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Well-being and Stress Among Upper Secondary School Pupils in Sweden

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Background. The psychological health of young people in Sweden has declined since measurements began to be taken in 1985. The reasons for the increase in stress and decline in psychological well-being among adolescents have been debated during the past few years.

Objective. The aims of this study were to explore: 1) pupils' experience of student health services, family, friends, recuperation and the learning environment; 2) whether there is a difference between introverted and extroverted pupils' sense of well-being, perceived stress, views of the learning environment, and relationships with friends and family; and 3) the degree to which the different aspects of school life predict well-being and stress.

Design. Data were collected by means of a web survey in which 1045 respondents participated.

Results. The results showed that there are significant differences in perceptions of well-being and stress depending on gender and the type of study program pupils were enrolled in. The results also revealed significant differences between introverts' and extraverts' relationships with family and friends, experience of the learning environment, and reported well-being and stress. A series of hierarchical linear regressions revealed that there were several factors affecting pupils' reported well-being and stress. The learning environment and relationships with family and friends were significant predictors for both outcome variables. Pupils' ability to recuperate from their work was found to be the most impactful predictor for well-being and stress.

Conclusion. Our results suggest that the way in which teachers interact with pupils is an important factor influencing pupils' experience of well-being and stress. Furthermore, our results suggest that pupils would benefit from student health services being made more visible and pro-active in their interaction with students.

Keywords: extraversion; well-being; stress; school; adolescence; student health services; Sweden

The authors have contributed equally.

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Introduction

The psychological health of young people in Sweden has declined since measurements began to be taken in 1985 and pupils have reported an incremental increase in stress and a decline in psychological well-being (Public Health Agency of Sweden, 2018). School is indeed important for the psychological health of adolescents, and is a place where they spend a large portion of their lives. School provides adolescents with an opportunity to develop their social competencies and social relations, as well as their cognitive abilities (BRIS, 2017; Berk, 2012). The mandatory student health services in Sweden (SHS, which includes healthcare professionals such as school nurses and school psychologists, etc.) constitute a support service for the pupils, and are often a pupil's first contact with health care professionals (BRIS, 2018).

Pupils' degrees of well-being and stress — the outcome variables in the current study — are affected by several factors, including demography, the nature of their social relationships, and their environment. The demographic factor of gender has been found to affect both the sense of well-being (Raja, McGee & Stanton 1992; Sentse, Lindenberg, Omvlee, Ormel & Veenstra, 2010) and perceived stress (Ordaz & Luna, 2012; Jose & Brown, 2008). Furthermore, personality traits such as extraversion/introversion[1] also affect the aforementioned aspects (Chu, Ma, Li, & Han, 2015; Jylhä & Isometsä, 2006). In addition, adolescents' relationships with friends and family are extremely important (Greenberg, Siegel, & Leitch, 1983; Navarro et al., 2017; Raja et al., 1992). With respect to the pupils' environment, this study focused on certain characteristics of the learning environment: specifically, how the adolescents experienced their school environment and their relationship to their teachers (BRIS, 2018; García-Moya, Brooks, Morgan, & Moreno, 2015).

Previous research examining adolescents' perceived well-being or stress has mainly considered single factors, such as gender or family, and their correlates. Recent qualitative research by our group in Sweden reported on several important factors influencing the life satisfaction and school experience of adolescents (Schad, 2018), while this study attempted to establish whether these factors remain important when viewed in combination and on a group level. By taking into account several different factors relevant for well-being and stress among adolescents, and compiling them into a comprehensive model, we explored how they together affect the adolescents' sense of well-being and stress. We aim to provide the reader with current knowledge about adolescents' school and life situations, and direct future research toward those factors worth further examination, in order to reverse the trend of declining mental health among adolescents in Sweden and elsewhere.

Well-being

As a concept, well-being, or mental health, encompasses the ability to handle life's ordinary stresses, the ability to work and contribute to society, and to realize one's potential (WHO, 2014). Mental health therefore describes the presence of well-

1 In this study, extraversion refers to the bipolar factor as defined in the *Five Factor* model of personality, where extraversion and introversion are at opposing ends of the trait spectrum (Holt & Passer, 2012).

being, not the absence of illness. Symptoms of mental illness can occur to a degree where no diagnosis is appropriate, or to a degree where one is still able to work and contribute to society (BRIS, 2017). This model of mental health and psychopathology as two continuums which are separate and yet related, is called the *dual factor system* (Greenspoon & Saklofske, 2001).

Using this definition, it is possible for mental health and mental illness to coexist in the same person. Well-being describes how one feels in relation to life, including aspects of the balance of emotion and joy, as well as the level of contentment; it's also called "life-satisfaction" (Public Health Agency of Sweden, 2018).

Mental illness is not the subject of this study; instead, well-being is examined in terms of pupils' subjective experiences of feeling cheerful, calm, and filled with interest and energy (the WHO-5 scale). The WHO-5 scale used in this study is, however, likely to pick up on symptoms of depression, since depression can be expressed as a lack of positive emotion and energy (American Psychiatric Association, 2013).

During childhood, most children rate life satisfaction as high. However, there is a decrease in this rating as children age (Public Health Agency of Sweden, 2018). International research shows that girls tend to report lower well-being than boys do (Cavallo et al., 2006; Inchley et al., 2016; Torsheim et al., 2006). The same is the case in Swedish, where differences between the genders have been documented in regards to well-being (Public Health Agency of Sweden, 2018), and to the broader sense of subjective health (Jerdén, Burell, Stenlund, Weinehall, & Bergström, 2011), where females rate their well-being and subjective health lower than males do. It has been hypothesized that the socialization process affects girls in such a way that their health is impacted for the worse, leading, for example, to more depression in adolescent girls (Slater, Guthrie, & Boyd, 2001).

