



# Girls suffer: the prevalence and predicting factors of emotional problems among adolescents during upper secondary school in Norway

Jan Arvid Haugan<sup>1</sup> · Per Frostad<sup>1</sup> · Per-Egil Mjaavatn<sup>1</sup>

Received: 7 September 2020 / Accepted: 26 February 2021 / Published online: 29 March 2021  
© The Author(s) 2021

## Abstract

This longitudinal, quantitative survey examined factors predicting 1077 Norwegian adolescents' emotional problems during Upper Secondary School (grades I–III, approximately 16–19 years old) considering the following research question: “To what extent do students in Upper Secondary School experience emotional problems, and how are these problems predicted by gender, academic/social self-concept, coping beliefs, appearance pressure and school stress?”. The mentioned variables were scrutinized through analysis of frequencies, zero order correlations and structural equation modeling. Results verified previous findings that there was an increase in emotional problems for adolescents, especially among girls. Furthermore, the study results indicate that coping beliefs is a crucial factor when it comes to the perception of pressure and stress, and the subsequent development of emotional health problems.

**Keywords** Emotional problems · Coping beliefs · Stress · Gender

## 1 Introduction

Mental health problems are a matter of major public health concern and are among the leading contributors to the health burden for children and adolescents globally (Erskine et al., 2015; Whiteford et al., 2013). The literature usually separates between mental *problems* and *disorders*. Mental health problems refer to symptoms

---

✉ Jan Arvid Haugan  
jan.haugan@ntnu.no

Per Frostad  
per.frostad@ntnu.no

Per-Egil Mjaavatn  
per.egil.mjaavatn@ntnu.no

<sup>1</sup> Department of Education and Lifelong Learning, Norwegian University of Science and Technology, NO-7491 Trondheim, Norway

that have significantly negative impact on well-being, learning, daily tasks and socializing with others, while they do not satisfy the criteria for a psychiatric diagnosis (Mykletun et al., 2009). A mental disorder can be assessed when the symptoms are in coherence with the criteria in a diagnostic system, such as ICD10 (World Health Organization, 2018) or DSM-5 (American Psychiatric Association, 2013). Mental health disorders are concluded by health personnel based on diagnostic interviews, while it is common to identify the extent of mental health problems through the use of questionnaires. In the following we refer to mental health problems when we discuss mental health among adolescents.

About 10–20% of children and adolescents in the world suffer from mental health problems (Henderson et al., 2017; Kieling et al., 2011). This can have serious consequences for the quality of life as mental health problems during adolescence are related to weak academic and social functioning (Balazs et al., 2013; Rasing et al., 2020). Studies of prevalence from the 80s into the 21st century suggest a global increase in both mental health problems and disorders, especially internalized symptoms among girls (Bor et al., 2014; Choi, 2018). This tendency is supported by studies from the USA (Merikangas et al., 2010), the UK (Collishaw, 2015) and other countries in the western world (Auerbach et al., 2018). These circumstances have led to strengthened emphasis on how teachers, counsellors and the school as a whole can reduce contextual stressors and facilitate adolescents' ability to cope with life challenges. Based on this, research on risk- and protective-factors connected to coping has increased in the last few decades.

Coping is defined as the “constantly changing cognitive and behavioral efforts to manage specific external and/or internal demands that are appraised as taxing or exceeding the resources of the person” (Lazarus and Folkman, 1984, p. 141). However, coping factors cannot be reduced to purely individual, psychological traits (Condly, 2006; Herrman et al., 2011). Other definitions emphasize the ecological influence on coping, stating that risk- and protective-factors include: “(...) both the capacity of individuals to navigate their way to health-sustaining resources (...) and a condition of the individual's family, community and culture to provide these health resources and experiences in culturally meaningful ways” (Ungar, 2008, p. 225). This ecological perspective on coping is supported by research indicating that the quality of relationships with significant others is of considerable importance (Currie et al., 2012; Lerner, et al., 2005), in addition to broader environmental factors such as a safe and inclusive classroom environment (Skaalvik and Skaalvik, 2013; Theron, 2016).

In the present study, we will demarcate the scrutiny of risk- and protective-factors to the associations between self-concept, coping beliefs, appearance pressure, school stress, and emotional problems. These are all individual perceptions, and we recognize that coping encompasses a dynamic, bi-directional process in which the environment and the individual interacts constructively over time. In such, contextual factors in both proximal microsystems (e.g. family, school, friends) and in the more distal macrosystems (e.g. politics, culture) affect coping during adolescence (Lerner et al., 2005, Ungar, 2008). However, numerous findings also indicate that individuals' cognitive perceptions and interpretations are important when understanding the development of stress, perceptions of pressure, and mental health problems (e.g.

Fletcher and Sarkar, 2013; Jongen, McCalman and Bainbridge, 2019). From the perspective of Lazarus and Folkman's (1984) transactional stress model, adolescents' emotional problems depend not only on the objective challenges or stressors they are exposed to, but also on how they subjectively evaluate the situation and beliefs in their own ability to handle it. Thus, their transactional model of stress claims, in line with other research (e.g. Sowislo and Orth, 2013; Yeoh et al., 2017), that self-concept and coping beliefs are decisive constructs to predict experiences of stress and subsequent emotional problems. Individuals with high levels of coping beliefs are more likely to view difficult tasks as challenges rather than things to be avoided. Thus, they are more likely to experience less distress and, and subsequently, fewer emotional problems (e.g. Bandura et al., 1999; Orth et al., 2014).

In the following, we will review research on the associations between adolescents' perceptions of emotional problems, self-concept, coping beliefs, appearance pressure and school stress. This literature review will end with a formulation of a primary research question with six related hypotheses. In the next section we describe methodological aspects, including descriptions of the participants and our procedure, instruments and data analysis. Thereafter, we present findings and discuss the self-reported experience of Norwegian Upper Secondary School students in light of earlier research and theory. This is followed by a discussion of the limitations with the study, practical implications and future directions for research. The article ends with conclusive remarks.

## 2 Literature review

### 2.1 Self-concept

Numerous studies have found that mental health is linked to the experience of self-concept during adolescence (e.g. McCarty et al., 2007; Ohannessian et al., 1999). In the literature, self-concept is generally defined as a person's perceptions and evaluations of personal qualities, abilities, and knowledge (Esnaola et al., 2020; Ohannessian et al., 2019), in academic, physical, and social domains (Hankin et al., 2015; Van Keyserlingket al., 2019). The literature expresses increasing evidence that supports a multidimensional perspective of self-concept, often based on Shavelson, Hubner and Stanton's (1976) multidimensional, hierarchical, and domain-specific model of self-concept, divided into academic and non-academic components. Academic self-concept is further divided into self-concepts in particular subject areas (Mathematics, English, etc.) and non-academic self-concept is divided into social, emotional, and physical self-concepts. This is supported by Marsh and Craven (1997) who argue that "specific domains of self-concept are more useful than a general domain" (p. 191) in order to understand the complexity, predict a wide variety of behaviors, relate self-concept to other constructs, and provide outcome measures for diverse interventions in educational settings.

Previous research indicates that self-concept is an important mediator factor for psychological, social, behavioral and educational outcomes, such as personal development, socialization processes, motivation, coping beliefs, perceptions of stress,

and mental health (Craven and Marsh, 2008; Marsh and Martin, 2011). Taking into account the multidimensionality nature of the self-concept, it is necessary to explore the predictive effects on mental health across several dimensions as the developmental patterns may differ. In this study we will emphasize two of these dimensions: academic self-concept and social self-concept.

Academic self-concept is related to learners' knowledge and perceptions about themselves in overall academic domains (Marsh and Martin, 2011; Wigfield and Karpathian, 1991). Marsh (1989) found that the academic self-concept reaches its lowest point in grades 8 or 9 and subsequently increases through late adolescence, while other studies have found a consistent decline during secondary education (De Fraine et al., 2007; Nagy et al., 2010). Some studies conclude that males score higher than females (De Fraine et al., 2007; Pinxten, et al., 2013), while others find an advantage for females (Young and Mroczek, 2003), or report no significant differences (Esnaola et al., 2018; Marsh et al., 2005). Few studies have investigated the development of social self-concept. However, some studies have found that lower social self-concept is associated with increased emotional problems during mid-late adolescence (Kim-Spoon et al., 2012; Lee et al., 2010).

Based on these findings, it is relevant to underline that Shavelson et al., (1976) emphasized the importance of self-attributions, and suggested that forms of behavior and dimensions of self-concept have correlated and reciprocal relations. This is supported by Marsh and Craven (2006) who reviewed research on academic outcomes and academic self-concept. They found the correlation between academic self-concept and academic achievement (e.g. school grades) to have the strongest association. However, they could not find correlations between other non-academic components of self-concept and academic outcomes, underlining the multidimensionality of the construct (Marsh and Martin, 2011). In sum, the above-mentioned findings indicate that both academic self-concept and social self-concept are directly and positively related with coping beliefs, and negatively related to emotional problems (Craven and Marsh, 2008; Marsh and Martin, 2011).

## 2.2 Coping beliefs

In a systematic review and structural equation modeling meta-analysis of 19 studies, Groth et al. (2019) found that coping is predicted by coping beliefs and subsequently predicts mental health outcomes. Four longitudinal studies indicated that coping beliefs were significantly associated with eating problems (Halvarsson-Edlund et al., 2008), anxiety (Lopez and Little, 1996; Weigold and Robitschek, 2011), and depression (Pérez et al., 2009). Furthermore, in light of their findings, Groth et al. (2019) suggest that individuals who report low coping beliefs tend to underestimate the potential positive consequences of their behavior and the likelihood to be rewarded for this behavior. These findings can be interpreted in light of the theory of learned helplessness (Abramson et al., 1978), which claims that learned helplessness occurs when individuals do not experience that highly desired outcomes are contingent on their responses. This may lead to an attribution of challenges and demands as uncontrollable, prompt individuals to use maladaptive coping strategies, such as self-pity,

and thereby a predisposition toward reactive depression when experiencing failure or negative life events (Lazarus and Folkman, 1984; Rotter, 1966). In this study, we will use the concept of *coping competence* as an indicator of coping beliefs. Coping competence is defined as a belief in the capacity to “(...) effectively cope with failure and negative life events as indicated by a reduced likelihood of helplessness reactions and fast recovery from any occurring helplessness symptoms” (Schroder and Ollis, 2013, p. 288). From this perspective, coping beliefs (competence) is understood as a component of emotional well-being and resilience against learned helplessness dispositions and helplessness-based reactive depression.

