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The effects of school-related pressure on the mental health of adolescents in the Netherlands in relation to socio-economic status and parental support

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Master thesis

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Abstract

In the past four years school-related pressure among adolescents in the Netherlands has increased according to the Dutch Health Behavioral Science-study of 2017. Little is known about the consequences of this on the mental health outcomes for adolescents of different socio-economic status (SES). This study examined the moderation effect of SES in the relation between school-related pressure and mental health of adolescents in the Netherlands. Furthermore, the mediational role of parental support within this relation was also examined in this research. The data was derived from the Dutch Health Behaviour in School-aged Children (HBSC) study of 2017. The sample used for this study, out of the bigger database of the HBSC, consisted of 7369 adolescents in high school between the age of twelve and eighteen. Results showed that adolescents of different SES had significant different mental health outcomes by the same amount of school-related pressure, whereas adolescents of low SES were in disadvantage. This was not the case when there was no perceived school-related pressure at all. Therefore, SES was found as a moderator within the relation of school-related pressure and mental health. Furthermore, results showed that parental support mediates the relation between SES and mental health, whereby an increase in parental support led to an increase in mental health. Again, adolescents with low SES were in disadvantage and received less parental support than their higher SES peers and therefore had worse mental health outcomes. Further research is needed to investigate additional factors within this complex mechanism, like gender, educational level and schoolyear, to get broader insight. Only in that case, effective interventions can be established to prevent an increase in the existing mental health gap between low and high SES adolescents.

Keywords: Socio-economic status; school-related pressure; mental health; parental support; adolescents

Introduction

In the Netherlands concerns about increasing mental health issues due to school-related pressure amongst adolescents are more and more reaching the public debate (Schraevesande & Leclaire, 2017; Kuijpers, 2017; Verschuren & Hilderink, 2018). Recent research of the Dutch Health Behaviour in School-aged Children (HBSC, 2017) indeed confirmed that this perceived school-related pressure increased over the past four years amongst adolescents. Additionally, a research of the Netherlands' Ombudsman for children (monitors if the local and central government in the Netherlands adheres to the rights of children) showed that adolescents perceive more and more stress due to this increase in academic pressure (Kalverboer, Hopman & De Jong, 2018).

Some amount of stress in academic, social and personal challenges is considered as important to provide an optimal learning environment to adolescents, but nowadays the levels of chronic stress in adolescents are so high that it undermines their academic performance (Leonard et al., 2015). This is a danger to their physical and mental health, whereof the effects seem to persist into the college years and can cause mental health problems and academic drop outs (Leonard et al., 2015).

Mental health is defined by the World Health Organization (2014) as: *“a state of well-being in which every individual realizes his or her own potential, can cope with the normal stresses of life, can work productively and fruitfully, and is able to make a contribution to her or his community”*. High levels of stress can bring the mental health of people in danger, when they no longer can cope with this stress, which could undermine their (academic) potential (Schönfeld, Brailovskaia, Bieda, Zhang & Margraf, 2016). This makes it important to look at the effects of the increased school-related stress on the mental health of adolescents, not only for their own benefits, but also to prevent a loss in social capital and to avoid high costs for the welfare state (Rasing, Creemers, Stikkelbroek, Kuijpers & Engels, 2018; Rasing, Stikkelbroek & Creemers, 2018; OECD, 2015).

Adolescence is an important transitional period in life, wherein the search for one's own identity is central. This vulnerable transition makes that most mental health issues emerge throughout adolescence (Ogden & Hagen, 2018). While most adolescents are equipped with enough tools to go through this confusing and sometimes stressful stage, some lack these tools and are more vulnerable to mental health issues (Ogden & Hagen, 2018). It is known that adolescents of families with low socio-economic status (SES), in opposite towards those of higher SES families, are a vulnerable group who often lack these tools (Conger, Conger & Martin, 2010).

Given this, it is important to also look at the consequences of increased school-related pressure on adolescents of different SES. This is done to get more insight on the possible effects on the already uneven distribution of mental health issues between low and higher SES adolescents (Matthews, Gallo & Taylor, 2010; Fiscella & Williams, 2004; Reiss, 2013).

Most of the research about this topic has focused on students and not so much on adolescents in high school, while effects of school-related stress in adolescents tend to persist in college years (Leonard et al., 2015). It is known that the western society has become more and more performance based, which can be a source of stress for adolescents (Van der Ploeg, 2013). The effect of stressors coming of acute life events has been studied thoroughly, but the effects of chronic stressors like school-related stress at the mental health of adolescents has been understudied so far (Leonard et al., 2015).

