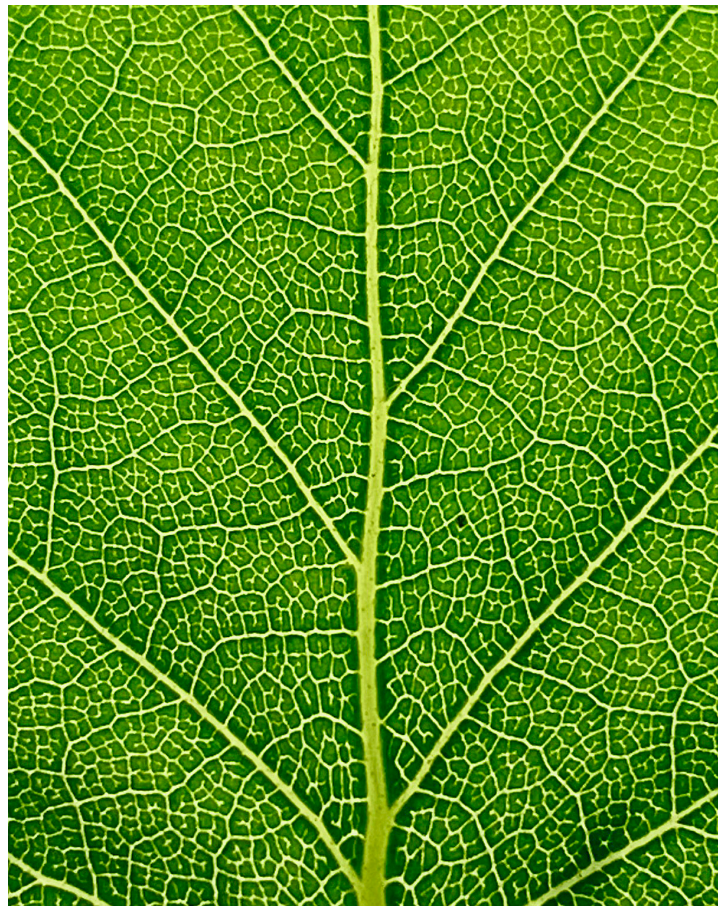


JYU DISSERTATIONS 466

Ilona Markkanen

Students' Perceptions of the Quality of School Life, Health, and Health Behaviours in Finnish Comprehensive Schools



UNIVERSITY OF JYVÄSKYLÄ
FACULTY OF SPORT AND
HEALTH SCIENCES

JYU DISSERTATIONS 466

Ilona Markkanen

**Students' Perceptions of the Quality of
School Life, Health, and Health Behaviours
in Finnish Comprehensive Schools**

Esitetään Jyväskylän yliopiston liikuntatieteellisen tiedekunnan suostumuksella
julkisesti tarkastettavaksi helmikuun 12. päivänä 2022 kello 12.

Academic dissertation to be publicly discussed, by permission of
the Faculty of Sport and Health Sciences of the University of Jyväskylä,
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JYVÄSKYLÄN YLIOPISTO
UNIVERSITY OF JYVÄSKYLÄ

JYVÄSKYLÄ 2022

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ISBN 978-951-39-8945-3 (PDF)

URN:ISBN:978-951-39-8945-3

ISSN 2489-9003

Permanent link to this publication: <http://urn.fi/URN:ISBN:978-951-39-8945-3>

ABSTRACT

Markkanen, Ilona

Students' Perceptions of the Quality of School Life, Health, and Health Behaviours in Finnish Comprehensive Schools

Jyväskylä: University of Jyväskylä, 2022, 87 p.

(JYU Dissertations

ISSN 2489-9003; 466)

ISBN 978-951-39-8945-3

This study aimed to determine the quality of school life in Finnish comprehensive schools, and the extent to which the quality of school life was associated with academic achievement, perceived health, health behaviours and bullying victimization. In addition, associations with background factors such as age, gender, family affluence, and educational aspiration were examined. The data were drawn from the Finnish part of the international Health Behaviour in School-aged Children (HBSC) Study. The survey data were collected from 13- and 15-year-old students from schools that have Finnish as their teaching language in the years 2006 (n=3405), 2010 (n=4260), and 2014 (n=3853). In general, students' perceptions of their school were fairly positive. Younger students and girls generally reported more positive experiences than older students or boys. However, a substantial proportion of the students reported negative attitudes towards school. Binary logistic regression analysis was conducted to analyse the associations between the quality of school life and academic achievement, health behaviours, and bullying victimization. Multilevel logistic regression analyses were conducted to analyse the associations between the quality of school life and perceived health. All the dimensions of the quality of school life were to some extent associated with students' academic achievement, health, and health behaviours. The results highlighted social relations at school, educational aspiration, and differences between boys and girls. Students who reported higher school engagement were more likely to report better academic achievement than students with lower school engagement. Better teacher relations and lower school strain predicted better achievement, better self-rated health, fewer health compromising behaviours, and fewer health complaints. Positive peer relations were associated with better self-rated health, higher life satisfaction, and fewer health complaints, and less bullying victimization; however, they were also associated with more health compromising behaviours. The study provides new and more detailed knowledge on quality of school life and its associations with academic achievement and students' health, especially in the Finnish context. Furthermore, the study emphasized the importance of the quality of school life regarding not only students' academic achievement but also their health.

Keywords: school perceptions, adolescent health, quality of school life, health behaviours, health promotion

TIIVISTELMÄ (FINNISH ABSTRACT)

Markkanen, Ilona

Koululaisten kokemuksia kouluelämän laadusta, terveydestä ja terveystäytymisestä suomalaisissa peruskouluissa

Jyväskylä: University of Jyväskylä, 2022, 87 s.

(JYU Dissertations

ISSN 2489-9003; 466)

ISBN 978-951-39-8945-3

Tämän tutkimuksen tarkoituksena oli selvittää, millainen kouluelämän koettu laatu on suomalaisissa kouluissa ja missä määrin kouluelämän laatu on yhteydessä nuorten koulumenestykseen, terveyteen, terveystäytymiseen ja kiusatuksi joutumiseen. Yhteyksiä tarkasteltiin myös muutamien taustatekijöiden, kuten iän, sukupuolen, perheen varallisuuden ja koulutusorientaation, mukaisissa ryhmissä. Tässä tutkimuksessa on käytetty aineistoa kansainvälisestä WHO-Koululaistutkimuksesta. Kyselytutkimuksen aineisto kerättiin kouluista, joissa opetuskieli on suomi. Kyselyyn osallistui 13- ja 15-vuotiaita oppilaita vuosina 2006 (n=3405), 2010 (n=4260) ja 2014 (n=3853). Yleisesti ottaen oppilaiden kokemukset koulusta olivat melko myönteisiä. Nuoremmat koululaiset ja tytöt raportoivat yleisemmin positiivisia kokemuksia kuin vanhemmat oppilaat tai pojat. Kuitenkin huomattavan suuri osa oppilaista raportoiti negatiivisia asenteita koulua kohtaan. Kouluelämän laadun, koulumenestyksen ja terveystäytymisen välisiä yhteyksiä tutkittiin logistisella regressioanalyysillä ja kouluelämän laadun ja koetun terveyden välisiä yhteyksiä tutkittiin monitasoisilla logistisilla regressioanalyysillä. Kaikki kouluelämän laadun ulottuvuudet olivat jossain määrin yhteydessä oppilaiden koulumenestykseen, koettuun terveyteen ja terveystäytymiseen. Tässä tutkimuksessa tutkituista tekijöistä korostuivat sosiaaliset suhteet koulussa ja koulutusorientaatio sekä erot tuloksissa tyttöjen ja poikien välillä. Oppilaat, jotka olivat sitoutuneita kouluun menestyivät koulussa paremmin. Hyvät opettaja-oppilassuhteet ja koulutyön vähäisempi koettu rasittavuus olivat yhteydessä parempaan koulumenestykseen, parempaan itsearvioituun terveyteen, vähäisempään oireiluun ja vähäisempään riskikäyttäytymiseen. Hyvät oppilassuhteet olivat yhteydessä parempaan itsearvioituun terveyteen, elämäntyytyväisyyteen, vähäisempään oireiluun ja vähäisempään kiusatuksi joutumiseen, mutta myös yleisempään riskikäyttäytymiseen. Tutkimus tarjoaa uutta ja tarkentavaa tietoa kouluelämän laadusta ja sen yhteyksistä koulumenestykseen ja oppilaiden terveyteen Suomessa. Lisäksi tämä tutkimus vahvisti kouluelämän laadun merkitystä paitsi oppilaiden koulumenestykselle myös heidän terveydelleen.

Avainsanat: koulukokemukset, nuorten terveys, kouluelämän laatu, terveystäytyminen, terveyden edistäminen

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ACKNOWLEDGEMENTS

From the day I started as a doctoral student at the Finnish Institute for Educational Research to this day, I have learned and experienced so much. It took a lot of work, energy, and time to get this done, so it is overwhelming to finally achieve this milestone. During my time at the university, I have had the privilege to work, collaborate, and share my life with the most amazing people. Without them, this dissertation would not exist.

First, I would like to express my sincere appreciation and gratitude to my supervisors Senior Lecturer Emerita Raili Välimaa, Professor Emeritus Lasse Kannas and Senior Lecturer Jorma Tynjälä. Many thanks to you all for sharing your vast expertise, profound belief in my work and helping me forward in the world of research. Lasse and Raili, thank you for providing me with encouragement, patience and understanding throughout the duration of this project from the beginning and until this day. Jorma, thank you for your help during the process, especially with the data and the analyses and for stepping in as an official supervisor at the last minute.

Special thanks to the two reviewers of my dissertation, Professor Katja Joronen and Associate Professor Stephanie Plenty for your concrete and thorough comments regarding my work. Your thorough work certainly helped me develop and finalize this manuscript. I would like to extend my sincere thanks to my opponent Adjunct Professor Marjorita Sormunen. I feel truly honoured to have you as my opponent on the special day of the public defence of this work.

I gratefully acknowledge the assistance of Jari Villberg who always found time to help me with all my questions about the analyses and with the data. I would also like to thank Donald Adamson for proofreading my work. His comments taught me a lot and I feel he really aimed to understand what I wanted to say and improved not only the language used but the manuscript itself. Thanks should also go to the Academy of Finland and the Research Centre for Health Promotion for partially funding this work.

My dissertation work has mainly been done at the Finnish Institute for Educational Research, which has provided me the best possible environment for my research work. I would like to thank all the members of the work community for the inspiring and encouraging atmosphere for working. I would especially like to thank the Verme-group: Hannu H., Päivi, Matti, Anne, and Hannu J., for all the fun and inspiring (research) projects we have had the opportunity to do together. And of course, who could forget the thousands of cups of coffee. I feel truly humbled to have such colleagues and friends. Special thanks to my colleague, my teammate, my friend, Anne V., for the “sisterly guiding” to make me apply for the open vacancy at FIER and for making me believe that I could actually do this. Thanks to Eija and Noora for your friendship and support in the beginning of my career at FIER. And of course, our crazy “Ruoka-ryhmä”, thank you for the hilarious times on and off campus.

My warmest thanks to my family; my mother Helli, stepfather Martti, my older siblings Heidi and Sami, my stepsister Sanna, and my in-laws Janne and

Kaisa, who have raised, supported, and helped me in times I have needed it. Without your love and care I would not be at this point today. My thoughts are also with my late father Torsti. He would have been so proud of us.

Finally, I would like to dedicate this work to my dear husband, Jani, and our amazing children Ella and Max. Thank you for supporting and believing in me, for bringing me happiness and joy every single day. You have also shown me what is most important in life. Love you. Kids, mommy is finally a “knowing doctor”!

Jyväskylä 14.1.2021
Ilona Markkanen

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LIST OF ORIGINAL PUBLICATIONS

- I Haapasalo, I., Välimaa, R., & Kannas, L. (2010). How comprehensive school students perceive their psychosocial school environment. *Scandinavian Journal of Educational Research*, 54(2), 133–150.
DOI: 10.1080/00313831003637915
- II Haapasalo, I., Välimaa, R., & Kannas, L. (2012). Associations between Finnish 9th grade students' school perceptions, health behaviours, and family factors. *Health Education*, 112(3), 256-271.
DOI: 10.1108/09654281211217786
- III Markkanen, I., Välimaa, R., & Kannas, L. (2019). Associations between students' perceptions of the psychosocial school environment and indicators of subjective health in Finnish comprehensive schools. *Children & Society*, 33(5), 488-502. DOI: 10.1111/chso.12334
- IV Markkanen, I., Välimaa, R., & Kannas, L. (2021). Forms of bullying and associations between school perceptions and being bullied among Finnish secondary school students aged 13 and 15. *International Journal of Bullying Prevention*, 3(1), 24-33. DOI: 10.1007/s42380-019-00058-y

Ilona Markkanen (née Haapasalo) was the first author in all four publications and had the main responsibility for all phases from the original draft preparation to submission of the articles. All the authors performed the review of the publications and contributed to the final manuscript. Markkanen was also responsible for the statistical analyses, with assistance from statistics experts when necessary.

LIST OF ABBREVIATIONS

CI	Confidence interval
ESPAD	European School Survey Project on Alcohol and other Drugs
FAS	Family affluence scale
HBSC	Health Behaviour in School-aged Children Study
OECD	Organization for Economic Co-operation and Development
OR	Odds ratio
PISA	Programme for International Student Assessment
STAGE	Students' Engagement in School Life
TALIS	Teaching and Learning International Survey
TIMSS	Trends in International Mathematics and Science Study
UN	United Nations
WHO	World Health Organization

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ABSTRACT

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ORIGINAL PAPERS

1 INTRODUCTION

School is a hugely important everyday environment, since it functions as an entity that socializes and prepares students for society and life. Students spend a notable part of their time at school; hence it is of great consequence how they experience school life in general. There is evidence that school does more than merely influence students' academic and vocational pathways, and that it can also make a substantial contribution to students' present and future health and well-being (Bond et al. 2007; Currie et al. 2014). Health is a particularly important resource in adolescence, and poor health may have long-term negative effects. Furthermore, adolescents' health may give strong indications of their capacity to deal with the challenges they will encounter in the future, and may help to identify groups or population at risk (Torsheim, Välimaa & Danielson 2004).

In recent years, Finnish students' cognitive performance has achieved a high level, and the Finnish school system has received worldwide attention. As indicated by the OECD's (Organization for Economic Co-operation and Development) Programme for International Student Assessment (PISA), Finnish students have for the last two decades scored among the highest in the world in literacy, science, and mathematics, even if recent studies have shown some decline in the scores (Vettenranta et al. 2015; OECD 2016; Rautopuro & Juuti 2018). However, the success has been overshadowed by concerns concerning students' negative attitudes towards school (Kämppe et al. 2012; Välijärvi 2017; Pulkkinen, Rautopuro & Välijärvi 2018). According to the PISA studies, attitudes towards school are related to academic competence, and the association is stronger among Finnish students than among students in other OECD countries (OECD 2016). It has further been suggested that negative attitudes towards school could partly explain the impaired academic competence of a proportion of Finnish students (Pulkkinen, Rautopuro & Välijärvi 2018). It is true that overall, Finnish adolescents seem to be generally satisfied with their lives (Välijärvi 2017; Ikonen & Helakorpi 2019). Nevertheless, in international comparisons of the extent to which students have a liking for school, Finnish adolescents' school satisfaction has been fairly low for several years, and has emerged as

among the lowest in Europe (Samdal, Dür & Freeman 2004; Kämppi et al. 2012; Löfstedt et al. 2020).

Besides the obvious learning and teaching aspects, the school as a community is also a unique resource, with possibilities to promote the health and development of students, their families, and school personnel (Tang et al. 2008) and also reduce health inequalities of the students (Sormunen 2012). Health promotion activities are often implemented in schools, since that is where most adolescents can be reached. All in all, for the development of effective health education, health promotion policy and practice, it is essential to investigate students' health and health behaviours, and the factors that influence them (Currie et al. 2001).

Finland has a long tradition of participation in school-based surveys. Here one can point to the HBSC Study (Health Behaviour in School-aged Children), which has gained insights into adolescents' health, well-being, and social environments since 1984 (HBSC Study 2021), and the national School Health Promotion study, which has monitored the well-being, health, and schoolwork of Finnish children and adolescents since 1996 (Finnish Institute for Health and Welfare 2020). Since 2000, the PISA study has been conducted not only to assess learning outcomes, but also to collect information on students' attitudes towards school and learning. Over the years, these large-scale studies have contributed to the planning and evaluation of health promotion activities at school. School environment scales were first included in the HBSC Study in the 1994 survey, but only a few studies have made substantial use of the HBSC data. In the late 1990s, Samdal (1998) addressed the issues in question in her doctoral thesis; however, since then there have been no equally comprehensive studies on the psychological school environment or on students' subjective health, at least in the Finnish context.

In 2005, due to the worrying results regarding Finnish adolescents' attitudes towards school, the Ministry of Education appointed a welfare committee to prepare proposals for action, the aim being to create conditions and structures to support the well-being and school satisfaction of adolescents, and to promote opportunities for students to contribute to the everyday life of the school (Ministry of Education 2005). The work of the committee - and the scarcity of studies on this topic - led to the initiation of the current study, which forms part of a wider research project, i.e. STAGE (Students' Engagement in School Life) at the University of Jyväskylä. The need for studies like the current study was affirmed in 2011; in that year the United Nation Convention on the Rights of the Child expressed concern over the fact that Finnish children were not doing well in the environment where they spent so much of their daily lives, and recommended research on the reasons underlying this phenomenon (Harinen & Halme 2012).

Measures to promote school children's well-being have been widely discussed in recent years. The well-being and health of school children has attracted increasing interest, gaining a foothold in public forums and political discussions. New guidelines for schooling have been developed, and these have

formed a step towards seeing student well-being as an important goal in itself. In 2014, the new Student Welfare Act (Finlex 2020) took effect, and in 2016 the new National Core Curriculum was introduced (Finnish National Board of Education 2016). Both of these documents highlighted the importance of promoting the prerequisites for the learning and well-being of students, and of the entire school community. The work has continued up to the present time. To continue the work, a parliamentary committee was appointed in 2020 to prepare a National Child Strategy. The aim was to promote children's rights for learning and development, to support schooling, and to support the work of educational staff and student care services (The Parliamentary National Child Strategy Committee 2021).

There has been increasing concern over the small minority of individuals who are not doing well at school. In the spring of 2020, the exceptional conditions caused by the COVID-19 pandemic raised further concerns about the well-being of adolescents. In Finland, students were taught remotely for two months. During the remote learning period, anxiety was often expressed as to whether problems at home would reach a critical point and have an adverse effect on children (Sainio et al. 2020). Not all parents were able to support their children with schoolwork; moreover, for some children the lack of the daily school lunch was a real setback, as it might have been their only meal during the day. An emphasis was placed on the role of school as an environment for equal growth, as a social environment, and as an environment promoting students' well-being. All these considerations supported the need to gain a better understanding of the school-related factors associated with adolescents' health and well-being.

This doctoral thesis includes four sub-studies. These examined the quality of school life among Finnish comprehensive school students, and investigated how it relates to academic achievement, students' health, health behaviours, and bullying victimization. Each sub-study also aimed to describe the prevalence and nature of the phenomena in question (i.e. the quality of school life, students perceived health, health behaviours, bullying victimization, and its various manifestations). The overall aim of this thesis was that by applying existing knowledge, together with the results of this study, it would be possible to obtain new insights into how students' experiences of school relate to their health, plus a better understanding of the interplay of the relationships that apply. It can be claimed that the knowledge produced by this study will be highly relevant in the promotion of adolescents' health and well-being. There will also be potential utility in national decision-making, and in the support given to schools in developing the quality of school life. The data for the studies reported in this doctoral thesis were drawn from the Finnish part of the international Health Behaviour in School-aged Children Study.

2 REVIEW OF THE LITERATURE

2.1 Conceptualizing the school environment

2.1.1 The psychosocial school environment

The school environment consists of physical factors (the school building, the school yard, and physical conditions such as air conditioning, noise, and temperature) and psychosocial factors such as engagement, autonomy, demands, social support, and relationships (Henderson & Rowe 1998). The psychosocial school environment can also be defined as the social interactions existing within the school that are related to the students' work situation. These include teacher support, work demands, and influence over schoolwork, and also students' peer relations at school, encompassing factors such as bullying and isolation (Gillander Gådin & Hammarström 2003).

The school is a social place, and within it, learning occurs in a variety of situations. The school can have an impact on students' well-being through its atmosphere and culture (non-formal school characteristics) as well as through the formal curriculum (St Leger & Nutbeam 2000; St Leger 2000; Henderson et al. 2008). Eccles and colleagues (1993) emphasized the importance of meeting the developmental needs of adolescents, referring to a "stage-environment fit"; hence they took the view that optimal development occurs when the needs of developing individuals and the opportunities afforded them by their social environments are in balance. The stage environment-fit perspective emphasizes that young people whose environments change in developmentally regressive ways are more likely to experience difficulties (Eccles et al. 1993). In contrast, positive outcomes are more likely to be experienced by young people whose social environments respond to their changing needs (Eccles et al. 1993). The main developmental needs of adolescents include steadily increasing opportunities for autonomy, opportunities to demonstrate competence, caring, and

support from adults, developmentally appropriate supervision, and acceptance by peers (McNeely, Nonnemaker & Blum 2002).

2.1.2 The school as a working environment

The time spent at school shapes children's perceptions of themselves, and of their attitudes towards work. The school environment has been referred to as a working environment for adolescents, and school attendance as their work (Linamo & Kannas 1995; Samdal, Wold & Bronis 1999; Hjern, Alfven & Östberg 2008). As a working environment, the school can be seen as an entirety of physical and psychosocial factors (Pitkänen 2002), consisting of the attitudes of the students and staff, experiences, values, relationships, appreciation of the needs and success of the individual, physical and mental safety, the strengthening and supporting of self-esteem, and support for learning (Henderson & Rowe 1998).

In her thesis, Samdal (1998) compared the school environment to the working environment of adults, with the psychosocial school environment forming a connection with the health behaviours and well-being of the young. According to Samdal (1998), there is a connection between school-related social peer support and subjective well-being. Student autonomy, support from teachers, and reasonable demands are connected to perceived well-being. Samdal's perspective was based on Karasek and Theorell's (1990) theoretical model of the psychosocial work environment for adults, within which job satisfaction, a lower prevalence of health-compromising behaviours, and higher subjective well-being are positively associated with a relatively high degree of autonomy and control, a reasonable level of demands, and good social support from management and colleagues. Nevertheless, the role of the student differs from that of the employee: students go to school because of the compulsory nature of education whereas employees get paid and are responsible for the functioning of the school (Savolainen 2001).

2.2 Defining student's health and the quality of school life

The HBSC Study strongly emphasizes the subjective perspective, drawing as it does on the WHO (1986) definition of health as "a state of complete physical, mental and social well-being and not only merely the absence of disease or infirmity". According to WHO, health should be seen as a resource, and not as the objective of living. Moreover, health (in the broad sense) needs to cover physical, social, and emotional well-being (WHO 1986). The concepts of health, a health-related quality of life, and well-being are closely bound up with each other and are difficult to separate. Most disciplines (including psychology, sociology, economics, health sciences and medicine among others) have studied both health and well-being. The terms seem to be largely more discipline-oriented and the differences in the essential content are negligible (Ahonen 2010). The HBSC Study mainly applies a social rather than a biomedical per-

spective on health. The health and well-being of adolescents is understood to be strongly affected by social factors that are immediate to young people's environment, including family, school and community (Currie et al. 2014). Family, school, and the socioeconomic environment, peer relations, adolescents' social groups, and online interactions and communication are examined in the HBSC Study, the overall aim being to achieve an understanding the patterns of adolescent health and well-being (Inchley et al. 2018). Health is an important resource in adolescence, and poor health may have long-term negative effects (Torsheim, Vålímáa & Danielson 2004). School can be seen both as a risk and a resource for the development of adolescents' health and health behaviours (Samdal 1998; Samdal, Dür & Freeman 2004). It is important to study the positive aspects of health, but also the risk factors for possible future ill-health (Currie et al. 2001).

In the present study, health was considered in its broadest sense, i.e. as involving physical, social, and emotional well-being. Health and health behaviours were seen as the outcomes of individual and environmental factors. Students' subjective health was not measured by a single measure, as it was seen as consisting of several dimensions, and the aim was to broaden the perspective. In accordance with the HBSC Study design, this study adopted the perspective that how young people *feel* about their health is a valid aspect of their health, and that they are capable of accurately reporting their reflections on their health and well-being (Currie et al. 2014; Inchley et al. 2018).

The concept of the quality of school life derives from the definition of the quality of life, and is seen as an affective outcome of schooling (e.g. Linnakylä 1996; Yoon 2020). From a review of studies, Yoon (2020) presents commonly-understood criteria for evaluating the quality of school life, encompassing both positive and negative perceptions of students' everyday life at school. The quality of school life is viewed as formed from various dimensions, including the social dimension (i.e., relations with peers and teachers) and further, the dimensions of academic achievement and opportunities for self-development (Yoon 2020).

The concepts related to the quality of school life cover a wide range of aspects. Depending on the discipline and the research theme, many different concepts have been used in parallel, and can be seen as synonymous in the literature. They include the school climate, school well-being, school satisfaction, and school connectedness. The lack of a definitional consensus has led to inconsistency in studying students' perceptions of school life. Table 1 presents some of the most commonly used concepts surrounding the theme. In a review, Libbey (2004) noted that although different names and measures may be used in describing students' perceptions of school life, similar constructs still emerged. Libbey (2004) listed nine such constructs, namely a sense of belonging and being a part of school, liking school, teacher support and caring, peer relations, engagement in current and future academic progress, the student voice, safety, fairness and discipline, and extracurricular activities.

TABLE 1 Concepts related to the quality of school life

Quality of school life	Students' general well-being and satisfaction, including their positive and negative experiences, particularly in activities typical of the school. Six domains: general satisfaction, teacher-student relations, status in the class, identity in the class, achievement and opportunity, and negative affect.	Linnakylä (1996)
	Students' general perception of their school well-being and satisfaction including their positive and negative experiences of ordinary school life. The aspects of quality of school life are as follows: general satisfaction, peer relations, and teacher-student relations.	Yoon & Järvinen (2016)
School well-being	School well-being can be seen as a superordinate concept for school satisfaction. The quality of school life is strongly attached to the concept of school well-being. When school satisfaction improves, the quality of school life improves, and school well-being is realized.	Janhunen (2013)
	Consists of four categories: school conditions, social relationships, means for self-fulfilment and health status. Teaching, education, and well-being are linked. Contains also the aspect of home, community, and surroundings.	Konu (2002)
School satisfaction	Satisfaction with school is a sum of factors (factors related to the individual student, to peers, to school, and to home); it cannot be explained merely by one or two aspects. It is not a static state; rather it is highly sensitive to change.	Soininen (1989)
	Students' satisfaction with school is linked to the construct of quality of life, reflecting the affective component of this construct as indicated by immediate emotional responses such as happiness, enjoyment of school, and a sense of well-being at school.	Samdal (1998)
	School satisfaction is an overarching concept which consists of experiences of school well-being and the quality of school life; it can be influenced by school engagement.	Manninen (2018)
School enjoyment	Students feel that the school is a good place to be.	Minkkinen (2015)
School engagement	Two forms of engagement: ongoing engagement and reaction to challenge. Ongoing engagement refers to student behaviour, emotions, and thought process during the school day. Reaction to challenge refers to students' coping strategies for dealing with a challenge, and particularly whether they engage or withdraw when faced with perceived failure at school.	Klem & Conell (2004)
	Refers to students' feelings of being accepted by peers and supported by teachers at school. Also perceiving school as beneficial for future studies, work, and adulthood.	Linnakylä & Malin 2008
	Students' emotional and psychological connectedness to school in terms of liking school.	Currie et al. (2014)
	A multidimensional overarching concept that describes a child's or young person's functional commitment to school norms and practices, emotional experiences of belonging, participation and support, and attitudes and values related to learning and achievement goals. Three dimensions: affective (social connectedness), behavioural (participation), and cognitive (relevance and valuing) engagement.	Virtanen (2016)
	The behavioural component of the educational experience. Refers to students' participation, e.g. trying hard in the class, coming to the class, completing homework.	Johnson et al. (2001)
School attachment	Affective component of the educational experience. Refers to the extent to which students "feel that they are embedded in, and a part of their school communities."	Johnson et al. (2001)
School identification	School identification as an affective form of engagement, comprising students' sense of belonging in the school, and feeling that school is valuable. Both components are based on a psychological theory that asserts that humans have basic needs to belong, and to feel their actions are worthwhile.	Voelkl (2012)
School connectedness	The social environment meets students' core developmental needs such as steadily increasing opportunities for autonomy, opportunities to demonstrate competence, caring and support from adults, developmentally appropriate supervision, and acceptance by peers.	McNeely et al. (2002)
	Liking school, a sense of belonging at school, positive relations with teachers and friends at school, and an active engagement in school activities.	Thompson et al.(2006)
	The cohesiveness between diverse groups, such as students, families, school staff, and health and community agency representatives in the school community. It is characterized by strong social bonds, featuring high levels of interpersonal trust and norms of reciprocity.	Rowe, Stewart & Patterson (2007)
School climate	The school climate encompasses the school culture and the school's ethos, insofar as these govern all school activities. The quality of the school is important both during school hours and for future life. The school climate affects e.g. the kinds of emotional experiences that children have during school time, and the kinds of values and attitudes they adopt during their time in school.	Liinamo & Kannas (1995)
	The school climate reflects how the school is experienced by students, the school personnel, and parents. It encompasses social, emotional, civic, ethical, and academic aspects.	Thapa et al. (2013)

In order to outline and to structure the wide range of concepts surrounding the research theme, Konu (2002) developed a conceptual model of well-being in schools. The model derives from Allardt's (1976) sociological theory of well-being. In Konu's model, well-being is divided into four categories: school conditions, social relationships, means for self-fulfilment, and health status. Teaching and education, learning, and well-being all interact with each other. As shown in Figure 1, the school conditions consist of the material elements of the school: the school building, classrooms, groups, teaching materials, and also services and safety in the school. Peer relations, teacher-student relations, co-operation with parents, and bullying are included within social relationships. The means for self-fulfilment involve possibilities for students to participate in decision-making, to get recognition of their work, and to get feedback. Well-being in schools also contains the aspect of home, community, and surroundings, all of which have an important role in students' lives. In contrast with Allardt's earlier model, Konu's model contains health as a separate dimension. However, Konu (2002) conceptualized health merely as the absence of illness or symptoms, rather than as positive health and well-being. Overall, in Konu's conceptualization, health was viewed as a resource for achieving other aspects of well-being (Konu 2002).

