessment of it, three different indicators of subjective health were used to highlight associations with family and school factors: self-rated health; subjective health complaints; and satisfaction with life. Self-rated health, despite its simplicity, has been proved a major predictor of morbidity, mortality, health service use, behavioural risk factors and psychological well-being, at least in the adult population (Benyamini, Idler, Leventhal, & Leventhal, 2000). Health complaints are strongly related to well-being and overall health (Millstein, 1993), while life satisfaction forms a global evaluation of current life and a critical component of subjective well-being.

Regarding health indicators, we assume that positive family and school climates create a constructive life environment resulting in more satisfaction with life and fewer health complaints in all age groups. On the contrary, a direct relation of family and school climate-related factors to self-rated health is not expected. Self-rated health corresponds
to a core measure of current health status (Benyamini et al., 2000), whereas satisfaction with life and general physical and psychological complaints rather represent current life conditions and well-being in general. Therefore, we assume that family and school, which represent significant life circumstances, are more closely related to satisfaction with life and health complaints, and through these to self-rated health. Our specific hypotheses were: (a) family and school climate-related factors are associated with subjective health indicators in all age groups, even after controlling for gender and economic status; (b) the relationship between health indicators and family and school decreases as children’s age increases; (c) family and school-related factors are directly related to satisfaction with life and health complaints, but indirectly to self-rated health.

Method

Participants
Data were derived from the Greek sample of the Health Behaviour in School-aged Children (HBSC) Study, the 2006 survey. The HBSC study was established more than 20 years ago, and it is a cross-national research conducted by a network of research teams in collaboration with the WHO Regional Office for Europe (Roberts et al., 2007). In each country, children are selected across the entire state using a clustered sampling design, where the initial sampling unit is either the school class or the school (Currie et al., 2004). The target populations selected for sampling were children and adolescents who were at their 12th, 14th and 16th years (three age groups). The HBSC survey in Greece is conducted by the University Mental Health Research Institute. The Greek sample in the 2006 survey consisted of 3715 students. To avoid cultural background differences, which are significantly related to well-being (Pedersen, 1997), only students who were of Greek origin were included in the present study (N = 3318). We also excluded a relatively small number of students, who were coming from a single-parent family or whose parent(s) was dead (N = 284; less than 1 percent of the original sample). Thus, the final sample consisted of 3034 participants (1459 boys, 1575 girls; 11-year-olds: 460 boys, 453 girls, age range = 11–13; 13-year-olds: 462 boys, 505 girls, age range = 13–15; 15-year-olds: 537 boys, 617 girls, age range = 15–17). The study was carried out in accordance with all local and international ethical principles (for details regarding study protocols, Roberts et al., 2007).

Measures

Subjective health and well-being Three indicators of subjective health and well-being were used: (1) self-rated health measured by a single item: ‘would you say your health is … excellent, good, fair or poor? ’; (2) current satisfaction with life was measured by a visual ladder with 10 steps: the top indicates the best possible life, whereas the bottom indicates the worst possible life; (3) health complaints, which were measured with the HBSC Symptom Checklist (Haugland & Wold, 2001) that includes nine common health complaints, both physical and psychological (e.g. headache, feeling dizzy, having difficulty concentrating, feeling nervous). WHO makes no assumptions about the primary causes of health complaints (i.e. whether biological or psychological). Thus, they are clustered under the same general label (Currie et al., 2004). Participants were asked to rate their complaints on a five-point frequency scale from 1 (rarely or never) to 5 (about every day), regarding the last six months (Cronbach $\alpha = .79$).

School climate School climate was assessed by two factors: (1) satisfaction with school, which is a sum score of three items about students’ evaluation of their satisfaction with school (‘how do you feel about school’, ‘school is a nice place to be’, ‘I feel I belong to this school’). The first item had four response keys (from 1—I don’t like school at all, to 4—I like school a lot), whereas the remaining two had five keys (from 1—disagree a lot, to 5—agree a lot). Therefore, as in previous studies (e.g. Samdal et al., 1998), the two latter items were recoded into four response keys according to the distribution and concept of the keys (i.e. the categories ‘neither/nor’ and ‘disagree’ were collapsed, while the others were kept in their original form. Cronbach $\alpha = .71$). (2) School pressure, which was measured by a single item. Participants were asked to indicate the degree to which they felt pressure from the schoolwork on a four-point Likert-type scale ranging from 1 (not at all) to 4 (a lot).