Also, little is known about the consequences of school-related pressure on the mental health of adolescents of different SES. One of the causes of the difference in vulnerability for mental health issues is that adolescents in low SES families tend to receive less parental support than those in higher SES families (Roubinov & Thomas-Boyce, 2017). The exact importance of the role of parental support in relation to school-related pressure, SES and mental health outcomes is not clear yet. This research aims to contribute to the knowledge about the relation between school-related pressure and the mental health of adolescents of different SES and the role of parental support in this relationship.

Theoretical framework

School-related pressure

The pressure to perform in society has increased over the last decades (Van der Ploeg, 2013). There are more possibilities in life than ever before and nowadays it is seen as an individual responsibility to work hard, make the right choices and to succeed in life. This causes more and more stress in present society and this already starts in adolescent life during high school (Coopmans, 2015; Sonneveld, 2014). In a research of the Dutch ‘ombudsman’ for children (2018) it became clear that lots of adolescents feel stressed due to long days at school and lots of homework. They also find it hard to combine this with sports, hobbies, side jobs and chores at home (Kalverboer et al., 2018).

This chronic school-related stress can be a danger to the mental health of adolescents, besides and in combination with other sources of stress in life. The Stress Process Model of Pearlin (1999) combines the different stressors throughout adolescent life in one model.

This model shows that social and personal resources can function as protective factors which can mediate or moderate minimizing the effects of stressors on mental health. These protective factors include social networks and social support, as well as personal resources like coping strategies (Leonard et al., 2015).

Coping skills

Coping skills that an individual masters, partly determines how he or she reacts on stressors. There are two main ways of coping with stress: problem-focused coping and emotion-focused coping (Carr, 2016; Folkman, 2013; Leonard et al., 2015). Problem-focused coping is seen as an adaptive, positive way of stress regulation, where the individual takes active steps to remove or circumvent the stressor or to minimize its effects (Folkman & Lazarus, 1988). Emotion-focused coping is a more indirect way to avoid the stressor or to control its emotional impact, such as ignoring the stressor, distancing oneself of it or ruminating over it (Folkman & Lazarus, 1988). Problem-focused coping is in general seen as more effective in dealing with stress than emotion-focused coping. Even more, adolescents who mainly use emotion-focused coping might be at greater risk for mental health issues and/or maladaptive behavioral problems, like substance use (Leonard et al., 2015).

The family is an important learning environment for adolescents to learn coping skills (Agnieszka & Zalewska, 2011; Doane, Schumm & Hobfoll, 2012). Families with a low SES tend to have less resources to learn their children the right coping skills to deal with stressors. Not only because lower SES families tend to have lower educational achievements and therefore tend to master fewer coping skills themselves, they also tend to live in a less safe environment and to be away from home quite often to earn money. This makes it extra hard to provide their children with adequate coping skills to deal with adversity and this creates a backlog compared to higher SES children (Doane et al., 2012).

Additionally, research shows that optimism is a very important factor to predict the kind of coping skills an individual mainly uses to deal with stress (Ek, Remes & Sovio, 2004). The more optimistic an individual is, the more problem-focused coping he tends to use and is therefore more able to deal with adversity in an effective way. SES seems to predict the rate of optimism in adolescents quite well. Adolescents of lower SES tend to be less optimistic than their higher SES peers and therefore are less able to deal effectively with stressors. Again, the role of the family is very important in this relationship (Ek, Remes & Sovio, 2004).

Parental support

Besides a learning environment of coping skills, family-based factors, like supportive parent-child relationships, also functions as an important protection and as a buffer for adolescents against the effects of stress (Branstetter, Furman & Cottrell, 2009). Furthermore, parental support is of great importance for children to make a stable and healthy transition into adulthood (Newland, 2014) and seems to be the most important form of support for the well-being of adolescents, whereby the family serves as reference group and safety net (Agnieszka & Zalewska, 2011).

Lots of research confirms these positive effects of strong perceived support of the parents (Doane et al., 2012; Leonard et al., 2015). This protective and buffering role of social support is also described in the stress-buffering hypothesis (Cohen & Wills, 1985). The protective role works in the way that the higher the perceived support, the less stressful certain situations are perceived. The buffering role has an influence on the outcomes of perceiving stress, whereby more perceived supports gives an individual more tools to cope with stressful situations and this reduces the negative impact of stress on mental health (Agnieszka & Zalewska, 2011).

Not all adolescents receive the same amount of parental support at home. Differences are found in parenting styles and support between low SES parents and higher SES parents, whereby parents of lower SES tend to have substantially more negative parenting practices than parents of higher SES (Roubinov & Thomas-Boyce, 2017). Examples of negative parenting practices are harsh parenting styles, less quantity and quality of interaction with children and less emotional support (Masarik & Conger, 2017). The amount of parental support to children and adolescents has been brought in relation to their mental health outcomes (Roubinov & Thomas-Boyce, 2017).