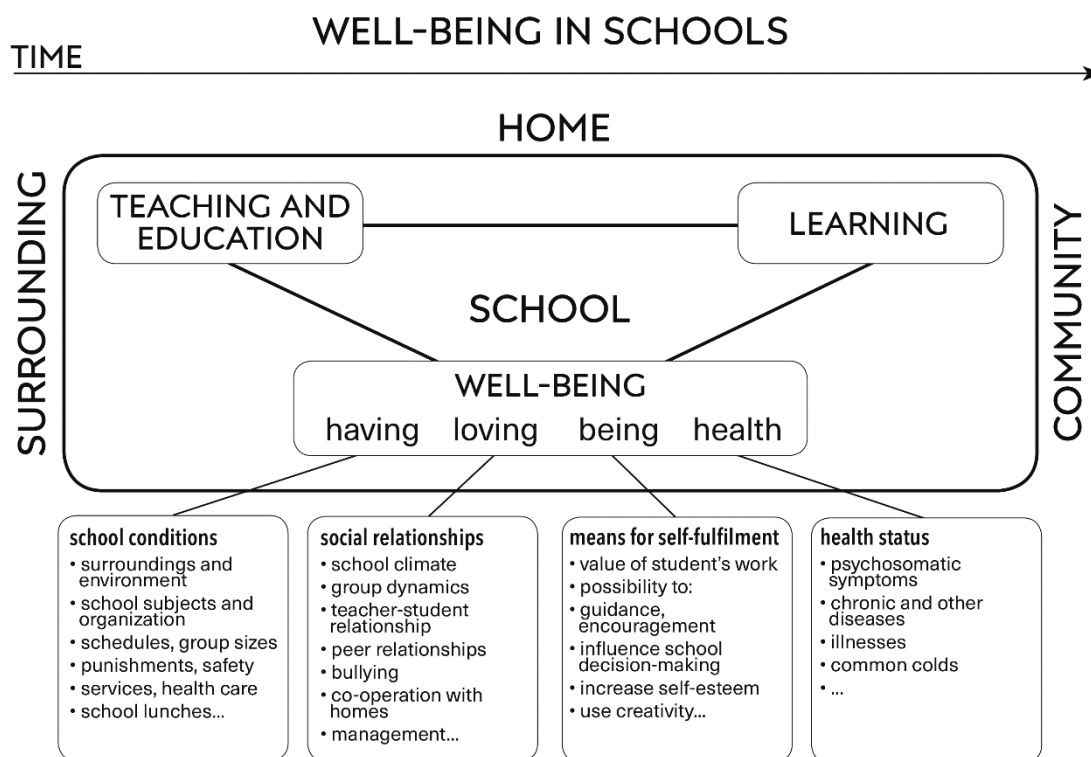


FIGURE 1. Konu's (2002) model of well-being in schools.

Konu's (2002) model was one of the first to present a more comprehensive view of well-being, encompassing the students' point of view, and covering all aspects

of the school. This theoretical model also gave good coverage of the aspects of school life included in the HBSC Study. In her studies, Konu (2002) discovered that having means for self-fulfilment and social relations constituted the most important school-related predictors of students' general subjective well-being. Deriving partially from that notion, and also from the HBSC Study design, the focus in the current study was on the psychosocial aspects of school from the students' perspective. Thus, the current study did not set out to examine the physical conditions of the school environment, with the result that it did not attempt to cover every possible dimension of well-being. In order to refine the concepts used, this study defined students' perceptions of their psychosocial school environment as the quality of school life, in terms of the following dimensions: *school engagement and liking school, student autonomy, school strain, teacher relations and academic support, student relations, and parental support for schoolwork*. The quality of school life was studied from the perspective of the individual, and further, as a feature of the school environment. It should be noted that the concept of *quality of school life* is strongly attached to the concept of well-being in schools. When the quality of school life improves, it enables school well-being to improve (Janhunen 2013). The quality of school life has its focus on both positive and negative experiences and feelings at school. The positive perceptions of school may be seen as a resource for better outcomes in terms of health and academic achievement; for their part, the negative perceptions may constitute a risk for developing ill-health, health complaints, and health-compromising behaviour. Note also that, in the current study, the quality of school life was not seen merely as a prerequisite for academic achievement and subjective health, but also as an important independent educational outcome (cf. Linnakylä 1996).

2.3 Empirical findings from previous studies

2.3.1 The quality of school life

Using the data from the latest HBSC Study, Löfstedt and colleagues (2020) found that from 2002 to 2018 school satisfaction had increased in several European countries, including Finland. On the other hand, in the recent summary of HBSC findings presented by Inchley and colleagues (2020), Finland was placed among the lowest third of participating countries. Thus, only about 10% of 15-year-olds reported a strong liking for school in 2018, whereas the average HBSC level was 21% (Inchley et al. 2020). According to Löfstedt and colleagues (2020), there was an increase in school satisfaction in Finland from 2002 to 2018, and this occurred among both boys and girls. However, in the latest study rounds, girls reported liking school a good deal more often than boys. The same study showed an increase in school pressure in both genders in Finland, where the increase in school pressure was among the four most substantial changes identified out of 49 countries. Throughout their study years, Finnish girls have reported more school pressure than Finnish boys. In 2018, about 73% of 15-year-

old girls and 53% of 15-year-old boys felt pressured by schoolwork (Löfstedt et al. 2020). Girls have also been found to express more fear of failure at school (OECD 2019).

Pyhältö and colleagues (2010) pointed out that social relations at the school are the most crucial element in how students experience school. These researchers and others (e.g. Linnakylä & Malin 2008) have found that good relations with peers generate satisfaction at school. Good interpersonal relations at school are also linked to better academic achievement (Ricard & Pelletier 2016; Kiuru et al. 2020). Conversely, negative relationships with peers have been shown to cause anxiety and distress (Pyhältö, Soini & Pietarinen 2010) and declined school satisfaction (Vašíčková et al. 2017). In the international HBSC comparison summarized by Inchley and colleagues (2020), overall, more than half of the participating students reported high levels of support from their peers and their teachers. In a study by Kämppi and colleagues (2012), Finnish students mainly assessed the relations between their peers positively, and no significant changes were found in the assessments conducted from 1998 to 2010. Boys reported more positive relations with peers than girls. The same research group also found that students in other Nordic countries reported their peers to be kind and helpful more often than Finnish students (Kämppi et al. 2012).

Relations with teachers play an important role in students' school experience. A study by Danielsen and colleagues (2009) found a strong relation between school satisfaction and teacher support. According to PISA 2015 (OECD 2017), students' negative relationships with teachers pose the single most evident threat to students' school engagement. Having poor relations with teachers may also affect students' aspirations for future studies (Linnakylä & Malin 1997). Students who perceive their teachers to be caring, and who have a well-structured learning environment with high, fair, and clear expectations are more likely to report better engagement in school (Klem & Connell 2004). Previous studies have shown that younger students tend to report better teacher-student relations than older students (Kämppi et al. 2012). Välijärvi (2017) reported that in PISA 2015, Finnish girls' experiences of teacher support were more positive than those of boys. However, on the basis of HBSC comparisons, the gender differences in Finland appear to be complex (Inchley et al. 2020). At age 11 girls feel more supported by their teachers, but the pattern changes by age 15, at which age boys are more likely to report high support from their teachers (Inchley et al. 2020). Previous studies have shown that Finnish students perceive relationships with other students as good, but their experiences of teacher-student relations are fairly negative (e.g. Linnakylä & Malin 2008; Yoon & Järvinen 2016). Despite this, Konu & Lintonen (2019) found that there had been a positive development in teacher-student relations over the last ten years.

Välijärvi (2017) expressed concern about Finnish students in terms of their sense of belonging to their school community. According to PISA 2015, about 15% of the students reported disengagement (girls more often than boys). Belonging to the school has also weakened in the last 20 years (Välijärvi 2017). The results of the School Health Promotion Study support the PISA results. In 2017,

the School Health Promotion Study reported that 64% of the adolescents in the 8th and 9th grades (i.e., students aged 14 and 15) felt attached to their class, and that only 56% of the girls at that age reported that they formed an important part of the class community (Halme et al. 2018).

2.3.2 The quality of school life, academic achievement and students' background factors

According to previous studies, academic achievement and students' background factors (such as age, gender, educational aspiration, and family affluence) are important predictors of how students experience school. It has been suggested that younger students are more satisfied (Samdal, Dür & Freeman 2004; Ding & Hall 2007; Vašíčková et al. 2017; Inchley et al. 2020) and more engaged with the school than older students (McNeely, Nonnemaker & Blum 2002). Younger students also report fewer feelings of school pressure (Inchley et al. 2020). Adolescents who do well at school and those who have higher educational aspirations tend to have more positive attitudes towards school (Kämppi et al. 2012), and tend to be more engaged and motivated at school (OECD 2017). A retrospective study conducted in Finland showed that those students who liked school and who were engaged also did well in their studies later on (Myllyniemi & Kiilakoski 2018). In previous studies, higher academic achievement has also been associated with higher family affluence (Currie et al. 2012), but associations with e.g. liking school, school pressure, and classmate support have not shown clear patterns in international comparisons (Inchley et al. 2016). In Finland the associations between family affluence and academic achievement have been more evident among girls (Currie et al. 2012; Inchley et al. 2016). Furthermore, PISA 2015 linked the socioeconomic status of the Finnish students' homes to school belonging, students' perceptions of teacher unfairness, test anxiety, and achievement motivation. All the findings favoured those who reported higher socioeconomic status (Väljjarvi 2017).

2.3.3 The quality of school life and students' health and health behaviours

The majority of students rate their health as good or excellent, but there exists a consistent minority who give poorer ratings (Rimpelä 2002; Torsheim, Välimaa & Danielson 2004; Cavallo et al. 2006; Inchley et al. 2020). Despite this, there has been an upward trend in self-rated health since the beginning of the millennium (Luopa et al. 2014). Finnish boys are more likely than girls to rate their health as excellent, and the gender gap has been found to increase by age (Inchley et al. 2020). Younger students tend to report better self-rated health than older students (Inchley et al. 2020). International and national studies have shown that Finnish adolescents are generally satisfied with their lives (Väljjarvi 2017; Ikonen & Helakorpi 2019). Boys have also reported to have higher life satisfaction than girls (Väljjarvi 2017).

Adolescence is often described as a period where people undergo many social, physical, and mental changes. Health complaints reflect individual bur-

dens and personal experiences related to negative life events within the social context of the family, school, and peers (Inchley et al. 2016). Subjective health complaints are very common among adolescents. According to the HBSC 2018 Study, over a third of students have reported having multiple health complaints every week (Inchley et al. 2020). Girls usually report a higher number and frequency of symptoms than boys (Luopa et al. 2014; Vaičiūnas & Šmigelskas 2019; Cosma et al. 2020; Inchley et al. 2020;). Health complaints tend to increase by age, and the differences between genders tend to widen (Cavallo et al. 2006; Konu & Lintonen 2006; Torsheim et al. 2006; Luopa et al. 2014, Inchley et al. 2020). Headache, shoulder and neck pains, stomach-ache, backache, feeling low, bad temper, feeling nervous, dizziness, and difficulties in getting to sleep are usually listed as the most common symptoms (Cavallo et al. 2006).

The risks associated with substance use are notably high in adolescence. In fact, many of the health behaviours observed in adulthood have their origins in the years of adolescence (Inchley et al. 2016). Recent studies have indicated a decline in alcohol and tobacco consumption over the past ten years (Ikonen & Helakorpi 2019; Inchley et al. 2020). According to the latest HBSC Study (see Inchley et al. 2020), within Finland, the prevalence of current (over the previous 30 days) alcohol use was at the average HBSC level, with about 15% of the 13-year-olds and about 35% of the 15-year-olds having drunk alcohol in the past 30 days (Inchley et al. 2020). The Finnish component of the ESPAD (European School Survey Project on Alcohol and other Drugs) study indicated that in 1999 only 9% of adolescents aged 15–16 had never consumed alcohol. In 2019 the rate was 31% (Raitasalo & Härkönen 2019). Boys tend to binge drink more often than girls (Ikonen & Helakorpi 2019). However, the gender gap seems to narrow by age (Inchley et al. 2020). No significant difference between boys and girls has been found regarding frequent tobacco use (Raitasalo & Härkönen 2019; Inchley et al. 2020). Despite a decrease in smoking in recent years, the prevalence of tobacco use in Finland has been above the average of the HBSC countries. About 7% of 13-year-olds and about 17% of 15-year-olds reported having smoked in the past month (Inchley et al. 2020). In 2019, 7% of 9th graders smoked daily (Raitasalo & Härkönen 2019).

Healthy eating habits, sleep, and regular physical activity in adolescence promote optimal health and growth, and can contribute to an improving quality of life (Currie et al. 2014). It has been reported that most adolescents do not meet the current recommendations for physical activity, healthy eating (Kokko & Martin 2019; Inchley et al. 2020), or adequate sleeping (Garipey et al. 2020). According to the Finnish School-aged Physical Activity Study 2018 (Kokko & Martin 2019), only one third of Finnish adolescents engage in the recommended amount of physical activity. The study also noted that physical activity decreases with age, and that half of adolescents' waking hours were sedentary time. In the HBSC 2018 Study (Inchley et al. 2020), vigorous physical activity four or more times per week was reported among about half of the 13-year-olds, and about 40% of the 15-year-olds. The Finnish prevalence is among the highest in the HBSC countries (Inchley et al. 2020). The nationwide MOVE! project

measures 5th and 8th graders' physical functioning every year (National Sports Council 2020). The results of the 2020 measurements showed that the endurance condition of students has deteriorated. A large number of students have a level of endurance that can be detrimental to their health and their ability to function, to the extent that they may have difficulties coping with everyday activities (National Sports Council 2020).

Breakfast consumption has been linked to better overall diet quality (Currie et al. 2014). It has been noted in international comparisons that there has been a significant drop in breakfast consumption in recent years all over Europe. About two thirds of Finnish students have breakfast every school morning (Finnish Institute for Health and Welfare 2019; Inchley et al. 2020), which is slightly above the HBSC average (Inchley et al. 2020). Girls aged 13 are less likely to have breakfast regularly (Inchley et al. 2020). According to the School Health Promotion Study, skipping breakfast has become more common between the 2017 and 2019 study cycles (Finnish Institute for Health and Welfare 2019). In Finland, 57% of adolescents get enough sleep on school days. Boys are more likely than girls to meet the recommendations of sufficient sleep (Garipey et al. 2020). According to School Health Promotion Study (Luopa et al. 2014) a third of the Finnish students in grades 8–9 slept less than eight hours per night. According to TIMSS (Trends in International Mathematics and Science Study) 2019, about half of Finnish students reported being tired almost every day they arrived at the school (Vettenranta et al. 2020). The study also reported a connection between tiredness and competence (Vettenranta et al. 2020).

Students' perceptions of their school seem to have both positive and negative effects on students' well-being and health (e.g. Thapa et al. 2013; Upadyaya & Salmela-Aro 2015). Previous research has shown that school-related support from teachers (Modin & Östberg 2009), peers, and parents (Eriksson et al. 2012; Plenty et al. 2014; Moore et al. 2018) has a positive effect on students' health. Students who like school, who do better in school, and who are not pressured by schoolwork have reported better subjective health (Ravens-Sieberer et al. 2004). According to Gillander Gådin & Hammarström (2003), problems with peer relations were the factor that had the most negative effect on students' health in the long term.

Tong and colleagues (2019) studied peer relations and teacher-student relations, school identification, and well-being among Chinese adolescents. Their results indicated that students' poorer social relations and lower levels of school identification were associated with depression and stress. Furthermore, a study by Guo and colleagues (2014) showed an association between school-related stress and depressive symptoms. A negative school climate has also been linked to school burnout (Salmela-Aro et al. 2008). John-Akinola and Nic Gabhainn (2015) studied associations between the socio-ecological environments of the school and students' general health and well-being. They found a positive association between these two. Previous studies have also shown a connection between health complaints and the school climate (Freeman et al. 2012), school demands (Sonmark & Modin 2017; Vaičiūnas & Šmigelskas 2019), school satis-

faction, social support at school (Vaičiūnas & Šmigelskas 2019), and school engagement (Halme et al. 2018).

School experiences seem to be important to students' life satisfaction (Marquez & Main 2020). Suldo, Riley, and Shaffer (2006) found in their review that students who have positive experiences of school and supportive teachers, and who feel they manage their schoolwork, are more likely to perceive high life satisfaction. In addition, life satisfaction has previously been linked to school engagement (Salmela-aro & Upadyaya 2014), school satisfaction, and the social support at school provided by peers, teachers, and parents (Danielsen et al. 2009; Danielsen 2011). The PISA 2015 study found a strong connection between a sense of belonging at the school and life satisfaction (OECD 2017). In Finland the association was one of the strongest among the OECD countries; indeed, the sense of belonging alone explained almost 14% of the experience of life satisfaction. Students who reported lower life satisfaction were over three times more likely to report a low sense of school belonging (OECD 2017).

According to Carter and colleagues (2007), adolescents who reported a school climate of fairness and care in which they felt emotionally engaged were less likely to report health-compromising behaviours such as smoking, alcohol and cannabis use, depression and suicidal ideation, fighting, and sexual activity. They also reported higher levels of health-promoting behaviours such as physical activity, better nutrition, safer sex, and cycle helmet use. Furthermore, McCarty and colleagues (2012) suggested that teacher support was associated with lower risks for early alcohol consumption. Health-compromising and health-promoting behaviours in adolescence have also been found to have consequences later in life. A follow-up study by Koivusilta, Rimpelä, and Vikat (2003) found that adolescents who had a low educational level in early adulthood were more likely to engage in health-compromising behaviours, while adolescents with a higher educational level were likely to engage in healthier lifestyles.

2.3.4 The quality of school life and bullying victimization in school

The school should be a safe place for every student. Feeling safe is a prerequisite for students' well-being and learning. At school, bullying aggravates feelings of insecurity, and it threatens students' health, well-being, and motivation towards schoolwork (Pörhölä 2008). In an analysis covering 40 countries, Craig and colleagues (2009) reported that one-quarter of participating students were involved in bullying in some manner. International comparisons of bullying indicate that in Finland, as in other Scandinavian countries, the prevalence of bullying is relatively low (Due, Holstein & Soc 2008; Craig et al. 2009; Currie et al. 2012). In Finland about 6% of students are bullied on a weekly basis (Halme et al. 2018; Ikonen & Helakorpi 2019). Boys report being bullied more often than girls (Craig et al. 2009; Luopa et al. 2014; Arnarsson et al. 2019). The prevalence of bullying has decreased over the last ten years (UNESCO 2019), especially among boys (Halme et al. 2018; Ikonen & Helakorpi 2019). According to Välijärvi (2017), in Finland, physical bullying is less common than other types of

bullying; nevertheless, 5% of students report being hit or pushed at least a few times a month. Experiences of indirect bullying are fairly common in comprehensive schools. Previous studies have shown that verbal and indirect forms of bullying are more common among girls, while physical forms of bullying are more common among boys (Wang et al. 2009; Hager and Leadbeater 2015; UNESCO 2019). According to the School Health Promotion Study, almost one fourth of 8th and 9th graders had experienced bullying because of their appearance, gender, skin colour or language, disability, family, or religion, at school or in their free time (Halme et al. 2018).

Previous studies have suggested that negative perceptions of school, or a poor school climate, are associated with being bullied (Glew et al. 2008; Turner et al. 2014; Erginoz et al. 2015). A study by Harel-Fisch and colleagues (2011) has indicated that negative perceptions of the school, and especially a lack of connectedness to the school, are strongly associated with bullying. In PISA 2015 (see OECD 2017), a sense of alienation from the school was found to have an association with being bullied, such that the more students were bullied, the less they felt they were part of their school, and the lower was their life satisfaction (Väljälä 2017). Along similar lines, Yang and colleagues (2018) found that bullying victimization has a negative effect on students' school engagement; however, they also found that the impact of bullying is more negative in schools with a more positive school climate than in schools with a less positive climate.

Loneliness has been recognized as one factor associated with peer victimization (Hong & Espelage 2012; Pavri 2015; Acquach et al. 2016; UNESCO 2019). Every tenth secondary school student feels lonely (Ikonen & Helakorpi 2019), and more than a third of students who are bullied feel lonely (Halme et al. 2018).

Bullying has been associated with poor health (Callaghan, Kelly & Molcho 2015; UNESCO 2019), health complaints (Nansel et al. 2004; Due et al. 2005; Pörhölä 2008, Hager & Leadbeater 2016; Vaičiūnas & Šmigelskas 2019), self-esteem (Gendron, Williams & Guerra 2011), poorer grades (Juvonen, Wang & Espinoza 2010; Erginoz et al. 2015; UNESCO 2019), psychological distress (Sanders 2019), and depressive symptoms (Minkkinen 2015). Adolescents who have been victims of bullying have significantly more problems related to schooling, such as fatigue and truancy (Halme et al. 2018). Health problems such as daily symptoms, overweight, and binge drinking are also more common among victims of bullying (Halme et al. 2018).

In addition to the observed short-term effects, studies have suggested that bullying has long-term effects on the lives of students who have been bullied regularly (Hong & Espelage 2012; Zych, Ortega-Ruiz & Del Rey 2015). In a large scale Finnish cohort study, bullying at a young age among boys was identified as a risk factor for future violence (Sourander et al. 2011) and for psychiatric disorders in early adulthood (Sourander et al. 2007). Among girls, childhood bullying is associated with becoming a teenage mother (Lehti et al. 2011). In addition, Armitage and colleagues (2021) suggested that bullying victimization during adolescence is a risk factor for depression and poor well-being in adulthood.

3 AIMS OF THE STUDY

The aim of this doctoral thesis was to determine the quality of school life in Finnish comprehensive schools, and how this is connected to academic achievement, health, health behaviours and bullying victimization. This was done by examining the associations between students' perceptions of the psychosocial school environment, perceived school performance, perceived health, and health behaviours. Each sub-study also aimed to examine the extent to which certain background factors (age, gender, family affluence, educational aspiration) are associated with the quality of school life, academic achievement, health, and the health behaviour of adolescents (Figure 2). In this study the quality of school life was mostly seen as a prerequisite for academic achievement and for subjective health and health behaviour. However, as Figure 2 indicates, the associations are not necessarily causal in nature. In fact, each dimension can be seen not only as an outcome but as an enabling condition with respect to the other dimensions, and ultimately to students' health and well-being in schools.

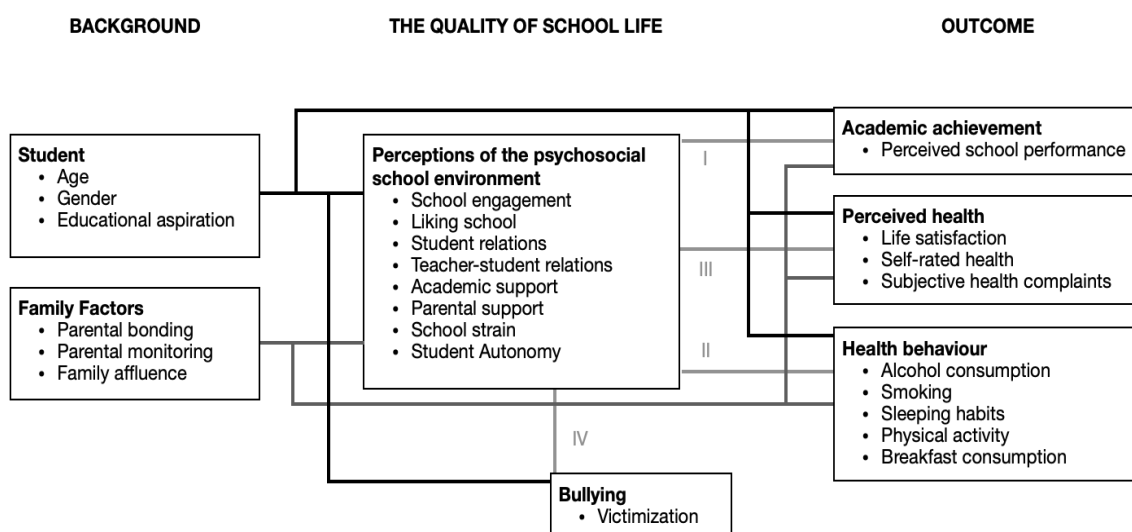


FIGURE 2 Empirical framework of the study. The numbers I-IV refer to specific research questions as well as to the four sub-studies.

The more specific research questions and themes for the sub-studies (I-IV) were as follows:

- I How do students perceive their psychosocial school environment, and what kind of school experiences do they have? How are grade, gender, educational aspiration, and perceived school performance associated with these school perceptions? How are grade, gender, family affluence, school perceptions, and educational aspiration associated with perceived school performance?
- II Are students' perceptions of the psychosocial school environment and health behaviours associated? How are school perceptions associated with multiple health-compromising behaviours, family factors and family affluence?
- III To what extent are students' perceptions of the psychosocial school environment associated with life satisfaction, self-rated health, and/or subjective health complaints?
- IV How and how often are Finnish secondary school students bullied? Are school perceptions and/or students' individual characteristics (such as age, gender, academic achievement, family affluence, or loneliness) associated with bullying victimization?

4 DATA AND METHODS

4.1 Data

The data in the current study were drawn from the Finnish part of the international HBSC Study. The HBSC Study is conducted in collaboration with WHO in over 40 countries in Europe and North America every four years. HBSC aims to gain an improved understanding of adolescent health behaviours, health, and lifestyles within their social context (Currie et al. 2014; Inchley et al. 2018). The data are collected through school-based surveys; thus, anonymous, standardised questionnaires are issued every fourth year to young people aged 11, 13, and 15. To follow the international HBSC protocol, countries are required to time their data collection so that the mean ages within their samples fall within ± 0.5 years of means set at 11.5, 13.5, and 15.5 years (Currie et al. 2014; Inchley et al. 2018). In Finland the data are collected from 5th, 7th, and 9th graders in the course of one lesson at the end of the school year (March–May).

Participants were selected from the national school register (Statistics Finland) using random cluster sampling from the schools that have Finnish as their teaching language. The primary sampling unit was the school, and the class from the participating school was randomly selected. Samples in each age group were nationally representative and the sampling was adjusted to take into account the province, the municipality, and the size of the school. To take into account schools that refused to participate or otherwise dropped out, a reserve list was created, and a school was randomly selected to replace any non-responding school. In total, non-response rates ranged from 5% to 16% in the data used in this study (Table 2). One of the main causes of non-response was absenteeism on the day of the survey.

The data used in this study were drawn from the HBSC Studies conducted in 2006, 2010, and 2014. The first two sub-studies utilized the data from 2006. In the first sub-study, the persons studied age were aged 13 and 15. In the second

sub-study only data from 15-year-olds were used. The difference was due to differences in the questionnaire. At that time, some of the questions on health-compromising behaviours were omitted from the younger age groups. The third sub-study was based on the HBSC study in 2014, and the fourth on data from 2010 study. In both of these sub-studies, the responses from 13- and 15-year-old students were taken into account. The Finnish data samples for each data collection year are presented in Table 2 below.

TABLE 2 Data sample by year, age, and gender. Sample size, number of respondents, cleaned data, and response rate (Responded/Sample x 100).

	2006			2010			2014		
	13	15	Total	13	15	Total	13	15	Total
Boys									
Sample	1010	970	1980	1264	1165	2429	1235	1225	2460
Responded	864	811	1675	1152	1094	2246	1048	1033	2081
Data	845	781	1626	1054	992	2046	969	934	1903
Response rate	85%	83%	85%	91%	94%	93%	85%	84%	85%
Girls									
Sample	1008	1054	2062	1250	1195	2445	1233	1243	2476
Responded	895	901	1796	1197	1163	2360	1023	1069	2092
Data	890	889	1779	1124	1090	2214	949	1001	1950
Response rate	89%	86%	87%	96%	97%	97%	83%	86%	85%
Total									
Sample	2018	2024	4042	2514	2360	4874	2468	2468	4936
Responded	1759	1712	3471	2349	2257	4606	2084*	2109*	4193*
Data	1735	1670	3405	2178	2082	4260	1918	1935	3853
Response rate	87%	85%	86%	93%	96%	95%	84%	85%	84%
Number of schools	94	99	193	130	128	258	120	122	242

* includes students who did not report gender (13yo=13 respondents; 15yo=7 respondents)

The HBSC international questionnaire for each survey consists of mandatory questions that each country is required to include, in order to create the international dataset. There are also optional packages of questions on specific topic areas, and countries can choose from these according to their interests. Issues of national importance can be covered via country-specific questions in the questionnaire. The questionnaire has been developed in English by members of the HBSC research network, then translated into national language(s). In order to follow the research protocol and to ensure the correctness of the interpretations, the questions are retranslated back into English and compared against the original (Inchley et al. 2018).

4.2 Measures

4.2.1 Quality of school life

The quality of school life was measured via questions concerning students' perception of their psychosocial school environment. The questions were constructed from previous HBSC research findings, which highlight the importance of the psychosocial school environment for students' health and health behaviour. The sources and references for each item are presented in Appendix 1.

Since there are different types of questions in the HBSC questionnaire (i.e. mandatory, optional, and national items), the questions concerning school perceptions were not identical for each round of the data collection. In the 2006 data there were 28 questions on school perceptions (Studies 1 & 2), with 37 in the year 2010 (Study IV), and 31 in the 2014 HBSC study (Study III). The students gave their opinion by expressing the degree to which they agreed with the statements, using a Likert scale with five response options: *strongly agree*, *agree*, *neither/nor disagree*, and *strongly disagree*. For Sub-studies I, III, and IV an explorative factor analysis was conducted for the variables concerning school perceptions, in order to reduce the data and to uncover the underlying dimensions of school perceptions (see sub-studies I, III, and IV for more details). Instead of using more abstract factor scores, the items in each factor were added up to give sum scores indicating students' perceptions of the school. To preserve the original scale for the sum scores formed, the sum scores were divided by the number of items in each sum score. The internal consistencies of the sum scores were tested in each sub-study. On the basis of the Cronbach alpha values, all the consistencies of the sum scores were satisfactory. The Cronbach's alphas varied between 0.72 and 0.91.

School engagement and Liking school

These sum scores indicate a positive outlook on school life and on belonging at school. In Sub-studies I and II the school engagement sum was formed via responses to these statements: *I like being in school*, *I look forward going to school*, *I enjoy school activities*, *Our school is a nice place to be*, *I feel I belong to this school*.

In Sub-study IV, some of the items loaded on another factor, due to the different number of items in the questionnaire. Here, a new sum score was introduced for the factor *Liking school*. It consisted of these four items: *I like being in school*, *I look forward going to school*, *I enjoy school activities*, *I wish I didn't have to go to school* (reversed). Hence, the school engagement sum consisted of three items: *Our school is a nice place to be*, *I feel I belong to this school*, *I feel safe at this school*.

In the 2014 study the questions concerning the school were reduced. Hence, the sum score describing school engagement in Sub-study III consisted of five items: *I feel I belong in this school*, *Our school is a nice place to be*, *The rules in*

this school are fair, The students are not treated too severely/strictly in this school, I feel safe in this school

Student autonomy

Student autonomy indicates how students perceive their opportunities for participation. In Sub-studies I and II the sum was derived from two items: *Students have a say in deciding what activities they do* and *Students have a say in how class time is used*. In Sub-study III the 2014 questionnaire was used. The items for the sum score were: *In my classes, students have some control in deciding which tasks to work on*, *In my classes, students get to participate in deciding how to work on tasks*, and *In my classes, students get to participate in deciding class rules*. In Sub-study IV, no questions on student autonomy were available.

School strain

School strain reflects the school workload and negative attitudes towards school. In Sub-studies I and II the school strain sum was formed from five items: *I have too much schoolwork*, *I find school tiring*, *I find school difficult*, *I wish I didn't have to go to school*, *There are many things about school I do not like*. In Sub-study IV two items were dropped, and the sum was formed from these three items: *I have too much schoolwork*, *I find school tiring*, and *I find school difficult*.

In Sub-study III, school strain was measured with a single item due to the changes in the 2014 questionnaire. The students were asked *How pressured do you feel by the schoolwork you have to do?* The item had four response options: *not at all*, *a little*, *some*, *a lot*.

Teacher–student relations and Academic support

Teacher–student relations reflect relationships and interactions at school. In the first two sub-studies there were fewer items available. The teacher–student sum was formed from eight items: *Our teachers treat us fairly*, *Most of my teachers are friendly*, *I am encouraged to express my own view in my class(es)*, *When I need extra help, I can get it*, *The rules in this school are fair*, *My teachers are interested in me as a person*, *The students are not treated too severely/strictly in this school*, *I feel safe in this school*.

