



# Building knowledge of adolescent mental health in the Nordic countries

*An introduction to a Nordic research collaboration*

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## Abstract

Adolescence is an important developmental period. Young people face many pressures and challenges, including growing academic expectations, changing social relationships with family and peers, and the physical and emotional changes associated with maturation. Mental health is a broad concept, including positive mental health, mental health problems and psychiatric diseases. This introductory paper addresses the issue of positive mental health, and how existing data from the Health Behaviour in School-aged Children study (HBSC) may be used to deepen our knowledge of developments in mental health among adolescents in the Nordic countries.

The Health Behaviour in School-Aged Children study is a WHO collaborative cross-national study that now includes 48 countries, collecting data every four years from 1984 to 2018 on health, well-being, health behaviour and social environments. Data collection is carried out in school classes via self-completion of questionnaires. An asset of the study is that the HBSC focuses on understanding young people's health in their social context at family, peer, school, neighbourhood, and country levels. The investment in the HBSC study gives unique opportunities for high-quality research and monitoring in the Nordic countries.

The on-going Nordic research collaboration on positive mental health among adolescents uses the HBSC study as the research infrastructure for analysing trends as well as collecting new data on positive mental health. This special issue reports on trends when positive perspectives have been guiding the analysis of available data. The present research explores the potential of Nordic collaboration and comparative studies of school-aged children in the Nordic countries.

#### Keywords

adolescents, child health, epidemiologic methods, mental health, Nordic countries

This paper introduces the research topics of mental health among adolescents and presents the approaches and perspectives governing survey research on adolescent mental health. The aim of the paper is to introduce an on-going research collaboration consisting of researchers from the five Nordic countries involved in the Health Behaviour in School-aged Children (HBSC) study. The paper begins with a short introduction to adolescence and adolescents' mental health, which is followed by an overview of the HBSC study. The aim of the research collaboration is to build knowledge of adolescent mental health, with special focus on positive mental health. This includes data collection with new measures in the HBSC study and planning of more in-depth research. Other articles in this special issue will analyse trends in self-reported mental health for school-aged children in five Nordic countries; Denmark, Finland, Iceland, Norway and Sweden, as well as discuss enhancing research on adolescent positive mental health.

## Adolescence

Adolescence is a formative life stage for adult health, and one that needs to be prominent in health policy (Viner et al., 2012). The reason is that adolescence can potentially set the stage for the development of adult health inequalities (Due et al., 2011; Koivusilta et al., 2013). The WHO Commission on Social Determinants of Health claims that most inequalities in health between and within countries are avoidable (WHO, 2008), yet they persist among young people across Europe and North America (Currie et al., 2012). Young people between the ages of 11 and 15 face many pressures and challenges, including growing academic expectations, changing social relationships with family and peers, and the physical and emotional changes associated with maturation. During these years, they develop increased autonomy and independent decision making that will shape their health, health-related behaviour, education and future socioeconomic possibilities. Health-related behaviour and health problems established during this transition period may continue into adulthood, and patterns of inequality may be substantiated and increase, affecting issues such as mental health, the development of health complaints, overweightness, tobacco use, physical activity level, and alcohol use. Although youth in the Nordic countries all live in welfare states, they experience somewhat different social conditions, and these conditions change over time through, for example, economic crisis and economic globalization. These contrasting social conditions provide an ideal setting for the study of trends among adolescents.

### Adolescents' mental health

The importance of mental health and well-being during adolescence has become evident in recent decades, in both research and specific interventions (O'Connor et al., 2017). Researchers and health officials have come to view this period as pivotal in the development of various psychological problems (Paus et al., 2008). This is especially true of the ominous