Personality traits have also been found to affect well-being, as reflected in the fact that extraversion is positively correlated with high well-being (positive mental health), and negatively correlated with negative mental health, measured as psychopathological symptoms (Tian, Jiang, & Huebner, 2019). Furthermore, extraverts have a tendency to experience more positive emotions than introverts do (Swickert, Hittner, Kitos, & Cox-Fuenzalida, 2004), and introversion is correlated with symptoms of depression (Jylhä & Isometsä, 2006) and anxiety (Eysenck, 1952). It has also been found that extraversion has significant predictive value in relation to resilience, which can be understood as a tendency for positive emotion, maintenance of social relations, and social skills (Ercan, 2017). In addition, the correlation between a sense of well-being and extraversion can be explained as extraverts being better at "pursuing their potentials" (Tommasi et al., 2018, p. 71).

It has been found that the state of the adolescents' relationships with their families significantly impacts their sense of well-being (Di Blasi et al., 2018). A positive attachment between parent and child is found to be connected to well-being during adolescence (Greenberg et al., 1983; Raja et al., 1992). Problematic family environments are indeed factors that can increase the risk of developing mental health in the future (BRIS, 2017). However, a positive relationship with any supportive adult contributes to the mental health of the child, and as children spend a large part of their time in school, the importance of the school environment is clear.

Adolescents have important relationships with friends and teachers in their school something which is connected to their well-being (Greenberg et al., 1983). Moreover, there is a positive relationship between connectedness with teachers and emotional well-being (García-Moya et al., 2015). In fact, a school environment where the teacher understands the needs of the pupil, and where flexible solutions are possible, is important for the well-being of the pupil (Gillberg, 2015). In Sweden, the BRIS Helpline (part of the group Child Helpline International run by Children's Rights in Society) is increasingly contacted by adolescents who do not feel safe in school (BRIS, 2018). BRIS (2018) has reported that school has a negative effect on student well-being and they question whether the school system in Sweden is able to provide the necessary supportive environment for pupils.

Stress

Stress is the body's natural response to demands upon the individual. In the short term, stress can have a positive effect and facilitate performance, but, if prolonged, it will cause exhaustion and an array of physiological symptoms such as trouble sleeping, problems with memory and concentration, headaches, and irritability (Ottosson, 2015). Prolonged stress and its accompanying symptoms are common in settings where ambitions are high, but little support is given, and time to recuperate is scarce (Ottosson, 2015).

Recuperation time appears to be an important for the damaging consequences of stress (Aronsson, Svensson, & Gustafsson, 2003). Slow recuperation appears to signal that the body is strained and the individual's ability to handle stressful events is diminished (Aronsson et al., 2003). The subject of stress was the foremost reason for Swedish adolescents aged 16-18 calling a helpline for children and youth in 2017 (BRIS, 2018). Swedish pupils in upper secondary school report more stress as compared to pupils in other countries (BRIS, 2018). National data further indicate that pupils enrolled in higher education preparatory programs experience significantly more stress than pupils enrolled in vocational programs, although the differences were small (Fröberg & Johansson, 2015).

Research finds that the gender differences in stress response which appear in adulthood emerged during adolescence (Ordaz & Luna, 2012; Jose & Brown, 2008). Girls in Sweden aged 16 to 18 report more stress than boys the same age (Statistics Sweden, 2013). In addition to reporting more symptoms of stress than males do, females experience more demands in school and report poorer sleep (Schraml, Perski, Grossi, & Simonsson-Sarnecki, 2011). Girls also rate ordinary challenges during adolescence as more stressful than boys do (Tolan, Miller, & Thomas, 1988), and women between the ages of 18 and 65 rate stressful events as more stressful and less controllable than men do (Matud, 2004). Research also shows that women tend to use less effective coping styles than men do (Matud, 2004); this has been explained as due to their different socialization patterns (Sigmon & Stanton, 1995).

Extraversion is another factor which influences how stress is perceived by an individual. Extraverted individuals have a naturally low biological arousal level within the brain, while introverted individuals have a naturally high arousal level (Eysenck, as cited in Holt & Passer, 2012, p. 587). Further, extraverted individuals are more sensitive to rewards than they are to punishment, while for introverts it is

often the opposite (Gray, 1970). Extraverted individuals appear to be more ready to handle a stressful situation as they, unlike introverts, do not perceive the stressful situation as threatening to the same degree (Gallagher, 1990). Furthermore, extraverts tend to be more optimistic and expect outcomes of events to be favorable, and with such optimism they are primed to perform better. This leads to a better outcome (Swickert et al., 2004), which likely impacts how extraverted pupils experience school.

Another important factor affecting the stress levels of adolescents is family relationships. Family support acts as a buffer for the effects of stress (Manczak, Skerrett, Gabriel, Ryan, & Langenecker, 2018). A close relationship with a caring parental figure is a factor which contributes to adolescents' resilience in the face of stress (Masten & Coatsworth, as cited in Holt & Passer, 2012, p. 619). Furthermore, relationships with friends seem to be one of the most meaningful aspects of pupils' lives; social support and care are positive qualities mentioned by the pupils themselves (Schad, 2018).

Even so, relationships with friends are also reported to contribute to stress when conflicts arise (Sotardi, 2018). One study found that a main source of stress for school-aged children was disagreements with peers both inside and outside of class (Sotardi, 2018). While peers have been found to add to the stress experienced by children and adolescents, peer support has also been found to be an important protective factor against stress (Waas & Licitra-Kleckler, 1993; Wilhsson et al., 2017). Thus, an environment that lacks support is a significant risk factor for perceived stress among adolescents.