In the two last sub-studies the questionnaires were introduced with more questions concerning teachers. In Sub-study III, after the explorative factor analysis, two sum scores were formed relating to *Teacher–student relations* and *Academic support*. The first sum had an emphasis more on the social relations and interactions, whereas the latter reflected the teacher's support for schoolwork and learning. Teacher–student relations were covered by seven items: *I feel a lot of trust in my teachers*, *I feel that my teachers care about me as a person*, *My teachers are interested in knowing how I'm doing*, *Most of my teachers are friendly*, *I feel that my teachers accept me just as I am*, *Our teachers treat us fairly*, *I am encouraged to express my own view in my class(es)*. The sum for academic support was formed from the following eight items: *My teachers tell me how to do better on school-tasks*, *My teachers guide me how to solve tasks*, *When I need extra help, I can get*

it, My teachers make sure that I really understand my goals and what I need to do, I feel that my teachers provide me with choices and options, My teachers encourage me when I do school work, My teachers try to understand how I think before suggesting a new way to do things, My teachers listen to how I would like to do things.

In Sub-study IV, the teacher–student relationship was formed from eight items: *I feel that my teachers care about me as a person, I feel a lot of trust in my teachers, Most of my teachers are friendly, I feel that my teachers accept me just as I am, Our teachers treat us fairly, My teachers are interested in knowing how I'm doing, I am encouraged to express my own view in my class(es), The students are not treated too severely/strictly in this school, The rules in this school are fair.* Academic support was also formed from eight items: *My teachers tell me how to do better on school-tasks, I feel that my teachers provide me with choices and options, My teachers try to understand how I think before suggesting a new way to do things, My teachers make sure that I really understand my goals and what I need to do, My teachers listen to how I would like to do things, My teachers guide me on how to solve tasks, My teachers encourage me when I do school work, When I need extra help, I can get it.*

Student relations

Student relations reflect relationships and interactions at the school. In Sub-studies I, II, and III the sum was formed from three items: *Most of the students in my class(es) are kind and helpful, Other students accept me as I am, and The students in my class(es) enjoy being together.* In addition to these items, the sum in Sub-study IV had two more items in this category: *The students in my class treat each other with respect, and When one of my co-students is feeling down, one of us tries to help.*

Parental support

Parental support indicates the parents' involvement in the student's school life. In each of the sub-studies, the sum score was formed from five items: *My parents are interested in what happens to me at school, If I have a problem at school, my parents are ready to help, My parents are willing to help me with my homework, My parents encourage me to do well at school, My parents are willing to come to school to talk to the teachers.*

4.2.2 Health behaviours

Students' health behaviours were measured via questions on the most common health risk and health-promoting behaviours, in terms of public health concern. These included smoking, alcohol use, physical activity, breakfast consumption, and sleeping habits. In Sub-study II, the health behaviour items were added up to form a health-compromising behaviour sum score for the analysis of associations between multiple health risk behaviours, school perceptions, and selected family factors.

Smoking

The question *How often do you smoke tobacco at present?* was asked in order to determine students' smoking habits. The item had four response options: *Every day; At least once a week, but not every day; Less than once a week; I do not smoke.*

Alcohol consumption

In order to detect the current prevalence of alcohol drinking, students were asked *At present, how often do you drink anything alcoholic such as beer, wine, spirits, alcopops, cider or any other drink that contains alcohol?* For each type of alcoholic drink students answered whether they used it *Every day, At least once a week, At least once a month, Rarely, or Never.* The item was summed and rescaled so that it indicated students' weekly alcohol consumption.

Breakfast consumption

Breakfast consumption indicates healthy dietary habits, and it was measured via a single item: *On weekdays: How often do you usually have breakfast (more than a glass of milk or juice)?* The item had response options from *I never have breakfast during the week to Five days a week.*

Physical activity

Students' physical activity was measured with a single item: *Outside school hours: How many hours a week do you usually exercise in your free time so much that you get out of breath or sweat?* The response options varied from none to seven hours or more.

Sleeping habits

To determine the students' sleeping habits they were asked *What time do you usually go to bed if you have to go to school next morning?* and *What time do you usually wake up on school mornings?* The hours of sleep were then calculated and coded into two categories: *Sleeps less than eight hours* and *Sleeps eight hours or more.*

4.2.3 Subjective health indicators

Students' subjective health was measured via three indicators – self-rated health, perceived life satisfaction, and subjective health complaints.

Self-rated health

Self-rated health was measured via a single item: *Would you say your health is...?* The response options were *excellent, good, fair, and poor.*

Life satisfaction

A ladder scale, namely the Cantril ladder (Cantril 1965; Currie et al. 2014), was used to measure life satisfaction. Students were asked to evaluate their life satis-

faction by indicating the step on the ladder that corresponded to their feelings at the moment. The top of the ladder (10) indicated the best possible life and the lowest step (0) the worst possible life.

Subjective health complaints

Subjective health complaints were measured using the HBSC Symptom Check List (Haugland & Wold 2001; Haugland et al. 2001; Ravens-Sieberer et al. 2008), which has been shown to be a reliable and valid, non-clinical measure of subjective health complaints. It includes eight complaints (*headache, stomach-ache, back-ache, feeling low, irritability or bad temper, feeling nervous, sleeping difficulties, dizziness*). In addition to these, four country-specific items were used: *neck and shoulder pain, loss of appetite, feeling tense, awakenings*. Participants reported how often they had experienced these complaints in the past six months via a five-point scale: *About every day, More than once a week, About every week, About every month, Rarely, Never*.

4.2.4 Bullying victimization and loneliness

Bullying victimization

Questions about bullying contained a definition of bullying in the introduction to the question to help the students identify the phenomenon. Thus, in line with Olweus (1996), the following explanation was given:

We say a student is being bullied when another student, or a group of students, say or do nasty and unpleasant things to him or her. It is also bullying when a student is teased repeatedly in a way he or she does not like or when he or she is deliberately left out of things. But it is not bullying when two students of about same strength or power argue or fight. It is also not bullying when a student is teased in a friendly and playful way.

After the introduction, the experience of being bullied was measured via a single question *How often have you been bullied at school in the past couple of months?* The response options for the question were *Never, Only once or twice, Two or three times a month, About once a week, Several times a week*.

Forms of bullying

The forms of bullying were measured by seven items: *I was called mean names, was made fun of, or teased in a hurtful way; Other students left me out of things on purpose, excluded me from their group of friends, or completely ignored me; I was hit, kicked, pushed, shoved around, or locked indoors; Other students told lies or spread false rumours about me and tried to make others dislike me; Other students made sexual jokes, or gestures to me; I've been bullied on the Internet, by e-mail, or with pictures; I've been bullied via mobile phone*. The response options for all the questions were *Never, Only once or twice, Two or three times a month, About once a week, Several times a week*.

Loneliness

Feeling of loneliness was measured with a single question in which the students were asked if they ever felt lonely. The question had four response options *Yes, very often; Yes, quite often; Yes, sometimes; and No.*

4.2.5 Measures related to students' family, academic achievement, and educational aspirations

Family factors

Family factors included questions on parental bonding and monitoring. *Parental bonding* refers to parents' involvement and emotional bonds with their children. *Parental monitoring* refers to parental supervision, parents' knowledge of their child's activities, whereabouts, friends, and so on (Pedersen et al. 2001). The eight bonding items were: *My mother/father [...] helps me as much as I need; lets me do the things I like doing; is loving; understands my problems and worries; likes me to make my own decisions; tries to control everything I do; treats me like a baby; makes me feel better when I am upset.* The response options to these questions were *Almost always, Sometimes, Never, and Don't have or don't see mother/father.*

The six items measuring monitoring were: *How much does your mother/father really know about [...] who your friends are; how you spend your money; where you are after school; where you go at night; what you do with your free time?* The response options were: *She/he knows a lot, She/he knows a little, She/he doesn't know anything, Don't have or don't see mother/father.* Both the bonding and the monitoring items were added up to give two sum scores for *Parenting father* and *Parenting mother*. The internal consistencies of the sum scores were tested. On the basis of the Cronbach's alpha values, both of the sum scores formed were considered to be reliable measures.

Perceived family affluence

In Sub-studies I, II, and IV perceived family affluence was measured via a single question *How well off do you think your family is?* The item had five response options: *Very well off, Quite well off, Average, Not so well off, Not at all well off.*

In Sub-study III, the HBSC Family Affluence Scale (FAS) (Currie et al. 2010) was used. The scale consists of six different items: *Does your family own a car, van or truck?, Do you have your own bedroom for yourself?, How many computers does your family own?, How many bathrooms (room with a bath/shower or both) are in your home?, Does your family have a dishwasher at home?, How many times did you and your family travel out of Finland for a holiday/vacation last year?* A sum score was calculated for the items. The scale has been validated within HBSC, and it is considered to be an appropriate indicator of socioeconomic position (Currie et al. 2010, Torsheim et al. 2016).

Perceived school performance

Students' perceived school performance was measured by the single question: *In your opinion, what does your class teacher(s) think about your school performance*

compared to your classmates? This item had four response options from *Very good* to *Below average*.

Educational aspiration

Students' educational aspiration was measured by a single item: *What do you think you will do when you finish comprehensive school?* Here students were asked if they were intending to apply for general upper secondary education, for vocational education, or for an apprenticeship, and furthermore, if they were intending to get a job, if they were intending to remain unemployed, or if they were as yet undecided. Educational aspiration is a national item, since it includes a question that provides options specific to Finland. Previous studies (e.g. Berg, Huurre, Kiviruusu & Aro 2011; Luopa et al. 2014) have shown that educational aspiration is a significant predictor of adolescents' future health and health behaviour in Finland. In the Sub-study IV the item was called *Expectations for further studies*.

4.3 Data analysis

A variety of statistical methods were used in this study (Table 3). The data were mostly analysed using various versions of SPSS. Stata was used in Sub-study III. In every sub-study, the results were considered to be statistically significant if the *p*-value was shown to be less than .05.

Descriptive analyses were used to describe the basic features of the data. Percentages were used to describe the frequencies of the school perceptions, subjective health indicators, health behaviours, bullying victimization, and the forms of bullying. Cross-tabulation and Chi-square tests were used to compare differences between e.g. age groups and genders.

Explorative factor analyses (with Oblimin rotation) were conducted for the variables measuring students' perceptions of the psychosocial school environment in Sub-studies I, III, and IV, in order to reduce the data and to uncover the underlying dimensions of the quality of school life. The items in each factor were added up to give sum scores indicating the dimensions of the quality of school life. The internal consistencies of the sum scores were tested with Cronbach's alpha in each sub-study.

In the first sub-study the relationships between school perceptions and background variables were examined using variance analysis. The background variables tested were students' gender, grade, perceived socioeconomic background of the home, educational aspiration, and perceived school performance.

Binary logistic regression analysis was conducted to analyse the associations between school perceptions and the perceived school performance (Sub-study I), health-compromising behaviours (Sub-study II), and being bullied (Sub-study IV). In Sub-study III, in order to account for the clustered structure of the data, multilevel logistic regression analyses were conducted to analyse

the associations between students' perceptions of the psychosocial school environment and each indicator of subjective health.

For the analysis, some of the variables needed rescaling. The rescaling of the variables is presented in more detail in each sub-study. The analysis was conducted separately for boys and girls in Sub-studies II and III, since the phenomena studied have been found to differ by gender (see e.g. Kämppe et al. 2012; ; Inchley et al. 2016; 2020; Välijärvi 2017). Odds Ratios (ORs) with 95% confidence intervals (CIs) were used to indicate the likelihood of each phenomenon studied.

4.4 Ethical considerations

This study followed the guidelines for the responsible conduct of research (Finnish Advisory Board on Research Integrity 2012). These principles emphasize honesty, responsibility, transparency, and diligence at all stages of conducting research. This study was part of a wider study project, the HBSC Study, which obtained ethical approval before the studies commenced. The research protocol of the international HBSC study (Currie et al. 2008; Currie et al. 2014) was taken into account in the collection of the data. The HBSC Study is conducted in an ethical manner, respecting the dignity, safety, and rights of the participants (Inchley et al. 2018).

In line with the HBSC protocol, permission for a school class to participate in the survey was given by the school principal, and parents were informed. Written permissions were acquired, depending on the local practices. With the students themselves, passive consent was used (i.e. responding to the questionnaire was considered as approval). Participation in the survey was voluntary. Students were informed in advance about the test content and purposes, the testing process, and confidentiality protection. Students also had the right to refuse to participate in the survey, and they were informed of their right not to answer questions they did not want to answer. The questionnaires were answered anonymously, and respondents were assured that only group-level results would be reported. Schools also received a report of the results, which they could use, for example for educational purposes.

TABLE 3. Summary of the research questions, methods, and main results in each sub-study

Sub-study	Theme	Research questions	Data	Statistical methods	Main results
I	The quality of school life and academic achievement	How do students perceive their psychosocial school environment? How are these perceptions associated with perceived school performance?	HBSC 2006. <i>n</i> =3405 Students aged 13 (grade 7) and 15 (grade 9).	Cross-tabulation, analysis of variance, logistic regression analysis	Students' experiences of school were fairly positive. Perceived school performance was associated with school engagement, teacher-student relations, school strain, and educational aspiration.
II	The quality of school life and health behaviours	How are students' school perceptions associated with smoking, use of alcohol, sleeping habits, breakfast consumption, and physical activity behaviours? How are school perceptions associated with multiple health-compromising behaviours, family factors and family affluence?	HBSC 2006. <i>n</i> =1670 Students aged 15 (grade 9).	Cross-tabulation, logistic regression analysis	The more negative the school perceptions, the greater the number of health-compromising behaviours. School-related social relationships were important factors among boys; school engagement, school strain, and parenting among girls.
III	The quality of school life and subjective health	To what extent are students' perceptions of the psychosocial school environment associated with life satisfaction, self-rated health, and/or subjective health complaints?	HBSC 2014. <i>n</i> =3853 Students aged 13 (grade 7) and 15 (grade 9).	Cross-tabulation, multilevel logistic regression analysis	The school perceptions were more positive in parallel with higher levels of perceived health. Student relations and school strain stood out with regard to indicators of subjective health.
IV	The quality of school life, bullying victimization, and forms of bullying	How and how often are Finnish secondary school students bullied? Are school perceptions associated with bullying victimization?	HBSC 2010. <i>n</i> =4260 Students aged 13 (grade 7) and 15 (grade 9).	Cross-tabulation, logistic regression analysis	One tenth of the students were bullied regularly. Verbal teasing was the most common form of bullying. Lower school engagement, poorer student relations, and better teacher-student relations predicted bullying victimization.

5 RESULTS

5.1 School perceptions and perceived school performance (Sub-study I)

The first sub-study was descriptive in nature. It sought to describe the quality of school life i.e. how students perceive their psychosocial school environment, and to examine how these perceptions are associated with perceived school performance. The data used in this sub-study were from HBSC Study 2006, and used responses provided by Finnish 7th and 9th graders, i.e. students aged 13 and 15.

Students' perceptions of their school environment were fairly positive. Younger students and girls generally reported more positive perceptions of the school than older students or boys. With regard to items reflecting school engagement, a remarkably large proportion of the students reported negative attitudes towards school; thus, only 43% of the younger students and 41% of the older students liked being at school, and only 31–35% enjoyed school activities. However, one positive aspect was that around 60% of the students felt they belonged to their school. Social relations at school appeared to be fairly positive. Relations with peers seemed to be more positive than relations with teachers. Only one fifth of the older students and slightly over one fourth of the younger students thought that their teachers were interested in them as a person.

Questions on parental support received the most positive responses from students. However, questions on aspects involving interaction with the school did not receive such positive scores. Overall, 57% of students aged 13 and 49% of students aged 15 reported that their parents were willing to come to school to talk to the teachers. When asked about the strain associated with schoolwork, most of the students did not seem to find school difficult. However, a major proportion of the students (53% of the 13-year-old students and 64% of the 15-year-old students) found school tiring (Table 4). It is worth noting that many of these items received a considerable number of answers in the *neither/nor* re-

sponse category. Indeed, for most of the questions approximately one third of the respondents used this option.

TABLE 4. Percentages of students agreeing with the statements about school perceptions by age and gender

	Age			Gender		
	13 %	15 %	Sig.	Boys %	Girls %	Sig.
School engagement						
I like being in school.	43	41		35	49	***
I look forward to going to school.	49	43	***	42	50	***
I enjoy school activities.	35	31	**	31	35	*
Our school is a nice place to be.	57	46	***	47	56	***
I feel I belong at this school.	67	56	***	61	62	
Parental support						
My parents are interested in what happens to me at school.	85	83		85	84	
My parents encourage me to do well at school.	87	86		87	86	
If I have a problem at school, my parents are ready to help.	85	82	*	84	82	
My parents are willing to help me with my homework.	60	53	***	56	57	
My parents are willing to come to school to talk to teachers.	57	49	***	53	54	
Student autonomy						
Students have a say in deciding what activities they do.	19	17		22	14	***
Students have a say in how class time is used.	34	33		39	29	***
Student relations						
Most of the students in my class(es) are kind and helpful.	69	69		69	69	
Other students accept me as I am.	69	71		75	65	***
The students in my class(es) enjoy being together.	69	63	***	76	57	***
Teacher-student relations						
Our teachers treat us fairly.	57	46	***	53	50	
Most of my teachers are friendly.	74	71	*	70	75	***
I am encouraged to express my own views in my class(es).	49	41	***	46	44	
When I need extra help, I can get it.	66	61	*	63	64	
The rules in this school are fair.	63	51	***	52	62	***
My teachers are interested in me as a person.	27	20	***	26	22	**
The students are not treated too severely/strictly in this school.	41	42		33	49	***
I feel safe at this school.	67	69		66	70	*
School strain						
I have too much schoolwork.	42	46	**	46	41	**
I find school tiring.	53	64	***	61	57	**
I find school difficult.	22	31	***	26	27	
I wish I didn't have to go to school.	26	26		32	21	***
There are many things about school I do not like.	39	48	***	46	41	**

*** $p < .001$, ** $p < .01$, * $p < .05$

Perceived school performance was associated with school engagement, teacher-student relations, and school strain. Students who reported higher school engagement were twice as likely to report good perceived performance compared to students with lower school engagement. Better teacher relations and lower school strain predicted better performance. Students with a good perceived family socioeconomic status, and students who were going to apply for upper secondary school, perceived their school performance as better than their counterparts. In addition, boys and younger students were more likely to perceive their school performance as good/very good than girls or older students (Table 5).

TABLE 5. Results of the unadjusted logistic regression analysis: factors associated with good or very good perceived school performance

	n	OR	Sig.	95% CI
Gender				
Boys	1318	1.21	.035	1.00-1.45
Girls	1557	1.00		
Age				
13	1445	1.67	<.001	1.39-2.00
15	1430	1.00		
School engagement				
High	981	2.22	<.001	1.59-3.10
Average	1513	1.61	.001	1.20-2.13
Low	381	1.00		
Parental support				
Supportive	2554	1.31	.058	0.99-1.74
Less supportive	321	1.00		
Student autonomy				
Feeling of autonomy	822	0.93	.459	0.77-1.13
No autonomy	2053	1.00		
Student relations				
Good relations	2290	0.99	.953	0.79-1.24
Poor relations	585	1.00		
Teacher-student relations				
Good relations	2142	1.84	<.001	1.48-2.29
Poor relations	733	1.00		
School strain				
High	1492	1.00		
Low	1383	2.01	<.001	1.67-2.41
Perceived socio-economic background				
Good	1961	2.21	.001	1.41-3.46
Average	799	1.49	.092	0.94-2.37
Poor	115	1.00		
Educational aspiration				
Upper secondary school	1637	3.43	<.001	2.52-4.67
Vocational school	989	0.86	.352	0.63-1.18
Other	249	1.00		

OR= odds ratio; Sig.= significance level; CI=confidence interval

5.2 School perceptions and health behaviours (Sub-study II)

The objective of the second sub-study was to examine the associations between students' perceptions of the psychosocial school environment, health behaviours, and selected family factors. The analyses were based on the Finnish part of the HBSC Study, 2006. Sub-study II used the responses provided by the students aged 15, i.e. students from 9th grade.

The prevalence of a number of health behaviours was studied in Sub-study II. Boys and girls were found to differ significantly in alcohol consumption and physical activity. Thus, 12% of the boys and 8% of the girls consumed some alcohol weekly, while 23% of the boys and 20% of the girls never consumed alcoholic beverages. Only 3% of the girls and 6% of the boys did not exercise at all outside school hours. Boys were more likely than girls to exercise more than 4 hours per week outside school hours. Most of the students had good breakfast consumption and sleeping habits. Over 90% of the students slept seven or more hours on weekdays and 66% had breakfast 4–5 times on weekdays. (Table 6).

TABLE 6. Health behaviours of 15-year-old students by gender

Health Behaviours	Boys, %	Girls, %	Sig.
At present, how often do you drink anything alcoholic, such as beer, wine, spirits, alcopops, cider, or any other drink that contains alcohol?			
Weekly	12	8	.013
Once a month	29	31	
Less than once a month	36	41	
Never	23	20	
How often do you smoke?			
Daily	19	15	.099
Weekly	4	6	
Less than once a week	8	8	
I don't smoke.	69	71	
Outside school hours: How many hours a week do you usually exercise in your free time, so much that you get out of breath or sweat?			
None	6	3	.008
Up to 3 hours	55	60	
4 hours or more hours	39	37	
On weekdays: How often do you usually have breakfast (more than a glass of milk or juice)?			
Up to 3 times	34	34	.796
4 or 5 times	66	66	
Sleeping on weekdays			
Less than 7 hours	7	6	.616
7 to 8 hours	45	47	
More than 8 hours	48	47	

In the analysis of associations between school perceptions, educational aspiration, and health-compromising behaviours, educational aspiration was found to be the most influential factor connected to health-compromising behaviour for both genders. Students who were intending to choose the vocational education path were more likely to smoke, consume alcohol more often, skip breakfast, and be less physically active than students with higher aspirations. Higher school strain and lower school engagement predicted health-compromising behaviour among girls. Among boys, poorer teacher-student relations and less support from parents predicted health-compromising behaviour; nevertheless, poor student-relations predicted less smoking and less drinking among both genders.

TABLE 7. Results of the unadjusted logistic regression analysis: factors associated with multiple (three or more) health-compromising behaviours

	Boys				Girls			
	n	OR	Sig.	95% CI	n	OR	Sig.	95% CI
SCHOOL PERCEPTIONS								
Educational aspiration								
Upper secondary school	299	1.00			505	1.00		
Vocational school	293	2.36	<.001	1.53-3.62	245	2.58	<.001	1.78-3.75
School engagement								
High	155	1.00			255	1.00		
Average	342	1.09	.761	0.62-1.93	389	1.80	.019	1.10-2.93
Low	95	2.04	.066	0.95-4.35	106	2.65	.006	1.33-5.28
Parental support								
Supportive	521	1.00			657	1.00		
Less supportive	71	3.06	<.001	1.67-5.61	93	2.14	.005	1.27-3.62
Student autonomy								
Feeling of autonomy	179	1.00			174	1.00		
No autonomy	413	0.61	.032	0.39-0.96	576	1.14	.575	0.72-1.81
Student relations								
Good relations	499	1.00			549	1.00		
Poor relations	93	0.46	.016	0.25-0.87	201	0.61	.023	0.39-0.93
Teacher-student relations								
Good relations	419	1.00			533	1.00		
Poor relations	173	1.63	.040	1.02-2.61	217	1.24	.325	0.81-1.90
School strain								
High	344	1.00			377	1.00		
Low	248	0.66	.082	0.42-1.05	373	0.60	.014	0.40-0.90
FAMILY FACTORS								
Parenting father								
Low	184	1.73	.094	0.91-3.28	253	2.67	<.001	1.57-4.52
Average	228	1.46	.205	0.81-2.62	274	1.43	.178	0.85-2.42
High	180	1.00			223	1.00		
Parenting mother								
Low	207	1.56	.131	0.88-2.77	240	1.98	.012	1.16-3.37
Average	174	1.69	.066	0.97-2.96	280	2.06	.004	1.25-3.38
High	211	1.00			230	1.00		
Perceived family affluence								
High	416	1.00			437	1.00		
Average	155	1.19	.453	0.75-1.88	276	0.76	.178	0.52-1.13
Low	21	1.61	.383	0.55-4.65	37	1.05	.912	0.47-2.34

OR= odds ratio; Sig.= significance level; CI=confidence interval

As Table 7 indicates, all the measured dimensions of school perceptions were associated with either boys or girls having multiple health-compromising behaviours. The results for boys and girls differed to some extent, and the role of family factors emerged more prominently with girls. Girls who reported lower parenting, both on the father's and the mother's side, were more likely to engage in multiple health-compromising behaviours. Multiple health-compromising behaviours were more common among boys who reported poorer teacher-student relations and no autonomy, and among girls who reported higher school strain and lower school engagement (Table 7).

5.3 School perceptions and indicators of subjective health (Sub-study III)

The third sub-study considered students' subjective health, examining how far perceptions of psychosocial school perceptions were associated with indicators of subjective health, namely self-rated health, life satisfaction, and subjective health complaints. The data were drawn from the Finnish part of the HBSC Study, 2014. The study used responses provided by students aged 13 and 15.

Most students reported good or excellent health and high life satisfaction. Among older students, boys gave significantly higher ratings for their health and life satisfaction than girls of the same age. Weekly subjective health complaints were fairly common, with the prevalence of the complaints measured varying from 15% to 63%. Irritability or bad temper was the most common symptom. Boys' and girls' reports showed significant differences in almost every complaint analysed, with girls reporting symptoms more often than boys in both age groups (Table 8).

With regard to the associations between students' school perceptions and indicators of subjective health, Student relations and School strain stood out for both genders, in terms of all the health indicators. Students who had good relations with peers and lower school strain reported better self-rated health, higher life satisfaction, and fewer health complaints. Among girls, better self-rated health was associated with higher school engagement and academic support. In addition to these two factors, support from parents was associated with higher life satisfaction, and supportive parents and good teacher-student relations were likely to indicate fewer health complaints among girls. Among boys, higher school engagement, higher student autonomy, and support from parents were associated with higher life satisfaction. Overall, higher engagement predicted fewer health complaints, and supportive parents and better teacher-student relations were associated with better self-rated health. Higher educational aspiration was associated with better self-rated health and higher life satisfaction among both genders. Family affluence was associated with better life satisfaction among girls, favouring girls with average or high family affluence (Table 9).

TABLE 8. Indicators of subjective health by age and gender

Indicators of subjective health	13 years			15 years			Boys			Girls		
	Boys %	Girls %	Sig.	Boys %	Girls %	Sig.	13 %	15 %	Sig.	13 %	15 %	Sig.
Self-rated health												
Excellent	25	22		28	18		25	28		22	18	
Good	60	63	.243	56	65	<.001	60	55	.208	63	65	.168
Fair	13	14		14	15		13	14		14	15	
Poor	2	1		2	2		2	2		1	2	
Life satisfaction												
High (8-10)	68	64	.080	67	45	<.001	68	67	.695	64	55	<.001
Low (0-7)	32	36		33	55		32	33		36	45	
Subjective health complaints (Weekly)												
Headache	36	48	<.001	36	51	<.001	36	36	.923	42	44	.160
Stomach-ache	20	27	<.001	16	27	<.001	20	17	.094	27	27	.838
Backache	23	27	.088	28	38	<.001	23	28	.026	27	38	<.001
Irritability or bad temper	46	61	<.001	43	63	<.001	46	43	.194	61	63	.484
Feeling nervous	44	53	<.001	37	55	<.001	44	37	.002	53	55	.413
Difficulties in getting to sleep	35	44	<.001	34	45	<.001	35	34	.628	44	45	.649
Feeling dizzy	17	29	<.001	20	30	<.001	17	20	.076	29	30	.457
Neck and shoulder pain	33	40	.002	33	50	<.001	33	33	.806	40	50	<.001
Loss of appetite	19	29	<.001	13	26	<.001	19	13	<.001	30	26	.115
Feeling tense	31	42	<.001	26	44	<.001	31	26	.021	42	44	.409
Feeling low	15	31	<.001	18	40	<.001	15	18	.104	31	40	<.001
Awakenings	25	29	.059	21	32	<.001	25	21	.041	29	32	.114

TABLE 9. Results of the multilevel logistic regression analysis; school perceptions associated with indicators of subjective health

	Boys			Life satisfaction			Health complaints			Girls			Life satisfaction			Health complaints		
	OR	95% CI	Sig.	OR	95% CI	Sig.	OR	95% CI	Sig.	OR	95% CI	Sig.	OR	95% CI	Sig.	OR	95% CI	Sig.
Age																		
13	1.15	0.86-1.56	.352	1.07	0.84-1.36	.597	1.36	1.09-1.69	.006	1.01	0.72-1.42	.937	1.22	0.96-1.55	.102	1.20	0.96-1.52	.107
15	1.00			1.00			1.00			1.00			1.00			1.00		
School engagement																		
High	1.00	0.66-1.51	.996	1.72	1.23-2.39	.001	0.62	0.44-0.86	.004	2.35	1.57-3.51	<.001	1.92	1.33-2.76	<.001	0.72	0.47-1.12	.145
Low	1.00			1.00			1.00			1.00			1.00			1.00		
Parental support																		
Supportive	1.80	1.06-3.05	.029	2.18	1.31-3.62	.003	1.01	0.61-1.68	.981	1.55	0.96-2.51	.072	5.77	3.33-10.01	<.001	0.20	0.10-0.44	<.001
Less supportive	1.00			1.00			1.00			1.00			1.00			1.00		
Student autonomy																		
High	1.36	0.98-1.87	.064	1.32	1.02-1.70	.035	1.03	0.83-1.30	.774	0.93	0.67-1.28	.650	1.22	0.97-1.54	.096	1.05	0.83-1.32	.700
Low	1.00			1.00			1.00			1.00			1.00			1.00		
Student relations																		
Good relations	1.76	1.17-2.64	.006	2.09	1.46-3.00	<.001	0.52	0.36-0.76	.001	1.57	1.10-2.25	.012	1.64	1.22-2.20	.001	0.69	0.50-1.00	.030
Poor relations	1.00			1.00			1.00			1.00			1.00			1.00		
Teacher-student relations																		
Good relations	1.55	1.03-2.33	.034	1.35	0.97-1.89	.080	0.73	0.53-1.00	.052	1.17	0.79-1.74	.428	1.37	1.00-1.88	.051	0.61	0.42-0.87	.007
Poor relations	1.00			1.00			1.00			1.00			1.00			1.00		
Academic support																		
High	0.69	0.45-1.06	.090	0.89	0.63-1.27	.522	1.02	0.73-1.42	.908	1.66	1.13-2.42	.008	1.58	1.17-2.12	.003	0.73	0.52-1.01	.060
Low	1.00			1.00			1.00			1.00			1.00			1.00		
School strain																		
Low	1.38	1.02-1.87	.035	1.77	1.39-2.26	<.001	0.43	0.34-0.53	<.001	1.96	1.42-2.73	<.001	1.74	1.38-2.19	<.001	0.34	0.27-0.43	<.001
High	1.00			1.00			1.00			1.00			1.00			1.00		
Educational aspiration																		
Upper secondary school	1.48	1.10-2.00	.010	1.86	1.46-2.38	<.001	0.92	0.73-1.15	.438	1.48	1.06-2.07	.020	1.62	1.25-2.12	<.001	0.80	0.61-1.06	.118
Vocational school	1.00			1.00			1.00			1.00			1.00			1.00		
Family affluence																		
High	1.40	0.86-2.25	.174	1.52	1.02-2.27	.041	1.08	0.75-1.56	.668	1.37	0.84-2.23	.208	1.61	1.11-2.33	.012	1.16	0.79-1.69	.448
Average	1.18	0.78-1.78	.443	1.11	0.78-1.57	.567	0.91	0.66-1.26	.560	1.09	0.71-1.67	.687	1.41	1.01-1.97	.042	0.94	0.67-1.32	.711
Low	1.00			1.00			1.00			1.00			1.00			1.00		

OR= odds ratio; CI=confidence interval; Sig.= significance level

5.4 School perceptions and being bullied (Sub-study IV)

The aim of this sub-study was to examine the extent to which Finnish 13- and 15-year-old secondary school students experience bullying, the forms by which they are bullied, and whether being bullied is associated with school perceptions. The data were drawn from the Finnish part of HBSC Study 2010.