Empirical support for the stress-buffering hypothesis is contradictory. Lots of studies find that parental support indeed provides a stress-buffering role for adolescents (Crockett et al., 2007; Meadows, Brown & Elder, 2006; Lee & Dik, 2017). Other studies find no support for the stress-buffering hypothesis at all (Rivera, 2007; Rodriguez, Mira, Morris, & Cardoza, 2003), but empirical research also shows that receiving social support of significant others can decrease depression and anger, can increase a positive mood and increases calmness and security (Feeney & Collins, 2015). Furthermore, it is found in several studies that positive parenting practices can have a positive effect on child well-being, even in times of economic hardship (Jeon & Nepl, 2016; Kwon & Wickrama, 2014).

This indicates that positive support from parents is crucial for children's well-being and therefore their mental health, especially in times of stress and adversity.

To provide support to their children, parents need to have the capacity to do so. Families with a low SES tend to experience more stressful events in life than families with a higher SES, which is likely to decrease the family well-being and therefore the mental health of children (Matthews et al., 2010). Family well-being emphasizes several facets of the family, like the relationships in the family, the financial situation of the family and physical and mental well-being of the family members (Newland, 2014).

High experience of stress in families leads to a decrease in the quality of family relationships (Barrett & Turner, 2005). This counts for the marital relationship and for the parent-child relationships as well. This decrease in quality can lead to several problems: conflicts in the family can increase, an aggressive environment can be established and parents can become unsupportive and neglectful towards their children. All these facets combined can make the family a "risky" environment for the children (Matthews et al., 2010). The Institute of Health Equity found in a literature review empirical support that all these factors of risky families have a negative impact on future social behavior, academic achievement, future employment and mental and physical health of children (WHO, 2014).

The Family Stress Model (FSM) combines all these risk factors together in one model, to explain the relationships between economical stress, family functioning and health. It describes the following process: economic hardship leads to economic pressure, which causes psychological distress by the parents, marital relationship problems and disjoint parenting. These effects at their turn cause adjustment problems in the children and parents as well (Masarik & Conger, 2017), which thus can lead to mental health issues in children. Lots of empirical research supports the different steps in the FSM (Landers-Potts et al., 2015; Schramm & Adler-Baeder, 2012; Iruka, LaForreth & Odom, 2012; Newland, Crnic, Cox & Mills-Koonce, 2013; Masarik & Conger, 2017; Conger, Conger & Martin, 2010)

In conclusion, the theory describes that too much school-related pressure could be a danger to the mental health of adolescents and that this could have different outcomes for adolescents of different SES, whereby SES seems to be a moderator within this relationship. Parental support seems to be a mediator in the relationship between SES and mental health.

However, little is known about the exact consequences of this on the mental health of adolescents of different SES in the Netherlands and about the role of parental support in the relationship between school-related pressure, SES and mental health.

Therefore, the aim of this research is to investigate the strength of the moderating role of SES on the relationship between school-related pressure and mental health and the mediational function of parental support between SES and mental health. This leads to the following research question:

Is there a moderating effect of SES in the relation between perceived school-related pressure and mental health of adolescents in the Netherlands? And how much of this effect is explained by the mediational effect of parental support?

Based on the theory a conceptual model is visualized (see Figure 1).

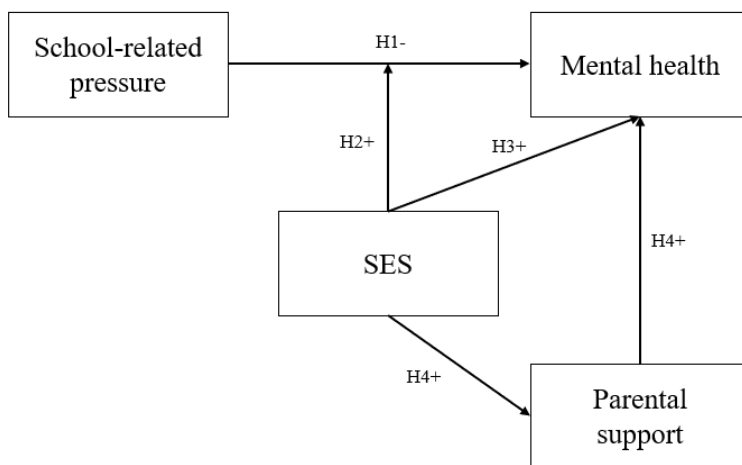


Figure 1: Conceptual model.

Hypotheses, based on the theoretical framework, within this conceptual model are set. Since high levels of stress are brought in relation to a decline in mental health (Schönfeld et al., 2016), the first hypothesis states that perceived school-related pressure has a negative influence on mental health, whereas an increase in school-related pressure leads to a decrease in mental health.

The second hypothesis within this research states that SES moderates the effect of school-related pressure on mental health, whereby adolescents of higher SES experience smaller effects of school-related pressure on mental health than adolescents of lower SES. This is because adolescents of higher SES tend to manage better coping skills to deal with stress and tend to receive more parental support than adolescents of lower SES (Ek et al., 2004; Matthews et al., 2010).