The school environment is yet another factor affecting the stress perceived by adolescents. In addition to friends and family, caring teachers with whom the adolescent can form a bond constitute a protective factor (BRIS, 2017). Teacher support plays an important role in preventing stress among adolescents (Sotardi, 2018). It is important for pupils' experience of support in school that their teacher provides help and a manageable academic workload" (Suldo et al., 2009). Teachers also serve as role models for adolescents to learn coping behaviors; teachers have been found to promote a more effective coping style (Zimmer-Gembeck & Locke, 2007). However, when the relationship between teacher and pupil is faulty, the school experience can negatively impact the psychological health of adolescents and result in increased stress (BRIS, 2018). Adolescents report lack of adult support when they feel unable to reach the goals posed by themselves or those around them (BRIS, 2018).

Stress caused by exams and homework affects young children, and it has been found that school-related stress increases with age (Statistics Sweden, 2013). Demands placed on pupils in the school context limit their free time and ability to recuperate (Schad, 2018). Pupils also report that their free time was scarce or nonexistent due to school-related demands (Schad, 2018). It is in the context of school that stress and its physiological symptoms are more likely to occur (Ottosson, 2015), further underlining the importance of a well-organized school environment which allows pupils time to recuperate well.

The current study

This study was based on our group's previous research, which explored several factors affecting adolescents' experiences of the school environment (Schad, 2018). Our aim in this study was to assess upper secondary pupils' life and school situations and explore the relationships between characteristics which likely impact pupils' perceived well-being and stress. We attempted to establish the importance of these factors when viewed together and on a group level in the school context of today.

Objective

1. Explore upper secondary school pupils' experience of student health services, family, friends, and the learning environment.
2. Explore whether there is a difference in well-being, perceived stress, the learning environment, and relationships with friends and family between introverted and extraverted pupils.
3. Explore the degree to which the different aspects of school life affect well-being and stress in the study population.

Methods

The study context: upper secondary education

The Swedish schooling system consists of three stages. The first stage is compulsory school (*Grundskola*) which consists of 10 mandatory years. The second stage, upper secondary school (*Gymnasium*), consists of three voluntary years which lower secondary school graduates begin the year they turn 16. The upper secondary school programs are divided into two: higher education preparatory programs (56% of pupils) and vocational programs (27% of pupils) (*Skolverket*, The Swedish National Agency for Education, 2018). The third stage is voluntary higher education begun at the earliest at the age of 18. This study concerned only students attending upper secondary school.

Study design

In the interest of generalizability, our sample was drawn from several schools with a varied composition of degree-programs. A cross-sectional design was chosen, utilizing a digital survey as the means of data collection. The participants were recruited through the principals at their respective schools. Some schools made the survey available on their internal network, while others relied on teachers to tell the pupils about the survey and provide them with the link to it. In addition, some teachers were contacted directly and asked to inform their pupils about the survey. The survey was created based on the results of a previous study (Schad, 2018) on pupils' views of school, friends, spare time, and family. Furthermore, care was taken to ensure unambiguously and positively worded questions so that the survey would be easy to understand (Choi & Pak, 2005).

Procedure

Our survey was made available to the pupils using Artologik Survey & Report. An introductory text was posted along with a link to the survey. The participants were informed that participation was voluntary, and that they would remain anonymous.

A pilot study was performed with the help of a group of first-year upper secondary school pupils ($N = 27$). After the pilot survey was completed, the pupils were asked to give feedback on the questions. Due to the stress scale's low alpha-value, the scale was revised, and a second pilot was conducted to verify its reliability. The second pilot was on a convenience sample of individuals, with ages ranging from 17 to 25 ($N = 21$).

The data collection stretched from January to February 2019. Four upper secondary schools posted the survey to their school's internal networks. In addition, teachers in three other schools made the survey available to their respective classes.

At the start of the second week of data collection, a message was sent to the principals and teachers asking them to remind the pupils to fill out the survey. Most schools were accommodating in this regard, by reposting the survey to their internal network, making it accessible to the pupils again.

Participants

All pupils in four upper secondary schools in southern Sweden were invited to participate in the study ($N_1 = 1100$, $N_2 = 2100$, $N_3 = 1128$, $N_4 = 300$). In addition, individual classes from three other schools were invited to participate ($N = 175$). In total, 4813 pupils had access to the survey. One school was excluded due to its low response rate (6%), reducing the total to $N = 4513$.

Table 1

Descriptive background information

Demographic variables		%	*N*
Gender	Woman	54.6	571
	Man	44.2	462
	Other	1.1	12
Year	1	45.0	470
	2	26.2	276
	3	28.6	299
Program	Preparatory	85.8	897
	Vocational	13.7	143
	Other	0.5	5
Living	With guardian/guardians	97.9	1023
	Without guardian/guardians	2.1	22

The overall response rate was 23.9% ($N = 1078$). Respondents who indicated that they did not attend school regularly (1.8%, $N = 19$) and pupils attending the introductory language program (1.4%, $N = 15$) were excluded from the analysis, resulting in a total of 1045 participants. The demographic data is reported in *Table 1*.

Measurements

Scales and questions were constructed based on themes in a previous study (Schad, 2018). To ensure answers to all items, each item was set as mandatory, which meant that the participant would be reminded to answer an item left unanswered before being allowed to proceed to the next question. Cronbach's alpha values are reported in *Table 4*.

Data were collected on gender identity (Female, Male, Other), school year (first, second, and third year), chosen program (higher education preparatory program, vocational program, introductory program, and other), school attendance ("I regularly attend school", Yes/No), and whether the student was currently living with his or her guardian/guardians (Yes/No).

Recuperation was measured with 5-item scale constructed for this study (*e.g.*, *Recuperation for me is… to do something that I chose for myself*). Participants responded to the items using a four-point Likert scale (*1 = completely disagree; 2 = disagree to some extent; 3 = agree to some extent;* and *4 = completely agree*).