In sum, coping beliefs seems to be crucial for both the individuals' interpretation of the threat level, their own abilities and possible coping strategies. When the expectation of coping is low, various challenges, demands and changes that we are exposed to will eventually be perceived as stressful, while high coping will make us more robust to cope with challenges we face in life and thus reduce the likelihood that we will experience challenging situations as stressful. Based on this, we expect that coping beliefs is directly and negatively related to perceptions of school stress, appearance pressure and emotional problems (Sowislo and Orth, 2013; Yeoh et al., 2017).

### 2.3 Appearance and school stress

This article investigates the associations between emotional problems and adolescents' perceptions of performance-related stress in two areas: appearance and school. According to a study that compared the student reports on the perceptions of school pressure between 1994 and 2010, the level of perceived pressure did not increase during the period, except for a temporary uptake between 2002 and 2006. However, recent research indicates that the prevalence of adolescent experience of school stress has increased during the last decade (Bakken et al., 2018; Löfstedt et al., 2019), and that there is a clear association between school stress and emotional problems (Låftman and Modin, 2012; Ringdal et al., 2020).

In a systematical review of 33 studies, Lillejord et al. (2017) report mixed findings concerning gender differences in school stress. Some studies find no differences (Coelho and Romão, 2016; Sotardi, 2016), while most studies find that girls report higher levels of stress compared with boys (Goldstein et al., 2015; Seiffge-Krenke, 2012; Sun et al., 2013; Yang and Cheng, 2016). To explain the differences, Lillejord et al. (2017) argue that girls undergo more pubertal changes than boys, emphasize social demands to a greater extent, become more stressed by unclear expectations and more frequently experience school-related burnout. In line with this, Samela-Aro and Tynkkynen (2012) point to research that has found that girls and boys experience stress differently. Girls internalize symptoms such as depression or fatigue and develop a feeling of not coping with pressure. In addition, girls are more likely to experience competitive situations and that they are more exposed to the negative effects of stress, while boys may tend to develop an externalized reaction pattern such as adapting a cynical attitude toward school. This finding is supported by Suldo and Shaunessy-Dedrick (2013) and Wahab et al. (2013). In sum, it seems that

girls are more influenced by the school context than boys (Dalen, 2014; Låftman et al., 2013). In the high-performing school context that Låftman et al. (2013) report from, students believe that there is a culture of stress at school and that the students, especially girls, influence each other and exaggerate the stress. This is confirmed by Sonmark et al. (2016), who found that being surrounded by classmates who feel pressured is more detrimental to the mental health of girls than boys.

Furthermore, there is an extensive research tradition on adolescents' attitudes toward their own body and appearance. Studies show that girls have a more problematic body image than boys (Bakken et al., 2018; Skaalvik and Federici, 2015). Also, these gender differences increase beyond adolescence (Bearman et al., 2006; Jónsdóttir et al., 2008), and are more closely related to self-concept among girls than boys (Alm and Låftman, 2018). Dissatisfaction with one's own body and appearance has a stronger association with mental health problems among girls than boys (Hargreaves and Tiggeman, 2003; Bearman and Stice, 2008). In sum, based on these findings, we expect that both appearance pressure and school stress are directly and positively related with emotional problems.

## 2.4 The present study

The present study was designed to explore how students perceive life in school in general, and the extent of emotional problems in particular. Even though mental health and well-being are becoming a health priority in most western countries, evidence concerning the prevalence and predictive factors over time remains mixed (Cosma et al., 2020; Rasing et al., 2020). Thus, this longitudinal study is designed to contribute to this knowledge gap in the literature. Based on the literature review, the following research question was formulated: "To what extent do students in Upper Secondary School experience emotional problems, and how are these problems predicted by gender, academic/social self-concept, coping competence, appearance pressure and school stress?". Based on this research question and our findings from the literature review, six hypotheses were formulated, and a theoretical path model was specified:

- H1: The extent of emotional problems among adolescents has increased (Bor et al., 2014; Choi, 2018).
- H2: Academic self-concept is directly and positively related with coping competence, and negatively related to emotional problems (Craven and Marsh, 2008; Marsh and Martin, 2011).
- H3: Social self-concept is directly and positively related with coping competence, and negatively related to emotional problems (Kim-Spoon, Ollendick and Seligman, 2012; Lee, Hankin and Mermelstein, 2010).
- H4: Coping competence is directly and negatively related with school stress, appearance pressure and emotional problems (Abramson et al., 1978; Schroder and Ollis, 2013)
- H5: Appearance pressure is directly and positively related with emotional problems (Alm and Låftman, 2018; Bearman and Stice, 2008).

- H6: School stress is directly and positively related with emotional problems (Låftman and Modin, 2012; Ringdal et al., 2020).

### 3 Method

#### 3.1 Participants and procedure

This study was part of a larger data collection and analysis of students' perceptions of their life in school. The sample for the present article comprises 1077 students (56% response rate), 606 girls and 471 boys, through Upper Secondary School (grades I–III, approximately 16–19 years old), from both rural and urban areas in thirteen schools from one county in Norway. Data can be described as a convenience sample (McQueen and Knussen, 2006), and were collected in the fall of 2015 (USI), spring of 2017 (USII), and spring of 2018 (USIII).

The participating students were informed in advance that the participation in the study was voluntary and that they were considered to have given their consent by filling in the questionnaire. The data were collected with paper-based questionnaires and administrated by members of the research team according to the guidelines of the Norwegian Social Data Services. The Norwegian Data Inspectorate approved the survey.

#### 3.2 Instruments

The dependent variable was measured on a three-point scale ranging from “Not true” (0), “Somewhat true” (1), and “Certainly true” (2). The independent variables, except grades from Lower Secondary School (0–6) and Appearance Pressure (1–4), were measures with items answered on a six-point Likert scale ranging from 1= very untrue to 6= very true, and the reliability was measured by Cronbach's alpha.

##### 3.2.1 Emotional problems

The dependent variable *Emotional Problems* scale was constructed from the Strength and Difficulties Questionnaire (SDQ). SDQ (Goodman, 1997, 1999) is a brief assessment of mental health problems that consist of 25 questions covering emotional symptoms, conduct problems, hyperactivity-inattention, and peer problems as well as prosocial behavior. SDQ was originally constructed for children between 11 and 16 but has recently been used in older age groups (e.g. Bøe et al., 2016; Vugteveen et al., 2019). SDQ Emotional Problems were measured by five statements that each were scored from 0 to 2, making a possible score from 0 to 10. Examples of statements: “I worry a lot”, “I am often unhappy, down-hearted or tearful”. Cronbach's alpha for the scale was good for both girls (.71) and boys (.73).

### 3.2.2 Academic self-concept

*Academic self-concept* was measured by four items based on the “Self-Description Questionnaire III (SDQIII), originally developed by Marsh (1992), and acknowledged as a leading multidimensional self-concept instrument for adolescents (e.g. Boyle, 1994; Hattie, 1992). Examples of statements: “I cope with the challenge of learning new material at school”, “When I sit down to learn something really difficult, I can handle it”. Cronbach’s alpha for the scale was good for both girls (.89) and boys (.86).

### 3.2.3 Social self-concept

*Social self-concept* was also measured by four items based on the SDQIII (Marsh, 1992). Examples of statements: “It is easy for me to make friends”, “Most people like me”. Cronbach’s alpha for the scale was good for both girls (.84) and boys (.87).

### 3.2.4 Coping beliefs

*Coping beliefs* was measured by five items from The Coping Competence Questionnaire (Schroder and Ollis, 2013). This instrument had originally 12 statements, and we used the 5 statements with the highest loadings from the factor analysis. All the statements are formulated negatively and the variable score were turned before we made the scale. Examples of statements: “When I do not succeed right away, I think I will never get it”, “When I perform poorly at school, I begin to doubt my abilities”. Cronbach’s alpha for the scale was good for both girls (.84) and boys (.87).

### 3.2.5 Appearance pressure

*Appearance pressure* was measured using two items based on a scale developed by Skaalvik and Federici (2015). Examples of statements: “I have felt a strong pressure to look a certain way in recent months”, “I have felt a strong pressure to dress in a special way in recent months”. Cronbach’s alpha for the scale was good for both girls (.66) and boys (.71)

### 3.2.6 School stress

*School stress* was measured using three items based on a scale developed for the international survey, Health Behavior in School-Aged Children (Samdal et al., 2016), organized and administrated by the World Health Organization. Examples of statements: “I feel exhausted because of schoolwork”, “I’m stressed by schoolwork”. Cronbach’s alpha for the scale was good for both girls (.79) and boys (.77).



### 3.3 Data analysis

At first, we compared the full SDQ Emotional problems scale data with British norm-data (Goodman et al., 2000), and compared this with a survey from 2000 that included 19 210 adolescents from Norway (Rødje, 2004).