The third hypothesis states that mental health differs by SES, wherein adolescents of higher SES have better mental health outcomes than adolescents of lower SES (Masarik & Conger, 2017).

Lastly, hypothesis four states that parental support is a mediator between the relation of SES and mental health, whereby higher SES leads to more parental support and more parental support leads to an increase in mental health (Jeon & Neppl, 2016; Kwon & Wickrama, 2014; Matthews et al., 2010).

Research Methods

The database of the Dutch Health Behaviour in School-aged Children (HBSC) research of 2017 is used for this present research. The Dutch HBSC aims to examine the health behaviour of school-aged children every four years in the Netherlands and is part of the International HBSC study.

Participants, procedures and instruments

The data of the Dutch HBSC 2017 consists of a random sample of pupils from both primary schools and high schools in the Netherlands, however this study only focusses on adolescents in high school.

The HBSC data was collected in October and November 2017 by research assistants of the Trimbos Institute. Digital questionnaires were used, which consisted of mandatory questions determined by the international organisation of the HBSC and some questions were added by the Dutch HBSC team.

A two-stage random sampling procedure was used by the HBSC. The first step was to randomly select a sample of high schools out of all registered schools in the Netherlands. Finally, a sample of 85 high schools was established. No important differences were found between the not participating schools and the participating schools, except that more urban schools were willing to participate than rural schools.

The second step was to randomly select classes within the schools. The children within these selected classes received an informational letter for their parents. Both the parents and the children had to approve participation in the research. The questionnaires were held during schooltime. For more detailed information about the HBSC data gathering, see www.hbsc-nederland.nl.

The total HBSC sample consisted of adolescents between the ages of eleven and twenty in both primary schools and high schools. This present study focusses on adolescents in high school between the ages of twelve and eighteen and therefore uses only a part of the total HBSC sample. Some adolescents who were in high school and were almost at the age of twelve, were also considered in this study and were seen as being twelve years old. The sample used for this present study consisted of 7369 adolescents, whereof 51.1% were boys

and 48.9% were girls, with a mean age of 14 years old. More detailed demographics about this sample are shown in table 1.

The high school sample slightly differed on urbanity, gender, schoolyear and type of school from the total population of adolescents in high school in the Netherlands, according to the HBSC (2017). To make the sample representative to the total population the Dutch HBSC (2017) introduced a weight factor based on CBS data about this total population. This weight factor is therefore also used in this present study.

Table 1 Socio demographics of the sample

Variables	Frequencies (7369)	Percentage
Gender		
Male	3765	51.1
Female	3604	48.9
Age		
12	1339	18.2
13	1464	19.9
14	1431	19.4
15	1412	19.2
16	1085	14.7
17	513	7.0
18	126	1.7
Educational level		
VMBO-b/k	1235	16.8
VMBO-g/t	1963	26.6
HAVO	1862	25.3
VWO	2309	31.3
Schoolyear		
1	1561	21.2
2	1541	20.9
3	1510	20.5
4	1658	22.5
5	795	10.8
6	304	4.1

Note: The data are weighted by the weighting factor of the HBSC (2017). In combination classes, adolescents were assigned to the category of the lowest grade.

Measures

Measures used in this research are school-related pressure, socio-economic status, mental health and parental support.

School-related pressure.

To measure school-related pressure, adolescents answered one question: “Do you experience pressure due to the tasks you have to do for school?” Answers were measured on a 4-point scale, whereby the answering categories were: 1 = *not at all*, 2 = *low*, 3 = *high*, 4 = *very high* (HBSC, 2017).

Socio-economic status.

To measure the SES of adolescents the HBSC study developed the Family Affluence Scale (FAS) in 1998 as a proxy for SES, which is empirically proven to be robust. This scale is updated several times and for the HBSC 2017 the FAS III is used, which is the most accurate version. This scale consists of items about the material resources of a family, their consumption patterns and their purchasing power and it is eligible across different countries in Europe and North America (Hartley, Levin & Currie, 2016).

In total the scale consists of six questions, five about material resources: having a car, own bedroom, number of computers, number of bathrooms, having a dishwasher. The sixth question is about the frequency of vacations last year. Based on these questions a range of 0 – 13 is established, whereby a higher score means more wealth. These six questions together are empirically proven to be a valid proxy to measure SES among adolescents (Torsheim et al., 2016). Cronbach’s Alpha in the present study for the six items was .478.

Mental health.