frequency of anxiety and depression detected during adolescence (Sawyer et al., 2007). Although the importance of preventing psychiatric illnesses should not be underestimated, it is also crucial to pay attention to mental health issues, such as symptoms and measures of positive mental health. Many adolescents suffer from no discernible mental disease but still experience mentally induced functional restraints compared to most peers (Suldo et al., 2011). A study of 1,234 American adolescents employed a comprehensive set of subjective well-being items. The results showed that more than half of the study population did not meet the criteria for good mental health, and that the frequency of ill health grew with increasing age (Keyes, 2006). Healthy adjustment to the changes that adolescence entails has multifarious effects on peoples' development in the long run. This means that epidemiological studies on mental health outcomes over the period of adolescence are important and should be followed over time to address important developments and changes. Individuals' psychological health is often under pressure during the turbulent time between adolescence and emerging adulthood. This period is filled with new roles and responsibilities (Schulenberg et al., 2004). In addition, the results strongly suggest that studying the factors increasing the likelihood of successful navigation through this period is of great significance (O'Connor et al., 2011).

The dual-factor model of mental health emphasizes the importance of measuring not only the symptoms of disease, but also the signs of good mental health. The two are perceived as separate but related phenomena (Greenspoon & Saklofske, 2001). Moreover, mental health needs to be viewed holistically, i.e. not only seeing that the individual is free from disease, but that he experiences positive emotions related to satisfaction, content and contribution (Ryff & Singer, 1998). Despite this interest in positive development, studies of psychiatric disorders are still the mainstay of adolescent mental health (Evans et al., 2005). The many vulnerable individuals who may not present clinical symptoms, but still experience low life-satisfaction and may be heading for a problematic future, are therefore largely ignored (Greenspoon & Saklofske, 2001). Subjective well-being is an important dimension of mental health when predicting the function and adaptation of children also presenting with psychiatric symptoms. Low self-worth, low academic achievement and few social relations characterized the latter group, experiencing low subjective well-being, albeit without discernible symptoms of mental diseases. In a sample of American adolescents, Suldo and Schaffer (2008) found that 57% could be classified as having good mental health; 13% did not have clinical symptoms of mental disease, but experienced low values on the student life-satisfaction scale; 13% met the criteria for mental illness, but experienced adequate life satisfaction, and 17% had both symptoms of mental disease and low life satisfaction. The study highlights the importance of measuring symptoms as well as a broader measure of mental health, such as life satisfaction and important associations with social relations.

It is also important to bear in mind that there are adolescents who do have clinical symptoms but nevertheless still maintain high life satisfaction (Bastiaansen, Koot, & Ferdinand, 2005). Consequently, it is necessary to combine both positive and negative factors in the studies of adolescent mental health (Suldo & Schaffer, 2008).

Strong positive social relations, particularly with parents and peers, greatly increase the likelihood that a persons' life proceeds positively through adolescence into adulthood. In many studies, well-being is seen as a measurement of positive development, and findings illustrate that relations with parents and peers are very important to the individual's long-term welfare (O'Connor et al., 2011). A study by Schulenberg et al. (2004) revealed that communicating with peers was the key to well-being as measured by self-esteem, self-efficacy and social relation. A large study of Dutch adolescents (van Wel et al., 2002) showed

that good relations with parents are very important in emerging adulthood, no less than communication with peers and romantic relationships.

Most scientists deem that the foundations of individual mental health develop at a young age (Goodman, Joyce, & Smith, 2011). Therefore, it is important to consider potentials for prevention and promotive interventions. For instance, it has been demonstrated, that parental training can improve their children's mental health and well-being throughout their lifespan (Stewart-Brown & Schrader-McMillan, 2011). Also, growing interest has been expressed in using school-based interventions to improve adolescents' mental health (O'Connor et al., 2015). Various interventions have had a great impact on social and emotional abilities (Durlak, et al., 2011). Similarly, studies have demonstrated that strong ties with friends during adolescence increase resilience on both on a short- and long-time basis (van Harmelen et al., 2017).

Positive mental health is not only important during this specific period, but it also helps individuals cope with the challenges of adulthood (Schulenberg et al., 2004). In the current climate of strain on both Nordic adolescents' mental health and the health care systems, it is absolutely pivotal to channel funds for research and interventions into this area as effectively as possible. Investments in health promotion, prevention and early intervention aimed at adolescents will deliver hefty economic and social returns (Forsman et al., 2015). However, despite this, few studies have investigated how best to measure positive mental health (O'Connor et al., 2017).

