

The role of perfectionism and parental expectations in the school stress and health complaints of secondary school students.

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Funding: This research was supported by grant *PID2019-105463RA-I00* funded by MCIN/AEI/ 10.13039/501100011033. Marta Díez and Carmen Paniagua have received financial support from the European Social Fund and Junta de Andalucía (Call 2019, line 2, Paidi 2020). Irene García-Moya's work is supported by grant RYC-2017-21626, funded by MCIN/AEI/10.13039/501100011033 and FSE "El FSE invierte en tu futuro".

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Abstract

Although perfectionism and parental expectations have an important role in school stress, their joint influence has not been evaluated nor have analyses taken a multidimensional perspective of school stress into consideration. The aims of this study were to analyse the role of self-oriented perfectionism and parental expectations in school stress, and to explore their potential moderation effect in the associations between school stress and health complaints. Sample consisted of 4,768 secondary-school students (52.1% girls; $M = 13.74$) from 54 high schools in Andalusia (Spain), and school stress was measured using ASQ-S questionnaire. Results show that high self-oriented perfectionism and parental expectations were significantly associated with higher school stress. In addition, the three variables were significantly associated with health complaints, and self-oriented perfectionism moderated the relationship between stress of school-leisure conflict and health complaints. These findings should be taken into consideration for future research and interventions aimed at reducing school stress.

Keywords: school stress; self-perfectionism; parental expectations; secondary school; adolescence.

INTRODUCTION

School is a primary source of stress for adolescents (Anniko et al., 2019; Wuthrich et al., 2020), ahead of other important stressors such as conflicts with parents, fitting in

with peers, or romantic relationships (Anniko et al., 2019). Accordingly, data from PISA show that 66% of students are stressed about poor grades, 55% feel anxious about school tests, and 37% feel tense when studying (OECD, 2019). Research exploring differences by sex, age, and socioeconomic status consistently find higher levels of school stress in girls than in boys (McKay et al., 2004; Moreno et al., 2020; Östberg et al., 2015; Schraml et al., 2011), in older versus younger adolescents (Inchley et al., 2020; Moreno et al., 2020), and in students with a lower socioeconomic status compared to those with a higher socioeconomic status (Xu et al., 2021).

In addition, school stress has increased over time in Europe and North America (Löfstedt et al., 2020). Increases in school pressure, in turn, may help explain increases in adolescent health complaints (Cosma et al., 2020). Prior research confirms the association between school stress and health complaints (e.g. Haugland et al., 2003; Högberg et al., 2021; Moksnes & Espnes, 2020), identifying a higher association in girls than in boys (Redmond et al., 2022). Furthermore, Bor et al.'s (2014) systematic review on mental health prevalence studies shows an increase in mental health problems in children and adolescents in the 21st century compared to the 20th century, especially in internalized symptoms (anxiety, feeling low, feeling nervous, psychosomatic problems, etc.) among adolescent girls.

Next, we summarize previous research on the influence of perfectionism and parental expectations on school stress and health complaints. Despite the general attention to this topic, research that has explored both perfectionism and parental expectations is relatively scarce, and to our knowledge no previous study has explored these variables while adopting a multidimensional assessment of school stress. For those reasons, this study aims to analyse the role of perfectionism and parental expectations in school

stress, as well as the associations of these variables with health complaints in secondary school students. The research proposes two specific aims:

- 1) To examine the role of self-oriented perfectionism and parental expectations on different types of students' school stress (stress of school performance, stress of future uncertainty and stress of school leisure conflict), controlling the effects of sex, grade, and socioeconomic status.
- 2) To explore the possible moderator effect of self-oriented perfectionism and parental expectations in the relationship between types of school stress and health complaints.