Family climate Three indicators were used: (1) communication with parents, which was assessed
significant difference was observed (Wilks $\lambda = .91$; $F(6, 5832) = 49.29, p < .001, \eta^2 = .05$). Post hoc ANOVAs revealed that there were significant differences in all health indicators: self-rated health ($M_{11\text{-year-olds}} = 3.60, M_{13\text{-year-olds}} = 3.53, M_{15\text{-year-olds}} = 3.51; F(2, 2918) = 5.99, p < .005, \eta^2 = .004$), health complaints ($M_{11\text{-year-olds}} = 16.18, M_{13\text{-year-olds}} = 18.92, M_{15\text{-year-olds}} = 19.95; F(2, 2918) = 79.35, p < .001, \eta^2 = .05$) and satisfaction with life ($M_{11\text{-year-olds}} = 8.73, M_{13\text{-year-olds}} = 7.91, M_{15\text{-year-olds}} = 7.65; F(2, 2918) = 113.25, p < .005, \eta^2 = .07$). Satisfaction with life was decreasing with age (all pairwise comparisons were statistically significant, $ps < .001$), health complaints increased with age (all pairwise comparisons were statistically significant, $ps < .001$) whereas health self-ratings were decreasing with age, with a significant difference noticed between 15-year-olds and the other age groups ($ps < .005$). In all cases, however, effect sizes ($\eta^2$) were rather small (Cohen, 1988), especially regarding self-rated health. Moreover, it should be noted that in all age groups participants reported high levels of overall health and life satisfaction, and relatively low levels of health complaints.

**Family, school and health**

Table 1 presents the intercorrelations, the means and the standard deviations between all variables for the entire sample ($N = 3034$). Correlations larger than .30 (Pearson’s $r$) were observed between life satisfaction and satisfaction with school ($r = .35, p < .001$), communication with parents ($r = .35, p < .001$), parental supervision ($r = .33, p < .001$), and parental support ($r = .40, p < .001$). The correlations of family and school variables to health complaints ranged from $r = -.25$ to $-.29$ ($ps < .001$), whereas correlations to self-rated health were all smaller than .25. Finally, the majority of the correlations between family and school variables were rather low.

Hierarchical analyses procedures of the health indicators at gender and subjective economic status (entered at Step 1) and family and school variables (entered at Step 2) were performed for each age group, in order to examine the relations of the latter variables to health, after controlling for gender and economic status. Results are presented in Table 2.

With respect to self-rated health, after controlling for gender and subjective economic status, school and family factors accounted for 8 per cent of the variance, in the age group of 11 years (effect size $f^2_{\text{change}} = .08$). At the age of 13 years, school and family factors accounted for 8 per cent of the variance ($f^2_{\text{change}} = .08$), whereas at the age of 15 years, these factors accounted for only 3 per cent ($f^2_{\text{change}} = .02$). In all cases, effect sizes were small (Cohen, 1988) and were decreasing with age. At the age of 11, self-rated health was predicted by satisfaction with school and parental support. The same set of variables predicted self-rated health also at age 13, as well as at age 15.

With respect to satisfaction with life, school and family factors accounted for 18 per cent of the variance at age 11 ($f^2_{\text{change}} = .22$), for 15 per cent at age 13 ($f^2_{\text{change}} = .18$) and for 12 per cent of the variance.
at age 15 ($f^2_{\text{change}} = .15$). Effect sizes were medium to large. However, they were also decreasing with age. Satisfaction with life was predicted by satisfaction with school, parental supervision and communication with parents at age 11; by satisfaction with school, communication with parents, parental supervision and parental support at age 13; by school pressure, satisfaction with school, communication with parents and parental support at age 15.