A paper by Hawkins et al. (2012) showed that positive development in the latter part of adolescence predicted superior psychological and physical health, better relations with friends and less antisocial behaviour when individuals had reached the age of 23–24. But good mental health includes not only the well-being of individuals, but also their active participation in society (Lerner et al., 2005). O'Connor et al. (2017) demonstrated, for instance, that positive mental health in adolescence predicted better citizenship in adulthood, thus highlighting the bigger societal gain.

A team of specialists appointed by the European Council (ROAMER – ROAdmap for MEntal health Research in Europe) clearly stated that studies and strategies should revolve around prevention and positive mental health. These specialists concluded that emphasising positive mental health will reduce prejudice and make people more aware of their own psychological well-being (Forsman et al., 2015).

## History of the HBSC

In 1982, scientists from England, Finland and Norway met to discuss the lack of comparable studies of smoking amongst youth. They decided to start a new international study in the field, using the same questions and methodology. This would enable them to compare results from different countries. In the end, they dedicated the study not only to smoking but various other health-related factors deemed important in young peoples' health and well-being. Soon thereafter, a protocol was formulated, and scientists from Austria and Denmark joined the network. Data collection in these 5 countries commenced in the winter of 1983–1984. Shortly thereafter, Belgium, Hungary, Israel, the Netherlands, Scotland, Switzerland, Sweden and Wales came on board. Thus, in the next data collection wave in 1985–1986, the number of participating countries had increased to 13. Within a decade, this number had grown to 25. In the last wave in 2017–2018, a total of 48 countries collected data, with 383 scientists involved. In the early years of the study, a close bond formed with

the World Health Organization (WHO), which has benefitted both parties (Currie et al., 2009; Currie, & Alemán-Díaz, 2015).

Right from the start of the study, the participating scientists were convinced that the period of early and middle adolescence was pivotal in an individual's development of health and lifestyle. This perspective thus guided the choice of the three age groups now included in the study. Age-related processes important for emotions, thought and behaviour were taken into consideration. The scientists decided to include 11-, 13-, and 15-year-old children. They thereby focused on a period of tremendous emotional and physical change and the start of a period when individuals begin distancing themselves from their parents and taking decisions that will greatly influence their entire lives. The scientists were also aware of the importance of looking at risk factors in the context of daily life. HBSC was therefore in the forefront of studies looking at adolescents' health as being shaped by their social surroundings – parents, peers, school and economics (Aarø et al., 1986; Currie et al., 2009; Currie, & Alemán-Díaz, 2015).

The guiding philosophy of the HBSC study has always been to look broadly at the health and lifestyle of adolescents, taking into consideration both social and environmental factors. Health, in this context, is not simply defined as being free of disease, but much more as having physical and mental well-being (Currie et al., 2009).

The data is collected in all participating countries by sending questionnaires to schools. Each country uses a random sample of schools or school classes to select students from the aforementioned age groups. Care is taken to ensure that the sample is descriptive of each population. At least 1,500 participants are required from each age group in each country. In the most recent waves of the study, around 220,000 students have answered the questionnaire. Data collection is mostly conducted in the period from September to June, and the average age of participants is 11.5, 13.5 and 15.5 years (Torsheim et al., 2016).

The HBSC network has actively allowed new ideas in academic and public debate to influence the choice of items without sacrificing key items that have been included from the beginning. Expertise has accumulated within the group, which has led to deeper analysis of the data. The substantial list of publications (available on [www.hbsc.org](http://www.hbsc.org)) attests to both. (Currie et al., 2009).

Starting with the data collection in the period of 1993–1994, an international report has been published describing the main findings. Sometimes these reports have had a specific theme – for example, inequalities in health (Currie et al., 2009).