The dependent variable ‘mental health’ is measured with the *Strength and Difficulties Questionnaire* (SDQ) developed by Goodman, Meltzer & Bailey (1998) which consists of twenty questions about the behaviour and feelings adolescents experienced in the last six months. Distinction is made between four types of problems (internalizing problems, externalizing problems, hyperactivity and peer-related problems) each consisting of five questions (HBSC, 2017). Possible response categories for the questions were 1 = *not true*, 2 = *slightly true*, 3 = *true*. On this scale, a lower score means being in good mental health, a higher score means less mental health.

The total SDQ-scale for this research was reliable (twenty items, $\alpha = ,748$).

Parental support.

The last variable ‘parental support’ is the perceived support adolescents receive of their parents. This is measured with a support at home scale, consisting of four items (HBSC, 2017). An example of such an item was: “I receive the emotional support I need”. Answers were measured on a 7-point Likert-type scale (1 = *absolutely disagree*, 7 = *absolutely agree*). The scale in this present study was reliable (four items, $\alpha = ,926$).

Other family members besides parents are also considered in these questions, which can contaminate the data, concerning parental support. The results of the Dutch HBSC (2017) showed that children do not speak easily with their brothers and sisters about problems as opposed to their parents. This may conclude that brothers and sisters also play a lesser role in degree of support in the family than parents do. Therefore, in this research support of the family is seen as support of the parents, but with the consideration in mind that brothers and sisters also can play a role in this perceived support of the family.

Data analysis

To get an answer to the research questions, the data of the HBSC 2017 were analysed with use of SPSS Statistics, version 25. To test the first hypothesis (school-related pressure has a negative effect on mental health) a Kruskal-Wallis test was executed. Running an ANOVA was not possible because the assumptions of normality and equal groups were violated.

Hypothesis two (SES is a moderator between the relation of school-related pressure and mental health) was tested with a moderation analysis with use of GLM. School pressure was set as the independent factor, mental health as the dependent factor and SES as moderator.

To test the third hypothesis (SES effects mental health score) a regression analysis was executed, with SES as the independent factor and mental health as dependent factor.

To test the last hypothesis (parental support mediates in the relation between SES and mental health) a mediation analysis was used (Andrew Hayes’ PROCESS version 3) with SES as independent factor, mental health as dependent factor and parental support as mediator. To control for confounding factors gender, schoolyear and educational level of the participants were considered during analysis.

Results

To test the main effect of school-related pressure on mental health score (H1) a Kruskal-Wallis was conducted, which indicated that there were statistically significant differences in the distribution of SDQ-scores across the different categories of perceived school-related pressure; ‘not at all’ (*Mean rank* = 3143.80), ‘low’ (*Mean rank* = 3255.02), ‘high’ (*Mean rank* = 4179.57) and ‘very high’ (*Mean rank* = 4870.71), $H = 619.76$, $df = 3$, $N = 7392$, $p < .001$.

Pairwise comparisons with adjusted *p*-values showed that all groups differed significantly, except the groups ‘not at all’ and ‘low’ ($p = .849$, $r = -.02$) (see table 2). Furthermore, the Jonckheere-Terpstra test revealed a significant trend in the data: when school-related pressure increased, SDQ-score increased as well, which means a decrease in mental health, $J = 11\ 604\ 105$, $z = 23.80$, $p < .001$, $r = .28$.

Table 2 Pairwise comparisons between mental health scores of the different groups of school-related pressure

Pairs	<i>Z</i>	<i>p</i>	<i>r</i>
Not at all – low	-1.47	.849	-.02
Not at all – high	-12.57	.000	-.23
Not at all – very high	-18.26	.000	-.41
Low – high	-15.22	.000	-.32
Low – very high	-21.13	.000	-.21
High – very high	-8.31	.000	-.16

To test the moderation effect of FAS-score on the effect of school-related pressure on mental health score (H2) the General Linear Model was used. FAS (standardized) was found to be a significant predictor of SDQ-score, $F(1, 7321) = 76.36$, $p < .001$, $\eta_p^2 = .01$. Perceived school-related pressure was also found to be a significant predictor of SDQ-score, $F(3, 7321) = 231.63$, $p < .001$, $\eta_p^2 = .09$. Lastly, FAS was found to be a significant moderator between school-related pressure and SDQ-score, $F(3, 7321) = 6.90$, $p < .001$, $\eta_p^2 = .003$. Together this model explains 9.6% of the SDQ-scores, $F(7, 7321) = 112.52$, $p < .001$, $R^2 = 0.96$. Levene’s test for this analysis was significant, $F(150, 7178) = 2.02$, $p < .001$.

The confounding factors gender, schoolyear and school level were of significant influence on mental health outcomes, but despite the introduction of these factors the moderation effect of FAS between school-related pressure and mental health remained

significant, $F(3, 7321) = 8.89, p < .001, \eta_p^2 = .004$.