School and family factors accounted for 15 per cent of the health complaints variance at age 11 ($f^2_{\text{change}} = .17$), for 10 per cent at age 13 ($f^2_{\text{change}} = .13$) and for 8 per cent at age 15 ($f^2_{\text{change}} = .10$). Effect sizes were of a medium size. Complaints were predicted by school pressure, school satisfaction, parental supervision and support at age 11; by school pressure and parental supervision at age 13; by school pressure, satisfaction with school and parental supervision at age 15.

**Direct and indirect relationships**

In order to examine our second hypothesis that family and school are related to self-rated health through satisfaction with life and health complaints, structural equation models were fit to the data using Lisrel 8.54 (Joreskog & Sorbom, 1993). Two different simple models were tested for each age group. According to the first model, all health and well-being indicators were assumed to be directly predicted by all family variables (i.e. communication with parents, parental supervision and support), as well as all school variables (i.e. satisfaction with school, school pressure). According to the second model, family and school variables were assumed to predict only life satisfaction and health complaints directly, whereas these in turn were assumed to predict self-rated health. Also, life satisfaction, self-rated health and health complaints were assumed to predict each other.

In each age group the only models that fitted to the data were those assuming an indirect relationship between family and school, and self-rated health. The fit indices of all direct models were very poor ($\chi^2$s (d.f. = 3) > 92.00, $p s < .001$, Normal fit indexes < .95, Comparative fit indexes < .95, Root mean square errors of variance > .20). In almost every age group (see Fig. 1), self-rated health was significantly predicted by life satisfaction in a positive way ($\beta$s = .62, .60 and .40, for the three age groups, respectively), as well as by health complaints in a negative way ($\beta$s = -.10 and -.21, for age groups 13 and 15, respectively). Life satisfaction was predicted by health complaints ($\beta$s = -.24, -.22 and -.35, for the three age groups, respectively) and self-rated health ($\beta$s = .41 and .37, for age groups 11 and 13), as well as by school satisfaction ($\beta$s = .11, .09 and .07) and parental support ($\beta$s = .09, .07, .06) in every age group; by parental supervision at ages 11 and 13 ($\beta$s = .04 and .03, respectively), and by communication with parents at ages 13 and 15 ($\beta$s = .10 and .10). Health complaints were predicted by school pressure in all age groups ($\beta$s = .20, .23, .19, respectively); by school satisfaction at ages 11 and 15 ($\beta$s = -.05 and -.07, respectively); communication with parents at ages 13 and 15 ($\beta$s = -.11 and -.06); and parental support and supervision at age 11 ($\beta$ = -.04 and -.04, respectively).

### Table 1

<table>
<thead>
<tr>
<th>1. Self-rated health</th>
<th>1.00</th>
</tr>
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<tbody>
<tr>
<td>2. Life satisfaction</td>
<td>.34*</td>
</tr>
<tr>
<td>3. Health complaints</td>
<td>-.31*</td>
</tr>
<tr>
<td>4. School pressure</td>
<td>-.13*</td>
</tr>
<tr>
<td>5. School satisfaction</td>
<td>.19*</td>
</tr>
<tr>
<td>6. Communication with parents</td>
<td>.21*</td>
</tr>
<tr>
<td>7. Parental supervision</td>
<td>.18*</td>
</tr>
<tr>
<td>8. Parental support</td>
<td>.25*</td>
</tr>
</tbody>
</table>

| Mean | 3.55 | 8.07 | 18.47 | 2.28 | 8.39 | 6.14 | 25.90 | 20.51 |
| SD   | .61  | 1.73 | 7.09  | .91  | 2.15 | 1.52 | 3.98  | 3.10  |
| Minimum-Maximum | 1–4 | 1–10 | 9–45  | 1–4  | 3–12 | 2–8  | 10–30 | 8–24 |

* $p < .001$
Table 2. Summary of hierarchical regression analyses for variables predicting self-rated health, satisfaction with life and health complaints in each age group