Perfectionism and its links with school stress and health complaints

Perfectionism is “a multidimensional personality disposition characterized by striving for flawlessness and setting exceedingly high standards of performance accompanied by overly critical evaluations of one’s behavior” (Stoeber, 2018, p.3). The most common and accepted measures for perfectionism were developed towards the end of the 20th century by two different research teams. Frost et al. (1990) propose a predominantly self-focused model with six dimensions: concern over mistakes, doubts about actions, personal standards, parental criticism, parental expectations, and organization. On the other hand, Hewitt and Flett (1991) consider perfectionism to be a multidimensional construct including intra- and inter-personal content. Their scale has three dimensions: self-oriented perfectionism (establishing excessive personal standards and rigorously evaluating one’s own behavior); other-oriented perfectionism (expectations of perfection that one has for others); and socially prescribed perfectionism (a perception that other people expect them to be perfect and that others are harsh and punitive judges). The present research focuses on self-oriented perfectionism (Hewitt & Flett, 1991).

Two main models should be considered when trying to understand the links between personality variables and stress processes: stressor exposure and stressor reactivity (Bolger & Zuckerman, 1995). If one assumes a *differential exposure model*, personality is hypothesized to affect stress experiences by increasing exposure to specific stressors. Another possibility, referred to as the *differential reactivity model*, does not place the emphasis on the role of personality in exposure to stressors, but rather considers personality variables as potential moderators of the role of stressors on health outcomes. Given that exposure to school stressors is common among students in compulsory education, the differential reactivity model is particularly relevant in this context as a way to understand whether personality characteristics such as perfectionism may moderate the effects of school stressors on students' health outcomes.

In fact, higher levels of perfectionism have been associated with increased distress (Flett, Panico et al., 2011), and with school stress and maladjustment (Flett et al., 2016) in adolescents. Moreover, perfectionism is one factor considered to contribute to developing and maintaining anxiety disorders in children and adolescents (Affrunti & Woodruff-Borden, 2014), and generalized anxiety disorders in adults (Santanello & Gardner, 2007). Perfectionism is therefore a risk factor for certain adaptation difficulties among students such as anxiety, depression, and suicidal ideation (e.g. Flett, Coulter et al., 2011). Nevertheless, mental health in general and anxiety in particular are complex phenomena, meaning that several other factors besides perfectionism contribute to its development and maintenance (e.g., school stress; Cosma et al., 2020). Moreover, as noted above, perfectionism is multidimensional, with some types of perfectionism being associated with negative health outcomes (see e.g. passive perfectionism in Moore et al., 2010; and self-critical perfectionism in Levine et al., 2019), whereas others have been associated with better health outcomes (e.g., active perfectionism in Moore et al. (2010).

Despite that, if we focus on maladaptive perfectionism, it has been associated with chronic forms of cognitive perseveration, such as rumination, which activates the stress response and affects health problems (Flett et al., 2016). Research has found high levels of psychosomatic symptoms in adults with high levels of perfectionism that experience situations that threaten their self-esteem (Organista & Miranda, 1991). Likewise, studies have shown that University students with high levels of perfectionism tend to suffer health-related problems when exposed to stressful situations, such as fatigue (Dittner et al., 2011) and headaches (Bottos & Dewey, 2004). Therefore, chronic exposure to the stress that perfectionists experience –due to their constant efforts, internal pressures, and tendency towards rumination– can be considered a direct health risk (Molnar et al., 2018).

To the best of our knowledge, few studies have focused on the relationship between perfectionism and psychological health in non-clinical samples of children and adolescents, and the scant existing research found that higher levels of perfectionism were associated with more psychological distress (e.g. O'Connor et al., 2010). However, there is a lack of consensus regarding the association between self-oriented perfectionism (the focus of this study) and wellbeing. Whereas some studies find an association between self-oriented perfectionism and psychological maladjustment and health symptoms during adolescence (e.g. Flett, Panico et al., 2011), research on university students associate self-oriented perfectionism with adaptive perfectionism and positive effects for emotional health (e.g. Cox et al., 2002; Enns et al., 2002).

Parental expectations and its links with school stress and health complaints

Parental expectations are defined as parents' beliefs or judgements regarding their children's future achievements (Glick & White, 2004), and are considered to have both direct and indirect influence on the child's academic performance (Zhan, 2006). The

association between parental involvement and academic achievement has been thoroughly studied (Yamamoto & Holloway, 2010), and found to be stronger when assessments of parental involvement include parental expectations about academic achievement (Wilder, 2014). Similarly, parental expectations –along with educational style– were found to have the highest impact on student educational outcomes, ahead of other factors such as setting rules and parental involvement in extracurricular activities (Jeynes, 2007).