Performance was measures with a 6-item scale constructed for this study (*e.g.*, *I feel that… I have demands on my own performance*). Participants responded to the items using a four-point Likert scale (*1 = completely disagree; to 4 = completely agree*). No mean was calculated for the responses on this scale because a high score cannot be said to be neither negative nor positive.

Personality was a question constructed for this study to measure self-rated extraversion. The item (*I identify as...*) was a statement to which participants responded by choosing one of two options (*"Introverted"* or *"Extraverted"*). The item was entitled *personality* so as to not prime participants toward either option.

Student Health Services (SHS) was a 5-item scale constructed for this study to measure the pupils' knowledge and view of the Student Health Services at their school (*e.g.*, *I know how to get in contact with student health services*). The items were formulated as statements, and the responses indicated the degree of agreement on a four-point Likert scale (*1 = completely disagree to 4 = completely agree*).

Family was a 6-item scale constructed for this study to measure self-rated experience of family (*e.g.*, *I have a good relationship with my family*). Participants responded to the items using a four-point Likert scale (*1 = completely disagree; to 4 = completely agree*).

Friends was a 5-item scale constructed for t this study to measure self-rated experience of relationships with friends (*e.g.*, *I have a good relationship with my friends*). Participants responded to the items using a four-point Likert scale (*1 = completely disagree; to 4 = completely agree*).

Experience of the Learning Situation was a 7-item scale constructed for this study to measure self-rated experience of the learning environment (*e.g.*, *I feel that… most of my teachers instruct the class so that I understand what is expected of me*). Participants responded to the items using a four-point Likert scale (*1 = completely disagree; to 4 = completely agree*).

Outcome variables

Well-being

Self-rated well-being was measured using a modified version of the 5-item World Health Organization Well-being Index (WHO-5), which measures experienced mood during the previous two weeks (Bech, Olsen, Kjoller, & Rasmussen, 2003). The items were measured on a six-point Likert scale where *0 = never; 1 = sometimes; 2 = less than half of the time; 3 = more than half of the time; 4 = mostly;* and *5 = always* (the original WHO-5 well-being index uses 5 = "all of the time"; this was modified to "always" in the current survey). The items were modified to better suit upper secondary school students (*"I have felt active and vigorous"* was modified to *"I have felt active and engaged,"* and *"my daily life has been filled with things that interest me"* was modified to *"my school day has been filled with things that interest me"*). Topp, Østergaard, Søndergaard, and Bech (2015) conclude that the WHO-5 well-being index measures subjective well-being with adequate validity. Its alpha value has previously been reported as $\alpha = 0.83$ (Löve, Andersson, Moore & Hensing, 2014).

Stress

Stress was a 7-item scale constructed for this study to measure self-rated stress (*e.g.*, *Over the past two weeks, I have felt stressed*). Participants responded to the items using a four-point Likert scale (*1 = close to never; 2 = less than half the time; 3 = more than half the time;* and *4 = close to always*).

Data analysis

The data collected was analyzed using SPSS version 24.0. The internal consistency for each scale was reported as Cronbach's Alpha coefficients (Cronbach, 1951). Prior to performing statistical analyses, as per the recommendations by Muthén and Kaplan (1992), normality, kurtosis, and skewness were controlled. Outliers were also controlled for; 25 outliers were statistically corrected according to the outlier labelling method (Hoaglin & Iglewics, 1987). The internal validity of the scales was assessed using exploratory factor analysis (EFA). Initially, the bivariate correlations between all scale-items were calculated to assess the appropriateness of the EFA. To be able to obtain fit indices for the EFA, the maximum-likelihood analysis method was used. The sampling adequacy of each scale was assessed using the Kaiser-Meyer-Olkin measure (KMO), Bartlett's test of sphericity, and scree plots. Scales were modified in accordance with results of the EFA.

Actual two-tailed p-values are reported where appropriate. Pearson zero-order correlations were used to explore associations between continuous study variables. Point biserial correlations were used to estimate between binary variables and continuous variables. A series of independent t-tests was performed in order to examine the relationship with family, relationships with friends, experience of the learning environment, well-being, and perceived stress based on reported extraversion. Prior to conducting the independent t-tests, the assumption of normality and homogeneity of variance was controlled in the data.

Two theoretically-driven, 5-step hierarchical regressions were carried out to assess to what degree the independent variables contributed to the variance in self-

reported sense of well-being and stress, respectively. Prior to conducting the hierarchical regressions, the assumptions of normality, linear relationship between variables, homoscedasticity, and multicollinearity were controlled in the data.

Ethical considerations

A Lund University, Department of Psychology ethics declaration was approved prior to commencing the study. The participants were asked for consent after receiving information regarding the study, data treatment, and the purpose of the study. All participants remained anonymous, and the survey program did not record IP-addresses. No sensitive personal information was collected.

Results

Characteristics of the study population

As seen in *Table 2*, a majority of pupils responded positively (*3 = Agree to some extent* or *4 = Agree completely*) regarding their overall knowledge of the SHS, as well as their relationship to family and friends. A majority of the pupils also reported a positive experience in relation to the learning environment.

When the items from the complete scales were examined, the results indicated that most of the pupils had a fair idea of where they could find the SHS and how to get in touch with them. Finally, a majority of the pupils felt that their teachers listened and instructed the class in a way they understood.

As seen in *Table 2*, regarding stress, the responses were balanced around the cut-off between agreement and disagreement ($M = 2.48$, $SD = 0.71$). When examining only the item *"During the past two weeks… I have felt stressed*," the results indicated that a majority of pupils had felt stressed during the two-week span leading up to participating in the survey ($M = 2.76$, $SD = 1.0$). However, a majority of pupils rated low levels (*1 = Disagree completely, 2 = Disagree to some extent*) of physiological symptoms of stress, such as headaches or difficulties sleeping.