Post-hoc analyses showed that the estimated means of SDQ-score increased, when school-pressure increased for both high FAS (1.00) and low FAS (-1.00) (see table 3). This distribution of estimated means of SDQ-scores between all the categories of school-related pressure differed significantly for a high standardized FAS-score (1.00), except between the categories ‘not at all’ and ‘low’ (see table 4). For a low standardized FAS-score (-1.00) significant differences in the distribution of the SDQ-scores between all categories of school-related pressure were found (see table 4). So, for adolescents of low SES every increase in school-related pressure means also a significant increase in SDQ-score. This is also true for adolescents of high SES, but only when school-related pressure increases from ‘low’ to ‘high’ and from ‘high’ to ‘very high’.

Table 3 Estimated means of SDQ-score for different categories of school-related pressure by high and low FAS-score

School-related pressure	<u>FAS = 1.00</u>		<u>FAS = -1.00</u>	
	Mean	SE	Mean	SE
Not at all	8.79	0.22	8.99	0.21
Low	8.66	0.12	9.63	0.12
High	10.60	0.16	11.88	0.17
Very high	12.27	0.22	14.37	0.23

Table 4 Estimated mean differences of SDQ-score between different categories of school-related pressure by high and low FAS-score

School-related pressure	School-related pressure	<u>FAS = 1.00</u>			<u>FAS = -1.00</u>		
		Δ Mean	SE	<i>p</i>	Δ Mean	SE	<i>p</i>
Not at all	Low	0.13	0.26	.608	-0.64	0.24	.008
	High	-1.81	0.27	.000	-2.89	0.27	.000
	Very high	-3.48	0.31	.000	-5.38	0.31	.000
Low	High	-1.94	0.20	.000	-2.25	0.21	.000
	Very high	-3.61	0.25	.000	-4.74	0.26	.000
High	Very high	-1.67	0.27	.000	-2.49	0.28	.000

Several regression analyses were conducted to test if the different means of SDQ-scores in the categories for high and low FAS-score by the same amount of school-related pressure differed significantly. In the category ‘not at all’ SDQ-scores were not significantly different for different FAS-scores. For the other categories of school-related pressure SDQ-scores were found to be significantly different between low and high FAS-scores (see table 5).

This means that adolescents of low SES had significantly higher SDQ-scores than adolescents of high SES by the same amount of school-related pressure. This was not the case when no school-related pressure was experienced (category ‘not at all’). According to this, the mental health status of adolescents of low SES is significantly more affected by school-related pressure than that of adolescents of high SES by the same amount of school-related pressure.

Table 5 Difference in estimated means of SDQ-score between high and low FAS-score for the different categories of school-related pressure

School-related pressure	Mean	STD	F	p	η^2
Not at all	8.90	4.97	0.44	.506	.00
Low	9.12	4.84	33.08	.000	.01
High	11.21	5.00	29.90	.000	.02
Very high	13.28	5.67	36.35	.000	.04

To test the main effect of SES on mental health score (H3) a linear regression analysis was conducted. FAS-score accounted for a significant 9% of the variance in SDQ-score, $R^2 = .09$, $F(1, 7198) = 64.61$, $p < .001$. The unstandardized regression coefficient (B) for FAS-score was $-.26$ ($SE = .03$, $t = -8.04$) and the standardized coefficient (β) was $-.09$. After controlling for gender, educational level and schoolyear FAS-score still was a significant predictor of mental health score, but all these variables were significant and together made a significant change to the model (see table 6), $R^2 = .05$, $F(4, 7195) = 102.31$, $p < .001$. The unstandardized regression coefficient (B) for FAS-score in this model was $-.12$ ($SE = .03$, $t = -3.76$) and the standardized coefficient (β) was $-.04$. See table 6 for the standardized and unstandardized regression coefficients for the other predictors in this model.

In conclusion FAS is found as significant predictor of mental health score. The regression coefficient showed the direction of the relation, which was negative. So, when FAS-score increased, the SDQ-score decreased and thus the mental health status improved.

This indicates that adolescents of higher SES had significantly better mental health outcomes than adolescents of lower SES.

Table 6 Linear models of predictors in SDQ-score

Model 1 only consists of FAS as predictor. In model 2 gender, schoolyear and educational level are added as predictors.

	<i>b</i>	SE B	β	<i>p</i>
Model 1				
Constant	12.57	0.30		<i>p</i> < .001
FAS	-0.26	0.03	-.09	<i>p</i> < .001
Model 2				
Constant	11.85	0.37		<i>p</i> < .001
FAS	-0.12	0.03	-.04	<i>p</i> < .001
Gender	1.15	0.12	.11	<i>p</i> < .001
Schoolyear	0.11	0.04	.03	.010
Educational level	-0.94	0.06	-.19	<i>p</i> < .001

Note. $R^2 = .01$ for Model 1; $\Delta R^2 = .05$ (*ps* < .001).

