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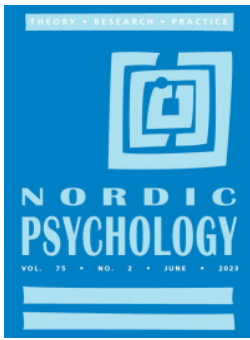
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Protective factors against school burnout symptoms in Finnish adolescents

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Abstract

Burnout rates among adolescents have risen dramatically over the last decades. It is recognised by ICD-11 but is not categorized as a diagnosis. Most of the studies concerning burnout have focused on adults and work life, neglecting the fact that adolescents can also experience burnout at school. Therefore, it is important to investigate which internal and contextual factors are potentially relevant for protecting against the development of burnout during adolescence. This study examined coping, resilience, and school atmosphere as predictors for burnout symptoms in adolescents. Upper secondary school students around Finland, aged 15–19 ($N = 284$, $M = 16.92$) participated in the study by filling out a questionnaire. Results showed that coping strategies focusing on problem solving and seeking social support were associated with less burnout symptoms. A positive school atmosphere, especially instilling meaning in students, showed a similar relationship to burnout. Resilience was unexpectedly associated with more symptoms of burnout. Furthermore, females showed higher rates of burnout symptoms than males. These findings suggest that teaching suitable coping strategies and focusing on creating a meaningful school atmosphere could provide means for preventing burnout and school-related stress in adolescents. However, longitudinal or intervention studies are needed to confirm the causal relationships between these factors.

KEYWORDS: burnout, coping, resilience, school atmosphere, adolescence

Introduction

According to the Finnish Institute for Health and Welfare (2021), burnout rates among Finnish adolescents have almost doubled during the last decade. In 2021, the prevalence of school burnout was 21.1% for upper secondary school students, while the corresponding rate for 2010–2011 was 11%. Both individual characteristics, such as personality and coping styles, and contexts, such as socioeconomic status and school atmosphere, play a role in the risk of developing burnout (Maslach et al., 2001; Walburg, 2014). While many risk factors have been found to influence academic stress and burnout symptoms, most studies focus on academic achievement and school context. Fewer studies have focused on individual

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characteristics, such as personality traits and strengths, and how they might affect school burnout. Moreover, most studies focus on risk factors and neglect potential protective factors (Walburg, 2014). In order for preventive programs and interventions to be effective, it is crucial to identify the significant predictors for burnout. Such knowledge would aid in identifying students who run the risk of developing burnout and in highlighting resources that could protect students from developing symptoms of burnout. The current study investigated whether three potentially important predictors are associated with burnout symptoms during adolescence. These predictors were resilience, coping methods and school atmosphere.

Burnout is a condition characterized by three dimensions: exhaustion, cynicism, and inefficacy (Maslach et al., 2001). Thus, experiencing burnout entails feeling chronic fatigue, losing interest in, or having a distant attitude to work, and experiencing reduced feelings of competence. Burnout is caused by excessive work stress over a prolonged time period, where the individual does not have adequate abilities to cope with it. While burnout is included in the 11th revision of the International Statistical Classification of Diseases and Related Health Problems (ICD-11, World Health Organization, 2018), it is not classified as a medical condition or a diagnosis, and it does not appear at all in DSM-V (American Psychiatric Association, 2013). Nevertheless, it can have severe consequences such as increasing the likelihood of depression (Mutkins et al., 2011; Salmela-Aro et al., 2008) and suicide (Pompili et al., 2011).

While burnout in adults has been studied extensively, it is only during the last two decades that research has been extended to include adolescents experiencing symptoms of burnout at school. Even ICD-11 concludes that burnout should only be applied to an occupational context, without taking school stress into account. Nevertheless, Salmela-Aro et al. (2009) investigated burnout in adolescents and came up with a model similar to the one presented for adults. The dimensions they found were (a) exhaustion at school, (b) cynicism toward the meaning of school and (c) a sense of inadequacy. These show how burnout is a condition affecting our emotions, our cognition and our behaviour and can thus have an impact on, e.g. students' well-being, school engagement and achievement (Salmela-Aro, 2017).

According to the expanded Study Demand-Resources Model (SD-R; see Salmela-Aro et al., 2022) school burnout arises because of demands set on the student overpowering the resources available for the student. The demands and resources can be both internal and external, ranging from family and peer support to the classroom and school context. The model visualizes how the different demands and resources also interact with one another, creating students who are different levels of engaged in and stressed by their schoolwork. Importantly, the model emphasizes how these are not opposites, but instead that many students are largely engaged in their schoolwork while also feeling stressed or burned out. Moreover, it exemplifies how students could thrive even in very demanding contexts, as long as they have enough resources to back them up.