Table 2

All scales

Scale	Total		Women		Men	
	N	M(SD)	N	M(SD)	N	M(SD)
Student Health (1–4)	1045	2.86(0.81)	571	2.98(0.74)	462	2.70(0.86)
Family* (1–4)	1023*	3.15(0.60)	555*	3.08(0.63)	457*	3.22(0.56)
Friends (1–4)	1045	3.31(0.57)	571	3.29(0.54)	462	3.34(0.60
Learning situation (1–4)	1045	2.93(0.52)	571	2.84(0.51)	462	3.05(0.50)
Well-being (0–25)	1045	16.38(5.17)	571	14.88(4.69)	462	18.30(5.13)
Stress (1–4)	1045	2.48(0.71)	571	2.73(0.63)	462	2.16(0.67)

*Note. * Students not currently living with their guardian/guardians are excluded. Other as a gender does not have its own column as there were few responses. In the total, all responses are included.*

T-tests for independent samples were performed to compare female and male pupils' well-being and their perceived stress. The results, as seen in *Table 3*, showed that female pupils reported less favorable experiences on both measures, i.e., their scores indicated less well-being and higher stress.

Similar results were found when comparing vocational programs with higher education preparatory programs on measures of well-being and perceived stress. As presented in *Table 3*, those pupils participating in higher education preparatory programs reported lower well-being and higher perceived stress than pupils participating in a vocational program.

Table 3

T-tests for gender and program differences

Grouping variable		N	M	SD	df	t	p	d
Well-being (0–25)	Preparatory	897	15.94	5.01	1038	−6.846	< .001***	.615
	Vocational	143	19.05	5.28				
	Women	571	14.88	4.69	946.240[a]	−11.053	< .001***	.641
	Men	462	18.30	5.13				
Stress (1–4)	Preparatory	897	2.52	0.70	1038	5.210	< .001***	.469
	Vocational	143	2.19	0.71				
	Women	571	2.73	0.63	1031	14.260	< .001***	.878
	Men	462	2.16	0.67				

Note. [a] *Equal variance not assumed.* * $p < .05$; ** $p < .01$; *** $p < .001$

General observations

Student Health Services

Out of all pupils, 30.0% responded negatively (*disagree to some extent* or *completely disagree*) to the item *"I know where the student health services are located at my school."* And while 72.6% of students agreed that someone from the student health team had introduced themselves to the class, 47.6% of pupils did not know who was part of the student health team. Finally, 32.8% of pupils responded negatively to the item *"I know how to get in contact with the student health services."* These responses indicated that close to one in three pupils would have difficulty contacting the student health team. While 74.1% felt that they could contact the student health services should they need it, only 67.2% knew how to do so.

Performance

Over 90 percent of the students (90.8%) felt that they placed demands on their own performance, and 35.9% felt that they could not live up to the demands placed on them. Forty-seven percent of pupils agreed with the statement *"I have to work more than my classmates in order to achieve the results I want."* In addition, 76.5% felt that the demand for productivity was stressful, and 68.5% experienced stress if they were not doing something productive.

Recuperation

Regarding recuperation, a majority of pupils, 58.5%, did not feel that they had time to recuperate during an average week. An overwhelming number (89.6%) agreed that recuperation to them meant doing something that they chose for themselves. Further, 54.0% of the pupils agreed that recuperation to them meant not doing anything active at all, and 74.9% felt that recuperation was doing something where there were no demands for performance, while 65.7% felt that recuperation was to do something social.

Family and friends

Out of all the pupils, 22.9% did not agree that they had time to spend with family, and 33.0% did not feel that they had time for their friends. However, 86.6% felt that their family was a good support for them, and 86.8% felt that their friends were a good support for them. Nearly the same percentages of pupils felt that they could ask both family and friends for help if they should need it.

Experience of the learning situation

When the pupils' experiences of the learning environment were examined, it was found that 84.5% felt that their teachers "see" them in class, 85.5% felt that their teachers listened to them, and 90.7% felt that the teachers helped them when they needed it. However, 43.4% felt that their teachers lacked an understanding of what was a reasonable amount of time to spend on their subject. A full 32.5% did not feel that the curricular demands placed on them were reasonable, and in response to the item *"Most of my teachers instruct the class so that I understand what is expected of me,"* 26.0% responded negatively (*completely disagree* or *disagree to some extent*).

Exploratory Factor Analysis

A series of maximum likelihood analyses was used to assess the reliability of the scales. Individual items lacking satisfactory loadings were removed. The fit indices and sampling adequacies of each respective scale are reported in *Tables 4* and *5*.

Table 4

Exploratory factor analysis

Scale	%	*M*	*SD*	α	*Skew*	*Kurtosis*	*KMO*	*p*
SHS (1–4)	66.50	2.86	0.81	0.87	–0.629	–0.485	0.849	< .001***
Family (1–4)	44.67	3.14	0.61	0.79	–0.761	0.318	0.814	< .001***
Friends (1–4)	59.72	3.31	0.57	0.81	–1.007	1.266	0.808	< .001***
Learning situation (1–4)	43.59	2.93	0.52	0.84	–0.380	0.363	0.873	< .001***
Well-being (0–5)	50.50	16.38	5.17	0.83	0.121	–0.472	0.841	< .001***
Stress (1–4)	45.38	2.48	0.71	0.85	0.012	–0.667	0.884	< .001***

Note. % indicates initial Eigenvalues percent of variance.
[a]KMO values of 0.6 indicate inadequate sampling and EFA is not appropriate.
** p < .05 ** p < .01 *** p < .001*