Parental expectations also play an important role in adolescent school stress (e.g., Ang & Huan, 2006) and school-related burnout (Kiuru et al., 2008). Various empirical studies show that high academic demands from school and family are associated with a higher risk of stress-related health problems (e.g. Eriksson & Sellström, 2010; Laftman & Modin, 2012). Although parental expectations can help children develop the necessary skills for achieving academic goals, they can also have negative consequences if such expectations are unrealistic (Kaplan et al., 2001). In fact, studies show that high parental expectations increase adolescent academic stress (Ciciolla et al.2017; Leonard et al. 2015; Talha et al., 2020). Moreover, prioritizing academic achievements ahead of emotional health seems to have a negative effect on adolescent wellbeing, especially in middle-class families (Ciciolla et al., 2017; Luthar et al., 2013). Along the same lines, Agliata and Renk (2009) found an association among discrepancies that adolescents perceive between parental expectations and their performance, and high levels of anxiety, depression, and distress. Research by Ma et al. (2018) also found a significant association between high parental expectations and adolescent depression.

Study hypotheses

Based on the state of the art described throughout this section (e.g. Ciciolla, et al., 2017; Bolger & Zuckerman, 1995; Flett et al., 2016; Talha et al., 2020), the following hypotheses guide the present study:

- 1) Self-oriented perfectionism and high parental expectations will be significantly associated with higher level of school stress. However, those associations may vary depending on the type of school stress.
- 2) The three types of school stress will be significantly associated with increased health complaints.
- 3) Self-oriented perfectionism and parental expectations may moderate the relationship between school stress types and health complaints.

METHOD

Participants

The sample included 4,768 secondary school students (47.9% boys, 52.1% girls) aged 11 to 17 years ($M = 13.74$; $SD = 1.30$). In the Spanish secondary-school system, 24.58% of students were in 1st grade (12-13 years-old), 27.12% in 2nd grade (13-14 years-old), 23.13% in 3rd grade (14-15 years-old) and 25.16% in 4th grade (15-16 years-old).

Students in the study sample attended one of 54 schools in Andalusia (an autonomous community in southern Spain) that participated in project EASE –a project focused on studying school stress in secondary education– during the 2020-2021 academic year.

The sample was selected through multistage sampling by conglomerates using the schools as the main sampling units. A representative sample of 3,725 students were randomly selected from 45 schools considering school type (state vs. private) and geographic area (differentiating between the 8 provinces of Andalusia). Given that data collection took place during the COVID-19 pandemic, there was concern that the situation in the classrooms might negatively affect recruiting. Specifically, during the

data collection period, there were peaks in infection rates, which in some schools resulted in interruptions of face-to-face lessons for specific class groups, lower attendance, etc. As a contingency plan in case those challenges significantly discouraged school participation, an additional sample of 1043 students from 9 schools were selected using convenience sampling in order to avoid possible difficulties that could affect research viability. These students were included in the general sample due to their similarities, both in demographics (sex, age, and socioeconomic status) and level of school stress.

Measures

In addition to self-reported sex (boy/girl), grade (grade 1/grade 2/grade 3/grade 4), and socioeconomic status (high/low), the following measures were used:

School stress: School stress was measured using the ASQ-S (Anniko et al., 2018), a short version of the revised Adolescent Stress Questionnaire-ASQ2 (Byrne et al., 2007). Students reported how stressful they found different situations to be in the past 6 months. The subscales on stress of school performance (e.g. *having to study things you don't understand*), stress of future uncertainty (e.g. *concern about your future*) and stress of school-leisure conflict (e.g. *not getting enough time for leisure*) were used. The sum score was calculated for each of the subscales (3 items per scale), with higher scores indicating higher levels of the examined type of school stress. McDonald's omega was .768 for stress of school performance, .858 for stress of future uncertainty, and .750 for stress of school-leisure conflict.

Self-oriented perfectionism: Six items (e.g. *I want to be the best at everything I do*) were selected from the self-oriented perfectionism scale from the Child-Adolescent Perfectionism Scale (CAPS) (Flett et al., 2016). The mean score was calculated, with

higher scores indicating higher levels of self-oriented perfectionism. McDonald's omega was .810.