The majority of the students reported that they had never been bullied over the previous few months. However, 7% of the boys and 6% of the girls aged 13 were bullied weekly. Among the 15-year-olds, 5% of the boys and 4% of the girls were victims of weekly bullying. The difference between the age groups was statistically significant, with younger students reporting being bullied more often than older students (Table 10).

Around one third of the students reported that they had been bullied in one or two ways, and less than a fifth in three to seven ways. As Table 10 shows, verbal teasing was found to be the most common form of being bullied. Almost every third student reported that they had been called mean names, teased, or made fun of. The results clearly indicated that boys tended to be bullied in more physical ways. Boys were hit, kicked, and pushed, while girls were victimized in more indirect ways, with the victims of bullying being excluded from the group, or false rumours spread to make others dislike the victim (Table 10).

Students who reported lower school engagement or poorer student-relations were more likely to be bullied than peers with higher engagement and better relations with peers. Those who were likely to be bullied reported better teacher-student relations. Poorer perceived family affluence was also associated with being bullied; so also were feelings of loneliness. Those students who felt lonely were more likely to be bullied than those who never felt lonely (Table 11).

TABLE 10. Bullying victimization, multiplicity in forms of bullying victimization and different forms of bullying by age and gender

	13-year-olds								Sig.	15-year-olds								Sig.
	Boys				Girls					Boys				Girls				
	Never, %	Once or twice a month, %	2-3 times a month, %	Weekly, %	Never, %	Once or twice a month, %	2-3 times a month, %	Weekly, %		Never, %	Once or twice a month, %	2-3 times a month, %	Weekly, %	Never, %	Once or twice a month, %	2-3 times a month, %	Weekly, %	
Students bullied	65	22	6	7	70	18	6	6	.044	74	17	4	5	77	15	4	4	.283
I was called mean names, was made fun of, or teased in a hurtful way.	62	24	6	8	65	21	6	8	.457	64	23	5	7	72	17	6	5	<.001
Other students left me out of things on purpose, excluded me from their group of friends, or completely ignored me.	83	10	4	3	78	13	4	5	.011	86	9	2	3	81	11	3	6	.001
I was hit, kicked, pushed, shoved around, or locked indoors.	83	10	3	3	93	4	1	2	<.001	86	9	3	3	96	3	1	2	<.001
Other students told lies or spread false rumours about me, and tried to make others dislike me.	76	15	4	5	72	20	4	4	.026	81	11	4	3	78	13	6	3	.166
Other students made sexual jokes or gestures to me.	86	8	2	4	86	8	2	3	.971	83	9	3	5	83	10	4	3	.084
I've been bullied on the Internet, by e-mail, or with pictures.	93	4	2	2	91	6	1	1	.039	95	3	1	1	94	4	1	1	.886
I've been bullied via mobile phone.	94	3	2	1	94	4	1	1	.269	97	2	1	1	97	2	1	0	.609

TABLE 11. Results of the unadjusted logistic regression analysis: factors associated with bullying victimization over the previous few months

	n	OR	Sig.	95% CI
Gender				
Boys	1812	1.70	<.001	1.445-1.992
Girls	2044	1.00		
Age				
13	1871	1.98	<.001	1.682-2.328
15	1985	1.00		
School engagement				
High	2802	1.00		
Low	1054	1.62	<.001	1.336-1.959
Liking school				
High	2251	1.10	.331	0.910-1.323
Low	1605	1.00		
Parental support				
Supportive	3501	1.00		
Less supportive	355	1.08	.582	0.83-1.40
Student relations				
Good relations	2934	1.00		
Poor relations	922	2.65	<.001	2.22-3.16
Teacher-student relations				
Good relations	2752	1.24	.046	1.00-1.52
Poor relations	1104	1.00		
Academic support				
High	2528	1.00		
Low	1328	1.09	.356	0.91-1.31
School strain				
High	1807	1.13	.167	0.95-1.34
Low	2049	1.00		
Perceived family affluence				
Good	2682	1.00		
Average	960	1.07	.464	0.89-1.28
Poor	214	1.91	<.001	1.40-2.62
Expectations for further studies				
High school	2111	1.00		
Vocational school	1344	.931	.431	0.78-1.11
Academic achievement				
Good	2237	1.02	.814	0.86-1.28
Average or below	1619	1.00		
Feeling of loneliness				
Yes	2135	2.82	<.001	2.39-3.34
No	1721	1.00		

OR= odds ratio; Sig.= significance level; CI=confidence interval

6 DISCUSSION

6.1 A brief overview of the key findings and their conclusions

This study adds to a growing body of literature indicating that the quality of school life – as revealed by students’ perceptions of the psychosocial school environment – is important, not only for students’ academic achievement but also for their health. The study also underlines the fact that there is more to school than merely academic learning (OECD 2017). Finnish students’ school experiences were fairly positive, yet a large proportion of adolescents reported negative attitudes towards school. In all the sub-studies, the students’ perceptions of the psychosocial school environment showed some associations with their academic achievement, perceived health, and health behaviours. Social relations at school, educational aspiration, and gender differences were highlighted in terms of all the outcomes studied.

6.1.1 The quality of school life in Finnish comprehensive schools

The findings show that despite the fairly positive reports on the quality of school life in this study, a substantial proportion of the students did not enjoy school activities, or going to school, or being at school. The students also found school tiring, and felt that they had too much schoolwork. However, a large proportion, around 60% of the students, had a sense of belonging to their school. Note that even though the data underlying these results date back several years, they are in line with the latest studies (e.g. Välijärvi 2017; Vettenranta et al. 2020). Vettenranta and colleagues (2020) found that about half of the 8th grade students reported a mediocre sense of belonging to their school. In the present study, students rated social relations at school as more or less positive. Peer relations were perceived as more positive than relations with teachers.

Significant differences between genders and age groups were found in students' school perceptions. Perceptions of the psychosocial school environment were more positive among girls than among older students and boys—a result also found by others (McNeely, Nonnemaker & Blum 2002; Samdal, Dür & Freeman 2004; Borup & Holstein 2006; Ding & Hall 2007; Currie et al. 2008). Moreover, students who reported positive perceptions of their psychosocial school environment were more likely to report higher perceived school performance. This is in line with previous studies (e.g. Maxwell et al. 2017; Manninen 2018). Interestingly, the results showed that boys were more likely than girls to report better perceived performance. This contrasts with previous studies in which girls have reported good perceived performance more often than boys (Samdal, Dür & Freeman 2004; Currie et al. 2008). Girls have been found to report lower self-efficacy and lower self-confidence in learning than boys (Kupari & Välijärvi 2005). This might reflect the fact that girls sometimes place undue pressure on themselves, and do not believe in their own competence (see Niemivirta 2004). This could be one explanation for the contrast with previous studies, given that in the current study achievement was based on students' self-reports, not on actual test scores.

The paradox of scholastic success in parallel with negative school experience (e.g. Kämppi et al. 2012; Pulkkinen, Rautopuro & Välijärvi 2018) seems to remain valid in Finnish schools. It may be the case that the expression of one's perceptions is a culture-specific matter. From that point of view, there are at least three possible explanations for the negative attitudes expressed by Finnish students. First of all, for Finns it is not typical to give praise. It is more common (stereotypically) to be critical of almost everything in the everyday environment, such as the school system (Harinen & Halme 2012). Furthermore, liking school is to some degree seen as embarrassing and a student who likes being at school tends not to be respected or appreciated by peers in Finnish schools (Linnakylä & Malin 1997). Secondly, negative attitudes towards school may be supported within the home: the free availability of education is often taken for granted, criticism is readily given. According to the School Health Promotion Study 2017, most of those students whose parents did not consider schooling important, had negative attitudes towards school (Ranto 2019). Despite this, according to Rätty and Kasanen (2007) Finnish parents are fairly satisfied with the functioning of their child's school in early school years. Thirdly, it could very well be the case that despite the scholastic success some of the students in Finnish schools are genuinely not satisfied with the school or with the activities available at the school. One notable fact is that the PISA studies have shown a low level of variation in students' performance throughout the Finnish school system, which means that those who are dissatisfied with school still perform above the average level (Kupari et al. 2013). It is also noteworthy that according to the PISA 2018 study, Finland was the only country among the OECD countries where scores in literacy and life satisfaction did not correlate negatively at country level (Leino et al. 2019). The reasons for the manifestations of this phenomenon, both in Finland and beyond, would require further investigation.

6.1.2 The quality of school life, and associations with academic achievement, perceived health, and health behaviours

All the dimensions of psychological school environment were found to be associated to some extent with perceived school performance, subjective health indicators or health behaviours. School strain and social relations at school stood out in respect of the outcomes studied. This is in line with previous studies (e.g. Suldo, Riley & Shaffer 2006; Modin & Östberg 2009; Eriksson et al. 2012; Plenty et al. 2014; Moore et al. 2018) and it also supports Konu's (2002) findings insofar as it identifies the important role of the social relations at school.

This study overall suggests an association between lower school strain, better perceived performance, fewer health compromising behaviours, and better subjective health. Students who reported lower school strain were more likely to report better perceived performance, better self-rated health, higher life satisfaction, fewer health complaints, and fewer health compromising behaviours. Similar connections have been found in previous studies (Samdal, Wold & Bronis 1999; Ding & Hall 2007).

According the first sub-study, the majority of the students felt that they had too much schoolwork, and they found school tiring. In recent years there has been an increase in students who feel pressured by schoolwork (Löfstedt et al. 2020). Going to school can be seen as a priority as well as a duty for Finnish adolescents since Finland is a country in which education is both free and compulsory. Hence, it would be preferable if students - and also teachers - were to gain positive experiences, joy in learning, and joy in their schoolwork. This does not mean that schools should be purely arenas for fun and play, but one would hope that they would be attended for reasons other than simple compulsion. Meeting the needs of students who are not engaged with the school and who have negative attitudes towards the school is a real challenge, and one that teachers and school administrators currently have to face.

The teacher-student relationship is clearly crucial to students' school life. Students who reported good relations with their teachers were also more likely to report better perceived performance, fewer health compromising behaviours, fewer health complaints, and better self-rated health. However, good teacher-student relations were one factor associated with higher odds of being bullied. During adolescence, non-parental adults are important, and young people increasingly look to them for support and guidance. Teachers can be warm, caring, and accepting in much the same ways as parents; teachers can also express high expectations for all students, and be available to help and guide (Kalil & Ziol-Guest 2008). When that teacher-student relationship is not working, it can affect other aspects of school life. According to Kiilakoski (2012) well-being in school is more or less defined by the relationship between the teacher and the students. Given the positive correlation between school engagement and teacher-student relations, the promotion of positive school experiences should be an important issue for policymakers concerned with school development. The same would apply to actions aimed at decreasing students' school strain.

Teachers are the people who are most often present in social situations with students, and they affect adolescents' well-being, either intentionally or not. An important goal would be to further support teachers' professional understanding of how to create the kind of social structures and practices that would improve students' school experience. Teachers also need time and support to meet the students. In today's school, the teachers' workload is increasing, new responsibilities are being assigned, and resources are being cut back. According to TALIS (Teaching and Learning International Survey) 2018, Finnish teachers experience stress arising from the multitude of requirements coming from the municipality or state, from the abundance of administrative duties, and from the requirement to adapt classes to students with special educational needs (Taajamo & Puhakka 2020). There is little time left for individual attention.

At the start of this millennium, health education was added to the curriculum as an official, obligatory, and autonomous school subject in Finland. Ever since then, there has been training for professional health education teachers. The subject is a good channel to address students' school experiences and school life in general. However, this is clearly not enough by itself. The implementation of holistically-oriented procedures aimed at enhancing students' health – for example, the Health Promoting School approach – has the potential to contribute to the health of the entire school community (Sormunen 2012; World Health Organization 2020), and has also been shown to be effective in more than one country (Lee et al. 2006; Rowe, Stewart & Patterson 2007).

The idea of a health-promoting school is included in the National Core Curriculum in Finland. The curriculum seeks to develop schools which will promote the well-being and learning of students through multi-professional co-operation and the involvement of families (Välilä et al. 2008). The National Core Curriculum also provides a basis for local curricula. In fact, most Finnish schools do indeed have a joint operational model for addressing key challenges related to health promotion in the school community, either integrated with their curriculum or as a written policy – yet health promotion activity varies considerably between schools (Rimpelä, Fröjd & Peltonen 2010). Clearly, a challenge for policymakers, teachers, students, parents and the entire school community is to create such environments that can promote well-being, make positive changes in the psychosocial school environment, and meet the overall developmental needs of adolescents (McNeely, Nonnemaker & Blum 2002).

Positive peer relations have been associated with better self-rated health, higher life satisfaction, and fewer health complaints, but also with more health-compromising behaviours. Social acceptance may strengthen self-esteem, thus helping individuals to perform better and to value themselves. Such a positive cycle could also affect students' perceived health. Pyhältö, Soini, and Pietarinen (2010) found that students experience social interactions at the school as the most rewarding, but also the most problematic aspect of schooling. This observation was supported when the COVID-19 pandemic hit the world in 2020 and students were obliged to study at home. According to Herkama & Repo (2020), a third of the students in upper secondary school reported that they were actually relieved not to see their schoolmates. On the other hand, feelings of loneli-

ness were also more common during the lockdown period (Herkama & Repo 2020).

As noted above, there are indications that peer involvement can create the kind of environment that supports and encourages health-compromising behaviour, and that adolescents may find it hard to refuse such peer pressure (see also McLellan et al. 1999). McLellan and colleagues (1999) noted that students who reported less peer support were less likely to smoke or drink. Furthermore, it has been observed that connectedness to friends is strongly associated with health-compromising behaviours: adolescents who report strong attachment to friends are more likely to report smoking (Carter et al. 2007). In addition, frequent binge drinking appears to be associated with greater peer involvement (Johansen, Rasmussen & Madsen 2006; Desousa et al. 2007). The present study is consistent with these findings, insofar as students who had poor relations with their peer at school were less likely to engage in health-compromising behaviours. Here one should bear in mind that the relations outside school, in free-time, and in other living environments, can be very different from the relations within the school. This study only focused on the latter and might not capture the entire phenomenon.

Almost all the dimensions of the psychosocial school environment showed an association with alcohol use and smoking. However, the associations were not so obvious with respect to breakfast consumption, physical activity, and sleeping habits. This suggests that there could be some other underlying factors that would better predict these behaviours. In this regard, Villard, Rydén, and Ståhle (2007) concluded that along with social aspects (such as parental attitudes) certain environmental factors such as socio-economic circumstances and the geographical locality had an influence on physical activity and healthy food choices. On the other hand, in their study, Karvonen and Rimpelä (2002) were unable to find major differences between different types of Finnish municipalities with regard to social relations, health behaviour, or health, even though the living conditions appeared to differ widely.

According to this study the majority of adolescents felt that they received support from home. Parental support was perceived as the most positive dimension by the students. Similar findings have been reported before (see e.g. Kämppi et al 2012). Less support from parents was associated with more health-compromising behaviours and more health complaints. Furthermore, it appeared that lowered parental monitoring and bonding was associated with multiple health-compromising behaviours among girls. Parental support was also found to be important for the overall subjective health of the students. Family affluence seemed to be less important for students' school experience, although students with higher perceived family affluence perceived their school performance to be better, and girls who reported higher family affluence perceived higher life satisfaction. Lowered family affluence showed an association with being bullied.

Previous studies have shown that in Finland, adolescents' health inequalities can partly be explained by the educational paths they follow (e.g. Berg et al.

2011; Luopa et al. 2014). Low school achievement, together with a lack of educational plans, is related to higher mortality (Berg et al. 2011). Students who follow the non-academic path (i.e., who move to vocational education) have more health-compromising behaviours and poorer perceived health than students who follow an academic path (Ruokolainen & Mäki 2015). In the present study educational aspiration seemed to be important for academic achievement, students' perceived health, and health behaviour, favouring those who were intending to choose an academic path. However, it is noteworthy that in Finland these chosen educational paths are not permanent, and that there is a possibility to continue studying in various forms and along various paths throughout life. Possibilities to change paths are supported by the fact that in Finland, education is free from preschool to higher education.

6.1.3 The quality of school life and associations with bullying victimization

This study was fairly consistent with previous studies regarding the prevalence of being a victim of bullying, and the different forms of bullying that occur. About 10% of students are bullied regularly in Finnish comprehensive schools, younger students are victimized more often than older students (Analitis et al. 2009; Craig et al. 2009; Wang, Iannotti & Nansel 2009; UNESCO 2019), and victimized students tend to have a lower socioeconomic position (Due et al. 2009; Tippett & Wolke 2014; Due et al. 2019). It is a general observation that boys are bully victims more than girls (Due et al. 2005; Craig et al. 2009; Callaghan et al. 2015; Erginoz et al. 2015; Välijärvi 2017; UNESCO 2019). However, in the present study, differences between boys and girls were found only among the younger students, and not among the older age group. This study also supports findings from previous studies according to which girls were found to be bullied primarily in indirect ways, and boys were victimized in more physical ways (Wang, Iannotti & Nansel 2009; Hager & Leadbeater 2016; UNESCO 2019).

According to the results of this study, some of the school perceptions analysed seemed to be associated with being a bully victim. Students who showed lower engagement with the school and who reported poorer student relations were bullied regularly. In addition, students who reported more feelings of loneliness were more likely to be bullied at school. Previous studies have also linked problems with peer relations (e.g. Pörhölä 2008; Wang, Iannotti & Nansel 2009; Antoniadou, Kokkinos & Fanti 2019) and negative perceptions of school (e.g. Mehta et al. 2013) with being a victim of bullying.

Interestingly, this study showed that students who reported better teacher-student relations were more likely to be bullied at school. Among the studied school perceptions, teacher-student relations emerged as the only category in which having more positive relations was actually associated with being a victim of bullying. In general more negative experiences or poorer relations were associated with bullying victimization. A similar notion presented in previous studies. A study by Gardella and colleagues (2020) showed that students who were favoured by teachers were more likely to be the victims of bullying. One

may speculate as to why this should be the case. This study is in line with others (i.e. Konishi et al. 2010) indicating that good teacher-student relations are associated with better performance at school. On the other hand, Hamarus (2006) suggested that better school performance might be seen as being too close to the teacher, which might function as a reason for victimization. In this sense, if someone is seen as a “teacher’s pet” it might well cause the student to become a target of bullying. Bullying has been connected to teacher unfairness (Santinello, Vieno & De Vogli 2011). The association was present among students who bullied others, but not among victims of bullying, which supports the idea of someone being bullied if they are seen as a “teacher’s pet”.

According to the Finnish Basic Education Act and the National Core Curriculum, education providers are obliged to have a plan for safeguarding pupils against violence, bullying, and harassment as a part of the school welfare plan (Finnish National Board of Education 2016). TEAvisari (an online tool to show the direction of health-promoting work in municipalities) shows that 94% of Finnish comprehensive schools do have a documented bullying prevention plan, with 96% of schools having a recorded practice for intervening in bullying, and 92% a recorded practice for post-intervention monitoring of bullying (TEAvisari, Finnish Institute for Health and Welfare 2021).

A number of intervention programs have been developed over the years. Some of the national programs have proven to be effective in tackling bullying, at least to some degree. One of them is the KiVa antibullying program (Sainio 2014). The KiVa antibullying program is a research-based whole-school intervention program that stems from the participant role approach. The KiVa program has been widely used in Finnish comprehensive schools in the past 10 years (Sainio 2014). However, these research-based intervention programs require time, effort, and commitment, and the programs can be difficult to sustain over the long term. In addition, given that teachers spend most of the school hours with the students, they should not merely intervene directly in particular bullying situations, but also pay attention to the overall social atmosphere within the school. It is also essential to be aware of the prevailing cultural values, fears, power relations, and norms that reign among student communities (Hamarus & Kaikkonen 2008). The present study underlines the need for teachers and school staff to use all possible knowledge and methods to tackle bullying.

6.2 Strengths and limitations of the study

It is important that a study in this field should be capable of capturing valid information on the quality of school life and on perceived health and health behaviour. It can be claimed that this study has good credibility in this respect, since the questionnaire and the items had been carefully reviewed and revised by the HBSC research network (Roberts et al. 2009; Currie et al. 2010; Currie et al. 2014; Inchley et al. 2018). Moreover, the response rates were high, the sam-

ples were nationally representative, which would support the potential generalizability of the results in the Finnish context. Furthermore, the item non-response percentages for items used were fairly low (from 0% to 3.8%). This suggests that the most of the questions used were relevant and understandable.

This study has certain limitations. The data used were cross-sectional in nature, meaning that the precise causality and the direction between the measured associations could not be determined. More exact determinations of cause-and-effect would require a different kind of study approach. The data were also self-reported, and the study limited itself to individuals' subjective perceptions. It has been noted that as compared to objective measures, self-reported questionnaires may give over-estimations of "positive" results, due to the fact that participants may give more "socially desirable" answers in self-reports (Paakkari et al. 2018). Nevertheless, self-reported data do allow adolescents to express their opinions about their lives and future aspirations (OECD 2017). When (as in the present case) the focus is not on clinical illnesses, surveys of this kind are a good tool for understanding the perceptions of young people. Here, it is worth noting that the way in which adolescents understand health affects the way in which they answer surveys concerning their health (Currie et al. 2010). It has nevertheless been acknowledged that adolescents can accurately report their reflections on their health and well-being and that how they feel is a valid aspect of their health (Currie et al. 2014).

It is important to emphasize that the some of the questions in the questionnaire used in this study limited the interpretations. The questions on the psychosocial school environment all had five response keys: two denoting agreement, two denoting disagreement, and one denoting a neither/nor opinion. The neither/nor key was widely used. Indeed, with each variable, approximately one third of the respondents used this option. This might be due to the phrasing of some questions. For example, the statement "Our teachers treat us fairly" could be taken to include all the teachers. Such an interpretation might cause problems if a student feels, for example, that most teachers are fair but that one is not. This aspect suggests a need for fuller consideration of the ways of analysing the data, including whether to include or exclude the neither/nor answers. In this study the neither/nor answers were included in the sum scores and were considered to be part of the scale. In any case, despite the high number of neither/nor answers in this study, the results were consistent with the School Health Promotion Study, which included questions about school life without any neither/nor option (Luopa, Pietikäinen & Jokela 2008; Luopa et al. 2014; Ikonen & Helakorpi 2019). Furthermore, in dichotomizing e.g. health behaviour variables, there can always be uncertainty regarding the correct cut-off points for health-enhancing or health-compromising behaviour. The cut-off points were determined on the basis of the general recommendations regarding the health behaviours in question.

It would also be important to critically analyse the cultural appropriateness of the assessment instruments concerned with school perceptions at a national level. Moreover, the definition of the key concepts was a challenge due

the language used, and the lack of definitional consensus around the theme. For the most part, previous studies have focused on single items encompassing particular dimensions of the psychosocial school environment. This study took a broader view, and a wide range of items were analysed. It should be borne in mind that this study limited itself to the items used in the HBSC questionnaire. There might be other factors that are associated with student health and achievement that the study did not cover. However, the study did succeed in finding constructs that are shared with other studies (Libbey 2004), and to encompass in a versatile manner students' perceptions of school life.

The reader will note that the data used for the study date back a few years, and that the results reflect a cross sectional interpretation of a particular time. However, the latest studies around the topic have produced results that are in line with the present study (e.g. Inchley et al. 2020; Yoon 2020). It would therefore appear that the quality of school life has not changed dramatically over the last ten years.

6.3 Implications for further studies

The findings of this study indicate a need for more broadly and continuous assessments of the quality of school life. The Finnish comprehensive school has done well in achieving good learning standards, but one can ask whether the standards have been achieved at the expense of the quality of school life. In the current study, the associations between school perceptions and the outcomes measured showed statistical significance, even if the associations were not in themselves particularly strong. This could imply that there are underlying factors affecting the main phenomena included in this study. As this study was largely descriptive in nature, more thorough research is needed to clarify any underlying factors associated with the quality of school life and with students' academic achievement, subjective health, and health behaviour. One would also wish to examine whether these associations are direct, or whether there are some mediating factors. Longitudinal research might increase understanding of the studied associations, and would give the opportunity to test the causality of the associations. Furthermore, one could conduct additional qualitative studies, which would bring more depth and detail to assessments of the quality of school life.

The role of peers regarding participation in health-compromising behaviours seems to be complicated, and would require further study. The role of other free-time environmental factors (e.g. the media) also needs addressing. A further point to note is that the results were somewhat different between girls and boys. Hence, when planning research based prevention or intervention, one will have to be gender-sensitive, taking into account the differences between boys and girls found in the current study.

There remains a need to improve the school experience of Finnish adolescents, and in particular regarding the quality of their social relationships at

school. The world around the school is changing fast, as is the role of school life for adolescents, and this puts schools under pressure to change. This would imply a need to better understand what affects students' school experience, how it could be effectively measured, and what interventions would work to improve the situation in Finnish comprehensive schools.

The COVID-19 pandemic has changed the school life dramatically over the last two academic years. For a long time, schools were closed, students had to study remotely, and social encounters moved to the online world. It would be important to study how the COVID-19 has changed or affected the experience of school and students' health. There are already some indications of negative effects. The School Health Promotion Study 2021 revealed that from 2019 to 2021 there was a decreasing trend in life satisfaction. Anxiety and feelings of loneliness have increased during the pandemic period, especially among girls (Helakorpi & Kivimäki 2021). More thorough studies are needed on the matter.

6.4 Conclusions

The study provides new and more detailed knowledge on the quality of school life in Finnish comprehensive schools, and its associations with academic achievement and students' health. Previous studies mainly focused on certain dimensions of the quality of school life, or on a single measure of student health, or on a single health behaviour; by contrast, this study sought to provide a broader view of the associations between the various aspects. School experiences, health, and health behaviours were seen as consisting of several dimensions, and this allowed a more comprehensive view of the phenomena in the school environment. Furthermore, the study emphasized the importance of the quality of school life in respect not only of students' academic achievement but also of their health.

The results of this study, and those of previous research (Låftman & Modin 2012; Wiklund et al. 2012), indicate that there are differences between boys and girls. When planning educational or health-promoting strategies, the differences between boys' and girls' school experience should not be ignored. This would imply a need to develop approaches that are more student-oriented and gender-sensitive.

It can be argued that school development strategies should go beyond formal curriculum development, taking as a starting point the notion that a major part of school life is social in nature, with much social learning and construction of relationships occurring within schools (Linnakylä & Malin 2008). This study, too, emphasized the importance of social relationships at school. In educational discussions, the quality of school life is often overshadowed by academic success. Here it should be noted that despite Finland's success in international assessments, the quality of school life as perceived by Finnish comprehensive school students could indeed be better, with many students lacking positive experiences of the school.

The study suggests that overall, improvements in the quality of school life will also have a positive effect on the subjective health of the students. Change cannot be achieved by focusing only on one dimension of the quality of school life, or only on the school itself. It is clear that more comprehensive measures are needed involving co-operation between different parties (e.g. people at home, and health and social care professionals). The promotion of positive schooling in its broadest sense has the potential to create a positive developmental atmosphere, and to contribute to the health of the students and the entire school community.

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APPENDIX

Appendix 1. Variables used in the study

SCHOOL PERCEPTIONS	Study Year	Questions	Response keys	Source
		Here are some statements about...the students in your classes – your teachers – your school – your parents. Please show how much you agree or disagree with each one.	Strongly agree Agree Neither/nor	
	2006/2010/2014	The students in my class(es) enjoy being together	Disagree	First introduced in HBSC 1994. See Torsheim et al. 2012
	2006/2010/2014	Most of the students in my class(es) are kind and helpful	Strongly disagree	
	2006/2010/2014	Other students accept me as I am		
	2006	Students have a say in how class time is used		The instrument is based on previous HBSC items in original or adapted forms.
	2006	Students have a say in deciding what activities they do		
	2010	The students in my class treat each other with respect		The instrument is based on previous HBSC items in original or adapted forms.
	2010	When one of my co-students is feeling down, one of us tries to help		
	2014	In my classes, students have some control in deciding which tasks to work on		Adapted from Stornes, Bru & Idsoe 2008
	2014	In my classes, students get to participate in deciding how to work on tasks		
	2014	In my classes, students get to participate in deciding class rules		
	2010/2014	I feel that my teachers accept me just as I am		Adapted from Torsheim et al. 2012
	2010/2014	I feel that my teachers care about me as a person		
	2010/2014	I feel a lot of trust in my teachers		
	2010/2014	My teachers encourage me when I do schoolwork		The instrument is based on previous HBSC items in original or adapted forms.
	2010/2014	My teachers tell me how to do better on school-tasks		
	2010/2014	My teachers guide me how to solve tasks		
	2010/2014	I feel that my teachers provide me with choices and options		
	2010/2014	My teachers try to understand how I think before suggesting a new way to do things		
	2010/2014	My teachers make sure that I really understand my goals and what I need to do		
	2010/2014	My teachers listen to how I would like to do things		

Appendix 1 (continues)

	2006/2010/2014	Our teachers treat us fairly		National item. The instrument is based on previous HBSC items in original or adapted forms.
	2006/2010/2014	I am encouraged to express my own view in my class(es)		
	2006/2010/2014	Most of my teachers are friendly		
	2006/2010/2014	My teachers are interested in knowing how I'm doing		
	2006/2010/2014	When I need extra help, I can get it		
	2006/2010/2014	I feel safe at this school		
	2006/2010/2014	The students are treated too severely/strictly in this school		
	2006/2010/2014	The rules in this school are fair		
	2006/2010/2014	Our school is a nice place to be		
	2006/2010/2014	I feel I belong to this school		
	2006/2010/2014	My parents are interested in what happens to me at school		
	2006/2010/2014	If I have a problem at school, my parents are ready to help		
	2006/2010/2014	My parents are willing to help me with my homework		
	2006/2010/2014	My parents encourage me to do well at school		
	2006/2010/2014	My parents are willing to come to school to talk to the teachers		
	2006/2010	I have too much schoolwork		
	2006/2010	I find school difficult		
	2006/2010	I find school tiring		
	2006/2010	I look forward going to school		
	2006/2010	I like being in school		
	2006/2010	There are many things about school I do not like		
	2006/2010	I wish I didn't have to go to school		
	2006/2010	I enjoy school activities		
School strain	2014	How pressured do you feel by the schoolwork you have to do?	Not at all A little Some A lot	First introduced in HBSC 1994

Appendix 1 (continues)

HEALTH BEHAVIORS	Study year	Question	Response keys	Source
Smoking	2010	How often do you smoke tobacco at present?	Every day At least once a week At least once a month Rarely Never	First introduced in HBSC 1986
Alcohol consumption	2010	At present, how often do you drink anything alcoholic such as beer, wine, spirits, alcopops, cider or any other drink that contains alcohol?	Every day At least once a week At least once a month Rarely Never	First introduced in HBSC 1986
		Beer		
		Wine		
		Spirits/Liquor		
		Alcopops (e.g. Bacardi Breezer, Smirnoff Ice)		
		Any other mild alcohol drinks (e.g. cider)		
Breakfast	2010	How often do you have breakfast (more than a glass of milk or fruit juice)?	I never have breakfast during the week One day Two days Three days Four days Five days	First introduced in HBSC 2002
		Weekdays		
Physical activity	2010	Outside school hours: How many hours a week do you usually exercise in your free time so much that you get out of breath or sweat?	None About half an hour About 1 hour About 2 to 3 hours About 4 to 6 hours About 7 hours or more	First introduced in HBSC 1986

Appendix 1 (continues)

Sleeping habits	2010	What time do you usually go to bed if you have to go to school next morning?	No later than 21.00 21.30 22.00 22.30 23.00 3.30 24.00 00.30 01.00 01.30 02.00 or later	National item. The instrument is based on previous HBSC items in original or adapted forms.
	2010	What time do you usually wake up on school mornings?	No later than 05.00 05.30 06.00 06.30 07.00 07.30 08.00 or later	National item. The instrument is based on previous HBSC items in original or adapted forms.