<table>
<thead>
<tr>
<th>Age 11</th>
<th>Self-rated health</th>
<th>Satisfaction with life</th>
<th>Health complaints</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>β</td>
<td>t</td>
<td>ΔR²</td>
</tr>
<tr>
<td></td>
<td>.03</td>
<td>.99</td>
<td>13.24**</td>
</tr>
<tr>
<td>Step 1</td>
<td>Gender</td>
<td>.03</td>
<td>.99</td>
</tr>
<tr>
<td></td>
<td>Subjective ES</td>
<td>-.17</td>
<td>-.502**</td>
</tr>
<tr>
<td>Step 2</td>
<td>School pressure</td>
<td>-.06</td>
<td>1.57</td>
</tr>
<tr>
<td></td>
<td>School satisfaction</td>
<td>.10</td>
<td>2.66*</td>
</tr>
<tr>
<td></td>
<td>Communication with parents</td>
<td>.05</td>
<td>1.27</td>
</tr>
<tr>
<td></td>
<td>Parental supervision</td>
<td>.05</td>
<td>1.10</td>
</tr>
<tr>
<td></td>
<td>Parental support</td>
<td>.18</td>
<td>4.18**</td>
</tr>
<tr>
<td>Age 13</td>
<td>Self-rated health</td>
<td>.02</td>
<td>10.38**</td>
</tr>
<tr>
<td>Step 1</td>
<td>Gender</td>
<td>-.06</td>
<td>1.84</td>
</tr>
<tr>
<td></td>
<td>Subjective ES</td>
<td>-.13</td>
<td>-4.08**</td>
</tr>
<tr>
<td>Step 2</td>
<td>School pressure</td>
<td>-.04</td>
<td>1.24</td>
</tr>
<tr>
<td></td>
<td>School satisfaction</td>
<td>.11</td>
<td>3.20**</td>
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<td>Communication with parents</td>
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<td>1.35</td>
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<tr>
<td></td>
<td>Parental supervision</td>
<td>.07</td>
<td>1.76</td>
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<tr>
<td></td>
<td>Parental support</td>
<td>.15</td>
<td>3.65**</td>
</tr>
<tr>
<td>Age 15</td>
<td>Self-rated health</td>
<td>.08</td>
<td>45.59**</td>
</tr>
<tr>
<td>Step 1</td>
<td>Gender</td>
<td>-.19</td>
<td>-6.51**</td>
</tr>
<tr>
<td></td>
<td>Subjective ES</td>
<td>-.19</td>
<td>-6.39**</td>
</tr>
<tr>
<td>Step 2</td>
<td>School pressure</td>
<td>-.02</td>
<td>-.74</td>
</tr>
<tr>
<td></td>
<td>School satisfaction</td>
<td>.09</td>
<td>2.98*</td>
</tr>
<tr>
<td></td>
<td>Communication with parents</td>
<td>.06</td>
<td>1.76</td>
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<tr>
<td></td>
<td>Parental supervision</td>
<td>.01</td>
<td>.01</td>
</tr>
<tr>
<td></td>
<td>Parental support</td>
<td>.09</td>
<td>2.47*</td>
</tr>
</tbody>
</table>

Note: ES = economic status; Gender: 1 = males, 2 = females; *p < .005; **p < .001
Discussion

In the present study we examined the role of family and school factors in young people’s subjective health. A set of three discrete indicators was used to ensure a more complete assessment of subjective health.

A preliminary finding was that children and adolescents reported a high level of health (high overall self-rated health, high satisfaction with life, low complaints). This finding is in agreement with previous relevant research in young people (Carter et al., 2007; Currie et al., 2004). Bearing this in mind, results indicated a small but stable decrease in self-rated health and satisfaction with life, and an increase in health complaints with age: younger participants reported better health, more satisfaction with life and fewer health complaints. This finding is also in accordance with previous research (e.g. Brun Sundblad et al., 2007). An increase in the problems that young persons face in their lives, as well as a shift in the ways they perceive themselves or their health status might be the possible reasons for this finding. Nevertheless, we should stress that the aforementioned changes, especially regarding self-rated health, as indicated by the effect sizes, are quite small.

Moreover, the findings of the present study provided support to our hypotheses that family and school factors are related to subjective health and well-being across all age groups. There is a significant literature showing that positive family relationships are strongly associated with better health for the children (Flouri & Buchanan, 2003), whereas family stress is related to more health problems (Karvonen et al., 2005; Kovaks, 1997). In an analogous way, the school climate is related to students’ health (Carter et al., 2007; Ueno, 2005). The present study showed that the influence exerted by school and family continues from childhood to adolescence, especially regarding satisfaction with life and health complaints, even after controlling for gender and subjective economic status.