To test the last hypothesis (4), whether parental support is a mediator between the relation of SES and mental health, a mediation analysis (PROCESS) was conducted. It was found that there was a significant indirect effect of SES on mental health score through parental support, $b = -.09$, BCa CI [-.12, -.07] (see figure 2.1). R^2 for the model without the mediator was .01 and with mediator .11. After controlling for gender and educational level, the indirect effect remained significant, $b = -.08$, 95% CI [-0.10, -0.05], but the direct effect of SES on mental health was no longer significant, $b = -.06$, $p = .073$ (see figure 2.2). R^2 for this model without parental support as mediator was .05 and with parental support as mediator .15.

Summing up, parental support was found as a significant mediator in the relation between SES and mental health, whereby an increase in SES led to an increase in parental support and an increase in parental support led to a decrease in SDQ-score (and therefore an increase in mental health). The mediation effect of parental support induced a positive change in R^2 of approximately 0.10 points, which equals 10%. This is seen as a medium effect.

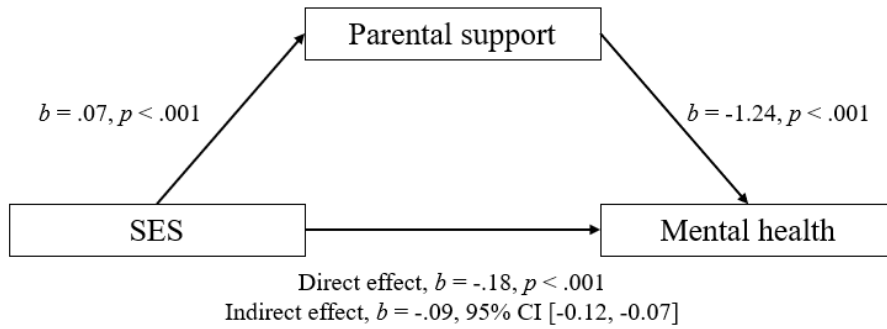


Figure 2.1: Model of SES as a predictor of mental health, mediated by parental support. The confidence interval for the indirect effect is a BCa bootstrapped CI based on 1000 samples.

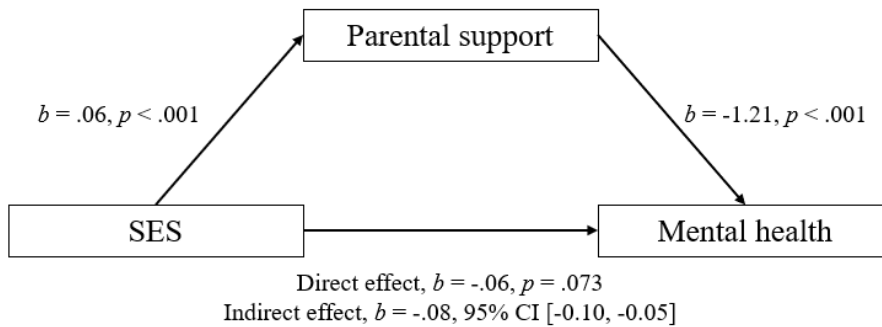


Figure 2.2: Model of SES as a predictor of mental health, mediated by parental support after controlling for gender and educational level. The confidence interval for the indirect effect is a BCa bootstrapped CI based on 1000 samples.

Discussion

The following research questions were central to this study: *Is there a moderating effect of SES in the relation between perceived school-related pressure and mental health of adolescents in the Netherlands? And how much of this effect is explained by the mediational effect of parental support?* To answer these questions, several analyses were conducted within SPSS. As expected, results showed that mental health scores differed significantly for groups experiencing different levels of school-related pressure, whereby an increase in school-related pressure led to a decrease in mental health.

Furthermore, results confirmed that SES is a moderator in the relation between school-related pressure and mental health. Post-hoc analyses showed that mental health scores for low SES differed significantly from the scores for high SES in all categories of school-related pressure, except the category 'not at all'. This means that adolescents with a low SES are more vulnerable to mental health issues in the presence of school-related pressure than adolescents of a high SES.

Additionally, results confirmed that parental support is a significant mediator between SES and mental health, which had a medium effect of approximately ten percent. When educational level and gender were included in the analysis, the direct effect of SES on mental health was no longer significant, the mediation effect of parental support remained significant. This indicates that a significant part of the direct effect of SES on mental health score is explained by parental support, educational level and gender together.

Based on these results, school-related pressure has, in general, a negative effect on mental health, whereby adolescents of lower SES experience more negative effects of this pressure than adolescents of higher SES. This again can be partly explained by the amount of parental support adolescents receive, whereby adolescents of higher SES receive significantly more parental support than adolescents of lower SES.