Appendix 1 (continues)

SUBJECTIVE HEALTH INDICATORS	Study year	Question	Response keys	Source
Self-rated health	2014	Would you say your health is...?	Excellent Good Fair Poor	Idler & Benyamini 1997
Life satisfaction	2014	Here is a picture of a ladder. The top of the ladder "10" is the best possible life for you and the bottom "0" is the worst possible life for you. In general, where on the ladder do you feel you stand at the moment? Tick the box next to the number that best describes where you stand.	Boxes 0 to 10	Cantril 1965; Currie et al. 2010
Health complaints	2014	In the last 6 months: how often have you had the following...?	About every day More than once a week About every week About every month Rarely or never	First introduced in HBSC 1986. Haugland and Wold 2001. Haugland et al. 2001. Torsheim & Wold 2001. Ravens-Sieberer et al. 2008.
		Headache		
		Stomach-ache		
		Backache		
		Feeling low		
		Irritability of bad temper		
		Feeling nervous		
		Difficulties in getting to sleep		
		Feeling dizzy		
		Neck and shoulder pain		
		Loss of appetite		
		Feeling tense		
		Awakenings		

Appendix 1 (continues)

BULLYING					
	2010	We say a student is being bullied when another student, or a group of students, say or do nasty and unpleasant things to him or her. It is also bullying when a student is teased repeatedly in a way he or she does not like or when he or she is deliberately left out of things. But it is not bullying when two students of about same strength or power argue or fight. It is also not bullying when a student is teased in a friendly and playful way.	Question intro	Olweus 1996	
Bullying victimization	2010	How often have you been bullied at school in the past couple of months?	Never Only once or twice Two or three times a month About once a week Several times a week	Olweus 1996	
Forms of bullying	2010	How often have you been bullied at school in the past couple of months in the ways listed below?	I have not been bullied in this way in the past couple of months Only once or twice 2 or 3 times About once a week Several times a week	Olweus 1996	
		I was called mean names, was made fun of, or teased in a hurtful way			
		Other students left me out of things on purpose, excluded me from their group of friends, or completely ignored me			
		I was hit, kicked, pushed, shoved around, or locked indoors			
		Other students told lies or spread false rumours about me and tried to make others dislike me			
		Other students made sexual jokes, or gestures to me			
		I've been bullied on the Internet, by e-mail, or with pictures			National item
		I've been bullied via mobile phone			National item
Feeling of loneliness	2010	Do you ever feel lonely?	Yes, very often Yes, quite often Yes, sometimes No	National item	

Appendix 1 (continues)

DEMOGRAPHICS	Study year	Question	Response keys	Source
Educational aspiration	2006/2010/2014	What do you think you will do when you finish comprehensive school?	I'm going to apply to upper secondary education I'm going to apply to vocational upper secondary education or other vocational training I'm going to apply for an apprenticeship Double examination (e.g. high school education and vocational upper secondary education) I'm going to get a job I will remain unemployed I do not know	National item
Perceived school performance	2006	In your opinion, what does your class teacher(s) think about your school performance compared to your classmates?	Very good Good Average Below average	First introduced in HBSC 1986
Perceived family affluence	2006/2010	How well off do you think your family is?	Very well off Quite well off Average Not so well off Not at all well off	First introduced in HBSC 1994. Currie et al. 1997

Appendix 1 (continues)

FAS	2014	Does your family own a car, van or truck? Do you have your own bedroom for yourself? How many computers does your family own? How many bathrooms (room with a bath/shower or both) are in your home? Does your family have a dishwasher at home?	No Yes, one Yes, two or more No Yes None One Two More than two None One Two More than two No Yes	Torsheim, et al. 2016
		How many times did you and your family travel out of Finland for a holiday / vacation last year?	Not at all Once Twice More than twice	
Parental bonding	2010	My mother/father ...helps me as much as I need ...lets me do the things I like doing ...is loving ...understands my problems and worries ...likes me to make my own decisions ...tries to control everything I do ...treats me like a baby ...makes me feel better when I am upset	Almost always Sometimes Never Don't have or don't see mother/father	First introduced in HBSC 2002. Parker et al. 1979.
Parental monitoring	2010	How much does your mother/father really know about ...who your friends are? ...how you spend your money? ...where you are after school? ...where you go at night? ...what you do with your free time?	She/he knows a lot She/he knows a little She/he doesn't know anything Don't have or don't see mother/father	First introduced in HBSC 2002. Brown et al. 1993



ORIGINAL PAPERS

I

HOW COMPREHENSIVE SCHOOL STUDENTS PERCEIVE THEIR PSYCHOSOCIAL SCHOOL ENVIRONMENT

by

Haapasalo, I., Välimaa, R., & Kannas, L. 2010

Scandinavian Journal of Educational Research, 54(2), 133–150

<https://doi.org/10.1080/00313831003637915>

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This is an Accepted Manuscript of an article published by Taylor & Francis in Scandinavian Journal of Educational Research on 29. Mar 2010, available online: <https://doi.org/10.1080/00313831003637915>

I. Haapasalo, R. Välimaa, and L. Kannas
Students' Perceptions of Their School Environment
Scandinavian Journal of Educational Research
Vol. 54, No. 2, 2010, 133-150

How Comprehensive School Students Perceive Their Psychosocial School Environment

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The present study is part of a larger research project “Students’ Engagement in School Life (STAGE)” (111091) coordinated by Professor Jouni Välijärvi. The project is funded by the Academy of Finland.

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Abstract

The aim of this study was to describe students' perceptions of their psychosocial school environment and to examine the associations between such perceptions and students' perceived school performance. Our analyses were based on data from the Health Behaviour in School-Aged Children 2006 study, involving responses by Finnish students from grades 7 and 9. The results indicated that students' perceptions of their school environment were fairly positive, but that a remarkably large proportion of the students reported negative attitudes towards school. School engagement, school strain, and teacher-student relations were found to be the most influential predictors in the psychosocial school environment regarding perceived school performance; as were the grade and educational aspirations out of the selected background factors. The findings imply that despite good academic achievement in Finnish comprehensive schools, there is still a need to improve students' school engagement and their satisfaction with school.

Keywords: school perceptions, school engagement, school environment, perceived school performance

Introduction

In the recent international student assessments (OECD, 2007) the performance of Finnish students was found to be high in all assessment areas. In addition, the variation in student performance between schools was low in Finland, indicating that the performance is fairly consistent throughout the entire school system (OECD, 2007). Despite this success story, there is both national and international evidence to suggest that the satisfaction of Finnish adolescents with school is rather poor.

In addition to the aspects involving high performance, it matters a great deal how students experience the school environment and school life in general—since, after all, young people spend a notable part of their time within school. School plays a significant role in the lives of young people due to its socializing aspect, preparing the students for society and for life. Finnish adolescents regard school especially as a place for developing student relations and for their own social growth (Linnakylä & Malin, 1997). Clearly, experiences within school are important for young people's development. School builds up adolescents' later conceptions of working life and society (Liinamo & Kannas, 1995; Willms, 2003). School experiences are also associated with the health and well-being of adolescents (Samdal, Dür, & Freeman, 2004). Thus, from every point of view, students' perceptions of school and the school environment cannot be ignored.

Students' experiences of school vary. Some students feel that school is fun, that the teachers are motivating, that their classmates are encouraging, and that schoolwork is challenging. In contrast, others regard school as boring, the teachers as unfair, their classmates as depressing, and their school days uninspiring (Linnakylä & Malin, 1997). In a large-scale ethnographic study by Gordon, Lahelma, and Tolonen (1995) Finnish schools were metaphorically described as a prison, an asylum, or a boring book by the students. Previous studies, both national and international, have shown that Finnish adolescents' levels of school satisfaction have been fairly low (Kannas, Välimaa, Liinamo, & Tynjälä, 1995; Linnakylä & Malin, 1997; Samdal et al., 2004). According to the PISA

2003 study, Finnish students' school engagement and school satisfaction was below average in comparison with 30 OECD countries (Kupari & Välijärvi, 2005).

Previous studies have also shown that age, gender, lifestyle, academic achievement, and socio-economic background are important determinants for the quality of school life and for school satisfaction (Liinamo & Kannas, 1995; Samdal, Nutbeam, Wold, & Kannas, 1998). Older students are less satisfied with school (Samdal et al., 1998, 2004; Ding & Hall, 2007) and feel less attached to school (McNeely, Nonnemaker, & Blum, 2002) than younger students. Boys are less satisfied than girls (Borup & Holstein, 2006; Currie et al., 2008; Ding & Hall, 2007; Samdal et al., 1998, 2004). Students who do well at school tend to be more satisfied with school (Samdal et al., 1998; Samdal, Wold, & Bronis, 1999). It has been suggested that satisfaction with school and its social components may increase life satisfaction and perceived health status. Social support from peers influences adolescents' health, well-being (Ravens-Sieberer, Gyöngyi, & Thomas, 2004) and achievement (Rosenfeld, Richman, & Bowe, 2000). Furthermore, students who receive higher grades, who participate in extracurricular activities, and who do not play truant feel more attached to school (McNeely et al., 2002).

Students who perceive teachers as creating a caring, well-structured learning environment in which expectations are high, clear, and fair are more likely to report engagement with the school (Klem & Connell, 2004). In turn, high levels of engagement are associated with higher levels of academic achievement (Voelkl, 1995). It has been suggested that enabling people to have control over important parts of their lives and to work in a supportive environment affects their health, no matter whether they are children or adults (Gillander Gådin & Hammarström, 2005). However, improving students' sense of belonging and engagement will not necessarily lead to direct improvements in achievement. A positive learning environment within the school seems to be the factor that is associated with student learning (Ding & Hall, 2007; Diseth, 2007).

Academic achievement has been put forward as an important predictor of future life opportunities such as educational and employment opportunities (Currie et al., 2008). According to previous studies, whether one is examining academic performance or involvement with a range of health behaviors, students who feel that they belong to their school, and who feel that teachers are supportive and treat them fairly, do better (see Libbey, 2004). In contrast, students who report receiving low support from their parents, friends, and teachers, have the poorest school outcomes (Rosenfeld et al., 2000). The PISA studies have also found a connection between students' socioeconomic background and their academic performance. Students with a higher socioeconomic background have achieved better assessment scores than students with a poorer socioeconomic background. Despite the fact that in Finland this difference was less than the OECD average, it does affect the equitable utilization of learning opportunities (Kupari & Välijärvi, 2005).

To maintain the high performance level and equity in learning, and also to improve Finnish students' experiences of school environment and school life, it is important to examine the features that affect both the school performance and the perceptions of school. The study reported here is based on the study Health Behaviour in School-aged Children (HBSC), which is a World Health Organization (WHO) collaborative cross-national study. In the present study the main focus is on psychosocial factors within the school. The psychosocial school environment can be defined as the social situations existing at school that are related to pupils' work situation (such as teacher support, work demands, and influence over schoolwork), and also related to pupils' peer relations at school (such as bullying, isolation, etc.) (Gillander Gådin & Hammarström, 2005). The present study aims to clarify the following issues:

- 1) How do students perceive their psychosocial school environment, and what kind of school experiences do they have? How are grade, gender, educational aspiration, and perceived school performance associated with these school perceptions?
- 2) How are grade, gender, family affluence, school perceptions, and educational aspiration as-

sociated with perceived school performance?

Methods

Data

The present study is a part of The Students' Engagement in School Life (STAGE) project. The data used in this study are from the Health Behaviour in School-aged Children (HBSC) 2006 study, which is an international study conducted with the collaboration of the WHO. The HBSC study aims to gain an improved understanding of adolescent health behaviors, health, and lifestyles within their social context. The data are collected through school-based surveys; anonymous, standard questionnaires are issued every fourth year to young people aged 11, 13, and 15. Standard cluster sampling is followed regionally; hence the sample used in this study represents the whole country. Sampling is conducted in accordance with the structure of the national education system; the primary sampling unit is the school class or the whole school when class level information is not available. To follow the international protocol of the HBSC study, countries are required to time their data collection so that the mean ages within their samples fall within ± 0.5 years of the means 11.5, 13.5, and 15.5 years (Currie et al., 2008; www.hbsc.org). In Finland the data are collected from 5th, 7th, and 9th graders. In this article the focus is on the responses given by students from the 7th (mean age 13.8) and 9th (mean age 15.8) grades. The 2006 questionnaire was sent to 190 schools at the end of the school year (March–May), and 100% of the schools responded. The student response rate was 88.2%. In all, the data for this study consisted of 3,405 students from grades 7 and 9 (Table 1).

Table 1. Data sample by grade and gender.

	7 th Grade				9 th Grade				Total			
	Sample	Respondents	Cleaned Data	%	Sample	Respondents	Cleaned Data	%	Sample	Respondents	Cleaned Data	%
Boys	975	862	845	88.4	970	809	781	83.4	1945	1671	1626	87.3
Girls	983	895	890	91.1	1054	901	889	85.5	2037	1800	1779	89.1
Total	1958	1757	1735	89.7	2024	1710	1670	84.5	3982	3471	3405	88.2

Measures

The questionnaire for the 2006 survey was developed in English by the members of the HBSC research network and translated into Finnish. In order to follow the research protocol and to ensure correctness in the interpretations, the questions were retranslated back into English (Currie et al., 2008: www.hbsc.org). Students' school perceptions were measured by means of questions concerning the school climate, the school environment, teachers, peers, and parents. There were 28 statements in total (Table 2). The students gave their opinion by expressing the degree to which they agreed with the statements, using a scale with five response keys: "strongly agree," "agree," "neither/nor," "disagree," and "strongly disagree." In addition to these statements concerning the psychosocial school environment, essential demographic information was included, such as grade, gender, perceived school performance, educational aspiration, and the perceived socioeconomic background of the home.

Perceived school performance was measured by the single item: "In your opinion, what does your class teacher(s) think about your school performance compared to your class-mates;" this had four response keys from "very good" to "below average." Educational aspiration was also measured by a single item in which students were asked if they were intending to apply for high school, for vocational school, for an apprenticeship, or to get a job; also, if they were most likely to be unemployed, or if they were as yet undecided. The variable was rescaled so that the keys "I'm going to apply for high school" and "I'm going to apply for vocational school" were kept as they were, but with the other options combined into a single key.

"How well off do you think your family is?" was asked in order to measure young people's perceptions of their own family's socioeconomic position relative to that of others. The item had five response keys: "very well off," "quite well off," "average," "not so well off," and "not at all well off." For the analyses, the first two keys, "very well off" and "well off," were combined, as were "not so well off" and "not at all well off."

Explorative factor analysis (with Oblimin rotation) was conducted for the 28 variables in order to reduce the data and to uncover the underlying dimensions of the school perceptions. The factor analysis resulted in six factors (Table 2). The six-factor solution explained 52% of the total variance.

The items in each factor were added up to give sum scores, which were named as follows: “School engagement” indicates the outlook on school life and on belonging at school; “Parental support” indicates the parents’ involvement; “Student relations” and “Teacher-student” relations reflect relationships and interactions at school; “Student autonomy” indicates how students perceive their participation opportunities; and “School strain” reflects workload and attitudes towards school. The items included in each sum score are presented in Table 2. To keep the original scale in the sum scores formed, the sums were divided by the number of items in each sum score. The internal consistencies of the sum scores were satisfactory. Cronbach’s alpha for the sum scores varied between .72 and .85 (Table 2).

These six sum scores together with the demographics were used to illustrate students’ perceptions of their psychosocial school environment, using cross-tabulation and variance analysis. Logistic regression analysis was conducted to determine the predictors of perceived school performance.

Results

How do Students Perceive their Psychosocial School Environment?

Table 3 shows how students assessed their psychosocial school environment. The assessment revealed significant differences between 7th and 9th grades and between male and female students. Younger students generally perceived their psychosocial school environment more positively than older students. Nevertheless, the results were not flattering: only 43% of the 7th graders and 41% of the 9th graders liked being at school, and only slightly over 30% of the students enjoyed school activities. Nearly half (49%) of the 7th

Table 2. Results of the factor analysis: six factors describing school perceptions, n=3405

	Factors						Communalities
	1.	2.	3.	4.	5.	6.	
1. School engagement							
I like being in school	.867						.817
I look forward to going to school	.793						.776
I enjoy school activities	.495						.522
Our school is a nice place to be	.488						.608
I feel I belong at this school	.380						.505
2. Parental support							
My parents are interested in what happens to me at school		.814					.650
My parents encourage me to do well at school		.782					.621
If I have a problem at school, my parents are ready to help		.766					.595
My parents are willing to help me with my homework		.653					.435
My parents are willing to come to school to talk to teachers		.559					.360
3. Student autonomy							
Students have a say in deciding what activities they do			.846				.727
Students have a say in how class time is used			.715				.536
4. Student relations							
Most of the students in my class(es) are kind and helpful				.754			.575
Other 3students accept me as I am				.732			.539
The students in my class(es) enjoy being together				.696			.490
5. Teacher-student relations							
Our teachers treat us fairly					.790		.650
Most of my teachers are friendly					.719		.581
I am encouraged to express my own views in my class(es)					.646		.482
When I need extra help, I can get it					.608		.441
The rules in this school are fair					.566		.404
My teachers are interested in me as a person					.509		.379
The students are not treated too severely/strictly in this school					.450		.326
I feel safe at this school					.328		.380
6. School strain							
I have too much schoolwork						.758	.548
I find school tiring						.673	.559
I find school difficult						.661	.469
I wish I didn't have to go to school						.412	.417
There are many things about school I do not like						.398	.258
Cronbach's Alpha	.85	.75	.73	.72	.80	.74	

Table 3. Percentage of the students agreeing with the statements about school perceptions by grade and gender

Items	Grade			Gender		
	7 th %	9 th %	Sig.	Boys %	Girls %	Sig.
1. School engagement						
I like being in school	43	41		35	49	***
I look forward to going to school	49	43	***	42	50	***
I enjoy school activities	35	31	**	31	35	*
Our school is a nice place to be	57	46	***	47	56	***
I feel I belong at this school	67	56	***	61	62	
2. Parental support						
My parents are interested in what happens to me at school	85	83		85	84	
My parents encourage me to do well at school	87	86		87	86	
If I have a problem at school, my parents are ready to help	85	82	*	84	82	
My parents are willing to help me with my homework	60	53	***	56	57	
My parents are willing to come to school to talk to teachers	57	49	***	53	54	
3. Student autonomy						
Students have a say in deciding what activities they do	19	17		22	14	***
Students have a say in how class time is used	34	33		39	29	***
4. Student relations						
Most of the students in my class(es) are kind and helpful	69	69		69	69	
Other students accept me as I am	69	71		75	65	***
The students in my class(es) enjoy being together	69	63	***	76	57	***
5. Teacher-student relations						
Our teachers treat us fairly	57	46	***	53	50	
Most of my teachers are friendly	74	71	*	70	75	***
I am encouraged to express my own views in my class(es)	49	41	***	46	44	
When I need extra help, I can get it	66	61	*	63	64	
The rules in this school are fair	63	51	***	52	62	***
My teachers are interested in me as a person	27	20	***	26	22	**
The students are not treated too severely/strictly in this school	41	42		33	49	***
I feel safe at this school	67	69		66	70	*
6. School strain						
I have too much schoolwork	42	46	**	46	41	**
I find school tiring	53	64	***	61	57	**
I find school difficult	22	31	***	26	27	
I wish I didn't have to go to school	26	26		32	21	***
There are many things about school I do not like	39	48	***	46	41	**

*** p<.001, ** p<.01, * p<.05

graders looked forward to going to school, but only 43% of the 9th graders agreed with this view ($p < .001$). Girls and younger students felt that their school was a nice place to be ($p < .001$) more frequently than boys or older students. Younger students also indicated more often than older students that they belonged at their school ($p < .001$). Two out of three students indicated that they felt safe at school. Girls felt safer than boys ($p < .05$).

Negative attitudes towards school were quite common, and more common among older students. Almost half (48%) of the 9th grade students and 39% of the 7th grade students ($p < .001$) indicated that there were many things at school they did not like. As many as 42% of the 7th graders and 46% of the 9th graders ($p < .01$) reported having too much schoolwork, and even more (53% of the 7th graders and 64% of the 9th graders, $p < .001$) found school tiring. At the same time, 22% of the younger and 31% of the older students ($p < .001$) found school difficult, and 26% of both groups wished that they did not have to go to school.

Evaluations of parental support were more positive. Over four out of five students at both grade levels reported that their parents were interested in what happened to their children at school. The same proportion said that their parents encouraged them to do well at school, and that their parents were willing to help if they encountered a problem at school. According to the students, their parents were not so keen on actually making an effort. Of the 7th graders, 60% said that their parents were willing to help with homework, and almost as many (57%) reported that their parents were willing to come to school to talk to the teachers. The situation with older students was not so good. Of the 9th graders, 53% were able to get help with homework and less than half (49%) said that their parents were willing to come to school to talk to the teachers ($p < .001$).

Student relations appeared to be fairly positive. The majority of the students agreed that their peers were kind and helpful and willing to accept others as they are. Younger students reported more often than their older counterparts that students in their classes enjoyed being together ($p < .001$).

The students' relations with the teachers were less positive than the relations with their peers; again, older student's views were less positive than those of their younger counterparts. The majority of the students reported that their teachers were friendly, but only 49% of the 9th graders and 57% of 7th graders ($p < .001$) indicated that students were treated fairly by their teachers. Only 51% of the older students and 63% of the younger students ($p < .001$) regarded the rules of the school as fair. Only a minor proportion of the students in both grades reported that students were not treated too severely/ strictly in their schools. Again, girls were more positive ($p < .001$). Furthermore, less than one third of the 7th grade students and only one fifth of the 9th grade students ($p < .001$) thought that the teachers were interested in them as individuals. The students also thought that they had little say in decision-making. Only 14% of the girls and 22% of the boys ($p < .001$) reported having a say in the activities they carried out, while 29% of the girls and 39% of the boys ($p < .001$) thought that they had a say in planning the use of their time.

Relationships Between School Perceptions

The correlations (Pearson) between school perceptions are shown in Table 4. There was a linear relationship, either positive or negative, between all the dimensions of school perceptions ($p < .01$). School engagement correlated positively with all the other dimensions except with school strain. The strongest relationships were found between school engagement and teacher-student relations (.661), between school strain and school engagement (-.571), and between school strain and teacher-student relations (-.476) (Table 4).

Table 4. Pearson's correlations between school perceptions

Sum scores	1	2	3	4	5	6
1. School engagement	1					
2. Parental support	.369 **	1				
3. Student autonomy	.210 **	.099 **	1			
4. Student relations	.360 **	.254 **	.251 **	1		
5. Teacher-student relations	.661 **	.413 **	.237 **	.282 **	1	
6. School strain	-.571 **	-.250 **	-.048 **	-.121 **	-.476 **	1

*** p<.001, ** p<.01, * p<.05

Relationships Between School Perceptions and Background Variables

The relationships between school perceptions and background variables were examined using variance analysis. The background variables tested were students' gender, grade, perceived socioeconomic background of the home, educational aspiration, and perceived school performance. The results of the variance analysis are shown in Table 5. Gender, grade, perceived school performance, and perceived socioeconomic background of the home were the most significant background variables related to the school perceptions. In addition, educational aspiration correlated quite strongly with most of the dimensions of school perceptions, and particularly with school engagement, parental support, teacher-student relations, and school strain.

Table 5. Relations between school perceptions and some background variables (based on analysis of variance)

					Descriptive statistics, mean values min 1 (positive); max 5 (negative)													
	df	F	sig	η^2	Gender		Grade		Perceived socio-economic background			Educational aspiration			Perceived school performance			
					Boys n=1626	Girls n=1779	7 th n=1735	9 th n=1670	Good n=2309	Avg. n=919	Poor n=133	High school n=1842	Voc. school n=1164	Other n=302	Very good n=545	Good n=1362	Avg. n=1225	Below avg. n=188
School engagement					2.84	2.64	2.64	2.84	2.68	2.81	3.09	2.55	2.99	2.88	2.37	2.54	2.96	3.62
Gender	1	43.10	***	.013														
Grade	1	45.44	***	.014														
Socio-econ.	2	19.22	***	.012														
Educ. aspiration	2	105.70	***	.063														
Performance	3	175.67	***	.141														
Parental support					2.08	2.06	1.98	2.15	1.99	2.22	2.45	1.96	2.22	2.11	1.80	1.97	2.22	2.55
Gender	1	0.49	—	.000														
Grade	1	49.79	***	.015														
Socio-econ.	2	26.29	***	.034														
Educ. aspiration	2	51.88	***	.032														
Performance	3	90.66	***	.078														
Student autonomy					3.01	3.26	3.10	3.25	3.13	3.30	3.24	3.20	3.18	3.10	3.12	3.15	3.21	3.34
Gender	1	32.30	***	.010														
Grade	1	23.27	***	.007														
Socio-econ.	2	9.23	***	.007														
Educ. aspiration	2	1.96	—	.001														
Performance	3	3.85	***	.004														
Student relations					2.17	2.39	2.24	2.33	2.23	2.39	2.56	2.28	2.28	2.36	2.18	2.22	2.36	2.50
Gender	1	68.10	***	.020														
Grade	1	10.47	**	.003														
Socio-econ.	2	23.64	***	.014														
Educ. aspiration	2	1.72	—	.001														
Performance	3	15.66	***	.014														
Teacher-student relations					2.63	2.54	2.50	2.68	2.55	2.65	2.82	2.48	2.73	2.67	2.28	2.45	2.77	3.29
Gender	1	15.37	***	.005														
Grade	1	61.62	***	.019														
Socio-econ.	2	16.78	***	.010														
Educ. aspiration	2	55.51	***	.034														
Performance	3	181.18	***	.144														
School strain ¹⁾					2.75	2.91	2.88	2.79	2.87	2.80	2.53	3.04	2.57	2.60	3.24	3.00	2.59	2.11
Gender	1	35.10	***	.011														
Grade	1	11.51	**	.004														
Socio-econ.	2	12.85	***	.008														
Educ. aspiration	2	156.87	***	.090														
Performance	3	191.88	***	.153														

*** p<.001, ** p<.01, * p<.05, — not significant 1) min 1 (negative); max 5 (positive)

All the dimensions of the school perceptions could be explained fairly well by the variables selected. A closer look at the most significant background variables showed that girls are more satisfied with school than boys. Furthermore, girls reported more favorable teacher–student relations than boys and had fewer negative feelings towards school. In contrast, boys reported being more autonomous and as having more positive student relations than girls. There were no significant differences between boys and girls in terms of parental support.

Younger students were more positive in all the dimensions of school perceptions than older students. The differences were slightly smaller in respect of student relations and school strain. In all dimensions of the school perceptions better perceived socioeconomic position of the family explained significantly more positive attitudes than poorer socioeconomic position of the family. In addition, perceived school performance was a significant background variable in all the dimensions of school perceptions, working in favor of those students who perceived their school performance to be better.

Higher educational aspiration explained significantly more positive attitudes than lower aspiration, in all other dimensions except student relations. An interesting finding is that students who intended to go to a vocational school reported even more negative perceptions than the undecided and/or work-orientated students.

Associations Between Perceived School Performance, School Perceptions, and Background Variables

Logistic regression analysis was conducted to examine the associations between perceived school performance and perceptions of school, and also between selected background factors. For the purposes of the analysis the variables were rescaled. Perceived school performance was rescaled into two categories: very good/good, and average/poor. School engagement was divided into three

categories: high, average, and low engagement. All the other sum scores were split into two categories, hence placed on the positive or negative side.

As shown in Table 6, gender, grade, the perceived socioeconomic background of the home, and educational aspiration were related to good or very good perceived school performance. Boys (OR 1.21; $p < .05$) and 7th graders (OR = 1.67; $p < .001$) were more likely to report good or very good perceived performance than girls and 9th graders, respectively. Students with a good perceived socioeconomic background and also students with higher educational aspiration more frequently perceived their school performance to be good or very good than students with lower aspiration or a poorer socioeconomic background.

Perceived school performance was also related to school engagement, teacher-student relations, and school strain. Students who reported high school engagement were more likely to report good or very good perceived school performance (OR 2.21; $p = .001$) than the students with average or low school engagement. Students who reported having good relations with teachers indicated their school performance as better (OR 1.86; $p < .001$). Low school strain also predicted good or very good perceived performance (OR 2.01; $p < .001$).

Table 6. Logistic regression analysis: factors predicting good or very good perceived school performance. Odds ratio, significance and confidence interval

Items	n	OR	Sig.	95 % Confidence Interval
Gender				
Boys	1318	1.21	.035	1.0-1.45
Girls	1557	1.00		
Grade				
7th Grade	1445	1.67	.000	1.39-2.00
9th Grade	1430	1.00		
Perceived socio-economic background				
Good	1961	2.21	.001	1.41-3.46
Average	799	1.49	.092	0.94-2.37
Poor	115	1.00		
Educational aspiration				
High school	1637	3.43	.000	2.52-4.67
Vocational school	989	0.86	.352	0.63-1.18
Other	249	1.00		
School engagement				
High	981	2.22	.000	1.59-3.10
Average	1513	1.61	.001	1.2-2.13
Low	381	1.00		
Parental support				
Supportive	2554	1.31	.058	0.99-1.74
Not supportive	321	1.00		
Student autonomy				
Feeling of autonomy	822	0.93	.459	0.77-1.13
No autonomy	2053	1.00		
Student relations				
Good relations	2290	0.99	.953	0.79-1.24
Poor relations	585	1.00		
Teacher-student relations				
Good relations	2142	1.84	.000	1.48-2.29
Poor relations	733	1.00		
School strain				
High	1492	1.00		
Low	1383	2.01	.000	1.67-2.41

Discussion

This study addressed the paradox in the Finnish comprehensive school: despite successes in assessments of achievement, there appears to be fairly strong dissatisfaction with school on the part of Finnish students. The present study looked at Finnish students' perceptions of their psychosocial school environment and examined the associations between such perceptions and the students' perceived school performance. The descriptive statistics of the school perception variables indicated that students' perceptions of their school environment were on the positive side; nevertheless, a remarkably large proportion of students reported negative attitudes towards school. The findings show that a major proportion of the Finnish students in the study did not enjoy school activities, or going to school, or being at school. The students also found school tiring and felt that they had too much schoolwork. The assessment revealed significant differences between genders and grades, favoring girls and younger students—a result also found by others (Borup & Holstein, 2006; Currie et al., 2008; Ding & Hall, 2007; McNeely et al., 2002; Samdal et al., 1998, 2004).

The selected background variables explained the dimensions of the school perceptions fairly well. Grade, perceived school performance, and the perceived socioeconomic background of the home proved to be the most significant background factors. Younger students had more positive perceptions of their school environment than older students, and a more favorable socioeconomic background explained positive experiences in school (cf. Currie et al., 2008). Moreover, the higher the perceived school performance of the students, the more likely they were to have positive perceptions of their psychosocial school environment.

The results also indicate significant correlations between all the dimensions of school perceptions. The strongest associations were found between school engagement, school strain, and teacher-student relations. School engagement and teacher student relations were associated positively with each other, and negatively with school strain (cf. Linnakylä, 1996). From the cross-sectional

data it is not possible to determine causality. However, it is likely that these factors have a strong influence on each other. Given the positive relationship between school engagement and teacher-student relations, the promotion of positive school experiences should be an important issue for policymakers concerned with school development. The same would apply to actions aimed at decreasing students' school strain.