Parental expectations: The following items were used from the High Parental Expectations scale (Fulgini, 1997): *My parents would not be satisfied if I received a B+ on a test*, and *My parents expect me to be one of the best students in my class*. The mean score was calculated, with higher scores indicating higher levels of parental expectations. Inter-item correlation was .488.

Health complaints: The HBSC Symptom Checklist (King et al., 1996) was used to measure the frequency of health complaints over the past 6 months. Students responded to 8 items, producing a global score of health complaints that included different types of complaints (feeling nervous, irritability and sleeping difficulties, headache, backache, dizziness, etc.). The mean score was calculated, with higher scores representing a higher frequency of health complaints. McDonald's omega was .855.

Spanish versions of the school stress and health complaints instruments are available, since they have been used in the cross-national WHO collaborative survey Health Behaviour in School-aged Children. The remaining measures were translated into Spanish by a bilingual expert. As for the internal consistency of the measures used, since several authors have warned about the limitations of Cronbach's alpha to assess internal consistency (Dunn et al., 2014; McNeish 2018), McDonald's omega, which was calculated in JASP, has been reported for multi-item scales. When not relevant, inter-item correlation has been reported instead.

Procedure

Data collection was coordinated by the research team for project EASE. After schools were contacted and agreed to participate, a school staff-member was in charge of making arrangements for questionnaire completion sessions. Although it was

recommended that students filled out the questionnaire during school hours using a device (such as a computer, tablet, mobile phone, etc.) with an internet connection, certain situations arose that required schools to adopt a different procedure, always consulting the research team regarding any change. Notwithstanding the adaptations, data collection guidelines stated that: students be given adequate privacy when responding to the questionnaires, they do so during the hours and dates specified by their teacher or responsible staff member, and that students' anonymity be guaranteed at all times. The questionnaire and procedure were approved by the *Comité Coordinador de Ética de la Investigación Biomédica de Andalucía* (Andalusian Biomedical Research Coordinating Ethics Committee).

Data analysis

Statistical analyses to address the study aims were conducted using IBM SPSS Statistics 25. The role of perfectionism and parental expectations in school stress and health complaints was examined using hierarchical linear regression models. First, to address aim 1, we examined the associations between perfectionism and parental expectations and the three types of school stress, controlling the effects of sex, grade, and socioeconomic status. Next, to address aim 2, health complaints was introduced as the dependent variable and the remaining variables (perfectionism, parental expectations, stress of school performance, stress of future uncertainty, and stress of school/leisure conflict) used as independent variables. In addition, we examined the possible moderation effects of perfectionism and parental expectations in the relationships between each type of school stress and health complaints. Prior to conducting regression analysis, predictor variables were *z*-standardized to avoid multicollinearity problems and to aid in interpreting the interactions.

Regarding model estimation, the following procedure was followed. First, we introduced sex, grade, and socioeconomic status as control variables in Model 1. Then, the main effects of the predictors (perfectionism, parental expectations, stress of school performance, stress of future uncertainty, and stress of school-leisure conflict) were included in Model 2. Next, all possible two-way interaction terms between perfectionism and type of stress, as well as between parental expectations and types of stress, were introduced in Model 3. Finally, we estimated a final model after excluding the non-significant interaction terms of step 3, as recommended by Dawson (2014) for optimal interpretation. The significant interactions were plotted using the spreadsheets developed by Dawson (2014). The moderator variables' +1SD and -1SD levels were used to plot significant interactions (Aiken & West, 1991). Simple slope two-tailed *t*-tests for 2-way interactions were also calculated (Cohen et al., 2003). In addition, we used Jamovi 2.3.21 to provide a version of the interaction plot including simple slopes 95% confidence intervals.

RESULTS

This section summarizes the results according to the main research aim. First, we present results on the associations of perfectionism and parental expectations with school stress. Next, the associations between these variables and health complaints are shown, including the examination of the potential moderating role of perfectionism and parental expectations in the associations between school stress types and health complaints.