Table 5

Goodness of fit

Scale	Factor matrix	χ^2	*df*	p
SHS (1–4)	0.682–0.853	88.296	5	< .001***
Family (1–4)	0.333–0.912	71.101	9	< .001***
Friends (1–4)	0.480–0.866	82.597	05	< .001***
Learning situation (1–4)	0.538–0.765	181.899	14	< .001***
Well-being (0–5)	0.560–0.787	35.274	05	< .001***
Stress (1–4)	0.597–0.767	117.035	14	< .001***

*Note. * p < .05 ** p < .01 *** p < .001*

Extraversion/introversion in relation to other factors

Of respondents, 60.2% viewed themselves as introverted ($N = 629$), while the other 39.8% ($N = 416$) viewed themselves as extraverted. A series of t-tests for independent samples were performed to examine possible differences between extraverts and introverts on all measures. As seen in *Table 6*, significant differences were found on all measures, with extraverts consistently giving responses indicating a more positive experience. The results showed that extraverts scored higher on well-being, and lower on stress, as well as reporting a more favorable experience in relation to their friends, family, and the learning environment.

Table 6

T-tests for Personality differences

Scale	Personality	N	*M*	*SD*	*df*	*t*	*p*	*d*
Family[a] (1–4)	Introverts	609	3.10	0.60	1021**	–2.848	.004**	.182
	Extraverts	414	3.21	0.61				
Friends*(1–4)	Introverts	629	3.20	0.60	1013.029	–8.497	< .001***	.495
	Extraverts	416	3.48	0.47				
Learning situation[b] (1–4)	Introverts	629	2.90	0.50	820.354	–2.492	.013*	.121
	Extraverts	416	2.98	0.55				
Well-being (0–5)	Introverts	629	15.46	5.00	1043	–7.272	< .001***	.459
	Extraverts	416	17.78	5.12				
Stress (1–4)	Introverts	629	2.54	0.70	1043	3.621	< .001***	.227
	Extraverts	416	2.38	0.71				

Note.[a] Students not currently living with their guardian/guardians are excluded.
*[b] Equal variance not assumed. * p < .05 ** p < .01 *** p < .001*

Correlations

Table 7 gives an overview of correlations between all scales. A significant correlation of moderate size was found between the dependent variables. The assumptions necessary for performing a hierarchical regression were met. Most data points achieved $r>.2$, which is the recommended level.

Table 7

Correlation matrix

	Gender	**Programme**	**Extraversion**	**Recuperation**	**Family**	**Friends**	**Learning situation**	**Well–being**	**Stress**
Gender	1	0.229**	0.062*	0.287**	0.105**	0.033	0.174**	0.293**	–0.379**
Program		1	0.050	0.111**	0.024	0.019	0.060	0.198**	–0.110**
Extraversion			1	0.094**	0.089**	0.243**	0.079*	0.220**	–0.101**
Recuperation				1	0.269**	0.243**	0.467**	0.513**	–0.545**
Family					1	0.374**	0.308**	0.434**	–0.400**
Friends						1	0.334**	0.360**	–0.294**
Learning Situation							1	0.483**	–0.455**
Well-being								1	–0.673**
Stress									1

Note. *= $p<.05$, **= $p<.01$

Hierarchical Linear Regression

A hierarchical regression analysis was conducted in order to examine how pupils' gender, educational program attended, extraversion/introversion rating, recuperation during a normal week, and relationship to family and friends, as well as their experience of the learning environment, related to their sense of well-being (*Table 8*).

In the first model, gender and program were entered as predictors, which explained 10.8% ($p<.001$) of the variance. In the second model, extraversion was added as a predictor. The second model explained 14.4% ($p<.001$) of the variance. The third model added recuperation as a predictor, explaining 33.1% ($p<.001$) of the variance. In the fourth model, the relationship to family and friends was added as a predictor, which raised the proportion of explained variance to 43.1% ($p<.001$). The final model included the pupils' experience of the learning situation as a predictor, which explained 46.3% ($p<.001$) of the variance. The most impactful predictor in the final model was recuperation, which explained 27.2% ($p<.001$) of the variance in the pupils' well-being, followed by the relationship to family (23.4%,

Table 8

Hierarchical multiple regression analysis on the dependent variable Well-being

Predictor	Model 1			Model 2			Model 3			Model 4			Model 5		
	B	SE B	β	B	SE B	β	B	SE B	β	B	SE B	β	B	SE B	β
Gender	2.657	0.300	0.269***	2.555	0.294	0.259***	1.357	0.270	0.137***	1.353	0.250	0.137***	1.254	0.243	0.127***
Program	1.756	0.390	0.137***	1.676	0.383	0.131***	1.414	0.339	0.110***	1.481	0.313	0.115***	1.474	0.304	0.115***
Personality				1.989	0.304	0.190***	1.653	0.270	0.158***	1.167	0.256	0.112***	1.222	0.248	0.117***
Recuperation							2.691	0.160	0.452***	2.091	0.154	0.351***	1.619	0.162	0.272***
Family										2.226	0.221	0.262***	1.987	0.217	0.234***
Friends										1.243	0.246	0.135***	0.860	0.244	0.093***
Learning situation													2.103	0.269	0.213***
R^2	0.108			0.144			0.331			0.431			0.463		
F change for R^2		61.790***			42.818***			284.368***			89.197***			61.155***	

Note. All variables are centered at their means.
** p < .05 ** p < .01 ***p < .001.*