In this study, school engagement, school strain, and teacher-student relations were found to be the most influential predictors in the psychosocial school environment in respect of perceived school performance (cf. Ding & Hall, 2007; Samdal et al., 1999; Voelkl, 1995), as were the grade and the educational aspiration out of the selected background factors (cf. Currie et al., 2008). Students who had more positive perceptions of school, who were more engaged, and who had lower school strain were more likely to report better perceived performance. An interesting finding was that boys were more likely to report good perceived performance than girls. According to previous studies, girls have reported good perceived performance more often than boys (Currie et al., 2008; Samdal et al., 2004). However, in the PISA 2003 assessment boys were found to report higher self-efficacy and self-confidence in learning than girls (Kupari & Välijärvi, 2005). This might reflect the fact that sometimes girls place undue pressure on themselves and do not believe in their competence (see Niemivirta, 2004). One should nevertheless bear in mind that in this study the perceived performance was measured through a single item and that the answers were based only on students' reported perceptions. In this sense it is unclear how valid the measures actually are, or how well they correspond to actual academic achievement. Even so, students' own perceptions are of great importance and should not be understated.

The teacher-student relationship is clearly a crucial one. Students who reported good relations with their teachers were also more likely to report better perceived performance. During adolescence, young people increasingly look to non-parental adults for support and guidance. In much the same way as parents, teachers can be warm, caring, and accepting; they can also express high ex-

pectations for all students, be available to help and guide, and seek to be understood (Kalil & Ziolk-Guest, 2008). When that teacher–student relationship is not working it can affect other aspects of school life. Although the results of the study are based on cross-sectional data, one can reasonably suggest that teacher–student relations—along with other perceptions of school—may be of importance to students’ perceived school performance; this has also been suggested by previous studies (Samdal et al., 1999, 2004).

Expressing one’s perceptions might also be a culture-specific matter. There are at least three possible culture-specific explanations that could explain the dissatisfaction expressed by Finnish students. First of all, in Finnish culture it is (stereotypically) more common to express one’s dislike or negativity than to give praise or express positive attitudes. Secondly, negative attitudes towards school might be supported within the home: the free availability of education is often taken for granted and may therefore readily face criticism. However, according to a longitudinal study by Rätty and Kasanen (2007) Finnish parents were quite satisfied with the functioning of their child’s school in the first school years. Thirdly, it might just be that the Finnish students are not satisfied with school, despite the high achievement and the associations that have been shown elsewhere between performance and school perceptions. After all, the PISA studies have shown a low level of variation in students’ performance throughout the Finnish school system, which means that those who are dissatisfied with school still perform above the average level.

This study does have some limitations. It is important to emphasize that the questionnaire used in this study limits interpretations. The variables which were chosen for this study all had five response keys: two denoting agreement, two denoting disagreement, and one denoting a neither/nor opinion. The neither/nor key was widely used. Indeed, with each variable approximately one third of the respondents used this option. This might be due to the phrasing of the questions. For example, the statement “Our teachers treat us fairly” could be taken to include all the teachers. That might cause problems in answering if a student feels that most teachers are fair but that one is not.

This entails something that one might consider in analyzing the data: whether to include or exclude the neither/nor answers. In this study the neither/nor answers were included in the sum scores and were considered to be part of the scale. Despite the high number of the neither/nor answers in this study, the results were consistent with the School Health Promotion Study, which included questions about school life without any neither/nor option (Luopa, Pietikäinen, & Jokela, 2008).

The findings of this study indicate a need for more widespread assessments of students' perceptions of school. The Finnish comprehensive school has done well in achieving good learning standards, but one can ask whether the standards have been achieved at the expense of school satisfaction. There is still a need to improve the students' school engagement and their satisfaction with school.

Nevertheless, despite the above, and despite the dissatisfaction with school, Finnish students do seem to realize the relevance of schooling and achieving (Linnakylä, 1996). Going to school is a priority as well as a duty for Finnish adolescents. Hence, it would be preferable if students, as well as teachers, could to some extent gain positive experiences, joy in learning, and joy in their schoolwork. Schools do not need to be all fun and play, but they should at least be bearable places for those who attend them. Meeting the needs of students who are not engaged to school may well be the biggest challenge currently faced by teachers and school administrators. Some actions to improve well-being in schools have already been undertaken. The Ministry of Education has launched plans of action, aimed at improving the situation in Finnish schools. More thorough research could clarify the underlying reasons associated with school engagement and the related consequences. It would also be important to critically analyze the cultural appropriateness of assessment instruments concerned with school perceptions at a national level.

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II

ASSOCIATIONS BETWEEN FINNISH 9TH GRADE STUDENTS' SCHOOL PERCEPTIONS, HEALTH BEHAVIOURS, AND FAMILY FACTORS

by

Haapasalo, I., Välimaa, R., & Kannas, L. 2012

Health Education, 112(3), 256–271

<https://doi.org/10.1108/09654281211217786>

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Health Education

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Article information:

To cite this document:

Haapasalo Ilona, Välimaa Raili, Kannas Lasse, (2012) "Associations between Finnish 9th grade students' school perceptions, health behaviors, and family factors", Health Education, Vol. 112 Issue: 3, pp.256-271,

<https://doi.org/10.1108/09654281211217786>

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Associations between Finnish 9th grade students' school perceptions, health behaviors, and family factors

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Received 15 November 2010
Revised 11 March 2011
29 April 2011
Accepted 30 April 2011

Abstract

Purpose – The aim of this study was to examine the associations between students' perceptions of the psychosocial school environment, health-compromising behaviours, and selected family factors. The analyses were based on data provided for the Health Behaviour in School-aged Children Study (2006).

Design/methodology/approach – The data were obtained from 1,670 Finnish 9th graders. Logistic regression analysis was performed to identify the associations between school perceptions, health-compromising behaviours, and selected family factors.

Findings – Educational aspiration was found to be the most influential factor connected to health-compromising behaviour among both genders, favouring students who were intending to apply to upper secondary school. The results also indicated that all the measured dimensions of school perceptions were associated with health-compromising behaviours: the more negative the perceptions, the more health-compromising were the behaviours. The associations were somewhat different between girls and boys. In terms of engaging in health-compromising behaviours, there was an association with school-related social relationships among boys. By contrast, among girls, other aspects of the psychosocial school environment were more important, for example engagement with the school and school strain. The role of parental bonding and monitoring was also significant among girls.

Originality/value – The findings imply that attention should be paid to the health-promoting factors of the school, and to gender differences, not merely in planning prevention or intervention, but in everyday school life.

Keywords Schools, Adolescents, School perceptions, Health, Behaviour, Family

Paper type Research paper

Introduction

School can be considered an important environment for social growth since adolescents spend such a large part of their time there. The school can have an impact not only on

The present study is part of a larger research project "Students' Engagement in School Life (STAGE)" which is a joint project of the Institute for Educational Research, the Department of Education, and the Research Center for Health Promotion at the University of Jyväskylä and is coordinated by Professor Jouni Välijärvi. This study is funded by the Academy of Finland (111091) and Ministry of Social Affairs and Health.



academic and vocational pathways, but can also make a substantial contribution to students' present and future health and well-being (Bond *et al.*, 2007). Indeed, it has been suggested that many health behaviours in adulthood have their origins in the years of attendance at secondary school.

Adolescence is often described as a period where people undergo many social, physical, and mental changes. The family-centred environment changes to a broader environment in which one is exposed to the influences of peers and non-family members (Due, 2001). It is also a time when young people may be inclined to test their boundaries and experiment with new habits and forms of action. One consequence of this is that there are many young people who engage in a lifestyle which includes health-compromising behaviours.

Samdal (1998) compares the school environment to the working environment of adults. Samdal's view is based on a theoretical model of the psychosocial work environment as it exists for adults, a model developed by Karasek and Theorell (1990). Within this model, job satisfaction a lower prevalence of health-compromising behaviours and higher subjective well-being are positively associated with a relatively high degree of autonomy and control, a reasonable level of demands, and good social support from management and colleagues. Similar characteristics were recognized in the school environment (Samdal, 1998). The school is, after all, a social place in which learning occurs in a variety of situations. The school can have an impact on students' health behaviour through its atmosphere and culture (non-formal school characteristics), as well as through the formal curriculum (Henderson *et al.*, 2008; St Leger and Nutbeam, 2000; St Leger, 2000). McNeely *et al.* (2002) have emphasized the importance of meeting the developmental needs of adolescents, referring to a "stage-environment fit"; hence they take the view that behaviour, motivation, and mental health are influenced by the fit between the developmental stage and the characteristics of the social environment (McNeely *et al.*, 2002). Several studies have indicated that features of the psychosocial school environment (such as attitudes, experiences, values, relationships, support, appreciation of one's needs and successes, physical and mental safety) have both positive and negative associations with health behaviours (Aaro, 2009; Andersen *et al.*, 2006; Bond *et al.*, 2007; Desousa *et al.*, 2008; Henderson *et al.*, 2008; King *et al.*, 1996; Kristjansson *et al.*, 2009; Libbey, 2004; Rasmussen *et al.*, 2005; Rew and Horner, 2003).

According to Carter *et al.* (2007) adolescents who reported their school atmosphere to be fair, caring, and capable of engaging them socially were significantly more likely to report fewer health-compromising behaviours (such as smoking, bingeing on alcohol, and cannabis use). They also reported higher levels of health-promoting behaviours (such as physical activity and better nutrition). Similarly, King *et al.* (1996) observed that students who were satisfied with school were less likely to feel depressed, irritable, or tired in the morning and they less likely to smoke and binge drink. According to a Swiss study, among 15-year-olds, a good school atmosphere stands out as an important determinant of alcohol use, smoking, healthy food habits, and good personal healthcare (Vuille and Schenkel, 2000). In the same vein, Launonen and Pulkkinen (2004) made the point that among students, complications at school are usually consequences of health-compromising behaviours and life styles such as a lack of exercise and sleep, an unhealthy diet, and general indisposition.

McLellan *et al.* (1999) suggest that the increased frequency of health compromising behaviours (such as tobacco and alcohol use) was influenced by students' perceptions of their school environment and their teachers. Students who had negative perceptions of their school environment or who felt their teachers were unsupportive were more likely to have engaged in health-compromising behaviours than were students with more positive views. Similarly, McNeely and Falci (2004) have argued that adolescents who perceived that their teachers were fair and cared about them were less likely to start smoking or drinking. Samdal *et al.* (2000), too, studied the relationship between students' perceptions of the psychosocial school environment and smoking and alcohol use. The data for the study (including data from Finland) indicated that unreasonable expectations from parents and teachers made a strong indirect contribution to health-compromising behaviours through (dis)satisfaction with school. Over-high expectations seemed to relate directly to smoking and alcohol use.

Everything that happens in the school is filtered through other the students' living environments such as what happens in the home and in their free time. Previous studies have shown that family, friends, and school provide contexts that push and pull behaviours in different directions and in different ways (Carter *et al.*, 2007). In a study by Youngblade *et al.* (2007) good family communication and the parents' own healthy behaviours were related to adolescents' health-promoting behaviour. Similarly, it has been noted that family connectedness and parental support can be a protective factors against health-compromising behaviour (Desousa *et al.*, 2008; Carter *et al.*, 2007; Kokkevi *et al.*, 2007; Simantov *et al.*, 2000).

Health-compromising and health-promoting behaviours in adolescence seem to have consequences in later life. A longitudinal study by Bond *et al.* (2007) found that low school connectedness in early secondary school predicted health-compromising behaviours and poor academic achievement later in and after secondary school. Similarly, a follow-up study by Koivusilta *et al.* (2003) indicated that at early stages of their lives individuals began to follow behavioural and educational pathways leading to different positions in health and social class. Health-compromising behaviours and poor perceived health in adolescence predicted a low educational level in adulthood, independently of academic achievement and socio-economic background. Several studies have shown that health-compromising behaviours tend to pile up. DuRant *et al.* (1999) suggested that the early onset of substance use may lead to engaging in other health-risk behaviours. Giannakopoulos *et al.* (2008) found that adolescents who smoke were less likely to be involved in health-enhancing dietary behaviour or physical activity.

Besides the obvious learning and teaching aspects, schools are also a unique community resource which can promote health and development for adolescents, families, and school personnel (Tang *et al.*, 2008). There have been, and continue to be, a number of programmes and projects to promote health and well-being in schools, for example the World Health Organization's (WHO) Health Promoting School (HPS) approach which involves the entire school community. One of the key objectives of the HPS is to create the kind of learning environments, both social and physical, which promote health, enhance learning and are safe and supportive. This means that the HPS approach uses health promotion as a device to improve the quality of the school environment as a whole. (Stewart Burgher *et al.*, 1999). From a health and educational

perspective, improving students' satisfaction with school may be considered important for two reasons:

- (1) As a preventive strategy to inhibit the development of health-compromising behaviours.
- (2) As an important aim in itself, due to its relevance for the general well-being of the student (Samdal, 1998).

It is suggested that knowledge of adolescents' health may give strong indications of their capacity to deal with the challenges they will encounter, and may help identify groups or populations at risk (Torsheim *et al.*, 2004). If this is so, it is clearly important to try to gain a better understanding of the school- and home-related factors associated with adolescents' well-being, health, and health behaviours.

The aims of this study were:

- to examine the associations between Finnish 9th grade students' perceptions of the psychosocial school environment and health-compromising behaviours; and
- to further study the associations between school perceptions and multiple health-compromising behaviours, family factors, and family affluence.

Methods

Data

The data presented here are from the Health Behaviour in School-aged Children (HBSC) 2006 study. The HBSC study is an international study conducted in collaboration with the WHO, and it aims to gain an improved understanding of adolescent health behaviours, including their health and lifestyles within their social context. The HBSC research protocol has a clear data collection procedure. The data are collected through school-based surveys. Anonymous, voluntary, standard questionnaires are issued every fourth year to young people aged 11, 13, and 15 (desired mean ages 11.5, 13.5, and 15.5). Participants are selected using cluster sampling, and the samples are nationally representative (Currie *et al.*, 2008; Roberts *et al.*, 2009). The present study used the answers provided by Finnish students aged 15, i.e. students from ninth grade (mean age 15.8). The questionnaire was sent to 190 schools at the end of the school year (i.e. during March-May 2006). There were in total 1,670 respondents (781 boys, 889 girls), and the response rate was 88.2 per cent.

Measures

The questionnaire for the HBSC 2006 survey was developed in English by members of the HBSC research network, and translated into Finnish. In order to follow the research protocol and to ensure the correctness of the interpretations, the questions were retranslated back into English (Currie *et al.*, 2008; Roberts *et al.*, 2009).

School perceptions

Students' school perceptions were measured by means of questions concerning the school atmosphere, the school environment, teachers, peers, and parents. The questions are built on previous HBSC research findings which highlight the importance of the psychosocial school environment to students' health and health behaviour. There were 28 statements in total. The students gave their opinion by

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expressing the degree to which they agreed with the statements, using a scale with five response options: strongly agree, agree, neither/nor, disagree, and strongly disagree.

The items were added up to give sum scores which were named as follows: School engagement (five items) indicates the outlook on school life and on belonging at school. Parental support (five items) indicates the parents' involvement. Student relations (three items) and Teacher-student relations (eight items) reflect relationships and interactions at school. Student autonomy (two items) indicates how students perceive their opportunities for participation, and School strain (five items) reflects the workload and attitudes towards school. To preserve the original scale for the sum scores formed, the sums were divided by the number of items in each sum score. The internal consistencies of the sum scores were satisfactory. Cronbach's alpha for the sum scores varied between 0.72 and 0.85 (Haapasalo *et al.*, 2010).

Educational aspiration was measured by a single item in which students were asked if they were intending to apply for upper secondary school, for vocational school, or for an apprenticeship, or intending to get a job; also if they were intending to remain unemployed or if they were as yet undecided. The variable was rescaled so that the statements "I'm going to apply for upper secondary school" and "I'm going to apply for vocational school" were kept as they were, and the other statements were left out of the analysis (answers left out $n = 17$).

Health behaviours

Students' health behaviours were measured by questions about smoking, alcohol use, physical activity, breakfast consumption, and sleep. "How often do you smoke tobacco at present?" was asked in order to find out students' smoking habits. The item had four response options: Every day, At least once a week, but not every day, Less than once a week and I do not smoke.

In order to detect the current prevalence of alcohol drinking, students were asked "At present, how often do you drink anything alcoholic such as beer, wine, spirits, alcopops, cider or any other drink that contains alcohol?". For each type of alcoholic drink students answered whether they used it Every day, At least once a week, At least once a month, Rarely, or Never. Again for the analysis a sum score was calculated, and the new variable was rescaled into four categories so that the options Every day and At least once a week were combined into a category Weekly. The others were kept as they were.

Physical activity and breakfast consumption were measured each with a single item: "Outside school hours: How many hours a week do you usually exercise in your free time so much that you get out of breath or sweat?" (Response options from none to up to seven hours or more); "On weekdays: How often do you usually have breakfast (more than a glass of milk or juice)?" (Response options from I never have breakfast during the week to Five days. For the purposes of the analysis, Physical activity was recoded into three categories None, Up to three hours, and More than four hours. Breakfast consumption was rescaled into None to three days and Four to five days.

To find out the students' sleeping habits they were asked "What time do you usually go to bed if you have to go to school next morning?" and "What time do you usually wake up on school mornings?". The hours of sleep were then calculated and coded into two categories Sleeps less than eight hours and Sleeps eight hours or more.

Selected family factors

Family factors included questions about parental bonding and monitoring. Parental bonding refers to parents' involvement and emotional bonds with their children. Parental monitoring refers to parental supervision, parents' knowledge of their child's activities, whereabouts, friends, and so on (Pedersen *et al.*, 2001).

The eight bonding items were: "My mother/father [...] helps me as much as I need; lets me do the things I like doing; is loving; understands my problems and worries; likes me to make my own decisions; tries to control everything I do; treats me like a baby; makes me feel better when I am upset" and the response options to these questions were Almost always, Sometimes, Never, and Don't have or don't see mother/father.

The six items measuring monitoring were: "How much does your mother/father really know about [...] who your friends are; how you spend your money; where you are after school; where you go at night; what you do with your free time?" and the response options were: She/he knows a lot, She/he knows a little, She/he doesn't know anything, Don't have or don't see mother/father.

Both the bonding and the monitoring items were added up to give two sum scores Parenting father and Parenting mother. The internal consistencies of the sum scores were satisfactory. Cronbach's alpha for the Parenting father sum score was 0.92 and for the Parenting mother 0.87. The sum scores were rescaled equally into three categories: high, average, and low.

Perceived family affluence was measured with a single question "How well off do you think your family is?". The item had five response options: very well off, quite well off, average, not so well off, and not at all well off. For the analysis, the first two options, very well off and well off, were combined, as were not so well off and not at all well off. Thus three categories were formed.

Statistical analysis

A logistic regression analysis was conducted to analyse the associations between school perceptions and health-compromising behaviours. For the purposes of the analysis the health behaviour variables were dichotomized. The predicted variables were as follows: smokes weekly, uses some kind of alcoholic beverages at least once a month, has breakfast on three or less school-day mornings, exercises less than four hours outside school hours, and sleeps less than eight hours on weekdays. The cutoff points were determined on the basis of the possible health effects and on the general recommendations regarding the health behaviours in question.

The sum scores measuring school perceptions were also rescaled for the analysis. School engagement was divided into three categories; high, average, and low engagement. All the other sum scores were dichotomized into positive and negative. Boys and girls were analysed separately.

For the analysis of associations between multiple health risk behaviours, school perceptions, and selected family factors, the health behaviour items from the previous analysis were added up into a health-compromising behaviour sum score. The new sum score was rescaled into two categories, namely three or more health-compromising behaviours, and two or less health-compromising behaviours. The cutoff point was determined on the basis of the idea that three or more health-compromising behaviours can be regarded as a serious threat to an individual's present or future health. This analysis was also conducted separately for boys and girls.

Results

Table I shows the percentages for ninth graders' health behaviours. Boys and girls differed significantly on alcohol use and physical activity: some kind of alcoholic beverage was used weekly by 12 per cent of the boys and 8 per cent of the girls ($p = 0.013$), while 23 per cent of the boys and 20 per cent of the girls never used alcohol. Only 3 per cent of the girls and 6 per cent of the boys did not exercise at all outside school hours ($p = 0.008$). Almost two thirds of the girls and slightly over half of the boys exercised up to three hours outside school hours. Boys (39 per cent) were more likely than girls (37 per cent) to exercise more than four hours outside school hours.

Associations between school perceptions, educational aspiration, and health-compromising behaviours

As shown in Tables II and III, all the dimensions of school perceptions were associated with various health behaviours, and the results for boys and girls differed to some extent. Among both genders, educational aspiration had the strongest connection with weekly smoking, monthly alcohol use, physical inactivity, and low breakfast consumption. Students who were going to apply to vocational school were more likely than students with higher educational aspirations to smoke weekly (girls' OR 2.89; $p < 0.001$; boys' OR 4.01; $p < 0.001$), use alcoholic beverages monthly (girls' OR 2.07; $p < 0.001$; boys' OR 1.77; $p = 0.001$), have breakfast on fewer school mornings (girls'

Health behaviours	Boys (%)	Girls (%)	Sig.
At present, how often do you drink anything alcoholic such as beer, wine, spirits, alcopops, cider, or any other drink that contains alcohol?			0.013
Weekly	12	8	
Once a month	29	31	
Less than once a month	36	41	
Never	23	20	
How often do you smoke?			0.099
Daily	19	15	
Weekly	4	6	
Less than once a week	8	8	
I do not smoke	69	71	
Outside school hours: how many hours a week do you usually exercise in your free time so much that you get out of breath or sweat?			0.008
None	6	3	
Up to three hours	55	60	
Four hours or more hours	39	37	
On weekdays: how often do you usually have breakfast (more than a glass of milk or juice)?			0.796
Up to three times	34	34	
Four or five times	66	66	
Sleeping on weekdays			0.616
Less than seven hours	7	6	
Seven to eight hours	45	47	
More than eight hours	48	47	

Table I.
Health behaviour by
gender, per cent

School perceptions	Health behaviours															
	Smoking (weekly)			Alcohol (monthly)			Breakfast (0-3 weekdays)			Physical activity (less than four hour)			Sleep (less than eight hour)			
<i>n</i>	OR	95 per cent CI	Sig.	<i>n</i>	OR	95 per cent CI	Sig.	<i>n</i>	OR	95 per cent CI	Sig.	<i>n</i>	OR	95 per cent CI	Sig.	
<i>School engagement</i>																
High	262	1.00		262	1.00			262	1.00			262	1.00			
Average	409	1.72	1.00-2.98	0.052	410	2.33	0.157-3.45	0.000	410	1.28	0.86-1.89	0.226	410	1.09	0.76-1.56	0.643
Low	113	2.48	1.20-5.13	0.14	113	2.22	1.23-4.00	0.008	113	2.02	1.13-3.62	0.018	113	1.12	0.63-1.12	0.698
<i>Parental support</i>																
Supportive	685	1.00		686	1.00			686	1.00			686	1.00			
Not supportive	99	1.36	0.81-2.29	0.250	99	2.52	1.58-4.01	0.000	99	1.49	0.94-2.34	0.089	99	1.08	0.68-1.73	0.745
<i>Student autonomy</i>																
Feeling of autonomy	180	1.00		181	1.00			181	1.00			181	1.00			
No feeling of autonomy	604	1.40	0.84-2.31	0.195	604	1.12	0.77-1.64	0.549	604	1.03	0.71-1.51	0.867	604	0.71	0.49-1.02	0.062
<i>Student relations</i>																
Good	574	1.00		575	1.00			575	1.00			575	1.00			
Poor	210	0.56	0.35-0.90	0.015	210	0.67	0.46-0.96	0.030	210	1.01	0.70-1.45	0.962	210	1.40	0.99-2.00	0.060
<i>Teacher-student relations</i>																
Good	557	1.00		558	1.00			558	1.00			558	1.00			
Poor	389	1.40	0.89-2.19	0.141	227	1.02	0.70-1.50	0.923	227	0.88	0.60-1.30	0.523	227	0.92	0.63-1.36	0.689
<i>School strain</i>																
High	395	1.00		395	1.00			395	1.00			395	1.00			
Low	389	0.49	0.32-0.77	0.002	390	0.81	0.57-1.13	0.211	390	0.69	0.49-0.97	0.035	390	0.74	0.53-1.04	0.079
<i>Educational aspiration</i>																
Upper secondary school	528	1.00		528	1.00			528	1.00			528	1.00			
Vocational school	256	2.89	1.95-4.27	0.000	257	2.07	1.50-2.89	0.000	257	1.95	1.40-2.72	0.000	257	1.69	1.20-2.37	0.003

Table II. Logistic regression analysis: school perceptions associated with health-compromising behaviours. Girls

Table III.
Logistic regression
analysis: school
perceptions associated
with
health-compromising
behaviours. Boys

School perceptions	n	Smoking (weekly)		Alcohol (monthly)		Health behaviours		Physical activity (less than four hours)		Sleep (less than eight hours)				
		OR	95 per cent CI	Sig.	n	OR	95 per cent CI	Sig.	n	OR	95 per cent CI	Sig.		
<i>School engagement</i>														
High	168	1.00			168	1.00		168	1.00		165	1.00		
Average	367	1.28	0.70-2.32	0.425	367	0.92	0.60-1.42	0.709	367	0.88	0.430	0.58-1.32		
Low	109	1.81	0.85-3.86	0.123	109	1.28	0.69-2.38	0.429	109	0.97	0.109	0.53-1.78		
<i>Parental support</i>														
Supportive	564	1.00			564	1.00			564	1.00		554	1.00	
Not supportive	80	1.91	1.08-3.39	0.027	80	1.74	1.04-2.92	0.036	80	2.73	1.63-4.57	0.000	78	2.59
<i>Student autonomy</i>														
Feeling of autonomy	199	1.00			199	1.00			199	1.00		195	1.00	
No feeling of autonomy	445	0.94	0.59-1.50	0.800	445	0.68	0.47-0.98	0.037	445	0.74	0.51-1.09	0.127	437	0.63
<i>Student relations</i>														
Good	538	1.00			538	1.00			538	1.00		529	1.00	
Poor	106	0.47	0.25-0.88	0.019	106	0.56	0.34-0.92	0.21	106	0.66	0.40-1.10	0.110	103	0.73
<i>Teacher-student relations</i>														
Good	447	1.00			447	1.00			447	1.00		442	1.00	
Poor	197	2.04	1.28-3.25	0.003	197	1.89	1.27-2.82	0.002	197	1.00	0.66-1.52	0.986	197	1.69
<i>School strain</i>														
High	383	1.00			383	1.00			383	1.00		375	1.00	
Low	261	0.82	0.51-1.32	0.415	261	0.67	0.46-0.98	0.039	261	0.95	0.64-1.39	0.785	257	1.11
<i>Educational aspiration</i>														
Upper secondary school	322	1.00			322	1.00			322	1.00		315	1.00	
Vocational school	322	4.01	2.53-6.55	0.000	322	1.77	1.25-2.50	0.001	322	1.67	1.61-2.40	0.006	317	0.93

OR 1.95; $p < 0.001$; boys' OR 1.67; $p = 0.006$), and be less physically active (girls' OR 1.69; $p = 0.003$; boys' OR 1.61; $p = 0.006$).

School engagement and school strain were influential predictors of girls' health-compromising behaviour. Those girls who had lower school engagement were more likely to smoke (OR 2.48; $p = 0.014$), use alcohol (average OR 2.33; $p < 0.001$; low OR 2.22; $p = 0.008$) and to skip breakfast (OR 2.02; $p = 0.018$) than girls with higher levels of school engagement. Girls with lower school strain were less likely to smoke weekly (OR 0.49; $p = 0.002$) and more likely to sleep adequately (OR 0.54; $p = 0.001$) than girls with high school strain.

Among boys, school-related parental support and teacher-student relations were associated with health-compromising behaviours. Boys who felt their parents were not supportive were more likely to skip breakfast (OR 2.73; $p < 0.001$) and sleep inadequately (OR 2.59; $p < 0.001$) than boys with perceived supportive parents. They were also more likely to smoke weekly (OR 1.91; $p = 0.027$) and use alcoholic beverages monthly (OR 1.74; $p = 0.036$). Poor teacher-student relations were associated with more frequent smoking (OR 2.04; $p = 0.003$) and also with drinking (OR 1.89; $p = 0.002$).

Poor student relations seemed to act as a protective factor against smoking and drinking. Students with poor peer relations were less likely to smoke weekly (girls' OR 0.56; $p = 0.015$; boys' OR 0.47; $p = 0.019$) and less likely to use alcoholic beverages monthly (girls' OR 0.67; $p = 0.030$; boys' OR 0.56; $p = 0.021$) than students who had good relations with their peers.

Multiple health-compromising behaviours, school perceptions, educational aspiration, and selected family factors

When selected family factors were added to the analysis, educational aspiration was still associated with multiple health-compromising behaviours among both genders. Students with lower educational aspirations, i.e. students who were going to apply for vocational school, were more likely to engage in multiple health-compromising behaviours (boys' OR 2.36; $p < 0.001$; girls' OR 2.58; $p < 0.001$) than students with higher aspirations.

Again the results were somewhat different between boys and girls. The role of family factors emerged with girls. The parenting of both the father and the mother was connected to multiple health-compromising behaviours. Girls who reported their father's parenting as low were more likely to engage in multiple health-compromising behaviours than were girls who perceived their father's parenting as high (OR 2.67; $p < 0.001$). Furthermore, average parenting on the part of the mother (OR 2.06; $p = 0.004$) or low parenting on the part of the mother (OR 1.98; $p = 0.012$) was associated with multiple health-compromising behaviours. However, school-related parental support was connected with multiple health-compromising behaviours among both genders. Students who felt their parents were not supportive were more likely to engage in multiple health-compromising behaviours (boys' OR 3.06; $p < 0.001$; girls' OR 2.14; $p = 0.005$). The associations between the family factors and single health behaviours were also analysed, and the results indicated similar patterns between genders, as shown in Table IV.

Among girls, multiple health-compromising behaviours were associated with school engagement and school strain; girls with average (OR 1.80; $p = 0.019$) or low (OR 2.65; $p = 0.006$) engagement with the school were more likely to participate in

multiple health-compromising behaviours than girls with high school engagement. This was the case also among girls with higher school strain as compared to girls with low school strain (OR 0.60; $p = 0.014$).