After this, an exploratory factor analysis was conducted on six sum scales (SDQ emotional problems, academic self-concept, social self-concept, coping competence, appearance pressure, and school stress) with a total of 23 statements (see Method for details). Here we found that one item (“often complains of headaches, stomach-aches or sickness”) in the SDQ Emotional problem scale loaded on the School stress factor and decided to leave this factor out. This resulted in an exploratory factor analysis with a total of 22 statements. The Kaiser-Meyer-Olkin value was .89, exceeding the recommended value of .6 (Kaiser, 1970; 1972) and Bartlett’s Test of Sphericity (Bartlett, 1954) reached statistical significance, supporting the factorability of the correlation matrix. Principal component analysis revealed the presence of six components with eigenvalues exceeding 1. The six-component solution explained a total of 68% of the variance. To aid the interpretation of these three components, oblimin rotation was performed. The rotated solution revealed the presence of a simple structure (Thurstone, 1947) with all six components showing strong loadings and all variables loading substantially on only one component.

Furthermore, the hypothesized model of the connections between the variables presented in Figure 1 were tested statistically to explore to what degree it was coherent with the observed data. Structural equation modeling (SEM) in the AMOS 26 program was used to analyze the model with latent (unobserved) variables. None of the error terms were allowed to correlate. The coherence between observed data

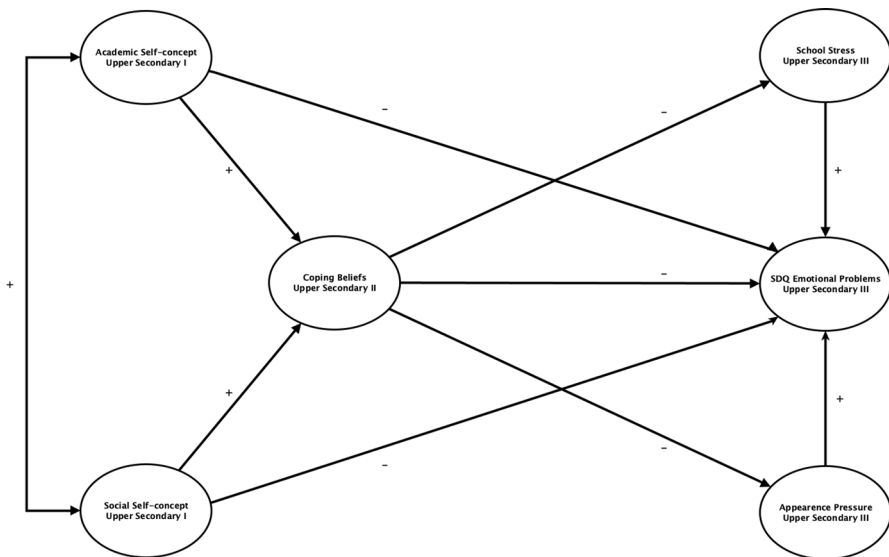


Fig. 1 Theoretical path model

and the hypothesized model is reported as the goodness of fit statistics. The goodness of fit indicators used to assess the model are Non-Normed Fit Index (NNFI, also known as TLI), Comparative Fit Index (CFI), and Root Means Square Error of Approximation (RMSEA), the study also includes chi square,  $RMSEA \leq .07$ ,  $TLI \geq .90$ ,  $CFI \geq .90$  are considered as indicators of acceptable fit (Byrne, 2001; Hu and Bentler, 1999). This indicates a plausibility of the associations between the constructs. The model was tested with the whole sample, and then separate analyses were performed for boys and girls, because research indicates gender differences in the importance of the hypothesized relation between constructs.

## 4 Results

### 4.1 Distribution of SDQ emotional problems

Table 1 shows the distribution of SDQ Emotional Problems through Upper Secondary School for both girls and boys. These are interpreted based on the original three-band categorization from British norm-data (Goodman et al., 2000), and compared with a survey from 2000 that included 19 210 adolescents from Norway (Rødje et al., 2004).

British norm-data indicate that 90% of adolescents will score within the “Normal” (0–5), 5% within the “Borderline” (6), and 5% within the “Abnormal” categories. The 2000 survey from Norway (Rødje et al., 2004), shows that girls (11%) reported abnormal levels of emotional problems almost three times as much as boys (4%). In addition, girls (8%) reported borderline levels of emotional problems over twice as much as boys (3%). Compared to the British norms we can conclude that boys reported less emotional problems than expected, and girls reported about twice as many abnormal and borderline levels of emotional problems.

Our data show that boys score about the same as expected from the British norm-data and is distributed with almost exactly the same percentages as in the study from Norway (Rødje et al., 2004). However, when interpreting the scores from the girls in our study we can see another development. The girls report about four times as many emotional problems as the British norms and as the boys in our study. In addition, we can see that the extent is almost doubled compared with the 2004 study and that the emotional problems seem to increase as the girls grow older with 22% of

**Table 1** Distribution of dependent variable SDQ Emotional problems in US1, US2 and US3 compared with the Akershus study in 2000 and British norms by percentage

Three-band categorization	British norms	Boys				Girls			
		2000	US1	US2	US3	2000	US1	US2	US3
Normal (0–5)	90	93	94	94	91	81	72	71	67
Borderline (6)	5	3	3	3	5	8	9	9	11
Abnormal (7–10)	5	4	3	3	4	11	19	20	22

girls reporting abnormal levels of emotional problems in their last spring of Upper Secondary School. In sum, these findings support H1.

#### 4.2 Zero order correlations between observed variables

Zero order correlations between the study variables as well as N, range, number of items, Cronbach's alpha, statistical means, standard deviations and Cohen's D for boys and girls are shown in Table 2.

All correlations between emotional problems and the independent variables were significant for both girls and boys. The correlations between the dependent variable emotional problems and the independent variables academic self-concept, social self-concept and coping competence were negative, ranging from  $r = -.20$  to  $r = -.57$ . This indicates that the higher the students perceive emotional problems, the lower they perceive academic self-concept, social self-concept, and coping competence. The correlation between emotional problems and the independent variables appearance pressure and school pressure was positive, indicating that the higher students perceive appearance pressure, the higher they perceive emotional problems. Most of the correlations between the observed variables are similar between girls and boys, however the negative correlation between emotional problems and coping competence seems to be stronger for girls ( $-.57$ ) than for boys ( $-.38$ ).

In addition, as the distribution of SDQ emotional problems in Table 1 indicated, the means of the dependent variable were significantly higher for girls (3.53) compared with boys (2.01). A similar difference is the mean for appearance pressure (1.94/1.56) and school stress (4.32/3.58). An opposite pattern is shown for academic self-concept (4.57/4.80), social self-concept (4.43/4.63) and coping competence (4.07/4.72), with higher scores for boys compared with girls. Considering effect size, Cohen (1988) claims that an effect of 0.2 is small, 0.5 is medium, and 0.8 is high. The Cohen's D measure thus indicates that the difference effect size is small for academic self-concept (.29) and social self-concept (.22). Medium for coping competence (.62), appearance pressure (.54), and school stress (.65). The effect size is close to strong for the dependent variable emotional problems (.77).

#### 4.3 Structural equation model

The relations between the variables were further analyzed by means of SEM analysis for latent variables using the AMOS 26 program as shown in the theoretical model in Figure 1. The model had a satisfactory fit to data for both girls and boys: CFI = .945/933, TLI = .931/915, RMSEA = .050/.053. Figure 2 shows the SEM between academic self-concept (US I), social self-concept (US I), coping competence (US II), appearance pressure (US III), school stress (US III), and emotional problems (US III), and Table 3 shows the direct, indirect and total effects, for both girls and boys.

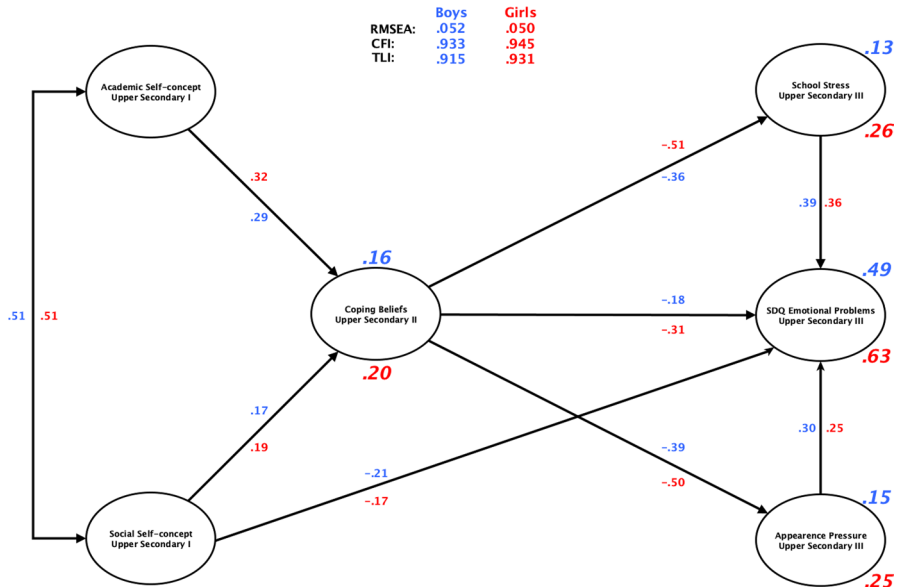
Figure 2 and Table 3 indicate that the correlation between academic self-concept and social self-concept are positive ( $r = .51$ ) for both girls and boys. Academic self-concept and social self-concept in the first year of Upper Secondary School has a

**Table 2** Zero order correlations between observed variables (boys/girls)

Variables	1	2	3	4	5	6
SDQ Emotional Problems US3	-	-.20** / -.26**	-.28** / -.33**	-.38** / -.57**	.33** / .40**	.38** / .44**
Academic self-concept US1		-	.42** / .42**	.32** / .40**	-.05** / -.17**	-.19** / -.24**
Social self-concept US1			-	.25** / .32**	-.06** / -.12**	-.04** / -.12**
Coping competence US2				-	-.30** / -.36**	-.31** / -.41**
Appearance pressure US3					-	.23** / .30**
School Stress US3						-
N	339/561	469/605	466/596	469/603	451/585	403/558
Range	0-8	1-6	1-6	1-6	1-4	1-6
Number of items	4	4	4	5	2	3
Cronbach's alpha	.71/.73	.80/.82	.89/.86	.84/.87	.66/.71	.79/.77
Mean	2.01/3.53	4.80/4.57	4.63/4.43	4.72/4.07	1.56/1.94	3.58/4.32
SD	1.76/2.13	.76/.83	.94/.87	.97/1.11	.62/.77	1.17/1.12
Cohen's D	.77	.29	.22	.62	.54	.65