As mentioned, several factors contribute to the development of burnout in adolescents, including both internal and contextual factors. However, some groups are more at risk than others. Especially girls on the academic track, in contrast to the vocational track, reportedly have the highest rates of school burnout (Salmela-Aro & Tynkkynen, 2012). Contextual factors such as demanding parents (Raufelder et al., 2015), peer problems (Rimpelä et al., 2020) and school transitions (Wang & Eccles, 2012) might also increase the probability of experiencing

burnout symptoms. Students with a low socio-economic status, with an immigrant background or low achievement have also shown less engagement and more cynicism toward the meaning of school (Motti-Stefanidi et al., 2015; Park et al., 2012; Salmela-Aro et al., 2018). Furthermore, individual factors that could increase burnout symptoms are learning difficulties and mental health problems (Stiles & Gudiño, 2018). To conclude, there are several risk factors that predict symptoms of school burnout, and several of the risk factors are common for students today. Therefore, it is of importance to examine what factors could work as resources for the students, to help them balance out the common demands set on them.

Methods of coping with stress

Coping refers to methods, either cognitive or behavioural, for managing stressful situations (Lazarus & Folkman, 1984). There are numerous types of coping, usually categorized into problem-focused and emotion-focused coping. Problem-focused coping includes methods that focus on changing or managing the problematic and stressful situation by, e.g. solving the relevant problem or generating alternative solutions. Emotion-focused coping, in turn, entails managing one's own emotional responses to the situation by, e.g. focusing on the positive (Lazarus & Folkman, 1984). Another way to describe different methods of coping is categorizing them into approach or avoidance coping (Tobin et al., 1989), or otherwise called active or passive coping (Marroquín et al., 2010). These describe how, similarly to problem- or emotion-focused methods, some choose to actively put effort into solving the situation, while others are more disengaged and focus more on emotional regulation when faced with adversity. While problem-focused coping is relatively straightforward, emotion-focused coping can further be categorized into several subcategories. Coping strategies such as seeking social support, reappraisal, religious coping, meaning-focused coping and acceptance can all be categorized as emotion-focused coping, even though they look inherently different.

In an extensive meta-analysis, Shin et al. (2014) found a negative correlation between problem-focused coping and all aspects of burnout, implying that people who actively use problem-focused coping tend to suffer less from symptoms of burnout. Similar results were found among some emotional coping strategies, specifically seeking social support, reappraisal, and religious coping. However, acceptance, another emotional coping strategy, showed a positive correlation with burnout symptoms, which means that using this coping strategy might lead to increased symptoms of burnout.

The current study focused on three methods of coping among adolescents: problem-focused coping and two types of emotion-focused coping, namely stopping unpleasant thoughts and emotions and seeking social support. Moreover, at focus was not only *how* adolescents cope, but also their *confidence in their ability to cope* with different challenges. This is important as confidence in oneself, or high self-efficacy, is a prerequisite to changing one's behaviour (Bandura, 1997).

Resilience and burnout symptoms

Resilience refers to an individual's overall capability to overcome challenges and hardships, with the help of certain strengths and protective factors (Zolkoski & Bullock, 2012). It is a complex concept with many definitions, and researchers have yet to find a unified way to operationalize resilience. Definitions of resilience can differ depending on the level of

measurement (e.g. individual, family, organization, society, culture), and what type of challenge one is facing (e.g. receiving a cancer diagnosis, enduring war or suffering from chronic psychopathology). Therefore, defining different types of resilience depending on context might be the better way forward (Southwick et al., 2014). When examining children who have overcome adversity, three main types of psychological resilience have emerged: (1) overcoming the odds, (2) stress-resistance, and (3) recovery (Masten et al., 1990). These three types have also been renamed as overcoming, steering through, and bouncing back (Reivich & Shatté, 2002). Overcoming refers to children who enjoy good outcomes in life, even though they are from high-risk backgrounds. Steering through, in turn, refers to sustained competence under stress. Lastly, bouncing back is about recovery from trauma. In reference to experienced burnout symptoms, the most relevant form of resilience is steering through.