Discussion

All the dimensions of school perceptions measured in the study were found to be associated with health behaviours to some extent. Similar connections have been detected in previous studies (Aaro, 2009; Andersen *et al.*, 2006; Bond *et al.*, 2007; Desousa *et al.*, 2008; Henderson *et al.*, 2008; King *et al.*, 1996; Kristjansson *et al.*, 2009; Libbey, 2004; Rasmussen *et al.*, 2005; Rew and Horner, 2003; Samdal *et al.*, 2000). In this

Items	<i>n</i>	OR	Boys Sig.	95 % CI	<i>n</i>	OR	Girls Sig.	95 % CI
<i>School perceptions</i>								
<i>Educational aspiration</i>								
Upper secondary school	299	1.00			505	1.00		
Vocational school	293	2.36	0.000	1.53-3.62	245	2.58	0.000	1.78-3.75
<i>School engagement</i>								
High	155	1.00			255	1.00		
Average	342	1.09	0.761	0.62-1.93	389	1.797	0.019	1.1-2.93
Low	95	2.037	0.066	0.95-4.35	106	2.65	0.006	1.33-5.28
<i>Parental support</i>								
Supportive	521	1.00			657	1.00		
Not supportive	71	3.06	0.000	1.67-5.61	93	2.14	0.005	1.27-3.62
<i>Student autonomy</i>								
Feeling of autonomy	179	1.00			174	1.00		
No autonomy	413	0.61	0.032	0.39-0.96	576	1.14	0.575	0.72-1.81
<i>Student relations</i>								
Good relations	499	1.00			549	1.00		
Poor relations	93	0.46	0.016	0.25-0.87	201	0.61	0.023	0.39-0.93
<i>Teacher-student relations</i>								
Good relations	419	1.00			533	1.00		
Poor relations	173	1.63	0.040	1.02-2.61	217	1.24	0.325	0.81-1.90
<i>School strain</i>								
High	344	1.00			377	1.00		
Low	248	0.66	0.082	0.42-1.05	373	0.60	0.014	0.40-0.90
<i>Family factors</i>								
<i>Parenting father</i>								
Low	184	1.73	0.094	0.91-3.28	253	2.67	0.000	1.57-4.52
Average	228	1.46	0.205	0.81-2.62	274	1.43	0.178	0.85-2.42
High	180	1.00			223	1.00		
<i>Parenting mother</i>								
Low	207	1.56	0.131	0.88-2.77	240	1.98	0.012	1.16-3.37
Average	174	1.69	0.066	0.97-2.96	280	2.06	0.004	1.25-3.38
High	211	1.00			230	1.00		
<i>Perceived family affluence</i>								
High	416	1.00			437	1.00		
Average	155	1.19	0.453	0.75-1.88	276	0.76	0.178	0.52-1.13
Low	21	1.61	0.383	0.55-4.65	37	1.05	0.912	0.47-2.34

Table IV. Logistic regression analysis: factors associated with multiple (three or more) health-compromising behaviours

study, educational aspiration was found to be the most influential factor in relation to health-compromising behaviour among both genders. Students who were intending to apply to upper secondary school were less likely to engage in health-compromising behaviours.

The results were somewhat different between girls and boys. Hence, when planning prevention or intervention, one should take into account the differences between boys and girls regarding the behaviours and related factors. With regard to engaging in health-compromising behaviours, school-related social relationships showed an association among boys. By contrast, among girls the other aspects of the psychosocial school environment were found to be more important, including engagement with the school and school strain. In addition, the role of parental bonding and monitoring (i.e. level of parenting) was important among girls. Girls with higher levels of parenting were less likely to engage in health-compromising behaviour than were those with lower levels of parenting. This seems reasonable, since adolescents spend much of their time outside the home. Since they are at an age when they may experiment with new things and test their boundaries, one can see the importance of parents knowing what is going on with their children.

School perceptions seemed to be associated with alcohol use and smoking, since almost all the dimensions of school perceptions were associated with these two health-compromising behaviours. With regard to breakfast consumption, physical activity, and sleeping the associations were not so obvious. This suggests that there could be some other underlying factors that would better predict these behaviours. In this regard, Villard *et al.* (2007) concluded that along with social aspects (such as parental attitudes) certain environmental factors such as socio-economic circumstances and the geographical living area had an influence on physical activity and healthy food choices (Villard *et al.*, 2007). On the other hand, a Finnish study by Karvonen and Rimpelä (2002) was unable to find major differences between different types of municipality with regard to social relations, health behaviour, or health, even though the living conditions appeared to differ widely.

It has been suggested that peer involvement might create the kind of environment that supports and encourages health-compromising behaviour, and that adolescents might find it hard to refuse such peer pressure (McLellan *et al.*, 1999). According to McLellan *et al.* (1999) students who reported less peer support were less likely to smoke or drink. By contrast, Carter *et al.* (2007) observed that, if anything, it was connectedness to friends that was associated with health-compromising behaviours: adolescents who reported strong attachment to friends were more likely to report cigarette smoking. In addition, frequent binge drinking appears to be associated with greater peer involvement (Desousa *et al.*, 2008; Johansen *et al.*, 2006). The present study supports those findings, since students who had poor relations with their schoolmates in this study were less likely to engage in health-compromising behaviours. One should bear in mind that this study only focused on relations with classmates and social relations within the school. These relations can be very different from relations in free-time and in other living environments. The role of peers regarding participation in health-compromising behaviour seems to be complicated and to require further study; this is also the case with the role of other free-time environmental factors (e.g. the media).

This study does have some limitations. First of all, it is important to emphasize that the data used in this study are cross-sectional and cannot determine the causality

between health behaviours and school perceptions. However, our results, and those of others, indicate that the two phenomena clearly have an influence on each other (Carter *et al.*, 2007; Samdal *et al.*, 2000). This would imply a need to better understand what affects students' perceptions of their school, how we can effectively measure this, and what interventions might be effective. It does appear that there needs to be an improvement in students' perceptions of their schools, in particular regarding the quality of the social relationships between peer students and between students and teachers. Second, it should be pointed out that some school-level factors were omitted from the present study. To name two of these, school size and class size might be factors that could have an influence on school perceptions and health behaviours. Third, when dichotomizing the health behaviour variables, one can always argue regarding the correct cutoff points for health-enhancing or health-compromising behaviour. In this study they were decided in compliance with general recommendations. Overall, nationwide representation and a high response rate can be regarded as strengths of the study. Furthermore the questionnaire and the indicators were carefully reviewed and revised by the HBSC research network and should therefore capture valid information on students' school life (Currie *et al.*, 2008; Roberts *et al.*, 2009).

Overall, this study reinforced the importance of the psychosocial environment in students' school life. Even when selected family factors were taken into account, school perceptions were highlighted in the analyses conducted for this study. Whereas previous studies have focused on only some of the dimensions of school perceptions or on single health-compromising behaviours, this study provides a broader view of the associations between these two aspects. However, more thorough research would be needed to clarify the underlying reasons associated with students' perceptions of their psychosocial school environment and their health behaviours.

The findings of this study suggest that improving students' school perceptions might decrease health-compromising behaviours. This underlines the fact that development strategies must go beyond formal curriculum development and recognize that the major part of school is social and emotional in nature. Teachers are the people who are most often present in social situations with students. Hence it is important to develop their professional understanding about how to create social structures and practices that will improve students' – and also teachers' – school experience and how to meet students. Teacher education programs should pay more attention to these issues. In Finland, there has been training for professional health education teachers ever since health education became an official, obligatory, and autonomous school subject (at the start of this millennium). Health education is indeed a good channel to address students' school experiences and related issues. Yet this is clearly not enough by itself. Implementation of overall school procedures, as aimed at within, for example, the Health Promoting School approach have the potential to contribute to the health of the entire school community (Green and Tones, 2010), and have also been shown to be effective in more than one country (Lee *et al.*, 2006; Rowe *et al.*, 2007).

In Finland, the health promoting school approach is implemented through the National Core Curriculum. The National Core Curriculum includes the idea of the health promoting school. It seeks to develop schools which will promote the well-being and learning of students through multi-professional co-operation and the involvement of families (Välismaa *et al.*, 2008). The National Core Curriculum also provides a framework for local curricula. In fact, most schools in Finland have a joint operational

model for addressing key challenges related to health promotion in the school community, either integrated with their curriculum or as a written policy – yet health promotion activity varies between schools (Rimpelä *et al.*, 2010). It is a real challenge for policy makers, teachers, students, parents, and the whole school community to create environments that will promote well-being, make positive changes in the psychosocial school environment, and meet the overall developmental needs of adolescents (McNeely *et al.*, 2002).

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III

ASSOCIATIONS BETWEEN STUDENTS' PERCEPTIONS OF THE PSYCHOSOCIAL SCHOOL ENVIRONMENT AND INDICATORS OF SUBJECTIVE HEALTH IN FINNISH COMPREHENSIVE SCHOOLS

by

Markkanen, I., Välimaa, R., & Kannas, L. 2019

Children & Society, 33(5), 488–502

<https://doi.org/10.1111/chso.12334>

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**This is an Accepted Manuscript of an article published by John Wiley & Sons Ltd and National Children's Bureau in Children and Society on May 6th 2019, available online :
<https://doi.org/10.1111/chso.12334>**

Associations between students' perceptions of the psychosocial school environment and indicators of subjective health in Finnish comprehensive schools

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Abstract

The study examined how far students' perceptions of the psychosocial school environment are associated with self-rated health, life satisfaction, and subjective health complaints. Students' perceptions were associated with one or more indicators of subjective health. Perceived health was better in direct proportion to positive perceptions. Student relations and school strain were the factors that stood out in both genders, with regard to all the health indicators. School engagement, parental support, and educational aspiration were found to be important for overall perceived health of the students. This study indicates the importance of the psychosocial school environment for students' health.

Key words: Psychosocial school environment, school perceptions, subjective health, self-rated health, life satisfaction, subjective health complaints

Background

Promoting and supporting students' health and well-being in schools have increasingly become an interest of researchers and are being regarded as important goals for schools. In Finland, objectives of creating a healthy and safe learning environment, safeguarding mental health, preventing exclusion, and promoting the wellbeing of the students and the entire school community have been added to the National Core Curriculum (2016). Adolescents spend a notable amount of their time in schools, in which both academic and social learning takes place (Linnakylä & Malin, 2008). School and education give young people a starting point for their future; hence, one should not ignore how adolescents perceive their school environment and schoolwork, and how these perceptions might be associated with their health and wellbeing.

The school environment consists of physical factors (buildings, the yard, surroundings, services, etc.) and psychosocial factors such as engagement, autonomy, demands, social support, and relationships. The school environment is often referred to as a working environment for adolescents (e.g. Samdal 1998; Hjern et al. 2008). This view is based on a theoretical model developed by Karasek and Theorell (1990), within which job satisfaction, a lower prevalence of health-compromising behaviours, and higher subjective well-being are positively associated with a reasonable level of demands, good social support, and a sense of autonomy and control. Similar findings have been obtained within the school setting (Samdal 1998).

Based on an exhaustive literature review, the school environment seems to have both positive and negative effects on students' well-being and health (e.g. Thapa et al. 2013; Upadyaya et al. 2013; John-Aikonola et al 2015; Inchley et al. 2016) - although a wide range of different indicators and definitions of the psychosocial school environment, health, health complaints and health behaviours have been used, studies have shown that these factors are connected. Freeman et al. (2012) studied school climate, peer support and their value for health complaints, school satisfaction, and academic achievement. According to the study, school climate was positively related to students' mental health (Freeman et al. 2012). In turn, a study by Salmela-Aro et al. (2008) showed that negative school climate was related to school burnout. In the research of Eriksson et al. (2012) the term 'social capital' was used to study the perceptions of the social climate in different settings. According to their studies, higher school social capital resulted in higher levels of subjective well-being and lower levels of subjective health complaints (Eriksson et al. 2012). Further, Nielsen et al. (2015) stated that school social capital can reduce mental health problems. Psychosocial environment was also found to be an important predictor of students' health complaints in among Swedish adolescents (Sonmark & Modin 2017) and in a Finnish study of adolescents' health compromising behaviors; more negative perceptions of the school environment were associated with more health-compromising behaviours (Haapasalo et al. 2012). Similar results have been reported by Bonnell et al. (2017) in their study on school belonging, commitment and risk behavior.

Research has shown that supportive teachers (Modin and Östberg 2009), peers, and parents (Eriksson et al. 2012; Plenty et al. 2014; Moore et al. 2018) in the school have a positive effect on students' health. Moreover, better subjective health is reported by students who like school, have higher achievement, and are not pressured by schoolwork (Ravens-Sieberer et al. 2004). Conversely, psychosomatic symptoms and psychological complaints (Hjern et al. 2008) have been linked to school stressors, such as harassment by peers, schoolwork pressure (Modin et al. 2011; Plenty et al 2014), and being treated poorly by teachers (Hjern et al. 2008). A longitudinal study by Gillander

Gådin and Hammarström (2003) indicated that in the long-term classmate problems had the most negative effect on students' health.

Subjective health complaints are very common among young people. The most common symptoms are headache, shoulder and neck pains, stomachache, backache, feeling low, bad temper, feeling nervous, dizziness, and difficulties in getting to sleep (e.g. Cavallo et al. 2006; Luopa et al. 2014). Compared to boys, girls report a higher number and frequency of symptoms. Gender differences and health complaints tend to increase by age. (Torsheim et al. 2004; Konu and Lintonen 2006; Torsheim et al. 2006; Dey et al. 2015; Ottová-Jordan 2015). These complaints refer to symptoms ranging from occasional to clinical manifestations, and they create limitations to daily functioning. Research indicates that the development of health complaints may be aggravated by behavioural and social context factors. (Ottová-Jordan 2015). Health complaints reflect individual burdens and personal experience related to negative life events in the social context of the family, school, and peers; thus they are an important indicator for the measurement of subjective well-being. (Inchley et al. 2016)

In adolescence children undergo many physical, social, and psychological changes (Hendry and Kloep, 2012; Blackmore & Mills 2014). Health is an important resource, and good health helps them to face a variety of challenges. In recent years, public health researchers have become more interested in indicators of subjective health, alongside the objective measurement of medical outcomes. (Currie et al. 2010). Studies on indicators of subjective health (which include self-ratings of health, life satisfaction, and health complaints) have shown that the majority of school-aged children rate their health as good, but that there are a consistent minority who report poorer health. (Torsheim et al. 2004; Cavallo et al. 2015b; Vieno 2013). Thus, a better understanding of the school-related factors connected to adolescents' health is important, not only for the future health of the students, but for the development of the school itself.

For the most part, previous studies have focused on single indicators of subjective health, or on only some dimensions of psychosocial school environment. The present study aimed to take a broader view of students' subjective health and to examine to what extent perceptions of psychosocial school environment are associated with indicators of subjective health, looking also at whether these associations differ between boys and girls. The study also included perceived family affluence, educational aspiration, and age, seeking thus to gain a more comprehensive view of the associations in question.

Methods

Data

The data in this study were drawn from the Finnish part of the *Health Behaviour in School-aged Children (HBSC) 2014* study. The HBSC Study is an international study conducted in collaboration with WHO. The study aims to gain an improved understanding of adolescent health behaviours, health, and lifestyles within their social context. The data were collected through school-based surveys, using anonymous, voluntary, and standardized questionnaires based on the international procedure of HBSC Study. The samples were chosen from the national school register (Statistics Finland) using random cluster sampling. Sampling was adjusted to take into account the province, the municipalities, and the size of the school. The participating class was randomly selected in each school. The HBSC protocol ensures

that the sample is nationally representative of the target population (Schnohr et al. 2015; Currie et al 2011; Roberts et al. 2009). There were in total 5925 respondents (2914 boys, 3011 girls) from 359 schools. The overall response rate was 85,2%. Responses provided by students aged 13 (7th grade) and 15 (9th grade) were used in the present study.

Measures

Perceptions of the psychosocial school environment

Students' perceptions of the psychosocial school environment were measured by a set of questions concerning the school atmosphere, the school environment, teachers, peers, and parents. The questions were built on previous HBSC research findings, which highlight the importance of the psychosocial school environment for students' health and health behaviour. (Currie et al. 2010) There were 31 statements in total. The students gave their opinion by expressing the degree to which they agreed with the statements, using a scale with five response options: *strongly agree*, *agree*, *neither/nor*, *disagree*, and *strongly disagree*.

Explorative factor analysis (with Oblimin rotation) was conducted for the 31 variables in order to reduce the data and to uncover the underlying dimensions of the students' perceptions of the psychosocial school environment. The factor analysis resulted in six factors (Table 1). The items in each factor were added up to give sum scores, which were named as follows: *School engagement* (5 items) indicated the outlook on school life and on belonging within the school. *Parental support* (5 items) indicated the parents' involvement in schoolwork. *Student relations* (3 items) reflected relationships and interactions at school. *Academic support* (8 items) and *Teacher-student relations* (7 items) reflected the student-teacher relations at the school, and *Student autonomy* (3 items) indicated how students perceived their opportunities for participation. To preserve the original scale for the sum scores formed, the sum scores were divided by the number of items in each sum score. The internal consistencies of the sum scores were satisfactory. Cronbach's alpha for the sum scores varied between .91 and .78.

In addition to these sum scores, a single question was used to indicate *School strain*. The students were asked "How pressured do you feel by the school work you have to do?" and the item had four response options: *not at all*, *a little*, *some*, *a lot*. For the analyses, this variable was rescaled into two categories. Thus, the first two options, (*not at all* and *a little*) were pooled, as were the latter two options (*some* and *a lot*).

Educational aspiration was measured by a single item: "What do you think you will do when you finish comprehensive school?" Here students were asked if they were intending to apply for general upper secondary education, for vocational education, or for an apprenticeship, and further, if they were intending to get a job, if they were intending to remain unemployed, or if they were as yet undecided. The variable was rescaled so that the statements "I'm going to apply for general upper secondary school" and "I'm going to apply for vocational school" were kept as they were, while the others were left out of the analysis (n=308). The first of these was seen as reflecting an academic orientation and the second a vocational orientation. The others were left out of the analysis because it was a too heterogenous group to be included as 'others' or to be combined to first to categories.

Indicators of subjective health

Students' subjective health was measured via three indicators – self-rated health, perceived life satisfaction, and subjective health complaints. Self-rated health was measured via a single item: “*Would you say your health is...?*” The response options were *excellent, good, fair, and poor*.

A ladder scale, namely the Cantril ladder (Currie et al. 2010) was used to measure life satisfaction. Students were asked to evaluate their life satisfaction by indicating the step on the ladder that corresponded to their feelings at the moment. The top of the ladder (10) indicated the best possible life and the lowest step (0) the worst possible life.

Subjective health complaints were measured using the HBSC Symptom Check List (Haugland and Wold 2001 Haugland et al. 2001), which is a reliable and valid, non-clinical measure of subjective health complaints. It includes eight complaints (headache, stomachache, backache, feeling low, irritability or bad temper, feeling nervous, sleeping difficulties, and dizziness). In addition to these, four country-specific items were used: neck and shoulder pain, loss of appetite, feeling tense, awakenings. Participants reported how often they had experienced these complaints in the past six months (via a five-point scale: *about every day, more than once a week, about every week, about every month, rarely, or never*). The responses for these 12 items were dichotomized into weekly vs. less often.

Perceived family affluence

Perceived family affluence was measured using the HBSC Family Affluence Scale (FAS). The scale consists of six different items: “*Does your family own a car, van or truck?*”, “*Do you have your own bedroom for yourself?*”, “*How many computers does your family own?*”, “*How many bathrooms (room with a bath/shower or both) are in your home?*”, “*Does your family have a dishwasher at home?*”, and “*How many times did you and your family travel out of Finland for a holiday/vacation last year?*”. A sum score was calculated, and three categories were formed reflecting high (10–13), medium (6–9), and low (0–6) family affluence. The scale has been validated within HBSC, and it is an appropriate indicator of socioeconomic position. (Currie et al. 2010)

Statistical analysis

To account for the clustered structure of the data, multilevel logistic regression analyses were conducted to analyse the associations between students' perceptions of the psychosocial school environment and the indicators of subjective health. For the purposes of the analyses, the school perception sum scores and the subjective health indicators were rescaled. The sum scores were split into two categories, hence placed on the positive or negative side according to the original scale. The subjective health indicators were rescaled in accordance with the HBSC coding recommendations (Currie et al. 2010). Self-rated health was dichotomized as *excellent/good vs. fair/poor*. The ladder scale was dichotomized to indicate high life satisfaction (8–10) and lower life satisfaction (0–7). The cutoff point in HBSC is normally 6, but in the Finnish data this dichotomization describes the phenomenon better because of the distribution of the item. In addition, an index was constructed, covering the perception of having at least three health complaints per week. Boys and girls were analysed separately.

Results

Students' self-rated health, life satisfaction and subjective health complaints

The indicators of subjective health were first analysed by age and gender. Most students rated their health as good or excellent. A significant difference was found among older students, with boys giving higher ratings to their health than girls. High life satisfaction was also reported by most students. Older boys reported significantly more high life satisfaction than girls of the same age. Younger girls reported significantly higher life satisfaction than older girls when analysis was conducted by gender.

The prevalence of weekly subjective health complaints varied from 15% to 63%, "irritability or bad temper" being the most common weekly symptom. Boys and girls differed significantly in almost every complaint reported, with girls reporting symptoms more often than boys in both age categories. When the analysis was conducted between age groups, older boys reported backache more often than younger boys. For their part, the younger boys gave more reports of loss of appetite, awakenings, feeling nervous, and feeling tense. Older girls reported significantly more backache, neck and shoulder pain, and feeling low than younger girls. (Table 2.)

Associations between students' school perceptions and indicators of subjective health

The analyses of the associations between students' perceptions of the psychosocial school environment and subjective health were performed separately for boys and girls. The results differed somewhat between the genders but there were no significant differences between schools (with the exception of girls' self-rated health). As shown in Tables 3 and 4, student relations and school strain were the only factors associated with all the subjective health indicators measured, among both genders. Students with good relations with peers and lower school strain reported better self-rated health, higher life satisfaction, and fewer health complaints. For girls, better self-rated health was predicted by higher school engagement, and teacher support for school work. In addition to these factors, parental support was associated with higher life satisfaction.

Students who had supportive parents and better teacher-student relations were likely to indicate fewer health complaints than students who reported less support by parents, and poor teacher-student relations. Boys who reported high school engagement and higher student autonomy, and who had more supportive parents, were more likely to rate their life satisfaction as high than those who had lower school engagement, lower student autonomy, and less supportive parents. Higher school engagement predicted fewer health complaints, and higher parental support predicted better self-rated health. Good relationships with teachers seemed to predict only better self-rated health.

Educational aspiration was associated with self-rated health and life satisfaction among both boys and girls. Students who were going to apply for upper secondary school were more likely to rate their health as good, and to indicate higher life satisfaction. There were no significant differences in subjective health complaints. Age was significantly associated with health complaints among boys; thus, younger boys were more likely to indicate several weekly health complaints than older boys. Family affluence was associated only with life satisfaction. Those girls who reported high family affluence were more likely to report a level of higher life satisfaction. Among boys, high or average family affluence predicted higher life satisfaction.

Discussion

This study adds to a growing body of literature indicating that students' perceptions of psychosocial school environment are important, and it underlines the fact that there is more to school than merely academic learning (OECD 2017). Most students reported good self-rated health, high life satisfaction, and fewer than three complaints per week; however, there was a considerable proportion who did not give such positive evaluations. Weekly complaints were very common among girls in both age groups, and in the older age category, boys rated their health as better, and reported higher life satisfaction, than girls. These findings are in line with previous research. (Ottová-Jordan et al 2015; Wiklund et al. 2012; Cavallo et al. 2015a;2015b; Välijärvi 2017).

All the measured students' perceptions of psychosocial school environment were associated with one or more indicators of subjective health, and the perceptions were more positive in parallel with higher levels of perceived health. Student relations and school strain were the factors that stood out among all the health indicators. This applied to both genders. In addition, school engagement and parental support, were found to be important for the overall subjective health of the students. This was an expected result; since the interactions with peers and parents are so frequent, one could expect these to have an effect on students' experiences and on health. Being accepted socially may strengthen self-esteem, thus helping the individual to perform better and to value herself/himself. Such a positive cycle could also affect students' perceived health. It has been observed that students find social interactions at the school the most rewarding as well as the most problematic aspect of schooling (Pyhältö et al. 2010). In previous studies, poor social relations related to the school have been recognized as strong predictors of e.g. health-compromising behaviours (Haapasalo et al. 2012) and further, of emotional symptoms and conduct problems (Plenty et al 2014). These can inevitably impair students' perceived health.

In Finland, educational paths have a significant role in determining adolescents' health inequalities. Low school achievement, together with a lack of educational plans, is related to higher mortality (Berg et al. 2011). Students who follow the non-academic path (e.g. move to vocational education) have more health compromising behaviours and poorer perceived health than students following an academic path (Ruokolainen & Mäki 2015). In this study educational aspiration was found to be an important factor for students' perceived health, favouring those who were to choose an academic path.

These results here indicate the complex nature of health, and how students' subjective health can be affected by various factors, even if this study only focused on school-related issues. It is worth noting that at least with these measures, student autonomy was associated with life satisfaction only among boys; this is somewhat surprising, since in other studies student autonomy has been noted as an important factor (e.g. Samdal 1998; de Róiste et al 2012).

Overall, the connections between perceptions of the psychosocial school environment and subjective health showed statistical significance, even if the associations were not in themselves particularly strong. This could imply that there are underlying factors affecting the two main phenomena included in this study. More thorough research is needed to clarify the factors associated with students' perceptions of psychosocial school environment and their subjective health; also, to look at whether these associations are direct, or whether there are some mediating factors such as health behaviours.

This study does have some limitations. Since the data is cross-sectional, we cannot determine the causality between students' perceptions of the psychosocial school environment and the indicators of subjective health. The data are also self-reported, and the study limits itself to the subjective perceptions of individuals. Nevertheless, when (as in the present case) the focus is not on clinical illnesses, surveys of this kind are a good tool for understanding the perceptions of young people. Here it is worth noting that the way in which adolescents understand health affects the way in which they answer surveys concerning their health. (Currie et al. 2010) In fact, there are clear indications from our results that the two have a strong influence on each other.

It is important to emphasize that some class-level factors were omitted from the study. The influence of these factors might be worth investigating in further studies. However, the Finnish school system offers a great deal of individual choice in their studies, which means that students are more likely to spend their day in social groups outside their own official class (Karvonen et al 2005). Those groups cannot be identified in the current study but would be an interesting addition for further studies.

The strengths of the current study include having a nationally representative sample and a high response rate. Furthermore, it is important that the study should be capable of capturing valid information on students' perceptions of their school environment and their perceived health. It can be claimed that the study has good credibility in this respect, since the questionnaire and the items have been carefully reviewed and revised by the HBSC research network (Currie et al. 2010; Roberts et al. 2009).

The study suggests that improving the school experience might improve the subjective health of the students. It is clearly crucial to find the best practices for improving the school experience. When planning strategies, one should bear in mind that the results of this study, and those of previous research (e.g. Wiklund et al. 2012; Brolin Låftman and Modin 2012) show certain differences between boys and girls.

Overall, it can be argued that school development strategies should go beyond formal curriculum development, taking it as a starting point that the major part of school life is social in nature, with much social learning and construction of relationships occurring within schools (Linnakylä and Malin 2008). In discussions of education, academic success tends to be foregrounded at the expense of the social aspects of the school. Here it should be noted that in Finland, despite good PISA results, many children are unhappy in their school. There is evidence that the promotion of positive schooling in its broadest sense – which would encompass health-promoting schools that target all the students – has the potential to create a positive developmental atmosphere, and to contribute to the health of the entire school community (see e.g. Green and Tones 2010).

[Acknowledgements](#)

We are grateful to PhD Jorma Tynjälä and MSc Jari Villberg for their vital contribution and comments during the data analysis of this article.

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Table 1. The results of the factor analysis; six dimensions describing school perceptions.

	Factors*						Communalities
	1.	2.	3.	4.	5.	6.	
1. School engagement							
Our school is a nice place to be	-.668						.659
The rules in this school are fair	-.573						.526
I feel I belong in this school	-.503						.525
The students are not treated too severely/strictly in this school	-.466						.360
I feel safe in this school	-.390						.435
2. Parental support							
My parents are interested in what happens to me at school		.798					.601
If I have a problem at school, my parents are ready to help		.791					.611
My parents are willing to help me with my homework		.757					.549
My parents encourage me to do well at school		.753					.569
My parents are willing to come to school to talk to the teachers		.591					.358
3. Student relations							
Most of the students in my class(es) are kind and helpful			-.739				.602
The students in my class(es) enjoy being together			-.725				.530
Other students accept me as I am			-.713				.570
4. Academic support							
My teachers tell me how to do better on school-tasks				.807			.575
My teachers guide me how to solve tasks				.748			.576
When I need extra help, I can get it				.634			.492
My teachers make sure that I really understand my goals and what I need to do				.580			.548
I feel that my teachers provide me with choices and options				.541			.537
My teachers encourage me when I do school work				.536			.458
My teachers try to understand how I think before suggesting a new way to do things				.510			.544
My teachers listen to how I would like to do things				.435			.542
5. Teacher-student relations							
I feel a lot of trust in my teachers					.723		.674
I feel that my teachers care about me as a person					.700		.625
My teachers are interested in knowing how I'm doing					.663		.552
Most of my teachers are friendly					.532		.594
I feel that my teachers accept me just as I am					.519		.584
Our teachers treat us fairly					.504		.621
I am encouraged to express my own views in my class(es)					.444		.499
6. Student autonomy							
In my classes, students have some control in deciding which tasks to work on						.827	.651
In my classes, students get to participate in deciding how to work on tasks						.816	.661
In my classes, students get to participate in deciding class rules						.537	.397
Cronbach's Alpha	.811	.840	.779	.890	.909	.775	

* Loadings of less than .30 were suppressed

Table 2. Indicators of subjective health by age and gender, %

Indicators of subjective health	13 years			15 years			Boys			Girls		
	Boys, %	Girls, %	Sig.	Boys, %	Girls, %	Sig.	13 years, %	15 years, %	Sig.	13 years, %	15 years, %	Sig.
Self-rated health												
Excellent	25	22	.243	28	18	.000	25	28	.208	22	18	.168
Good	60	63		56	65		60	55		63	65	
Fair	13	14		14	15		13	14		14	15	
Poor	2	1		2	2		2	2		1	2	
Life satisfaction												
High (8-10)	68	64	.080	67	45	.000	68	67	.695	64	55	.000
Low (0-7)	32	36		33	55		32	33		36	45	
Subjective health complaints (Weekly)												
Headache	36	48	.000	36	51	.000	36	36	.923	42	44	.160
Stomachache	20	27	.000	16	27	.000	20	17	.094	27	27	.838
Backache	23	27	.088	28	38	.000	23	28	.026	27	38	.000
Irritability or bad temper	46	61	.000	43	63	.000	46	43	.194	61	63	.484
Feeling nervous	44	53	.000	37	55	.000	44	37	.002	53	55	.413
Difficulties in getting to sleep	35	44	.000	34	45	.000	35	34	.628	44	45	.649
Feeling dizzy	17	29	.000	20	30	.000	17	20	.076	29	30	.457
Neck and shoulder pain	33	40	.002	33	50	.000	33	33	.806	40	50	.000
Loss of appetite	19	29	.000	13	26	.000	19	13	.000	30	26	.115
Feeling tense	31	42	.000	26	44	.000	31	26	.021	42	44	.409
Feeling low	15	31	.000	18	40	.000	15	18	.104	31	40	.000
Awakenings	25	29	.059	21	32	.000	25	21	.041	29	32	.114

Table 3. Results of the multilevel logistic regression analysis; school perceptions associated with the indicators of subjective health. Boys.