\*\* p<.01

\* p<.05



**Fig. 2** Structural Equation Model between Grades, academic self-concept, social self-concept, coping competence, appearance pressure, school stress, and emotional problems divided by gender (boys/girls). (Color figure online)

**Table 3** Direct, indirect and total effects in the Structural Equation Model for boys/girls

Variables	Effects		
	Direct	Indirect	Total
<i>Academic Self-concept (USI)</i>			
Coping Competence (USII)	29/.32	–	29/.32
Appearance Pressure (USIII)	–	-.11/-.16	-.11/-.16
School Stress (USIII)	–	-.10/-.16	-.10/-.16
Emotional Problems (USIII)	–	-.13/-.20	-.13/-.20
<i>Social Self-concept (USI)</i>			
Coping Competence (USII)	.17/.19	–	.17/.19
Appearance pressure (USIII)	–	-.07/-.10	-.07/-.10
School Stress (USIII)	–	-.06/-.10	-.06/-.10
Emotional Problems (USIII)	-.21/-.17	-.07/-.12	-.28/-.29
<i>Coping Competence (USII)</i>			
Appearance pressure (USIII)	-.36/-.50	–	-.36/-.50
School Stress (USIII)	-.36/-.51	–	-.36/-.51
Emotional Problems (USIII)	-.18/-.31	-.26/-.31	-.44/-.61
<i>Appearance pressure (USIII)</i>			
Emotional Problems (USIII)	.30/.25	–	.30/.36
School pressure (USIII)			
Emotional Problems (USIII)	.39/.36	–	.39/.25

significant direct positive association with coping competence in the second year of Upper Secondary School ( $\beta$  girls/boys = .32/.29 and .19/.17, respectively), and explains 20% and 16% (girls/boys) of the variance in the coping competence variable. Table 3 indicates that the two self-concept variables have indirect effects on appearance pressure, school stress and emotional problems. However, we could not find any direct significant relationships between the self-concept variables and the perception of appearance pressure and school stress. In addition, of the two self-concept variables, it is only social self-concept that has a direct negative relationship with emotional problems ( $\beta$  girls/boys =  $-.17/-21$ ).

Coping competence has a significant direct negative relationship with appearance pressure ( $\beta$  girls/boys =  $-.50/-.39$ ), school stress ( $\beta$  girls/boys =  $-.51/-.36$ ), and emotional problems ( $\beta$  girls/boys =  $-.31/-.18$ ) for both girls and boys, respectively. In addition, Table 3 indicates that coping competence also has a considerable indirect effect ( $\beta$  girls/boys =  $-.31/-.26$ ), on emotional problems through appearance pressure and school stress, resulting in a total effect of  $\beta = -.61$  for girls and  $\beta = -.44$  for boys. The model explains 25% (girls) and 15% (boys) of the variance in appearance pressure, and 26% (girls) and 13% (boys) of the variance in school stress.

Both appearance pressure ( $\beta$  girls/boys = .25/.30) and school stress ( $\beta$  girls/boys = .36/.39) have a significant positive relationship with emotional problems for both girls and boys, respectively. In all, the structural equation model explains 63% of the variance in emotional problems for the girls, and 49% for the boys.

## 5 Discussion

The primary goal of this study was to further explore the prevalence of emotional problems, and a proposed pathway between emotional problems among Upper Secondary School students, and their perceptions of academic self-concept, social self-concept, coping competence, appearance pressure and school stress. The following research question guided the study: “To what extent do students in Upper Secondary School experience emotional problems, and how are these problems predicted by gender, academic/social self-concept, coping competence, appearance pressure and school stress?” Based on this research question and our findings from the literature review, six hypotheses were formulated, and a theoretical path model was specified. Our findings mainly confirmed previous studies.

The first main finding is that the prevalence of emotional problems among adolescents has increased considerably compared with the 2000 survey from Norway (Rødje et al., 2004). This supports H1 and previous research (Bor et al., 2014; Choi, 2018). However, even though it is expected, the large effect size difference between boys and girls is somewhat surprising. The zero-order correlations between the dependent and the independent variables reveal that the relationships are somewhat the same for both girls and boys, with the exception of the association between emotional problems and coping beliefs (competence). This relationship is stronger for girls compared to boys, indicating that girls may be more vulnerable for developing learned helplessness (Abramson et al., 1978; Schroeder and Ollis, 2013). This notion is supported when analyzing the Cohen’s D effect size difference between the

genders. Girls perform significantly higher than boys in Lower Secondary School, but still they have lower academic self-concept and social self-concept. In addition, the coping belief, measured as coping competence, is considerably lower for girls compared to boys, while the perception of appearance pressure and school stress are higher to the same degree. This imbalance may explain the high effect size difference in emotional problems. In sum, this finding corresponds well with other research that has found that girls are at greater risk of developing emotional problems, reporting lower levels of self-concept, coping beliefs, appearance pressure and school stress (Caprara et al., 2010; Muris et al., 2015).

The other main finding is that the proposed pathway in the theoretical model presented in Figure 1 had a good fit with the data, especially for girls, as it explained 63% of the variance in emotional problems. This indicates that academic self-concept and social self-concept, coping competence, and the perceptions of appearance pressure and school stress predicts emotional problems among adolescents in a prominent manner. In support of earlier research, the correlation between the self-concept variables was high (Marsh and Craven 2006; Marsh and Martin, 2011). In addition, Shavelson et al.'s (1976) theory on the multidimensional nature of self-concept was underlined by our finding about the difference of whether, and with what strength, academic self-concept and social self-concept predicted the other variables in the model. As expected, the self-concept variables predicted the adolescents' perception of coping competence in USII in similar strength for both girls and boys. This supports H2, H3 and previous research (Craven and Marsh, 2008; Marsh and Martin, 2011). Furthermore, it was expected that social self-concept in USI was significant for both girls' and boys' perceptions of emotional problems in USIII. However, in contrast with previous findings on the longitudinal effects academic self-concept has on emotional problems (Craven and Marsh, 2008; Marsh and Martin, 2011), we could not find any significant direct negative association to emotional problems, even though there were some indirect effects through coping beliefs. This finding is surprising and needs further scrutiny in future research

Another interesting finding from the structural equation modeling is that coping competence has a significant negative relationship with appearance pressure, school stress and emotional problems for both girls and boys. However, the strength of these direct and indirect associations is somewhat stronger for girls compared with boys, indicating that coping competence seems to be important for both genders, and most important for girls, when it comes to predicting perceptions of pressure and negative health outcomes. These findings support H4 and previous research (Sowislo and Orth, 2013; Yeoh et al., 2017). In addition, in support of H5, H6 and previous research (Alm and Låftman, 2018; Bearman and Stice, 2008; Låftman and Modin, 2012; Ringdal et al., 2020) appearance pressure and school stress had a direct and positive relationship with emotional problems. However, it was more surprising that these associations were somewhat stronger for boys compared with girls, even though the differences were small.

In sum, the findings can be discussed in light of other studies that have shown that the level of coping beliefs plays a significant role in how different kinds of perceived demands are experienced (e.g. appearance pressure and school stress), and affects the risk that stress leads to emotional problems (Caprara et al., 2004; Shelley

and Pakenham, 2004). Several studies conclude that increasing individuals' coping beliefs and expectations of coping may reduce the negative effect of the various stressors we are exposed to (e.g. McKay, Dempster and Byrne, 2014). In a longitudinal study, Burger and Samuel (2017) investigated how perceived stress and coping beliefs play a role in influencing adolescents' satisfaction with life. They found that perceived stress was negatively correlated with life satisfaction, whereas the opposite was true of coping beliefs. In addition, the individuals' basic expectation of coping further moderated the negative effects of stress. Thus, a high level of coping beliefs neutralized the negative effects of stress on adolescents' satisfaction with life. Furthermore, our coping beliefs today are related to the coping experiences we have had in the past (Groth et al., 2019; Samdal et al., 2017). A situation where we are exposed to stress stimuli can result in both positive and negative response outcomes. Positive outcomes represent situations in which individuals experience mastery. They have experienced being challenged, but also that they can cope with it. Negative outcomes are characterized by individuals experiencing that they do not cope. At worst, they will experience helplessness ("I can't do anything about the situation"), and hopelessness ("things go wrong anyway and it's my own fault") (cf. Abramson et al., 1978; Schroder and Ollis, 2013). A number of such negative outcomes contribute to both low coping beliefs and sustained stress activations, which in turn can lead to negative health outcomes.

### **5.1 Perceptions of internal/external demands/resources as predictors of emotional problems**

Why do we observe this recent increase in mental health problems? How can this be explained? In light of Lazarus and Folkman's (1984) transactional model of stress the causes of mental health problems can be placed in two main groups: resources and demands. These can each be further divided in two: internal and external. To maintain emotional health, resources and demands have to be perceived as balanced by the individual. Thus, to reduce emotional health problems, we have to consider how we can enhance the adolescents' perceptions of internal and external resources, and reduce the perception of internal and external demands.