Resilience can be seen both as a trait, relating to personality traits, strengths, and resources, and as a state: a context-dependent adaptive process, strongly related to social support (Fergus & Zimmerman, 2005). Wagnild and Young (1993) found five personality components that contribute to resilience in individuals, namely equanimity, perseverance, self-reliance, meaningfulness, and existential aloneness. When compared to personality traits from the Five Factor theory (Costa & McCrae, 1992), more commonly known as the Big Five theory, resilience had a negative correlation to neuroticism, and a positive association with the rest of the traits: extraversion, openness, agreeableness, and conscientiousness (Oshio et al., 2018). However, the strongest relationships with resilience were found with neuroticism, extraversion, and conscientiousness. Moreover, the Big Five personality traits have also shown associations with burnout symptoms. The strongest relationship has been found with neuroticism and extraversion, but modest to moderate relationships have also been found with agreeableness and conscientiousness (Swider & Zimmerman, 2010). One study regarding students found that only conscientiousness had a significant and direct path to burnout symptoms, while the rest of the personality traits were only indirectly linked to burnout symptoms (David, 2010). In conclusion, regarding the Big Five personality trait associations with both resilience and burnout symptoms, it seems that resilient individuals would be less prone to anxiety and worry, more engaged in social activity, more motivated and have higher self-control. Other factors, such as competence, coping skills, self-efficacy and social support have also been found to positively promote resilience (Fergus & Zimmerman, 2005). Within the frame of the current study resilience is viewed as a trait, built upon the theoretical framework of Wagnild and Young (1993), while acknowledging that both internal and contextual factors play a crucial part in the development of a resilient individual.

The effects of school atmosphere on student well-being

While internal factors can play a significant role in the development of burnout, it is nonetheless a condition created under stress. Occupational stress occurs when the demands of a work or study environment exceed an individual's psychological resources (Lazarus & Folkman, 1984). Therefore, when investigating burnout in adolescents, it is important to look at the school context as well. As exemplified in the SD-R model, the school, classroom, and peer context all have effects on both school engagement and school burnout and can

be either demands or resources depending on if it affects the student in a positive or negative way (Salmela-Aro et al., 2022). On the school level, factors such as school climate, size and safety can affect student engagement, well-being, and level of burnout symptoms. For example, risk factors for less engagement include larger schools (Salmela-Aro et al., 2022), school transition periods (Wang & Eccles, 2012) and high violence rates (Côte-Lussier & Fitzpatrick, 2016). In contrast, a supportive school atmosphere (Salmela-Aro et al., 2008), good facilities and school services (Salmela-Aro et al., 2022) act as a protective factor against developing school burnout. In other words, there are many management-level ways to combat burnout prevention in schools.

Moving to the classroom, numerous factors can contribute to students' burnout levels ranging from teaching styles and teacher-student interactions to class atmosphere and peer relationships. For instance, high-quality pedagogy (Maestres et al., 2022; Shernoff et al., 2016) and teachers who provide strong guidance (Jang et al., 2010) make for students with higher engagement toward school. It has also been found that teachers with higher levels of academic conditional regard (i.e. how much their approval of the students are dependent on their academic performance (Assor et al., 2004; Roth et al., 2009)) directly impacts students' burnout levels (Lavrijsen et al., 2023). In addition, it impacts students' academic contingent self-esteem, meaning it connects academic achievements to students' sense of self-worth, which in its turn also has a direct effect on their levels of burnout (Lavrijsen et al., 2023). Moreover, students' achievement goal orientation has been linked to different effects on students' well-being. Students with performance-oriented tendencies, compared to, e.g. mastery-oriented students, show higher levels of school burnout (Tuominen et al., 2008). It has also been found that students who apply a deep approach in learning experience less burnout, while students with surface level approaches experience burnout more often (Asikainen et al., 2020). Students' self-efficacy regarding academic, social, and emotional competence also has a negative association with burnout, specifically exhaustion and cynicism (Bilge et al., 2014). This knowledge could be utilized by teachers in interactions with students, to encourage students to become mastery-oriented and apply deep approaches in learning.

Peer relationships play a central part of the school and class atmosphere and generally in students' everyday life. Therefore, it can have significant effects on students' well-being and affect burnout levels. Social support has shown a negative association with stress (Glozah & Pevalin, 2014) and a positive association with school compliance and engagement (Wang & Eccles, 2012). Furthermore, a higher social capital is directly associated with lower school burnout (Lindfors et al., 2018) and socio-emotional skills have previously predicted students who are engaged in school rather than stressed or burned out (Salmela-Aro & Upadyaya, 2020). In general, positive and high quality peer relationships promote engagement in school (King, 2015; Mikami et al., 2017) and socially active students are at a lower risk for burnout (Rimpelä et al., 2020). Moreover, belonging to a high-achieving peer group protects group members from developing burnout (Kiuru et al., 2008). However, not all peer relationships have positive effects on student well-being and can instead increase the risk of developing symptoms of school burnout. For example, students who experience social exclusion and rejection have a reportedly increased risk for school burnout (Rimpelä et al., 2020) and students who experience friend-related stress often show lower levels of engagement in school (Benner et al., 2020). In conclusion, the school context plays a crucial part in the

development of burnout symptoms from many different perspectives. Therefore, it is of importance to include some indicator on the school context when examining school burnout.