Relationships of perfectionism and parental expectations with school stress (aim 1)

As shown in Table 1, after controlling the effects of sex, grade, and socioeconomic status, both perfectionism ($p < .001$) and parental expectations ($p < .001$) were significantly associated with higher levels of stress of school performance, stress of

future uncertainty and stress of school-leisure conflict, although their contribution can be better interpreted when also considering β values and rs^2 values. In this respect, parental expectation β values were similar for the three school stress types: stress of school performance ($\beta = .14$, $rs^2 = .017$), of future uncertainty ($\beta = .14$, $rs^2 = .018$) and of school-leisure conflict ($\beta = .12$, $rs^2 = .013$). In contrast, perfectionism β values were lower than parental expectations, except in the case of the regression on the stress of future uncertainty ($\beta = .14$, $rs^2 = .016$). Although of a lesser magnitude, perfectionism contribution was also noticeable for stress of school-leisure conflict ($\beta = .09$, $rs^2 = .006$); however, in the case of stress of school performance ($\beta = .07$, $rs^2 = .004$), its unique contribution (as expressed by $rs^2 < .005$) can be considered negligible.

Regarding level of explained variance (see R^2 and ΔR^2 in Table 1) for each stress type, the variables as a whole accounted for 8.8% explained variance in stress of school performance 13.0% in stress of future uncertainty, and 6.9% in stress of school-leisure conflict. Including the control variables, perfectionism and parental expectations (see model 2) added 3.1%, 5.4%, and 3.0% explained variance in stress of school performance, stress of future uncertainty and stress of school-leisure conflict, respectively.

Analysis of perfectionism, parental expectations, and types of school stress with health complaints (aim 2)

Results of the hierarchical regression analyses of perfectionism, parental expectations, and the school stress indicators can be found in table 2. Analyses show a significant association between these predictors and health complaints after controlling the differences associated to sex, grade, and socioeconomic status, which alone account for 10.8% explained variance in health complaints (see Model 1). As shown in Model 2, including the rest of predictors significantly increased explained variance ($\Delta R^2 = .218$).

The final model shows the significant interaction between school-leisure conflict and perfectionism. This model includes the control variables, predictors, and the interaction effect that was significant after exploring the different moderator effects of interest.

This final model explained 33.2% of the variance in health complaints ($\Delta R^2 = .006, p < .001$). All predictors (the three types of school stress, perfectionism, and parental expectations) showed significant associations with health complaints ($p < .001$). Paying attention to β values and rs^2 values, stress of school performance showed the strongest association ($\beta = .24, rs^2 = .024$). Parental expectations and stress of future uncertainty also had a noticeable effect size ($\beta = .12, rs^2 = .013$ for parental expectations and $\beta = .14, rs^2 = .012$ for stress of future uncertainty). Finally, the role of perfectionism and stress of school-leisure conflict was dependent on one another, as shown by the results for the two-way interaction term *stress of school-leisure conflict x perfectionism* ($\beta = .08, rs^2 = .006, p < .001$).

The interaction plot for the two-way interaction *stress of school-leisure conflict x perfectionism* (see Figure 1) shows the association between stress of school-leisure conflict and health complaints at low and high levels of perfectionism. The association between stress of school-leisure conflict and health complaints for adolescents with low levels of perfectionism was not significant ($t = 0.600, p = .548$); in contrast, a significant association was found between stress of school-leisure conflict and health complaints for adolescents with high perfectionism ($t = 6.527, p < .001$). To further inform interpretation, simple slope 95% confidence intervals for high, average and low levels of perfectionism are plotted in Figure 2.

DISCUSSION

This study analysed the role of self-oriented perfectionism and parental expectations in secondary school students' school stress and health complaints, as well as the moderator

effects of perfectionism and parental expectations in the relationship between school stress and health complaints.

Both self-oriented perfectionism and high parental expectations were significantly associated with higher levels of stress of school performance, stress of future uncertainty, and stress of school-leisure conflict. Flett et al. (2016) found similar findings regarding perfectionism, as well as Ciciolla et al. (2017) and Talha et al. (2020) regarding parental expectations. In addition, parental expectations contributed similarly to explaining the three types of school stress: perceiving high parental expectations regarding academic performance affects adolescents' stress of school performance, stress of future uncertainty, and stress of school-leisure conflict. Although it was also associated with the three types of school stress, self-oriented perfectionism contributed more to stress of future uncertainty, showing similar levels of explanations to those of parental expectations.