Table 9

Hierarchical multiple regression analysis on the dependent variable Stress

Predictor	Model 1			Model 2			Model 3			Model 4			Model 5		
	B	SE B	β	B	SE B	β	B	SE B	β	B	SE B	β	B	SE B	β
Gender	−0.552	0.042	−0.391***	−0.545	0.042	−0.386***	−0.359	0.038	−0.255***	−0.357	0.035	−0.253***	−0.340	0.035	−0.241***
Program	−0.122	0.060	−0.060*	−0.117	0.060	−0.058	−0.055	0.052	−0.027	−0.056	0.049	−0.028	−0.061	0.048	−0.030
Personality				−0.095	0.041	−0.066*	−0.054	0.036	−0.037	−0.001	0.034	−0.001	−0.007	0.034	−0.005
Recuperation							−0.392	0.021	−0.487***	−0.322	0.021	−0.396***	−0.272	0.022	−0.335***
Family										−0.285	0.030	−0.244***	−0.258	0.030	−0.222***
Friends										−0.119	0.033	−0.094***	−0.079	0.033	−0.062*
Learning situation													−0.225	0.037	−0.166***
R^2	0.168			0.173			0.383			0.459			0.479		
F change for R^2	101.487***			5.268*			341.378***			70.488**			37.257***		

Note. All variables are centered at their means.
** p < .05 ** p < .01 ***p < .001.*

$p < .001$), and the experience of the learning environment (21.3%, $p < .001$). All predictors remained significant throughout the analysis.

A second hierarchical regression analysis was conducted in order to examine how pupils' gender, educational program, extraversion/introversion rating, recuperation during a normal week, and relationship with family and friends, as well as their experience of the learning environment related to perceived stress (*Table 9*).

In the first model, gender and program were entered as predictors, which explained 16.8% ($p < .001$) of the variance. In the second model, extraversion was added. The second model explained 17.3% ($p < .001$) of the variance. This step rendered the program attended by the pupils non-significant ($p = 0.051$). The third model added recuperation as a predictor. This model explained 38.3% ($p < .001$) of the variance, but rendered extraversion non-significant ($p = 0.134$). In the fourth model, the relationships to family and friends were added as predictors, which raised the proportion of explained variance to 45.9% ($p < .001$). The final model included the pupils' experience of the learning environment as a predictor, which explained 47.9% ($p < .001$) of the variance. The most impactful predictor in the final model was recuperation, which explained 33.5% ($p < .001$) of the variance in perceived stress, followed by gender (24.1%, $p < .001$) and relationship to family (22.2%, $p < .001$).

Discussion

Student Health Services, Gender and Program

In this study, the pupils' views of the SHS were examined. Not all pupils were familiar with or had knowledge of the SHS, as nearly one in three pupils did not know how to contact the student health team, and reported that the SHS had not introduced themselves to their class. This finding is important, given that the SHS often serves as the first contact with health care for pupils (BRIS, 2018). As the student health services' aim is to promote health (the Swedish National Agency for Education, 2012), this cannot be optimally achieved if pupils are not familiar with their services. It is possible that if the student health services are made more visible in the schools, the knowledge of how to reach their services may increase.

Furthermore, the results of this study point to important connections which gender and educational program have with the outcome variables: well-being and stress. With regard to gender, females reported a significantly lower sense of well-being, as well as higher levels of stress. These results are in line with previous research in Sweden regarding well-being (Jerdén et al., 2011) and stress (Schraml et al., 2011). Furthermore, the results are consistent with research done internationally (Cavallo et al., 2006; Inchley et al., 2016; Matud, 2004; Tolan et al., 1988; Torsheim et al., 2006).

These results draw our attention to an ongoing problem area as discussed, for example, by Slater, Guthrie, and Boyd in their 2001 review, which pointed to gender specific expectations of women as a possible explanation for girls' low psychological health. Women are also socialized to handle stressors using certain coping strategies (Sigmon & Stanton, 1995), which are found to be less effective (Matud, 2004), which in turn has been linked to depression (Slater et al., 2001). Given the

results of the current study, there is reason to conclude that female adolescents are at a higher risk of experiencing lower well-being and higher stress. Gender is an especially impactful factor in relation to stress, since it explains a large proportion of the variance in this study, something which is supported by similar findings as reported in a review article by Ordaz and Luna (2012).

While the relationship between gender and well-being (Public Health Agency of Sweden, 2018) is supported by previous research, the relationship between program of study and well-being has been less fully researched. Previous research has indeed found that pupils attending a preparatory program are more stressed than those attending a vocational program (Fröberg & Johansson, 2015). No previous research on Swedish upper secondary school programs in relation to pupils' well-being has been found. In this study, which program the pupils attended explained a small but significant proportion of the variance in pupils' well-being.

Extraversion

In this study, extraverted pupils rated their well-being higher, and stress lower than introverts did. In line with previous research on the subject, extraverts' experiences seemed altogether more advantaged (Swickert et al., 2004; Tian et al., 2019). Extraversion has, in this study, been found to be important for the experience of relationship to family, relationship to friends, and finally, to the learning environment, while introverted pupils score lower and thus report a less favorable experience in all three areas.

We found that extraversion explained a small but significant proportion of the variance of self-reported well-being, but not stress. Previous research on stress in relation to extraversion has, on the other hand, shown that extraverts are less vulnerable to stress (Chu et al., 2015; Gallagher, 1990).

In this study, we found that extraverts reported a more favorable experience of the learning environment when compared with introverts. These findings can be understood in light of previous research which showed that extraversion appears advantageous in a school context as it entails an orientation toward rewards (Smits & Boeck, 2006), optimism, and positive affect (Swickert et al., 2004).

Performance and recuperation

Nearly eight out of ten pupils felt that the demand for productivity was stressful, and seven out of ten pupils experienced stress if they were not doing something productive. These results, when contrasted with the fact that seven out of ten pupils agreed with the item *"Recuperation for me is to do something where there's no performance demand,"* points to a difficult pattern where recuperation itself can be stressful.