Considerable research has investigated how to enhance adolescents' internal and external resources, especially in a school context. The first meta-review over research on mental health promotion and problem prevention in schools was conducted by the European Union Dataprev project (Weare and Nind, 2011). This project included 52 systematic reviews and meta-analyses of mental health in schools and the results show that interventions have a wide variety of beneficial effects on children, families and communities on a range of social, emotional and educational outcomes. A conservative estimate from the London School of Economics and Public Health England shows that for every pound Britain invests in social and emotional learning (SEL) school programs to prevent depression among children and young people, the UK saves five times the investment cost in just two years (McDaid et al., 2017). These findings were supported by a meta-analysis of 81 studies comprising 31 974 school students (Werner-Seidler et al., 2017), and another



meta-analysis of 82 school-based social and emotional learning programs (Taylor et al., 2017). Although the effect sizes are small, these studies provide solid evidence that mental health can be strengthened, and emotional problems can be prevented, through school measures. The best-tested school programs are based on social and emotional learning, cognitive-behavioral, or multifamily therapy (MFT). A meta-analysis of 146 RCT-studies found that it is not sufficient to disseminate information only, e.g. through teaching materials or with educational or psycho-educational measures (Stockings et al., 2016). Research suggests that the measures should also contain a psychological component with an element of practice, such as training in cognitive techniques. In addition, Mendelson and Eaton's (2018) meta-analysis indicates that internet- or computer-based prevention strategies and mindfulness-based interventions are promising areas for further development and need further research.

On the other hand, there are a number of increased internal and external demands that twenty-first century adolescents experience that potentially can have negative consequences for their emotional well-being by contributing to the increasing prevalence of mental health problems (Bor et al., 2014; Seiffge-Krenke et al., 2009). For adolescents living in a world characterized by rapid changes and technological advancement, it is important to understand that different trends and factors can be related to their emotional well-being and ill-being. This does not mean that the fundamental elements of mental health have changed. However, as a result of various contexts and the environment that children face today, different trends arise, and accordingly various approaches exist to mitigate the negative effects. An example is the Programme for International Student Assessment (PISA), that was introduced for the first time in 2000. This was aimed to provide a "global" comparison across nations to determine the relative quality of each country's educational system (OECD, 2001). This cross-national comparison led to considerable debate, especially among the countries with the lowest scores, and facilitated reforms in educational policy and practice, and enhanced expectations, demands and competition among schools and students (Cosma et al., 2020; Klinger et al., 2015). In addition, several theorists argue that too much responsibility and accountability has been placed on the internal and individual. Research has found a rise in internal perfectionism expectations and demands connected to both school and appearance that may contribute to increases in stress and subsequent mental health problems (Cosma et al., 2020; Curran and Hill, 2019). This finding is in line with the individualization thesis that is based on the idea that collective identities associated with class, family and gender are weakened in favor of individual aspirations that have become more important (Beck, 1992). This notion is relevant for the increase in emotional health problems in several ways. First, it is up to each individual to create their own future, find out "who one is", set goals, and reach them (Giddens, 1991; Illeris et al., 2009). Consequently, the responsibility for success and for one's own destiny also increases, especially within the school system. Second, the individualization thesis is relevant in this context because mental health problems themselves may be understood to be more individualized than before. While conditions such as neurasthenia, melancholy, sadness and nervousness were perceived as a consequence of culture a hundred years ago, it is claimed that similar conditions today are to a greater extent interpreted as a weakness of the individual.

Overall, our analyses of the two pressure areas: school and appearance, indicate that girls are more vulnerable than the boys. In both of these areas, the pressure is more closely associated with emotional problems among girls than boys. Thus, this indicates that school stress, pressure related to appearance, and coping beliefs is potentially a greater health risk for girls than for boys. One possible explanation is that girls, to a higher degree than boys, reflect their intrinsic value on how they succeed in school (Esnaola et al., 2018; Låftman and Modin, 2012). There is also reason to believe that the perception of personal appearance is more important for the girls' self-image than for boys (Alm and Låftman, 2018; Esnaola et al., 2018). Although many argue that the ideals for body and appearance also have changes for boys (Bassett-Gunter et al., 2017; Karazsia et al., 2017), these findings indicate that looking good is still more important for girls compared with boys. Thus, it may be that girls actually experience more pressure in these areas, and also interpret the pressure as more threatening to their own identity. Because external stressors are perceived and interpreted subjectively, based on personal values, the social roles we hold, and from past experiences, the same amount of actual demands and expectations can be experienced without problems for some and pose a health risk for others (Avison, 2010; Thoits, 2010). At the same time, the potential for experiencing a situation with a lot of pressure such as stress may be explained by gender differences in the amount of resources available in the situation and to differences in the coping strategies available to girls and boys. However, other research indicates that the suicidal rates are far higher among men compared with women (Olliffe et al., 2016; Rasmussen et al., 2017). This may indicate that stress and emotional problems among adolescent boys are underreported. Thus, we need more research to investigate long-term effects of perceptions of demands and resources across genders through childhood, adolescence and adulthood.

## 5.2 Limitations and future directions

This study has some limitations that should be acknowledged. First, all data were based on students' self-reports. Future studies should employ more objective measures of the social environment (e.g. behavioral observation), triangulate subjective perceptions (e.g. different informants such as friends, parents, teachers, coaches etc.), and make use of both quantitative and qualitative methods. Second, the data from this study are limited to the school context. Future studies should test the associations between environmental factors from several micro-systems, subjective needs and adolescents' emotional health via longitudinal and experimental designs. Third, this study has only considered individual-level variables, without considered the effect of the differences between social classes and schools on perceived ecology with relation to emotional health among individuals. Several studies have revealed that differences in the classroom or school environment exist across school level (e.g. Danielsen et al., 2010; Wang et al., 2018). Future studies may consider using a multi-level modeling approach to study the impact of class-, school- and societal-level factors.

Despite these limitations, the results in our study may have important clinical implications for current interventions aimed at preventing and reducing mental health problems in school. Our findings suggest that targeting perceptions of self-concept and coping beliefs will reduce feelings of pressure, stress and emotional problems. Integrative interventions should focus on enhancing adolescents' self-concept and coping beliefs as early as possible to disrupt any potential detrimental cascading effect on mental health. This is in line with the findings of intervention studies that reveal that coping beliefs seems to be an important mechanism to improve mental health outcomes (Kendall et al., 2016; Ohannessian et al., 2019).

A comprehensive understanding of pressures and stress among young people today should include knowledge of who is the agent behind the significant amount of pressure young people experience in everyday life. Adolescents can be both passive recipients of experienced pressure and active agents that exercise resistance. Knowledge about the various actors is not least important. Thus, teachers, counsellors and schools should aim to find good methods and structures that reduce the amount of pressure or make youth more robust against the pressure they experience in everyday life. To what extent do adolescents themselves contribute to the pressure they experience, and to what extent are they actors in reducing the pressure? Is this the solution to teaching each one to prioritize better in their own lives? To what extent and in what arenas do adults, such as parents, teachers, coaches, school authorities and commercial advertisers have a responsibility? And to what extent does pressure from the adult community work together with peer pressure—both analog and digital—to increase the amount of pressure and the vulnerability of that pressure? These are important issues for the social debate and should be explored further in future research.

Several replication studies are needed that can confirm, disprove, or nuance findings from earlier studies. Studies with multiple data sources are needed, such as interviews with parents, teachers, counsellors and school leaders, which can be combined with self-reported data. Future research should also examine a longer-term follow-up of comprehensive data on prevalence and outcomes, encompass more high quality rigorous randomized control trial designs with comparable control groups, and also study the potential effectiveness and feasibility of teachers delivering these program sessions and training. The aspect of investigating teacher delivery of efforts to improve students' mental health is important. As several studies have pointed out, teachers can play a vital role in delivering such prevention programs. Future studies should also investigate the practicality of implementation in terms of costs, additional burden on teachers, and the necessary support that teachers need to deliver this training and programs. In order to prevent an increase in teachers' workloads, which can reduce a teacher's emotional well-being and in turn that of students, it will be important think about ways in which social and emotional learning can be incorporated into the curriculum and existing day-to-day learning activities.

## 6 Conclusion

Although this study has some limitations, the results in the present study underscore the need for research on self-concept, coping beliefs and environmental pressure when it comes to understanding adolescents' coping and emotional problems. In sum, our findings can be illuminated in light of other research that has suggested that girls perceive more pressure than boys and at the same time are more vulnerable to the effects of this perception (Bakken et al., 2018; Hankin et al., 2008). Thus, girls perceive their external and internal demands as higher than boys but their external and internal resources are perceived to be lower. In light of the transactional theory of stress (Lazarus and Folkman, 1984) and the theory of learned helplessness (Abramson et al., 1978), these unfortunate connections may explain why girls are developing higher levels of emotional problems. These findings are of great significance for practical implications and applications. Teachers, counsellors and the school as a whole should increase their effort to facilitate the development of psychological resilience as this seems to be both a decisive protective- and risk-factor when it comes to adolescents' sense of stress and emotional well-being, especially among girls.

**Funding** Open access funding provided by NTNU Norwegian University of Science and Technology (incl St. Olavs Hospital - Trondheim University Hospital). The authors received no financial support for the research, authorship, and/or publication of this article.

### Declarations

**Conflict of interest** The authors declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

**Informed consent** Informed consent was obtained from all participants. Additionally, parents were sent an information letter with the option to opt their child out of the study. The study was approved by the Norwegian Data Inspectorate

**Open Access** This article is licensed under a Creative Commons Attribution 4.0 International License, which permits use, sharing, adaptation, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons licence, and indicate if changes were made. The images or other third party material in this article are included in the article's Creative Commons licence, unless indicated otherwise in a credit line to the material. If material is not included in the article's Creative Commons licence and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder. To view a copy of this licence, visit <http://creativecommons.org/licenses/by/4.0/>.

## References

Abramson, L. Y., Seligman, M. E., & Teasdale, J. D. (1978). Learned helplessness in humans: Critique and reformulation. *Journal of Abnormal Psychology, 87*(1), 49–74.