In general terms, the higher contribution of parental expectations compared to perfectionism may be explained by the Social Expectations Model (Flett et al., 2002). According to this model, parents teach their children that perfection and success are crucial for gaining their love, and that failure is not acceptable. That way, parental expectations may have a more direct effect on school stress because perfectionism is a personality trait that, to some extent, develops based on parental expectations.

Furthermore, a significant association was found between health complaints and the three types of school stress, self-oriented perfectionism, and parental expectations. Our study confirms the relationship between school stress and health complaints, as found in previous studies conducted in other countries (e.g. Haugland et al., 2003; Högberg et al., 2021; Moksnes & Espnes, 2020). Moreover, higher parental expectations were related to more health complaints. One possible interpretation of this finding is that adolescents

who perceive parental expectations to be unachievable may suffer negative consequences (Ciciolla et al., 2017), coinciding with prior research that found a relationship between parental criticism and adolescent somatic symptoms (Horwitz et al., 2015).

In addition, self-oriented perfectionism was found to be associated with health complaints, as in previous research (O'Connor et al., 2010). Furthermore, perfectionism moderated the relationship between stress of school-leisure conflict and health complaints. Specifically, our results for the role of self-oriented perfectionism in the case of stress of school-leisure conflict are consistent with the differential reactivity model (Bolger & Zuckerman, 1995), given that stress of school-leisure conflict was associated with more health complaints only for adolescents reporting high perfectionism. In contrast, the differential reactivity model was not supported by our results about stress of school performance and stress of future uncertainty.

Strengths and limitations

This study has some limitations that should be considered. First, only self-oriented perfectionism was examined. Although self-oriented perfectionism contributed significantly to explaining school stress and health complaints, incorporating other perfectionism scales –such as other oriented-perfectionism, and socially prescribed perfectionism (Hewitt & Flett, 1991)– may offer a more comprehensive explanation. Nonetheless, our study analyses the role of parental expectations, which is considered to be relevant factor in other models of perfectionism (Frost et al., 1990). Second, a high levels of explanation was achieved for health complaints, the level of explanation of perfectionism and parental expectations on school stress was low, calling for the need to incorporate other family and personality factors in future research on school stress. The achieved level of explanation when considering the moderation effect of perfectionism in the associations between stress of school-leisure conflict and health complaints was also small, which must be taken into consideration when interpreting this finding. Finally, ~~directionality in the associations cannot be established due to the study's cross-sectional design.~~ Future research can contribute to expand these findings and explore longitudinal associations between the examined variables, thereby providing additional light on the directionality of the associations reported in the present study.

Despite these limitations, this study contributes to a deeper understanding of school stress and health complaints in secondary school students. Results indicate that self-oriented perfectionism associates with higher school stress and health complaints, and it also moderates the relationship between stress of school-leisure conflict and health complaints. Furthermore, high parental expectations are significantly associated with higher levels of school stress and more health complaints.

Implications

These findings can be useful for developing interventions aimed at reducing adolescent school stress, which, considering its high level in secondary school (Anniko et al., 2019; Wuthrich et al., 2020) and the negative implications for adolescent wellbeing (e.g. Haugland et al., 2003; Högberg et al., 2021; Moksnes & Espnes, 2020), should be an educational priority. Also, from a research perspective, it is important that the multidimensional nature of school stress is considered in future research, that may also contribute to provide additional insights in the described moderation effects.

Conclusion

One of the main findings from this study was that high parental expectations were associated higher school stress, with the magnitude of the association being very similar for the three school stress types. The role of self-oriented perfectionism was similarly important for stress of future uncertainty, and showed a lower-magnitude association with stress of school-leisure conflict. Stress of school performance showed the strongest association with health complaints, with parental expectations and stress of future uncertainty also contributing to explaining health complaints. In addition, although it made a modest contribution to the level of explained variance, perfectionism was found to moderate the relationship between stress of school-leisure conflict and health complaints; it seemed this type of stress may be associated with higher health complaints if coupled with high perfectionism, but play a non-significant role when levels of perfectionism are low.