In this study, recuperation was found to be an important factor affecting well-being and stress. We also found that nearly six in ten pupils did not feel that they had the time to recuperate during an average week. Our results indicate that when pupils' recuperation needs are not met, it affects their experience negatively. Recuperation has not been sufficiently researched in relation to pupils' well-being and stress, despite the fact that the factor appears important (Schad, 2018), a point with which others who have examined recuperation appear to agree (Aronsson et al., 2003).

Family and friends

Our study found that family was yet another important factor affecting well-being and stress. These findings are in line with previous research, which suggests that a good relationship with one's parents has a positive effect on well-being (Navarro et al., 2017; Sentse et al., 2010) and stress (Greenberg et al., 1983; Manczak et al., 2018; Waas & Licitra-Kleckler, 1993). Similarly, friends were found to be another factor affecting well-being and stress. The relationship with friends proved an important factor in relation to both outcome variables. These findings seem appropriate when compared to previous research on the topic, indicating that the relationship with friends is an important factor affecting adolescents' well-being (Greenberg et al., 1983; Navarro et al., 2017) and stress (Waas & Licitra-Kleckler, 1993).

In this study, the results showed that one in five pupils felt that they did not have enough time to spend with their family, and one in three pupils felt that they did not have time to spend with their friends, which could suggest that the pupils might miss out on the benefits of a good family or friend relationship, including getting available help when it was needed.

Experience of the learning environment

In this study, the pupils' experience of the learning environment was an important factor affecting the pupils' well-being and stress. In relation to previous research, relationships between the learning environment and our outcome variables were to be expected (García-Moya et al., 2015; Suldo et al., 2009; Sotardi, 2018). School gives pupils access to a social context where they can find friends and support from adults outside their immediate family, which are two other important factors in relation to pupils' psychological health (BRIS, 2017). Furthermore, teachers promote a more effective coping style (Zimmer-Gembeck & Locke, 2007), which is thought to be beneficial in relation to well-being and perceived stress (Matud, 2004).

Practical implications

An important finding of this study was that the student health services are not optimally visible. It is possible that if the student health services were made more visible in classes, more pupils would contact them, and possibly, be helped. As stated above, the student health services are often the first contact that pupils have with health care professionals, further underlining the importance of their availability.

Another important aspect in relation to pupils' well-being and stress is recuperation. Our results point to a lack of time for recuperation among pupils. Recuperation is the factor with the most predictive value for both well-being and stress. If pupils had the time and/or strategies to recuperate between school days, it is likely, given our results, that well-being would increase, and stress would decrease. The student health services could provide the pupils with strategies to recuperate through such interventions as education regarding time management or sleep routines. Furthermore, the learning environment should be better organized according to student's needs.

Our results show that a majority of pupils reported experiencing stress. As previous research showed that prolonged stress has adverse effects, schools and the

student health services should work preventatively to pre-empt the adverse effects of stress among pupils. Furthermore, our results show that the pupils' experience is likely influenced by the way in which their teachers interact with them. If the pupils feel that they are seen and heard by their teachers, it is likely their experience is impacted for the better.

Conclusion

The aims of the current study were to assess upper secondary school pupils' life situations and examine factors affecting pupils' sense of well-being and perceived stress.

Our findings suggest that the gender differences found in previous research persist within the sample, where girls have a lower sense of well-being and experience more stress. Extraverted individuals appear to have a more favorable experience than introverted individuals, where they experience higher well-being and less stress, as supported by previous findings. There is also a significant difference depending upon which educational program the pupils were enrolled in, where those pupils who attended a higher education preparatory program were found to have lower well-being and more perceived stress than those who attend a vocational program. These findings suggest that future research should examine possible interactions, or additive effects, between these groups since low well-being and high stress are both risk factors for further psychological distress.

When examining factors affecting well-being and stress, we found that recuperation is the most impactful factor for both outcome variables. We also found that family is a constant positive factor, favorably affecting both outcome variables. The learning environment appears to be more influential with regards to well-being, while gender differences are more impactful with regards to stress.

There are aspects of the learning situation that were not covered in this study, such as the school culture; how the students perceive the atmosphere in the school; and whether there are occurrences of bullying, threats, or violence. Another aspect of the learning environment is the much criticized grading system in Sweden which this study does not examine. Results of this study show that 32.5 % of pupils don't feel that the curricular demands placed on them are reasonable. Whether these pupils' experiences can be attributed to the grading system would be interesting to examine.

Other organizational aspects of the school experience ought to be further examined as well. While a majority of pupils in this study were found to agree with statements such as *"most of my teachers listen to me,"* and *"most of my teachers 'see me' in class,"* the current study also found that one in four pupils did not think that their teachers instructed them in a way that allowed them to understand what was expected of them, and 43.4 % did not think that their teachers knew what amount of time was reasonable to spend on their subject.

In this study, female gender, introversion, and enrolment in a preparatory program were risk factors for less well-being and higher stress. Given this, one is led to think that, with a supportive environment and time to recuperate, the inevitable demands of the school context could be made less stress-inducing.

Limitations

One limitations of this study is the low response rate, which means that it cannot be said for certain that the pupils who chose to participate didn't not differ systematically from pupils who did not participate. Furthermore, the number of respondents enrolled in vocational programs was low, which makes conclusions drawn about this group less reliable. The group of pupils in a vocational program should ideally have constituted around 27% of the sample (The Swedish National Agency for Education, 2018) instead of the 13.7% involved in this study, in order to be representative of the population.

In addition, due to the study design, it was not possible to perform a non-response analysis to examine whether there was bias in the data based on participants who chose to submit an incomplete survey.

Finally, although causality is implied, as this study is cross-sectional, no inferences can be drawn regarding causality.

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