- Alm, S., & Låftman, S. B. (2018). The gendered mirror on the wall: Satisfaction with physical appearance and its relationship to global self-esteem and psychosomatic complaints among adolescent boys and girls. *Young*, 26(5), 525–541.
- American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders* (5th ed.). American Psychiatric Association.
- Auerbach, R. P., Mortier, P., Bruffaerts, R., Alonso, J., Benjet, C., Cuijpers, P., Demeyttenaere, K., Ebert, D. D., Green, J. G., Hasking, P., Murray, E., Nock, M. K., Pinder-Amaker, S., Sampson, N. A., Stein, D. J., Vilagut, G., Zaslavsky, A. M., & Kessler, R. C. (2018). WHO World Mental Health Surveys International College Student Project: Prevalence and Distribution of Mental Disorders. *Journal of Abnormal Psychology*, 127(7), 623–638.
- Avison, W. R. (2010). Incorporating children's lives into a life course perspective on stress and mental health. *Journal of Health and Social Behavior*, 51(4), 361–375.
- Bakken, A., Sletten, M. A., & Eriksen, I. M. (2018). Generasjon prestasjon? Ungdoms opplevelse av press og stress [Generation achievement? Adolescents' experience of pressure and stress]. *Norwegian Journal of Youth Research*, 18(2), 46–76.
- Balazs, J., Miklósi, M., Keresztesy, A., Hoven, C. W., Carli, V., Wasserman, C., & Cosman, D. (2013). Adolescent subthreshold-depression and anxiety: Psychopathology, functional impairment and increased suicide risk. *Journal for Child Psychology and Psychiatry*, 54, 670–677.
- Bandura, A., Pastorelli, C., Barbaranelli, C., & Caprara, G. V. (1999). Self-efficacy pathways to childhood depression. *Journal of Personality and Social Psychology*, 76(2), 258–269.
- Bartlett, M. S. (1954). A note on the multiplying factors for various chi square approximations. *Journal of the Royal Statistical Society*, 16, 296–298.
- Bassett-Gunter, R., McEwan, D., & Kamarhie, A. (2017). Physical activity and body image among men and boys: A meta-analysis. *Body Image*, 22, 114–128.
- Bearman, S. K., & Stice, E. (2008). Testing a gender additive model: The role of body image in adolescent depression. *Journal of Abnormal Child Psychology*, 36(8), 1251–1263.
- Bearman, S. K., Martinez, E., & Stice, E. (2006). The skinny on body dissatisfaction: A longitudinal study of adolescent girls and boys. *Journal of Youth and Adolescence*, 35(2), 217–229.
- Beck, U. (1992). *Risk society: Towards a new modernity*. Sage.
- Bøe, T., Hysing, M., Skogen, J. C., & Breivik, K. (2016). The Strengths and Difficulties Questionnaire (SDQ): Factor Structure and Gender Equivalence in Norwegian Adolescents. *PLoS One*, 11(5), 1–15.
- Bor, W., Dean, A. J., Najman, J., & Hayatbakhsh, R. (2014). Are child and adolescent mental health problems increasing in the 21st century? A systematic review. *Australian and New Zealand Journal of Psychiatry*, 48(7), 606–616.
- Boyle, G. J. (1994). Self-Description Questionnaire II: A review. *Test Critiques*, 10, 632–643.
- Burger, K., & Samuel, R. (2017). The Role of Perceived Stress and Self-Efficacy in Young People's Life Satisfaction: A Longitudinal Study. *Journal of Youth and Adolescents*, 46(1), 78–90.
- Byrne, B. M. (2001). *Structural equation modelling with AMOS Basic concepts applications and programming*. Mahwah: Lawrence Erlbaum Ass.
- Caprara, G. V., Barbaranelli, C., Pastorelli, C., & Cervone, D. (2004). The contribution of self-efficacy beliefs to psychosocial outcomes in adolescence: Predicting beyond global dispositional tendencies. *Personality and Individual Differences*, 37(4), 751–763.
- Caprara, G. V., Alessandri, G., Di Giunta, L., Panerai, L., & Eisenberg, N. (2010). The contribution of agreeableness and self-efficacy beliefs to prosociality. *European Journal of Personality*, 24, 36–55.
- Choi, A. (2018). *Emotional well-being of children and adolescents: Recent trends and relevant factors*. OECD Education Working Paper No. 169. in Portuguese Middle School Transition: A Multilevel Analysis. *The Spanish Journal of Psychology*, 19(e61), 1–8.
- Coelho, V. A., & Romão, A. M. (2016). Stress in Portuguese Middle School Transition: A Multilevel Analysis. *The Spanish Journal of Psychology*, 19(e61), 1–8.
- Cohen, J. (1988). *Statistical Power Analysis for the Behavioral Sciences* (2nd ed.). Hillsdale, NJ: Erlbaum Associates.
- Collishaw, S. (2015). Annual Research Review: Secular trends in child and adolescent mental health. *Journal of Child Psychology and Psychiatry*, 56, 370–393.
- Condly, S. J. (2006). Resilience in children: A review of literature with implications for educators. *Urban Education*, 41(3), 211–236.
- Cosma, A., Stevens, G., Martin, G., Duinhof, E. L., Walsh, S., Garcia-Moya, I., Költö, A., Gobina, I., Canale, N., Catunda, C., Inchley, J., & de Looze, M. (2020). Cross-National Time Trends in

- Adolescent Mental Well-Being from 2002 to 2018 and the Explanatory Role of Schoolwork Pressure. *Journal of Adolescent Health*, 66(6), 50–58.
- Craven, R. G., & Marsh, H. W. (2008). The centrality of the self-concept construct for psychological wellbeing and unlocking human potential: Implications for child and educational psychologists. *Educational and Child Psychology*, 25, 104–118.
- Curran, T., & Hill, A. P. (2019). Perfectionism is increasing over time: A meta-analysis of birth cohort differences from 1989 to 2016. *Psychological Bulletin*, 145(4), 410–429.
- Currie, C., Zanotta, C., Morgan, A., Currie, D., de Looze, M., Roberts, C., Samdal, O., Smith, O. R. F., & Barnekow, V. (2012). *Social determinants of health and well-being among young people. Health behavior in school-aged children (HBSC) study: International report from the 2009/2010 survey* (Report nr.6): WHO Regional Office for Europe.
- Dalen, J. D. (2014). Gender differences in the relationship between school problems, school class context and psychological distress: results from the Young-HUNT 3 study. *Social Psychiatry and Psychiatric Epidemiology*, 49(2), 183–191.
- Danielsen, A. G., Wiium, N., Wilhelmsen, B. U., & Wold, B. (2010). Perceived support provided by teachers and classmates and students' self-reported academic initiative. *Journal of School Psychology*, 48(3), 247–267.
- De Fraine, B., Van Damme, J. V., & Onghena, P. (2007). A longitudinal analysis of gender differences in academic self-concept and language achievement: A multivariate multilevel latent growth approach. *Contemporary Educational Psychology*, 32, 132–150.
- Erskine, H. E., Moffit, T. E., Copeland, W., Costello, E. J., Ferrari, A. J., Patton, G., Degenhardt, L., Vos, T., Whiteford, H. A., & Scott, J. G. (2015). A heavy burden on young minds: the global burden of mental and substance use disorders in youth. *Psychological Medicine*, 45, 1551–1563.
- Esnaola, I., Elosua, P., & Freeman, J. (2018). Internal structure of academic self-concept through the Self-Description Questionnaire II-Short (SDQII-S). *Learning and Individual Differences*, 62, 174–179.
- Esnaola, I., Sesé, A., Antonio-Agirre, I., & Azpiazu, L. (2020). The development of multiple self-concept dimensions during adolescence. *Journal of Research on Adolescence*, 30, 100–114.
- Fletcher, S., & Sarkar, M. (2013). Psychological resilience: A review and critique of definitions, concepts, and theory. *European Psychologist*, 18(1), 12–23.
- Giddens, A. (1991). *Modernity and Self-Identity. Self and Society in the Late Modern Age*. Stanford University Press.
- Goldstein, S. E., Boxer, P., & Rudolph, E. (2015). Middle School Transition Stress: Links with Academic Performance, Motivation, and School Experience. *Contemporary School Psychology*, 19(1), 21–29.
- Goodman, R. (1997). The Strengths and Difficulties Questionnaire: a research note. *Journal of Child Psychology and Psychiatry*, 38, 581–586.
- Goodman, R. (1999). The extended version of the Strengths and Difficulties Questionnaire as a guide to child psychiatric caseness and consequent burden. *Journal of Child Psychology and Psychiatry*, 40, 791–799.
- Goodman, R., Ford, T., Simmons, H., Gatward, R., & Meltzer, H. (2000). Using the Strength and Difficulties Questionnaire (SDQ) to screen for child psychiatric disorders in a community sample. *The British Journal of Psychiatry*, 177(6), 534–539.
- Groth, N., Schnyder, N., Kaess, M., Markovic, A., Rietschel, L., Moser, S., Michel, C., Schultze-Lutter, F., & Schmidt, S. J. (2019). Coping as a mediator between locus of control, competence beliefs, and mental health: A systematic review and structural equation modeling meta-analysis. *Behavior Research and Therapy*, 121, 1–16.
- Halvarsson-Edlund, K., Sjöden, P.-O., & Lunner, K. (2008). Prediction of disturbed eating attitudes in adolescent girls: A 3-year longitudinal study of eating patterns, self-esteem and coping. *Eating and Weight Disorders*, 13(2), 87–94.
- Hankin, B. L., Wetter, E., & Cheely, C. (2008). Sex differences in child and adolescent depression: A developmental psychopathological approach. In J. R. Z. Abela & B. L. Hankin (Eds.), *Handbook of child adolescent depression* (pp. 377–414). Guildford Press.
- Hankin, B. L., Young, J. F., Abela, J. R. Z., Smolen, A., Jenness, J. L., Gulley, L. D., Technow, J. R., Gottlieb, A. B., Cohen, J. R., & Oppenheimer, C. W. (2015). Depression from childhood into late adolescence: Influence of gender, development, genetic susceptibility, and peer stress (2015). *Journal of Abnormal Psychology*, 124(4), 803–816.