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Table 1. Hierarchical linear regression analysis of self-oriented perfectionism and parental expectations on three dimensions of stress (performance, uncertainty, and school/leisure conflict).

	<i>B</i>	SE	β	<i>P</i>	<i>R</i> ²	ΔR^2	<i>rs</i> ²
Stress of school performance							
Model 1					.057**		
Sex	.754	.099	.120	<.001			.014
Grade 2	.894	.137	.127	<.001			.011
Grade 3	1.490	.144	.199	<.001			.027
Grade 4	1.532	.140	.213	<.001			.030
High SES	-.112	.115	-.016	.333			.000
Low SES	.388	.163	.038	.017			.001
Model 2					.088 .031**		
Sex	.791	.098	.126	<.001			.016
Grade 2	.863	.135	.122	<.001			.010
Grade 3	1.431	.141	.192	<.001			.025
Grade 4	1.517	.137	.211	<.001			.030
High SES	-.162	.114	-.023	.155			.000
Low SES	.381	.161	.038	.018			.001
Perfect.	.039	.010	.068	<.001			.004
Par. exp.	.361	.043	.141	<.001			.017
Stress of future uncertainty							
Model 1					.076**		
Sex	1.276	.116	.173	<.001			.030
Grade 2	.595	.161	.072	<.001			.003

Grade 3	1.485	.168	.169	<.001		.019
Grade 4	1.834	.163	.217	<.001		.031
High SES	-.235	.135	-.028	.082		.001
Low SES	.747	.189	.064	<.001		.004
Model 2					.130	.054**
Sex	1.309	.113	.177	<.001		.031
Grade 2	.561	.156	.067	<.001		.003
Grade 3	1.406	.163	.160	<.001		.017
Grade 4	1.829	.158	.216	<.001		.031
SES high	-.322	.131	-.038	.014		.001
SES low	.771	.183	.066	<.001		.004
Perfect.	.093	.011	.138	<.001		.016
Par. Exp.	.433	.050	.143	<.001		.018

Stress of school-leisure conflict

Model 1					.038**	
Sex	.957	.110	.140	<.001		.020
Grade 2	.828	.153	.107	<.001		.008
Grade 3	1.248	.159	.153	<.001		.016
Grade 4	.962	.155	.123	<.001		.010
High SES	.085	.128	.011	.509		.000
Low SES	-.032	.180	-.003	.860		.000
Model 2					.069	.030**
Sex	.986	.108	.144	<.001		.021
Grade 2	.802	.150	.104	<.001		.007
Grade 3	1.190	.157	.146	<.001		.014

Grade 4	.956	.152	.122	<.001	.010
High SES	.027	.126	.003	.831	.000
Low SES	-.029	.178	-.003	.870	.000
Perfect.	.054	.011	.086	<.001	.006
Par. exp.	.343	.048	.123	<.001	.013

SES = socioeconomic status

Note: The reference value for sex is *boy*. ** $p < .001$.

Table 2. Hierarchical multiple regression analysis of perfectionism, parental expectations and school stress on health complaints.

	<i>B</i>	SE	β	<i>p</i>	<i>R</i> ²	ΔR^2	<i>rs</i> ²
<i>Model 1</i>					.109		
Sex	.571	.031	.288	<.001			.083
Grade 2	.065	.044	.029	.138			.001
Grade 3	.276	.046	.117	<.001			.009
Grade 4	.267	.044	.118	<.001			.009
High SES	-.108	.037	-.048	.003			.002
Low SES	.236	.052	.074	<.001			.005
<i>Model 2</i>					.327	.218**	
Sex	.450	.028	.227	<.001			.049
Grade 2	-.052	.038	-.023	.173			.000
Grade 3	.059	.040	.025	.142			.000
Grade 4	.057	.040	.025	.149			.000
High SES	-.104	.032	-.046	.001			.002
Low SES	.188	.045	.059	<.001			.003
Perfectionism	.108	.015	.109	<.001			.010
Parental exp.	.122	.015	.124	<.001			.013
S. performance	.237	.021	.237	<.001			.025
S. uncertainty	.140	.017	.141	<.001			.012
S. conflict	.081	.020	.082	<.001			.003
<i>Final model</i>					.332	.006**	
Sex	.445	.028	.224	<.001			.048