	Indicators of subjective health											
	Self-rated health (good or excellent)				Life satisfaction (high)				Subjective health complaints (3 or more weekly)			
	OR	95 % CI	Std. Err.	Sig.	OR	95 % CI	Std. Err.	Sig.	OR	95 % CI	Std. Err.	Sig.
Age												
13	1.152	0.855-1.555	.176	.352	1.068	0.837-1.362	.133	.597	1.360	1.091-1.694	.152	.006
15	1.00				1.00				1.00			
Educational aspiration												
Upper secondary school	1.483	1.101-1.997	.225	.010	1.862	1.460-2.375	.231	.000	0.915	0.731-1.145	.105	.438
Vocational school	1.00				1.00				1.00			
Family affluence												
High	1.395	0.863-2.254	.342	.174	1.520	1.016-2.272	.312	.041	1.082	0.753-1.555	.200	.668
Average	1.176	0.777-1.779	.248	.443	1.107	0.781-1.570	.197	.567	0.908	0.657-1.255	.150	.560
Low	1.00				1.00				1.00			
School engagement												
High	1.001	0.664-1.510	.210	.996	1.719	1.234-2.394	.291	.001	0.615	0.442-0.857	.104	.004
Low	1.00				1.00				1.00			
Parental support												
Supportive	1.800	1.062-3.051	.485	.029	2.175	1.308-3.617	.564	.003	1.006	0.605-1.675	.262	.981
Less supportive	1.00				1.00				1.00			
Student autonomy												
High	1.355	0.983-1.869	.222	.064	1.317	1.019-1.702	.172	.035	1.034	0.825-1.296	.119	.774
Low	1.00				1.00				1.00			
Student relations												
Good	1.760	1.172-2.643	.365	.006	2.094	1.459-3.004	.386	.000	0.522	0.360-0.756	.099	.001
Poor	1.00				1.00				1.00			
Teacher-student relations												
Good	1.553	1.033-2.333	.323	.034	1.352	0.965-1.894	.233	.080	0.727	0.527-1.003	.119	.052
Poor	1.00				1.00				1.00			
Teacher support for schoolwork												
Supportive	0.691	0.451-1.060	.151	.090	0.893	0.630-1.265	.157	.522	1.020	0.733-1.418	.172	.908
Less supportive	1.00				1.00				1.00			
School strain												
Low	1.384	1.024-1.870	.212	.035	1.773	1.389-2.262	.220	.000	0.426	0.342-0.531	.048	.000
High	1.00				1.00				1.00			
LR test vs. logistic model	P=1.000				p=1.000				p=1.000			

Table 4. Results of the multilevel logistic regression analysis; school perceptions associated with the indicators of subjective health. Girls.

	Indicators of subjective health											
	Self-rated health (good or excellent)				Life satisfaction (high)				Subjective health complaints (3 or more weekly)			
	OR	95 % CI	Std. Err.	Sig.	OR	95 % CI	Std. Err.	Sig.	OR	95 % CI	Std. Err.	Sig.
Age												
13	1.014	0.724-1.418	.173	.937	1.222	0.961-1.554	.150	.102	1.207	0.960-1.519	.141	.107
15	1.00				1.00				1.00			
Educational aspiration												
Upper secondary school	1.483	1.064-2.066	.251	.020	1.623	1.253-2.120	.219	.000	0.802	0.609-1.057	.113	.118
Vocational school	1.00				1.00				1.00			
Family affluence												
High	1.367	0.839-2.232	.342	.208	1.607	1.110-2.327	.303	.012	1.157	0.793-1.692	.224	.448
Average	1.092	0.713-1.672	.237	.687	1.413	1.013-1.970	.240	.042	0.937	0.665-1.321	.164	.711
Low	1.00				1.00				1.00			
School engagement												
High	2.348	1.569-3.514	.483	.000	1.919	1.334-2.759	.356	.000	0.723	0.467-1.119	.161	.145
Low	1.00				1.00				1.00			
Parental support												
Supportive	1.553	0.961-2.509	.380	.072	5.769	3.327-10.005	1.620	.000	0.204	0.096-0.435	.079	.000
Less supportive	1.00				1.00				1.00			
Student autonomy												
High	0.928	0.672-1.281	.153	.650	1.220	0.965-1.542	.146	.096	1.047	0.830-1.320	.124	.700
Low	1.00				1.00				1.00			
Student relations												
Good	1.574	1.103-2.247	.286	.012	1.638	1.220-2.200	.246	.001	0.693	0.497-0.966	.117	.030
Poor	1.00				1.00				1.00			
Teacher-student relations												
Good	1.173	0.790-1.743	.238	.428	1.369	0.998-1.878	.221	.051	0.608	0.423-0.874	.112	.007
Poor	1.00				1.00				1.00			
Teacher support for schoolwork												
Supportive	1.660	1.134-2.419	.319	.008	1.575	1.169-2.120	.239	.003	0.727	0.521-1.014	.124	.060
Less supportive	1.00				1.00				1.00			
School strain												
Low	1.964	1.415-2.728	.329	.000	1.737	1.378-2.190	.205	.000	0.343	0.272-0.433	.041	.000
High	1.00				1.00				1.00			
LR test vs. logistic model	p= 0.006				p=0.062				p=0.452			



IV

FORMS OF BULLYING AND ASSOCIATIONS BETWEEN SCHOOL PERCEPTIONS AND BEING BULLIED AMONG FINNISH SECONDARY SCHOOL STUDENTS AGED 13 AND 15

by

Markkanen, I., Välimaa, R., & Kannas, L. 2021

International Journal of Bullying Prevention, 3(1), 24–33

<https://doi.org/10.1007/s42380-019-00058-y>

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Forms of Bullying and Associations Between School Perceptions and Being Bullied Among Finnish Secondary School Students Aged 13 and 15

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Abstract

The study aimed to examine the extent to which Finnish secondary school students experience bullying, how they are bullied, and whether being bullied is associated with school perceptions. The analyses were based on data from the Finnish part of the international *Health Behaviour in School-aged Children* (HBSC) study, and were obtained from 4262 students aged 13 and 15. The sample was nationally representative. Logistic regression analysis was performed to identify the associations between school perceptions and being bullied. Younger students reported being bullied more often than older students. Among younger students, boys were more often bullied than girls of the same age. There was no significant difference between the genders among the older students. The most common form of being bullied was verbal teasing. Boys tended to be bullied in physical ways, while girls were bullied in more indirect ways. Students with low levels of school engagement, students with poor relations with peers, and students who reported better teacher-student relations were more likely to be bullied. Feelings of loneliness and lower family affluence were also associated with being bullied. Improving the perceptions of school, and of the school experience as a whole, might have an effect on bullying at school.

Keywords Bullying · School perceptions · Forms of bullying · Secondary school

Background Bullying is a global phenomenon. In an analysis covering 40 countries, over one-quarter of participating students were found to be involved in bullying in some manner (Craig et al. 2009). International comparisons of bullying indicate that in Finland, as in other Scandinavian countries, the prevalence in bullying is relatively low (Craig et al. 2009; Currie et al. 2012; Due et al. 2008), with rates of bullying

having decreased since the turn of the millennium (Chester et al. 2015; Molcho et al. 2009; UNESCO 2019). Despite this, studies have shown that 6–15% of Finnish students are bullied regularly at school, with boys being bullied more often than girls (Craig et al. 2009; Luopa et al. 2014; Ammarsson et al. 2019). Victimization appears to decrease with age (Craig et al. 2009; Luopa et al. 2014; Ammarsson et al. 2019). Also, lower family affluence has been associated with victimisation (see e.g. Tippett and Wolke 2014).

Students, teachers, and researchers can have different conceptualisations of bullying, making it important to define bullying precisely. The most commonly used definition of bullying is that of Olweus (1993), who defines bullying as deliberate and repeated long-term exposure to negative acts, performed by a person or group of persons perceived as having higher status or greater strength than the victim. Bullying can involve verbal acts, such as threats, insults, or use of nicknames, or it can encompass physical acts such as assault or theft. In addition, social acts such as exclusion from the peer group are considered to manifest bullying. Bullying does not involve merely those who are victims and/or bullies, since bystanders, too, have a role (Hamarus 2006; Salmivalli

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2010). Bullying also has a tendency to develop new forms over time. In recent years, attention has been drawn to cyberbullying, i.e. bullying via ICT. It can be difficult for schools to intervene in such forms of bullying, since the bullying may well spread into free-time environments (Hong and Espelage 2012).

The school should be a safe place for every student, given that it should be a place where students go to learn, and not to be afraid. At school, bullying aggravates feelings of insecurity, and it threatens students' health, well-being, and motivation towards school work (Pörhölä 2008). In several studies, bullying in general has been associated with poor health (Callaghan et al. 2014; UNESCO 2019), health complaints (Due et al. 2005; Nansel et al. 2004; Pörhölä 2008; Hager and Leadbeater 2015), poor self-esteem (Gendron et al. 2011), poorer grades (Erginoz et al. 2015; Juvonen et al. 2010; UNESCO 2019), psychological distress (Sanders 2019), depressive symptoms (Minkkinen 2015), and loneliness (Hong and Espelage 2012; Acquah et al. 2016; UNESCO 2019). In research, loneliness has been recognised as one factor associated with adverse peer relations and an important predictor of peer victimisation (see e.g. Acquah et al. 2016; Pavri 2015). In addition to the observed short-term effects, studies have implied that bullying has long-term effects on the lives of students who have been bullied regularly (Hong and Espelage 2012; Zych et al. 2015).

Students' perceptions of school are known to be associated with students' well-being (Minkkinen 2015), health behaviour (Haapasalo et al. 2012), and academic achievement (Freeman et al. 2009; Haapasalo et al. 2010). A number of studies have implied that negative perceptions of school, or a poor school climate, are associated with being bullied (Erginoz et al. 2015; Glew et al. 2008; Turner et al. 2014). A study by Harel-Fisch et al. (2011) indicated that negative perceptions of the school, and especially connectedness to the school, are strongly associated with bullying. Yang et al. (2018) argued that the experience of being bullied has a negative effect on students' school engagement, and that the impact is actually more negative in schools with a more positive school climate than in schools with a less positive climate.

The present study aimed, first of all, to examine the extent to which Finnish secondary school students experience bullying and different forms of bullying at school. The second aim was to investigate the associations between experiences of victimisation, school perceptions, and students' individual characteristics, including *age, gender, educational aspiration, perceived family affluence, and feelings of loneliness.*

Methods

Data

The data presented here were obtained from the Finnish part of the *Health Behaviour in School-aged Children* (HBSC)

2010 study. The data were collected through school-based surveys, utilising anonymous, voluntary, and standardised questionnaires based on the international protocol of the HBSC Study. The source language for the original HBSC questionnaire was English. In order to follow the research protocol, and to ensure correctness in the interpretations, each participating country had to first translate the questionnaire from English into the national language, and then retranslate it back into English by an independent professional translator ([:dito_existswww.hbsc.org](http://dito_existswww.hbsc.org); Currie et al. 2008; Roberts et al. 2009).

Participants

The participants, i.e. young people aged 11, 13, and 15, were selected using cluster sampling, and the samples were nationally representative (Currie et al. 2008; Roberts et al. 2009; [:dito_existswww.hbsc.org](http://dito_existswww.hbsc.org)). The present study used the responses provided by Finnish students aged 13 and 15. There were in total 4262 respondents of which 2152 were 13 years old (1045 boys, 1107 girls) and 2110 were 15 years old (1008 boys, 1102 girls). The overall response rate was 70%.

Measures

Bullying victimisation was measured with a single question: *How often have you been bullied at school in the past couple of months?* In the introduction to the question, bullying was defined according to the definition by Olweus (1993):

We say a student is being bullied when another student, or a group of students, say or do nasty and unpleasant things to him or her. It is also bullying when a student is teased repeatedly in a way he or she does not like or when he or she is deliberately left out of things. But it is not bullying when two students of about the same strength or power argue or fight. It is also not bullying when a student is teased in a friendly and playful way.

The different forms of bullying were measured by seven items: *I was called mean names, was made fun of, or teased in a hurtful way; Other students left me out of things on purpose, excluded me from their group of friends, or completely ignored me; I was hit, kicked, pushed, shoved around, or locked indoors; Other students told lies or spread false rumours about me and tried to make others dislike me; Other students made sexual jokes, or gestures to me; I've been bullied on the Internet, by e-mail, or with pictures; and I've been bullied via mobile phone.*

The response options for all items above were the following: *never, only once or twice, two or three times a month, about once a week, and several times a week.*

The students' school perceptions were measured by a set of questions concerning the school atmosphere, the school environment, teachers, peers, and parents. The questions were based on previous HBSC research findings, which highlight the importance of the psychosocial school environment for students' health and health behaviour. There were 37 statements in total (Table 1). The students gave their opinion by expressing the degree to which they agreed with the statements, using a scale with five response options: *strongly agree*, *agree*, *neither/nor*, *disagree*, and *strongly disagree*.

Explorative factor analysis (with Oblimin rotation) was conducted for the 37 variables in order to reduce the data, and to uncover the underlying dimensions of the school perceptions. The factor analysis resulted in seven factors (Table 1). The items in each factor were added up to give sum scores, which were named as follows: *School engagement* (3 items), which indicated the outlook on school life and on belonging at school. *Liking school* (4 items) indicated a positive outlook towards school and schoolwork. *Parental support* (5 items) indicated the parents' involvement in schoolwork. *Student relations* (5 items) reflected relationships and interactions at school. *Academic support* (8 items) and *Teacher-student relations* (9 items) reflected the student-teacher relations at school, and *School strain* (3 items) reflected the workload and attitudes towards school. To preserve the original scale for the sum scores formed, the sum scores were divided by the number of items in each sum score. The internal consistencies of the sum scores were satisfactory. Cronbach's alpha for the sum scores varied between 0.76 and 0.87.

Educational aspiration was measured by a single item: *What do you think you will do when you finish comprehensive school?* Here, students were asked if they were intending to apply for *general upper secondary education*, or for *vocational education*, or for an *apprenticeship*; also if they were *intending to get a job*, or *intending to remain unemployed*, or if they were as yet *undecided*. The variable was rescaled so that the statements *I'm going to apply for general upper secondary school* and *I'm going to apply for vocational school* were kept as they were, and the others were omitted from the analysis ($n = 401$).

Perceived family affluence was measured with a single question, *How well off do you think your family is?* The item had five response options: *very well off*, *quite well off*, *average*, *not so well off*, and *not at all well off*. For the analysis, two categories were formed, comprising the first two options, *very well off* and *well off*, and the last two options, *not so well off* and *not at all well off*.

Feeling of loneliness was also measured with a single question in which the students were asked if they ever felt lonely. The question had four response options *Yes, very often*; *Yes, quite often*; *Yes, sometimes*; and *No*. The variable was dichotomised into those who felt lonely, and those who did not.

In addition to the measures above, we used demographic variables such as *age* and *gender*.

Statistical Analysis

Binary logistic regression analysis was conducted to analyse the associations between school perceptions and victimisation of bullying. For the purposes of the analysis, the school perception variables were rescaled. School engagement was divided into three categories: *high*, *average*, and *low* engagement. All the other sum scores were split into two categories according to the original scale, hence placed on the positive or negative side. The responses regarding victimisation were also dichotomised into those who had been bullied and to those who had not.

Results

Most of the students reported that they had never been bullied during the past few months. Nevertheless, almost one in ten reported that they had been bullied frequently at school. When the results were analysed by age and gender, it emerged that boys aged 13 were bullied more often than girls of the same age ($p = 0.044$) (Table 2). There was no significant gender difference among 15-year-olds (Table 3). Younger students reported victimisation more often than older students; about 6% of the 13-year-olds and about 4% of the 15-year-olds had been bullied weekly at school ($p < 0.001$).

The most common form of being bullied was verbal teasing. Almost every third student reported that they had been called mean names, teased, or made fun of at least once or twice a month. The results clearly indicated gender-specific forms of bullying. Hence, boys tended to be victimised in more physical ways, i.e. by being hit, kicked, or pushed, while girls were bullied in more indirect ways; i.e. they were excluded from the group, or false rumours were spread to try to make others dislike the victim. Among 13-year-old boys, 16% reported being hit, kicked, pushed, shoved around, or being locked indoors at least once or twice a month, whereas among 13-year-old girls, 7% reported this kind of bullying ($p < 0.001$). Such physical forms of bullying at least once or twice a month were experienced by 14% of the boys aged 15, and by 4% of the girls aged 15 ($p < 0.001$). Among the girls, 22% of the younger girls and 19% of the older girls reported the experience of others leaving them out of things on purpose, of exclusion from a group of friends, or of being totally ignored at least once or twice a month. Similar phenomena were reported by 17% of the younger boys, and by 14% of the older boys (13-year-olds, $p = 0.011$; 15-year-olds, $p < 0.001$). Among younger students, more girls than boys reported victimisation by students who told lies about them, spread false rumours about them, or made others dislike them (girls

Table 1 Results from factor analysis: seven factors describing school perceptions, $n = 4262$

	Factors							Communalities
	1.	2.	3.	4.	5.	6.	7.	
1. School engagement								
I feel I belong at this school	0.679							0.567
I feel safe at this school	0.608							0.467
Our school is a nice place to be	0.585							0.636
2. Liking school								
I like being in school		-0.817						0.703
I look forward to going to school		-0.787						0.682
I enjoy school activities		-0.506						0.501
I wish I did not have to go to school (reversed)		-0.452						0.410
3. Parental support								
My parents are interested in what happens to me at school			-0.807					0.535
My parents encourage me to do well at school			-0.802					0.545
If I have a problem at school, my parents are ready to help			-0.797					0.559
My parents are willing to help me with my homework			-0.699					0.451
My parents are willing to come to school to talk to teachers			-0.577					0.392
4. Student relations								
The students in my class treat each other with respect				0.753				0.493
Most of the students in my class(es) are kind and helpful				0.726				0.453
The students in my class(es) enjoy being together				0.704				0.402
Other students accept me as I am				0.644				0.404
When one of my costudents is feeling down, one of us tries to help				0.520				0.355
5. Academic support								
My teachers tell me how to do better on school-tasks					-0.705			0.400
In feel that my teachers provide me with choices and options					-0.695			0.457
My teachers try to understand how I think before suggesting a new way to do things					-0.636			0.507
My teachers make sure that I really understand my goals and what I need to do					-0.610			0.458
My teachers listen to how I would like to do things					-0.608			0.490
My teachers guide me how to solve tasks					-0.522			0.399
My teachers encourage me when I do school work					-0.518			0.412
When I need extra help, I can get it					-0.497			0.409
6. Teacher-student relations								
I feel my teachers care about me as a person						0.683		0.559
I feel a lot of trust in my teachers						0.669		0.569
Most of my teachers are friendly						0.618		0.499
I feel that my teachers accept me just as I am						0.614		0.527
Our teachers treat us fairly						0.585		0.519
My teachers are interested in knowing how I'm doing						0.526		0.479
I am encouraged to express my own views in my class(es)						0.424		0.428
The students are not treated too severely/strictly in this school						0.354		0.403
The rules in this school are fair						0.331		0.426
7. School strain								
I have too much school work							0.763	0.432
I find school tiring							0.647	0.479
I find school difficult							0.549	0.361
Cronbach's alpha	0.832	0.854	0.853	0.812	0.868	0.882	0.760	

Table 2 Different forms of bullying: percentages of 13-year-old students who have experienced different forms of bullying, by gender

	13 years								Sig.
	Boys				Girls				
	Never, %	Once or twice a month, %	2–3 times a month, %	Weekly, %	Never, %	Once or twice a month, %	2–3 times a month, %	Weekly, %	
Incidences of bullying (overall)	65	22	6	7	70	18	6	6	0.044
I was called mean names, was made fun of, or teased in a hurtful way	62	24	6	8	65	21	6	8	0.457
Other students left me out of things on purpose, excluded me from their group of friends, or completely ignored me	83	10	4	3	78	13	4	5	0.011
I was hit, kicked, pushed, shoved around, or locked indoors	83	10	3	3	93	4	1	2	<0.001
Other students told lies or spread false rumours about me and tried to make others dislike me	76	15	4	5	72	20	4	4	0.026
Other students made sexual jokes, or gestures to me	86	8	2	4	86	8	2	3	0.971
I've been bullied on the Internet, by e-mail, or with pictures	93	4	2	2	91	6	1	1	0.039
I've been bullied via mobile phone	94	3	2	1	94	4	1	1	0.269

28%, boys 24%; $p = 0.026$), also victimisation by internet, e-mail, or pictures (girls 9%, boys 7%; $p = 0.039$). Older boys experienced more name calling, mockery, or teasing than girls (boys 36%, girls 28%; $p < 0.001$). Experiences of multiple forms of bullying in the past couple of months were not very common: most of the students reported having been bullied in one or two different ways, rather than in various (3–7) ways (Table 4).

Some of the school perceptions under study were strongly associated with bullying. Students with low levels of school

engagement were more likely to be bullied than their peers with higher engagement (OR 1.62, $p < 0.001$). Moreover, students with poor student relationships at school were more likely to be victims of bullying behaviour (OR 2.65, $p < 0.001$). Students who perceived their teacher-student relations to be better were more likely to be bullied than their counterparts (OR 1.24, $p = 0.046$) (Table 5).

Gender and age seemed to be influential predictors of bullying. Younger students were almost twice as likely to have been victimised than older ones (OR 1.98, $p < 0.001$), and

Table 3 Different forms of bullying: percentages of 15-year-old students who have experienced different forms of bullying, by gender

	15 years								Sig.
	Boys				Girls				
	Never, %	Once or twice a month, %	2–3 times a month, %	Weekly, %	Never, %	Once or twice a month, %	2–3 times a month, %	Weekly, %	
Incidences of bullying (overall)	74	17	4	5	77	15	4	4	0.283
I was called mean names, was made fun of, or teased in a hurtful way	64	23	5	7	72	17	6	5	<0.001
Other students left me out of things on purpose, excluded me from their group of friends, or completely ignored me	86	9	2	3	81	11	3	6	0.001
I was hit, kicked, pushed, shoved around, or locked indoors	86	9	3	3	96	3	1	2	<0.001
Other students told lies or spread false rumours about me and tried to make others dislike me	81	11	4	3	78	13	6	3	0.166
Other students made sexual jokes, or gestures to me	83	9	3	5	83	10	4	3	0.084
I've been bullied on the Internet, by e-mail, or with pictures	95	3	1	1	94	4	1	1	0.886
I've been bullied via mobile phone	97	2	1	1	97	2	1	0	0.609

Table 4 Multiplicity in forms of bullying: percentages of students who have been bullied in multiple ways, by age and gender

	13 years		Sig.	15 years		Sig.
	Boys, %	Girls, %		Boys, %	Girls, %	
None	50	46	0.028	54	52	0.136
1–2 ways	32	37		30	34	
3–7 ways	18	17		16	14	

boys were more likely to have been victimised than girls (OR 1.70, $p < 0.001$). Feelings of loneliness were also associated with the experience of victimisation. Those students who felt lonely were more likely to be victimised than those who never felt lonely (OR = 2.28, $p < 0.001$). Having a poor socioeconomic position was also associated with being a victim of bullying. Those students who perceived their family affluence as low were almost twice as likely to be bullied as those who perceived their position to be good (OR 1.91, $p < 0.001$) (Table 5).

Discussion

The prevalence of being a victim of bullying and the different forms of bullying were fairly consistent with previous studies. In Finland, about one-tenth of students are bullied regularly in schools, younger students are victimised more often than older students (Analitis et al. 2009; Craig et al. 2009; Wang et al. 2009; UNESCO 2019), and victimised students tend to have lower socioeconomic position (Due et al. 2009; Tippett and Wolke 2014; Due et al. 2019). It is often claimed that boys are bullied more than girls (Due et al. 2005; Erginoz et al. 2015; Craig et al. 2009; Callaghan et al. 2014; UNESCO 2019). However, in the present study, this gender difference was found only among younger students. This study also lends support to findings from previous studies, in which girls were found to be bullied primarily in verbal ways, and boys in physical ways (Wang et al. 2009; Hager and Leadbeater 2015; UNESCO 2019). In planning interventions, gender differences should be taken into account, insofar as boys and girls differ clearly in terms of the forms in which they are victimised, and not merely in the prevalence of victimisation.

The Finnish Basic Education Act and the National Core Curriculum oblige education providers to have ‘a plan for safeguarding the pupils against violence, bullying and harassment as a part of the school welfare plan’ (Finnish National Board of Education 2016). According to TEAviisari (an online tool to show the direction of health-promoting work in municipalities), 94% of Finnish comprehensive schools do have a recorded bullying prevention plan, 96% of schools have a recorded practice for intervening bullying, and 92% a recorded practice for post-intervention monitoring of bullying

(:dito_existswww.teaviisari.fi). Certain national programs have been proven, at least to some degree, to be effective in tackling bullying, as in the case of the KiVa antibullying program (:dito_existswww.kivaprogram.net; Sainio 2014). KiVa antibullying program is a research-based whole school intervention program that stems from the participant role approach. KiVa program has been widely used in Finnish comprehensive schools in the past 10 years. However, these research-based intervention programs require time, effort, and commitment, which affects the sustainability of such programs. Therefore, further research and development is needed to make the programs meet the needs of changing society and resources of the schools (Sainio 2014; Haataja 2016). Nevertheless, no fully comprehensive results have been published on the effectiveness of these plans and programs. Interestingly, a study by Luopa et al. (2014) has indicated that within Finland, students’ feelings of safety at school have increased during the past decade, despite the fact that the prevalence of bullying has remained at more or less the same level.

It is also worth mentioning that in Finland, health education is a standalone obligatory subject in schools. Prevention of bullying and related themes play an important role in the aims and the contents of this school subject (Aira et al. 2014). Health education teachers are fairly well prepared to deal with the bullying issues in their classes because the health education teacher education programmes in universities and health education text books used in schools as well as the in-service training courses introduce many important tools to prevent bullying and to promote safeness at school (Välmaa et al. 2008; Paakkari and Paakkari 2019). The HBSC study has been of great significance in preparing antibullying strategies and health promotion programs for schools. It has also been utilized in health education teacher training and for materials for health education at the university and school level. The HBSC study has also been utilized in preparation of the antibullying strategy as well as health promotion programmes for schools by the Finnish National Board of Education.

In the present study, the percentage of cyberbullying was found to be fairly low (with less than 10% of respondents having experienced cyberbullying). This is of interest, given the attention the phenomenon has received in the media, and also comparisons with other studies from other countries (see e.g. Patchin and Hinduja 2012). A review by Patchin and Hinduja (2012) revealed that on average almost a fifth of students are victims of cyberbullying. One reason for the low prevalence in our data could be that the students may have found it difficult to answer the questions on cyberbullying. A point to note here is that once pictures (for example) are put online, they remain there forever; thus, the same picture can circulate in multiple apps or sites, and this makes it hard to determine whether one is dealing with a single or a repeated act. One must bear in mind also that most of the questions on

Table 5 Binary logistic regression analysis: factors associated with being bullied

Items	<i>n</i>	Bullied, %	OR	Sig.	95% confidence interval
Gender					
Boys	1812	30	1.697	< 0.001	1.445–1.992
Girls	2044	26	1.00		
Age					
13	1871	32	1.979	< 0.001	1.682–2.328
15	1985	24	1.00		
Perceived family affluence					
Good	2682	26	1.00		
Average	960	30	1.069	0.464	0.894–1.279
Poor	214	48	1.913	< 0.001	1.399–2.615
Expectations for further studies					
High school	2111	27	1.00		
Vocational school	1344	28	.931	0.431	0.779–1.112
Academic achievement					
Good	2237	27	1.021	0.814	0.861–1.279
Average or below	1619	29	1.00		
Feeling of loneliness					
Yes	2135	37	2.820	< 0.001	2.385–3.335
No	1721	17	1.00		
School engagement					
High	2802	24	1.00		
Low	1054	40	1.618	< 0.001	1.336–1.959
Parental support					
Supportive	3501	27	1.00		
Not supportive	355	36	1.076	0.582	0.829–1.397
Liking school					
Much	2251	25	1.097	0.331	0.910–1.323
Less	1605	32	1.00		
Student relations					
Good relations	2934	22	1.00		
Poor relations	922	46	2.650	< 0.001	2.220–3.164
Academic support					
High	2528	25	1.00		
Low	1328	32	1.090	0.356	0.908–1.309
Teacher-student relations					
High	2752	26	1.236	0.046	1.004–1.521
Low	1104	32	1.00		
School strain					
High	1807	32	1.129	0.167	0.950–1.342
Low	2049	25	1.00		

the different forms of bullying covered bullying at school, not in other environments. Furthermore, the data for our study were collected in 2010. Since then, the mobile world has evolved greatly, and forms of cyberbullying may also have evolved, and increased. Since adolescents are always one step ahead, there could well be some forms of bullying that our study did not cover. A study by Arnarsson et al. (2019) suggested that cyberbullying might in fact be a separate phenomenon from traditional bullying, since no great overlap

existed between these two phenomena within the Nordic countries.

We analysed a wide range of school perceptions, some of which seemed to be associated with being a target of bullying at school. Students who were bullied regularly showed lower engagement with the school and reported poorer student relations. In addition, victims of bullying were more likely to report feelings of loneliness. Problems with peer relations have also been associated with bullying in previous studies

(see e.g. Pörhölä 2008; Wang et al. 2009; Antoniadou et al. 2019), as have been the negative perceptions of school (see e.g. Mehta et al. 2013).

Interestingly, the current study suggested that students who reported better teacher-student relations were more likely to be bullied at school. As mentioned above, students with more negative perceptions and relationships were in general more likely to be victimised; however, teacher-student relations emerged as the only category in which having more positive relations was associated with being a victim. As noted by Konishi et al. (2010), good teacher-student relations show an association with better performance. Better performance is often seen as teacher adulation and can therefore be one reason to for victimisation (Hamarus 2006). Being ‘a teachers’ pet’ might well be a reason for becoming a target of bullying. Gardella et al. (2019) stated that if students were favoured by teachers, they were more likely victimised. Santinello et al. (2010) found an association between bullying and teacher unfairness was found with students who bullied others but not with victims of bullying. However, as they stated, teachers should provide students with a model of fair treatment.

Although the present study focused on the role of students who were victimised, there is little doubt that teachers can have an important role in interventions to reduce bullying. However, it has been suggested that only a relatively small number of bullying incidents come to the attention of adults (Hamarus 2006). Detection of bullying situations can be difficult for school staff and other adults, since the forms of bullying can be subtle, and the experience of bullying is highly subjective. A study by Haataja et al. (2015) stated that three out of four chronic victims were not recognised by school staff even if there was a structured antibullying program implemented. It is true that Finnish teacher education does address bullying issues, but the present study underlines the need for teachers and school staff to use all possible knowledge and methods they are provided to tackle bullying. In addition, given that teachers spend the most of the school hours with the students, they should not merely intervene in bullying situations, but pay attention to the overall social atmosphere within the school. It is also essential to be aware of the prevailing cultural values, fears, power relations, and norms that reign among student communities (Hamarus and Kaikkonen 2008).

This study has certain limitations. It is important to emphasise that the data used in this study are cross-sectional and that the findings on associations do not determine the causality. The data are also self-reported, hence involving the subjective perceptions of individuals. Moreover, as mentioned above, the perception of being bullied is subjective, with consequent difficulties in defining the concept precisely. It should also be pointed out that certain school-level factors were omitted from the present study. Thus, *school size* and *class size* might be factors that could have an influence on perceptions of the

school, and of bullying. However, studies have indicated that school perceptions and experiences of bullying do not vary significantly across Finnish schools (see e.g. Luopa et al. 2014; Markkanen et al. 2019). This might be due to the fact that Finland is both socially and culturally a fairly homogeneous country, with the school system offering broadly equal opportunities to receive education. In the PISA (Programme for International Student Assessment) study, Finland has been a top-ranking country in education. In the PISA 2015, the variation between schools was one of the lowest in participating countries. Also the impact of socioeconomic background on student performance in Finland was average OECD country level (Vettenranta et al. 2016). These various factors merit further research. On the other hand, the strengths of the study include nationwide representation and a high response rate. It should also be noted that the questionnaire and the indicators were carefully reviewed and revised by the HBSC research network, and have a good likelihood of capturing valid information on students’ school life (Currie et al. 2008; Roberts et al. 2009; [:dito_existswww.hbsc.org](http://dito_existswww.hbsc.org)).

Altogether, this study has the capacity to further raise awareness of bullying, constituting one more step in facing the problem squarely. This study indicates the importance of wider perspectives in understanding bullying in the school context. It reveals some characteristics of the school setting, as well as some individual characteristics, that are associated with bullying. Overall, it appears that improving the entire school experience may well have an effect on the prevalence of victimisation through bullying.

Funding Information Open access funding provided by University of Jyväskylä (JYU).

Compliance with Ethical Standards

Conflict of Interest The authors declare that they have no conflict of interest.

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