- Hargreaves, D., & Tiggemann, M. (2003). The effect of “thin ideal” television commercials on body dissatisfaction and schema activation during early adolescence. *Journal of Youth and Adolescence*, 32(5), 367–373.
- Hattie, J. (1992). *Self-concept*. Erlbaum.
- Henderson, J. L., Cheung, A., Cleverley, K., Chaim, G., Moretti, M. E., de Oliveira, C., Hawke, L. D., Willan, A. R., & O'Brien, D., Heffernan, O., Herzog, T., Courey, L., McDonald, H., Grant, E., & Szatmari, P. (2017). Integrated collaborative care teams to enhance service delivery to youth with mental health and substance use challenges: protocol for a pragmatic randomised controlled trial. *BMJ Open*, 7(2), 1–11.
- Herrman, H., Stewart, D. E., Diaz-Granados, N., Berger, E. L., Jackson, B., & Yuen, T. (2011). What Is Resilience? *The Canadian Journal of Psychiatry*, 56(5), 258–265.
- Hu, L. T., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling: A Multidisciplinary Journal*, 6(1), 1–55.
- Illeris, K., Katznelson, N., Nielsen, J. C., Simonsen, B., & Sørensen, N. S. (2009). *Ungdomsliv: Mellem individualisering og standardisering. [Adolescent life: Between individualization and standardization]*. København: Samfundslitteratur.
- Jongen, C. S., McCalman, J., & Bainbridge, R. G. (2019). A Systematic Scoping Review of the Resilience Intervention Literature for Indigenous Adolescents in CANZUS Nations. *Frontiers in Public Health*, 7, 1–16.
- Jónsdóttir, S. R., Arnarson, E. Ö., & Smári, J. (2008). Body esteem, perceived competence and depression in Icelandic adolescents. *Nordic Psychology*, 60(1), 58–71.
- Kaiser, H. (1970). A second generation Little Jiffy. *Psychometrika*, 35, 401–415.
- Kaiser, H. (1972). An index of factorial simplicity. *Psychometrika*, 39, 31–36.
- Karazsia, B. T., Murnen, S. K., & Tylka, T. L. (2017). Is Body Dissatisfaction Changing Across Time? A Cross-Temporal Meta-Analysis. *Psychological Bulletin*, 143(3), 293–320.
- Kendall, P. C., Cummings, C. M., Villabø, M. A., Narayanan, M. K., Treadwell, K., Birmaher, B., Compton, S., Piacentini, J., Sherill, J., Walkup, J., Gosch, E., Keeton, C., Ginsburg, G., Suveg, C., & Albano, A. M. (2016). Mediators of Change in the Child/Adolescent Anxiety Multimodal Treatment Study. *Journal of Consulting and Clinical Psychology*, 84(1), 1–14.
- Kieling, C., Baker-Henningham, H., Belfer, M., Conti, G., Ertem, I., Omigbodun, O., Rohde, L. A., Srinath, S., Ulkuer, N., & Rahman, A. (2011). Child and adolescent mental health worldwide: Evidence for action. *The Lancet*, 378(9801), 1515–1525.
- Kim-Spoon, J., Ollendick, T. H., & Seligman, L. D. (2012). Perceived competence and depressive symptoms among adolescents: The moderating role of attributional style. *Child Psychiatry and Human Development*, 43, 612–630.
- Klinger, D. A., Freeman, J. G., Bliz, L., Liiv, K., Ramelow, D., Sebok, S. S., Samdal, O., Dür, W., & Rasmussen, M. (2015). Cross-national trends in perceived school pressure by gender and age from 1994 to 2010. *European Journal of Public Health*, 25(2), 51–56.
- Låftman, S. B., & Modin, B. (2012). School-performance indicators and subjective health complaints: are there gender differences? *Sociology of Health and Illness*, 34(4), 608–625.
- Låftman, S. B., Almqvist, Y. B., & Östberg, V. (2013). Students' accounts of school-performance stress: a qualitative analysis of a high-achieving setting in Stockholm Sweden. *Journal of Youth Studies*, 16(7), 932–949.
- Lazarus, R., & Folkman, S. (1984). *Stress, appraisal, and coping*. Springer.
- Lee, A., Hankin, B. L., & Mermelstein, R. J. (2010). Perceived social competence, negative social interactions, and negative cognitive style predict depressive symptoms during adolescence. *Journal of Clinical Child and Adolescent Psychology*, 39, 603–615.
- Lerner, R. M., Almerigi, J. B., Theokas, C., & Lerner, J. V. (2005). Positive youth development a view of the issues. *The Journal of Early Adolescence*, 25(1), 10–16.
- Lillejord, S., Børte, K., Ruud, E., & Morgan, K. (2017). *Stress i skolen – en systematisk kunnskapsoversikt [Stress in school – A systematic review]*. Kunnskapssenter for utdanning.
- Löfstedt, P., Eriksson, C., Potrebny, T., Välimaa, R., Thorsteinsson, E. B., Due, P., Damsgaard, M. T., Suominen, S., Rasmussen, M., & Torsheim, T. (2019). Trends in perceived school stress among adolescents in five Nordic countries 2002–2014. *Nordic Welfare Research*, 4(2), 101–112.
- Lopez, D. F., & Little, T. D. (1996). Children's action-control beliefs and emotional regulation in the social domain. *Developmental Psychology*, 32(2), 299–312.

- Marsh, H. W. (1989). Age and sex effects in multiple dimensions of self-concept: Preadolescence to early adulthood. *Journal of Educational Psychology, 81*, 417–430.
- Marsh, H. W. (1992). *Self Description Questionnaire (SDQ) III: A theoretical and empirical basis for the measurement of multiple dimensions of late adolescent self-concept: An interim test manual and a research monograph*. University of Western Sydney, Faculty of Education.
- Marsh, H. W., & Craven, R. (1997). Academic self-concept: Beyond the dustbowl. In G. Phye (Ed.), *Handbook of classroom assessment: Learning, achievement, and adjustment* (pp. 131–198). Academic Press.
- Marsh, H. W., & Craven, R. (2006). Reciprocal effects of self-concept and performance from a multidimensional perspective: Beyond seductive pleasure and unidimensional perspectives. *Perspectives on Psychological Science, 1*, 133–163.
- Marsh, H. W., & Martin, A. J. (2011). Academic self-concept and academic achievement: Relations and causal ordering. *British Journal of Educational Psychology, 81*, 59–77.
- Marsh, H. W., Ellis, L. A., Parada, R. H., Richards, G., & Heubeck, B. G. (2005). A short version of the Self Description Questionnaire II: Operationalizing criteria for short-form evaluation with new applications of confirmatory factor analyses. *Psychological Assessment, 17*, 81–102.
- McCarty, C. A., Stoep, A. V., & McCauley, E. (2007). Cognitive features associated with depressive symptoms in adolescence: Directionality and specificity. *Journal of Clinical Child and Adolescent Psychology, 36*, 147–158.
- McDaid, D., Park, A.-L., Knapp, M., Wilson, E., Rosen, B., & Beecham, J. (2017). *Commissioning cost-effective services for promotion of mental health and wellbeing and prevention of mental ill-health*. Public Health England.
- McKay, M. T., Dempster, M., & Byrne, D. G. (2014). An examination of the relationship between self-efficacy and stress in adolescents: the role of gender and self-esteem. *Journal of Youth Studies, 17*(9), 1131–1151.
- McQueen, R. A., & Knussen, C. (2006). *Introduction to Research Methods and Statistics in Psychology*. Pearson.
- Mendelson, T., & Eaton, W. W. (2018). Recent advances in the prevention of mental disorders. *Social Psychiatry and Psychiatric Epidemiology, 53*, 325–339.
- Merikangas, K. R., He, J.-P., Brody, D., Fisher, P. W., Bourdon, K., & Koretz, D. S. (2010). Prevalence and treatment of mental disorders among US children in the 2001–2004 NHANES. *Pediatrics, 125*(1), 75–81.
- Muris, P., Meesters, C., Bouwman, L., & Notermans, S. (2015). Relations among behavioral inhibition, shame- and guilt-proneness, and anxiety disorders symptoms in non-clinical children. *Child Psychiatry and Human Development, 46*, 209–216.
- Mykletun, A., Knudsen, A. K., & Mathisen, K. S. (2009). *Psykiske lidelser i Norge: Et folkehelseperspektiv. [Mental disorders in Norway: A public health perspective]*. Oslo: Folkhelseinstituttet.
- Nagy, B., Watt, H. M. G., Eccles, J. S., Trautwein, U., Lüdtke, O., & Baumert, J. (2010). The development of students' mathematics self-concept in relation to gender. Different countries, different trajectories? *Journal of Research on Adolescence, 20*, 482–506.
- OECD. (2001). *Knowledge and Skills for Life: First Results from the OECD Programme for International Student Assessment (PISA) 2000*. France: OECD.
- Ohannessian, C. M., Lerner, R. M., Eye, A., & Lerner, J. V. (1999). Does self-competence predict gender differences in adolescent depression and anxiety? *Journal of Adolescence, 22*, 397–411.
- Ohannessian, C. M., Vannucci, A., Lincoln, C. R., Flannery, K. M., & Trinh, A. (2019). Self-competence and depressive symptoms in middle-late adolescence: Disentangling the direction of effect. *Journal of Research on Adolescence, 29*(3), 736–751.
- Oliffe, J. L., Ogrodniczuk, J. S., Gordon, S. J., Creighton, G., Kelly, M. T., Black, N., & Mackenzie, C. (2016). Stigma in Male Depression and Suicide: A Canadian Sex Comparison Study. *Community Mental Health Journal, 52*, 302–310.
- Orth, U., Robins, R. W., Widamann, K. F., & Conger, R. D. (2014). Is low self-esteem a risk factor for depression? Findings from a longitudinal study of Mexican-origin youth. *Developmental Psychology, 50*(2), 622–633.
- Pérez, J. E., Little, T. D., & Henrich, C. C. (2009). Spirituality and depressive symptoms in a school-based sample of adolescents: A longitudinal examination of mediated and moderated effects. *Journal of Adolescent Health, 44*(4), 380–386.