Grade 2	-.054	.038	-.024	.58	.000
Grade 3	.058	.040	.025	.150	.000
Grade 4	.062	.039	.027	.118	.000
High SES	-.103	.032	-.045	.001	.002
Low SES	.176	.045	.055	<.001	.003
Perfectionism	.106	.015	.107	<.001	.010
Parental exp.	.122	.015	.124	<.001	.013
S. performance	.235	.021	.235	<.001	.024
S. uncertainty	.139	.017	.140	<.001	.012
S. conflict	.084	.020	.084	<.001	.003
S. conflict x Perfectionism	.072	.013	.075	<.001	.006

SES = socioeconomic status

Note: The reference value for sex is *boy*. ** $p < .001$.

Figure 1. Interaction plot for the significant two-way interaction in the analysis of health complaints: *stress of school-leisure conflict* x *perfectionism*.

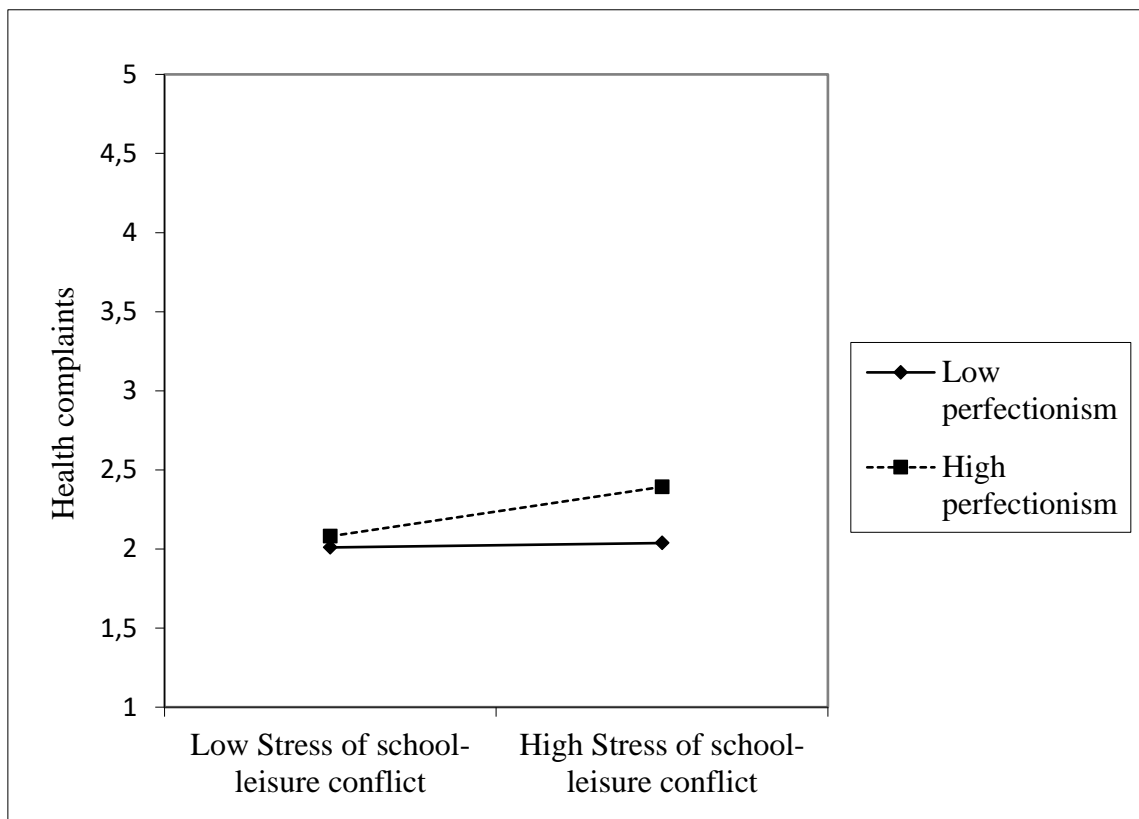


Figure 2. Interaction plot with 95% CI for the significant two-way interaction in the analysis of health complaints: *stress of school-leisure conflict x perfectionism*.