Still, in agreement with Glynn’s (1981) suggestion, our results showed that the percentages of variance in all health indicators that were accounted for by family and school factors seem to decrease as age increases, particularly for the 15-year-olds. A possible explanation might be that in older children and young adolescents several factors, such as personal attitudes and relationships with peers, are gradually becoming more important, thus reducing the impact of family and school. At the same time, adolescents interact with their parents and their

Figure 1. Path analysis between family and school factors, and subjective health indicators.
Note: Numbers indicate the age groups for which each path is significant. Only significant paths (p < .05) are presented. Covariances between explanatory variables are omitted for simplicity reasons
Age 11: \( \chi^2 (4) = 1.77, p = .78 \), Normal fit index = 1.00, Comparative fit index = 1.00, Root mean square error of approximation = .00. Age 13: \( \chi^2 (4) = 2.48, p = .65 \), Normal fit index = 1.00, Comparative fit index = 1.00, Root mean square error of approximation = .00. Age 15: \( \chi^2 (4) = 7.17, p = .13 \), Normal fit index = 1.00, Comparative fit index = .99, Root mean square error of approximation = .03

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school in a different way. This does not mean, however, that family and school lose their importance altogether. Our results show that certain family variables (i.e., communication, parental supervision and support) continue to be associated with young people’s health. In the same way, school workload and satisfaction with school are important for subjective health indicators, regardless of economic status and gender. Students who like school are more likely to report more satisfaction with life, whereas school pressure is related to more health complaints.

The results also provided support to our second hypothesis that family and school are associated with self-rated health through health complaints and satisfaction with life, which serve as mediators. This finding suggests that school and family contexts are not related to all health indicators in the same way. According to our results, positive family and school climates are associated with a better assessment of certain aspects of health (i.e. higher life satisfaction, fewer complaints), which in turn is associated with an improved overall self-rated health. Path analyses demonstrated that all family and school variables, with the exception of school pressure which is related only to more symptoms, lead to more satisfaction with life and fewer symptoms. It is possible that better relationships within family and school protect against stressful situations, or buffer the adverse consequences of several negative influences, thus leading to greater satisfaction with life and fewer physical and psychological complaints.

With respect to the particular family and school variables that were included in this study, it is worth noting that, according to both regression and path analyses, satisfaction with school and parental support entered almost every equation and predicted health indicators in almost every age group. Parental supervision and school pressure proved to be moderate predictors, whereas parental communication was associated only with satisfaction with life. Also, school pressure predicted only health complaints. These findings highlight the well-known role of support and connectedness for well-being (e.g., Cohen, 2004). Interestingly, supervision from parents was a protective factor not only for younger, but also for older children, whereas school pressure resulted in more complaints, probably acting as a major stressor with significant negative consequences for health.

The results of the present study showed that family and school factors are crucial for young people’s subjective health. Therefore, poor relationships within the family or lack of support and supervision, as well as disliking school or feeling pressured by schoolwork are factors that policy makers (i.e., governments, scientists, educators) should always take into consideration in order to build a more effective and long-lasting public health policy. Furthermore, these results expanded our understanding of the relationships between health, and family and school. These are indeed important for health, but not in a parallel way. There are significant differences depending on the age and the health indicator. Nevertheless, these findings should be considered in relation to the specific cultural background of the participants, which is a major determinant of health (Pedersen, 1997).

This study has some limitations. It is totally reliant on self-reported data, and the children were the only sources of information, regarding not only personal health but also school and family factors. As a result, it is possible that children may not be exact in their reports (e.g. regarding grades or family economic status). Furthermore, certain variables were assessed with single items, whereas others were measured with tools used only by the HBSC study and, thus, not validated in other studies. At the same time, other factors that might also be significantly associated with subjective health and interact with family and school climates, such as peer relations, sociocultural factors, environmental influences, other family and non-family persons, etc., were not examined. Future research will have to address these limitations, and also examine the relationships between health, family, and school factors in further age groups.

References


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**Author biographies**

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