- Pinxten, M., De Fraine, B., Van Damme, J., & D' Haenens, E. (2013). Student achievement and academic self-concept among secondary students in Flanders: Gender and change over time. *Irish Educational Studies*, 32, 157–178.
- Rasing, S. P., Braam, M. W., Brunwasser, S. M., Janssens, J. M., Creemers, D. H., & Scholte, R. H. (2020). Depression and anxiety symptoms in female adolescents: Relations with parental psychopathology and parenting behavior. *Journal of Research on Adolescence*, 30(1), 298–313.
- Rasmussen, M. L., Hjelmeland, H., & Dieserud, G. (2017). Barriers toward help-seeking among young men prior to suicide. *Death Studies*, 42(2), 96–103.
- Ringdal, R., Espnes, G. A., Eilertsen, M.-E.B., Bjørnsen, H. N., & Moksnes, U. K. (2020). Social support, bullying, school-related stress and mental health in adolescence. *Nordic Psychology*, 72, 1–18.
- Rødje, K., Clench-Aas, J., van Roy, B., Holmboe, O., & Müller, A. M. (2004). *Helseprofil for barn og ungdom i Akershus: Ungdomsrapport [Health profile for children and adolescent in Akershus: Adolescent report] (2/2004)*. Nasjonalt kunnskapssenter for helsetjenesten.
- Rotter, J. (1966). Generalized expectancies for internal versus external control of reinforcement. *Psychological Monographs*, 80(1), 1–28.
- Samdal, O., Mathisen, F. K. S., Torsheim, T., Diseth, Å. R., Fismen, A.-S., Larsen, T., Wold, B. & Årdal, E. (2016). *Helse og trivsel blant barn og unge: Resultater fra den landsrepresentative spørreundersøkelsen «Helsevaner blant skoleelever. En WHO-undersøkelse i flere land»*. [Health and well-being among children and adolescents: Results from the national representative study “Health habits among pupils. A WHO survey in several countries”]. Universitetet i Bergen: HEMIL-senteret.
- Samdal, O., Wold, A. Harris., & og T. Torsheim, . (2017). *Stress og mestring [Stress and Coping]*. Universitetet i Bergen.
- Samela-Aro, K., & Tynkkynen, L. (2012). Gendered pathways in school burnout among adolescents. *Journal of Adolescence*, 35(4), 929–939.
- Schroder, K. E. E., & Ollis, C. L. (2013). The Coping Competence Questionnaire: A measure of resilience to helplessness and depression. *Motivation & Emotion*, 37, 286–302.
- Seiffge-Krenke, I. (2012). Competent youth in a “disorderly world”: Findings from an eighteen-nation study. *New Directions for Student Leadership*, 2012(135), 107–117.
- Seiffge-Krenke, I., Aunola, K., & Nurmi, J. E. (2009). Changes in stress perception and coping during adolescence: The role of situational and personal factors. *Child Development*, 80(1), 259–279.
- Shavelson, R. J., Hubner, J. J., & Stanton, G. C. (1976). Self-concept: Validation of construct interpretations. *Review of Educational Research*, 46, 407–441.
- Shelley, M., & Pakenham, K. I. (2004). External health locus of control and general self-efficacy: Moderators of emotional distress among university students. *Australian Journal of Psychology*, 56(3), 191–199.
- Skaalvik, E. M., & Federici, R. A. (2015). Prestasjonspresset i skolen. *Bedre skole*, 3, 11–15.
- Skaalvik, E. M., & Skaalvik, S. (2013). School goal structure: Associations with students' perceptions of their teachers as emotionally supportive, academic self-concept, intrinsic motivation, effort, and help seeking behavior. *International Journal of Educational Research*, 61, 5–14.
- Sonmark, K., Godeau, E., Augustine, L., Bygren, M., & Modin, B. (2016). Individual and Contextual Expressions of School Demands and their Relation to Psychosomatic Health: A comparative Study of Students in France and Sweden. *Child Indicators Research*, 9(1), 93–109.
- Sotardi, V. A. (2016). Understanding Student Stress and Coping in Elementary School: A Mixed-Method. *Longitudinal Study. Psychology in the Schools*, 53(7), 705–721.
- Sowislo, J. F., & Orth, U. (2013). Does low self-esteem predict depression and anxiety? A meta-analysis of longitudinal studies. *Psychological Bulletin*, 139(1), 213–240.
- Stockings, E. A., Degenhardt, L., Dobbins, T., Lee, Y. Y., Erskine, H. E., Whiteford, H. A., & Patton, G. (2016). Preventing depression and anxiety in young people: a review of the joint efficacy of universal, selective and indicative prevention. *Psychological Medicine*, 46, 11–26.
- Suldo, S. M., & Shaunessy-Dedrick, E. (2013). The Psychosocial Functioning of High School Students in Academically Rigorous Programs. *Psychology in the Schools*, 50(8), 823–843.
- Sun, J., Dunne, M. P., Hou, X. Y., & Xu, A. Q. (2013). Educational stress among Chinese adolescents: individual, family, school and peer influences. *Educational Review*, 65(3), 284–302.
- Taylor, R. D., Oberle, E., Durlak, J. A., & Weissberg, R. P. (2017). Promoting Positive Youth Development Through School-Based Social and Emotional Learning Interventions: A Meta-Analysis of Follow-Up Effects. *Child Development*, 88(4), 1156–1171.

- Theron, L. C. (2016). The everyday ways that school ecologies facilitate resilience: Implications for school psychologists. *School Psychology International*, *37*(2), 87–103.
- Thoits, P. A. (2010). Stress and health: Major findings and policy implications. *Journal of Health and Social Behavior*, *51*(1), 41–51.
- Thurstone, L. L. (1947). *Multiple factor analysis*. University of Chicago Press.
- Ungar, M. (2008). Resilience across cultures. *British Journal of Social Work*, *38*(2), 218–235.
- Van Keyserlingk, L., Becker, M., & Jansen, M. (2019). Academic self-concept during the transition to upper secondary school. *Contemporary Educational Psychology*, *56*, 152–160.
- Vugteveen, J., de Bildt, A., Theunissen, M., Reijneveld, M., & Timmerman, M. (2019). Validity Aspects of the Strengths and Difficulties Questionnaire (SDQ). Adolescent Self-Report and Parent-Report Versions Among Dutch Adolescents. *Assessment*, *2019*, 1–16.
- Wahab, S., Rahman, F. N. A., Hasan, W. M. H. W., Zamani, I. Z., Arbaiei, N. C., Khor, S. L., & Nawi, A. M. (2013). Stressors in secondary boarding school students: Association with stress, anxiety and depressive symptoms. *Asia-Pacific Psychiatry*, *5*(S1), 82–89.
- Wang, J., Hu, S., & Wang, L. (2018). Multilevel analysis of personality, family, and classroom influences on emotional and behavioral problems among Chinese adolescent students. *PLoS one*, *13*(8), 1–16.
- Weare, K., & Nind, M. (2011). Mental health promotion and problem prevention in schools: what does the evidence say? *Health Promotion International*, *26*(1), 29–69.
- Weigold, L. K., & Robitschek, C. (2011). Agentic personality characteristics and coping: Their relation to trait anxiety in college students. *American Journal of Orthopsychiatry*, *81*(2), 255–264.
- Werner-Seidler, A., Perry, Y., Calear, A. L., Newby, J. M., & Christensen, H. (2017). School-based depression and anxiety programs for young people: A systematic review and meta-analysis. *Clinical Psychology Review*, *51*, 30–47.
- Whiteford, H. A., Degenhardt, L., Rehm, J., Baxter, A. J., Ferrari, A. J., Erskine, H. E., Charlson, F. J., Norman, R. E., Flaxman, A. D., Johns, N., Burstein, R., Murray, C. J. L., & Vos, T. (2013). Global burden of disease attributable to mental and substance use disorders: findings from the Global Burden of Disease Study 2010. *Lancet*, *382*, 1575–1586.
- Wigfield, A., & Karpathian, M. (1991). Who am I and what can I do? Children's self-concepts and motivation in achievement situations. *Educational Psychologist*, *26*, 233–261.
- World Health Organization. (2018). *International Statistical Classification of Diseases and Related Health Problems (11th Revision)*. Switzerland: World Health Organization.
- Yang, H., & Chen, J. (2016). Learning Perfectionism and Learning Burnout in a Primary School Student Sample: A Test of a Learning-Stress Mediation Model. *Journal of Child and Family Studies*, *25*(1), 345–353.
- Yeoh, S. H., Tam, C. L., Wong, C. P., & Bonn, G. (2017). Examining depressive symptoms and their predictors in Malaysia: Stress, locus of control, and occupation. *Frontiers in Psychology*, *8*(8), 1–10.
- Young, J. F., & Mroczek, D. K. (2003). Predicting intraindividual self-concept trajectories during adolescence. *Journal of Adolescence*, *26*, 586–600.

**Publisher's Note** Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.

**Jan Arvid Haugan** is an Associate Professor at the Norwegian University of Science and Technology. His research interests are the development of social relationships, stress, coping and well-being within and across different microsystems in adolescents life-ecology, especially the microsystems related to sports and education.

**Per Frostad** is a professor at the Norwegian University of Science and Technology. His research interests are social inclusion, mental health and wellbeing in upper secondary schools.

**Per Egil Mjaavatt** is an Associate Professor at the Norwegian University of Science and Technology. His research interests are everyday life and wellbeing among children and youth, students' opinions about their physical and mental health, social relations and their experiences in the education system.