The interdisciplinary approach to both measurements and theory has continued to evolve and is flourishing today, giving rise to many novel approaches in the field of adolescence research. The use of a joint standard methodology has made it possible to collect comparable data from different nations. This methodology not only produces an enormous centralized databank, but also enables extensive use in each country or region. From these, reliable and valid measurements describing health, well-being and risk factors in the lives of adolescents have emerged, and these can be viewed over extended periods and in relation to social factors. Because this research network has been running for so long, it is now possible to view changes in various important variables across decades, thereby identifying both those that continue to influence adolescents' lives and those that have emerged in later years (Currie & Alemán-Díaz, 2015; Inchley et al., 2016).

Scientists within the network participate in focus groups based on their area of interest and specialty, and this has been instrumental to development and innovation in all fields of the study. Each data collection wave every fourth year has included new topics along with older core questions that are deemed important for longitudinal trend changes. Data col-

lected for individual countries has been used locally to draw attention to highlight problems facing adolescents. In that way, local knowledge has been built up to facilitate debate and ideas for actions, and also to help governments allocate their funding where it is most needed (Currie, & Alemán-Díaz, 2015).

## HBSC – A Unique Opportunity

Researchers from the Nordic countries started a research collaboration because of the need for comparative data on adolescent smoking (Aarø, Wold, Kannas & Rimpelä, 1986). However, there was a much broader need for knowledge about health, health behaviour and its determinants. The emerging HBSC study offers unique opportunities for comparative research due to its quality, coverage, comprehensiveness, and relevant content.

**Quality:** One asset is the **opportunity for high-quality research and monitoring** of the health of school-aged children enabled by the HBSC study. A characteristic of the HBSC study is its continuous methodological development (Roberts et al., 2009; Currie & Alemán-Díaz, 2015). The survey questions provide information on: demographic factors (e.g. age and state of maturation); social background (e.g. family structure and socio-economic status); social context (e.g. family, peer culture, school environment); health outcomes (e.g. self-rated health, injuries, overweightness and obesity); health behaviour (e.g. eating and dieting, physical activity and weight reduction behaviour); and risk behaviour (e.g. smoking, alcohol use, cannabis use, sexual behaviour, bullying). Questions are subject to validation studies and piloting at national and international levels, with the outcomes of these studies often being published, e.g. validity and reliability of measures of family affluence (Boyce et al., 2006; Andersen et al., 2008); self-reported weight and height (Elgar et al., 2005; Rasmussen et al., 2013); subjective health complaints (Haugland & Wold, 2001), ethnic background (Nordahl et al., 2011) and perceived psychosocial school environment (Torsheim & Wold, 2001a; Haapasalo, Valimaa & Kannas 2010). The conceptual basis and validity of an important indicator of social inequality – family affluence – is summarised in Schnohr et al., 2015). The HBSC study has been a very important resource for building knowledge on adolescent health (Currie & Alemán-Díaz, 2015).

**Coverage:** Every four years, the HBSC study has collected data about health, well-being, health behaviour and social environments over a 30-year period (1984–2018) in four of the Nordic countries involved in the papers of this special issue (Denmark, Finland, Norway and Sweden) and, since 2002, in Iceland too.

**Comprehensiveness:** The HBSC study also highlights a range of protective and risk factors associated with social environments that can create opportunities to improve young people's health. These factors comprise family, peer relations, school environment and neighbourhood.

**Content relevant to this study:** The HBSC study includes data on three core measurement instruments relevant to the study of adolescent mental health: (1) Self-rated health (SRH), which measures perceived health status, has been included in all HBSC surveys.

(2) Life satisfaction (Cantril ladder) is an item-efficient measure of life satisfaction. It is included in the mandatory part of the questionnaire and has remained unchanged since the 2001/2002 survey. The item has been found to be associated with the general health item and the HBSC symptom checklist (Cavallo et al., 2006).