These findings are in line with the theory used for this research. So far, little is known about the exact consequences of school-related pressure on mental health outcomes in high school, but it is known that too much stress, in general, has a negative influence on mental health (Schönfeld et al., 2016). The outcomes of this research confirm that this also relates to school-related stress in high school. As the effects of stress seems to persist in academic life (Leonard et al., 2015) and the effects of mental health problems and academic drop-outs are not only affecting the sufferers of it, but also the entire society (Rasing et al., 2018), it is important to make sure that the amount of school-related pressure does not continue to rise and, preferably, that it diminishes.

Furthermore, this research revealed that school-related pressure has a bigger impact on adolescents of low SES than on adolescents of higher SES. This can also be explained by the theory used for this research, which states that children who grow up in a family of lower SES have learned lesser coping skills to deal with stress and that they also tend to receive less parental support, which should serve as a buffer against stress (Agnieszka & Zalewska, 2011; Doane et al., 2012; Roubinov & Thomas-Boyce, 2017). Therefore, they are less able to deal

effectively with stress than adolescents of higher SES. Although this research did not focus specifically on coping skills adolescents used to deal with stress, the results of this research do confirm that adolescents of lower SES are less able to deal with school-related pressure than their higher SES peers.

Additionally, the buffering role of parental support against stress, as described in the theory used for this research (Doane et al., 2012; Leonard et al., 2015), is also found in this research as a mediator between SES and mental health. This research confirms that adolescents of lower SES receive less parental support than adolescents of higher SES and that this leads to significantly different mental health outcomes, wherein adolescents of low SES are at disadvantage compared to their higher SES peers.

Because there already is an uneven distribution of mental health problems between people of low SES and higher SES (Matthews et al., 2010; Fiscella & Williams, 2004) it is important to prevent this gap from getting bigger. As school-related pressure has increased over the past four years (HBSC, 2017) and given that this leads to different mental health outcomes for adolescents of different SES, it is likely that the existing gap of mental health distribution between low and high SES is also increasing, based on this research. This is because the effects of school-related pressure are bigger for adolescents of lower SES. Additional longitudinal research is needed to confirm or refute this assumption.

Advice based on this research would be to coach and support parents of lower SES to give their children the support they need and to alleviate their stress due to low income, so that they have more opportunities and space to be there for their children. Additional advice would be to also support the adolescents of lower SES and to provide tutoring to teach them the important coping skills to effectively handle stress, skills they now often lack (Doane et al., 2012). Last advice based on this research would be to prevent that school-related stress continues to rise in general. Additional research is needed to find effective interventions to this problem.

This research aimed to contribute to the knowledge about the effects of school-related pressure on the mental health of adolescents of different SES. A strength of this research is that it is one of the first studies that looked at the effects of school-related pressure on mental health for adolescents of different SES and the role of parental support in this relation. Knowledge already existed about the individual factors, but this study is an addition to this knowledge, because it focused on the complex interplay of these factors within the theme of school-related pressure and SES.

However, in most of the analyses within this study the confounding factors gender, educational level and schoolyear were of significant influence on mental health score, which means that mental health outcomes differed for the different groups within these factors. Despite this, all main effects, which were central in this research, remained significant after controlling for these factors. Still we must be careful generalizing these results for the different groups of the confounding factors. Based on the results of this study only general patterns can be seen for the different groups of gender, educational level and schoolyear. To get insight in more detailed information about the exact consequences for the different groups of these confounding factors within the relation of school-related pressure, SES, parental support and mental health additional analysis are needed.

What can be said, based on these results, is that schoolyear had a positive relation with SDQ-score, $b = 0.11$, $p = .010$ (see table 6), which means that adolescents in higher school classes experience more mental health problems. Educational level had a negative relation with SDQ-score, whereby adolescents with lower educational levels experienced more mental health problems, $b = -0.94$, $p < .001$ (see table 6). Lastly, gender had a positive relation with SDQ-score, whereby boys were coded as 1.00 and girls as 2.00. This indicates that girls experienced more mental health problems than boys, $b = 1.15$, $p < .001$ (see table 6).

Furthermore, Levene's test for the moderation analysis within this research was significant, which means that the variances in the different groups of school-related pressure were unequal. Therefore, the results could show a stronger or weaker effect than there actually was. However, group sizes for this research were quite big, which probably makes the results robust for this assumption of equal variances.

Another limitation of this research was that the data of school-related pressure is only based on one question. Additional research should look into more facets of school-related pressure to get more detailed results. Also, the groups of school-related pressure were distributed unequally, therefore we should be careful interpreting these results. Additional research is needed to get more insight within this field. Again, big group sizes probably prevent against bias due to unequal distribution and therefore these results can be seen as representative.

Summing up, this present research shows significant signs that school-related pressure has more serious consequences for adolescents of lower SES and therefore action is required. This is to prevent that the mental health gap between low and higher SES keeps increasing, as all adolescents should have a fair chance to be in good mental health and to succeed in life.

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