(3) The HBSC Symptom Checklist (HBSC-SCL) (also referred to as “psychosomatic complaints”) is an eight-item scale that was fully developed and has remained unchanged since the 1993–1994 survey (Haugland et al., 2001; Stanley, Beck, & Zebb, 1998). The scale

is a non-clinical measure of subjective health complaints. It includes eight complaints: headache, abdominal pain, backache, feeling low, irritability or bad mood, feeling nervous, sleeping difficulties and dizziness. Validation work supporting this scale has been done in Norway (Haugland, & Wold, 2001). Although previous studies (Haugland et al., 2001; Hetland, Torsheim, & Aarø, 2001) suggest that the scale reflects two dimensions (psychological and somatic) that might differ qualitatively, the scale can be considered as measuring a uni-dimensional latent trait of psychosomatic complaints (Ravens-Sieberer et al., 2008; Hagquist, & Andrich 2004). The scale is flexible in that statistical analyses are meaningful both on the single-item level (Idler & Bentamini, 1997) and on the sum score level (Stanley et al., 1998).

**Appropriate analytic methodologies:** Central to the HBSC study is a standardized protocol ensuring data are collected using a prescribed methodology, which allows comparison of data across countries and through time.

Previous research has identified challenges and approaches to analysis of time trends (Currie et al., 2008). The objectives of trend analysis include describing trends in outcomes ‘within’ countries, comparing trends ‘between’ countries and examining factors that moderate the magnitudes of trends. In the HBSC study, different approaches have been applied, which is also the case in this issue of the journal: some studies apply a descriptive approach and directly present the actual course of the prevalence over time including confidence intervals. Other studies implement model-based statistical analysis of trends with inclusion of covariates. Model-based trend analysis tries to disclose an underlying, time-dependent tendency in the data, while the descriptive prevalence approach does not make assumptions about a consecutive tendency, but simply displays how the phenomenon has developed. None of the methods can directly determine the cause of a trend, but a model-based analysis might confirm or disprove a tendency adjusted for the possible effects of included factors, while a descriptive approach might display abrupt patterns that call for explanations.

Getting representative samples is a challenge. The Nordic countries have good registries of schools, ensuring a comparable sampling frame across time and countries, with known non-zero sampling probabilities. Still, representativeness might be affected by non-response, especially at the school level. Although countries follow the same protocol, country differences in the way schools are administered might create differences in response rates at the school level. It is relevant to consider anecdotal evidence that schools’ willingness to participate in survey studies has declined over time as the demands on school systems has increased. While the amount of increasing school-level non-responses might not have strong overall impact, non-response bias still needs to be considered when making interpretations about trends.

Survey methods also introduce the challenge of making functional equivalent items across time and country. While there are strong commonalities in language for several countries, the semantics might still vary with cultural, economic and historical diversity. The principle followed in the HBSC is that item translations should ensure that the same content meaning is preserved across countries, not necessarily the exact same item wording. To our knowledge, the variation in content meaning has been kept to a minimum and has been invariant across the period studied.

**Present Nordic research collaboration:** The aim of this research collaboration includes analysing time-trends in positive mental health for school-aged children in the five Nordic countries. This data collected from 11-, 13- and 15-year olds every four years since the 1980s offers unique possibilities for relevant comparative research across adolescent populations in the Nordic countries over time.

The HBSC study offers an excellent research infrastructure for knowledge-building on mental health among school-aged children. The use of self-reported data on mental health is also an asset, but additional self-reported measures need to complement the data collected 2013–2014. The other papers in this special issue give further evidence for this conclusion.

A second aim of the Nordic collaboration is enhancing positive mental health research, which includes selecting and piloting additional measures related to the positive dimension of mental health. Moreover, this process also includes cultural and language adaptation based on the need to develop measures that can be used among adolescents in the five Nordic countries.

The present research explores the potential of Nordic collaboration and comparative studies of school-aged children in the Nordic countries. In this issue of Nordic Welfare Research, other papers present results from such empirical analysis of trends among school-aged children; excellent self-rated health, high life-satisfaction, and lack of psychosomatic symptoms and sleep problems focusing on the positive aspects of assessment. Moreover, the development of two main factors associated with adolescents' mental health, family communication and school-work pressure, are also analysed. Positive mental health and measurement tools to be used in the present research collaboration are the focus of the final paper (Eriksson et al., 2019). The project has been supported by the Nordic Council of Ministers through a project grant to the Nordic Welfare Centre.

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