The current study

The current study investigated the role of three potentially important predictors of school burnout, specifically for students aged 15–19. Knowledge of key predictors may point to ways to prevent students from developing burnout and create relevant resources for schools and individuals to combat this constantly worsening problem. In the current study, burnout is not viewed as a diagnosis with a fixed clinical cut-off, but instead as a continuum. The predictors at focus here were resilience and coping as internal factors, as well as school atmosphere as a contextual factor. Based on earlier research finding that these could be potential protecting factors against developing burnout symptoms, our first hypothesis was that all presented factors would have negative correlations with burnout symptoms. The second hypothesis was that the scales measuring problem-focused coping and social support would show the highest correlations with symptoms of burnout, in comparison to resilience, general school atmosphere and using emotion-based coping strategies, as earlier research has found them to be strong predictors. Lastly, with an exploratory aim and without a pre-stated hypothesis, we examined the different components of burnout to see whether specific components had stronger associations with the predictors than others.

Materials and methods

Participants

The current study focused on Swedish-speaking upper secondary school students in Finland. Participants were recruited to a larger intervention study.¹ While participation in the study was completely voluntary, one of the nine schools made the intervention program mandatory for all students. In total, 373 students from nine schools participated in the study. The response rate was 76.1%, meaning 284 participants filled out the baseline questionnaire. The participants were 15–19 years old ($M = 16.92$, $SD = .87$). Demographics of the participants are shown in [Table 1](#).

Procedure

The study was approved by the University of Helsinki Ethical Review Board in the Humanities and Social and Behavioral Sciences. Nine Finnish upper secondary schools were recruited for the research project “Study with Strength” for participation in a positive psychology intervention during the autumn of 2020 and spring of 2021. Participating students filled out consent forms and were informed about the purpose of the study and that they could retract their participation and consent at any time. Subsequently, participating students were asked to fill out a questionnaire measuring different aspects of their well-being. Some students filled out the questionnaire at school, while others filled it out in their spare time. The data was analysed with a series of regression analyses by IBM SPSS 26 Statistics.

Table 1. Demographic properties of the participants.

	Frequency	Percent
Gender		
Female	219	77.1
Male	64	22.5
Other	0	.0
Age		
15	1	.4
16	111	39.1
17	93	32.7
18	73	25.7
19	5	1.8
Economic situation		
Very good	61	21.5
Good	157	55.3
Okay	58	20.4
Bad	8	.4
Very bad	0	.0

Note: One participant did not report gender or age. Economic situation was measured by asking participants to subjectively define their family's/families' economic situation.

Instruments

The questionnaires used in the present study were the following:

School Burnout Inventory (SBI; Salmela-Aro et al., 2009) is a questionnaire measuring an individual's experience of burnout symptoms, aimed towards students. It is built on Maslach's (2001) theoretical definition of burnout, and the Bergen Burnout Indicator questionnaire (Näätänen et al., 2003). The symptoms are categorized into three dimensions: (a) exhaustion at school, (b) cynicism toward the meaning of school and (c) a sense of inadequacy at school. It contains 10 items rated on a 6-point scale. However, one of the items has proven to have poor discriminant validity (Salmela-Aro et al., 2009) and was thus discarded from the analyses. Without this single item, Salmela-Aro et al. (2009) reported that the questionnaire has good internal consistency ($\alpha = .88$), test-retest reliability and validity, including concurrent validity, when measured against depressive symptoms. Good internal consistency was reached with the current sample ($\alpha = .81$). Some example questions are "I feel like I'm drowning in schoolwork" (exhaustion at school), "I often wonder if my schoolwork has any meaning" (cynicism toward the meaning of school) and "I often feel inadequate at school" (sense of inadequacy at school). The mean score of the whole scale as well as the three subscales were used as the dependent variables in the current study.

Coping Self-Efficacy Scale (CSE; Chesney et al., 2006) is a questionnaire measuring how well participants think they cope with challenges or threats. The scale includes 26 items and is divided into three subscales: (a) use problem-focused coping, (b) stop unpleasant

emotions and thoughts and (c) get support from friends and family. Examples of questions are “I can figure out what I can change and what I cannot change” (use problem-focused coping), “I can find something positive in a negative situation” (stop unpleasant emotions and thoughts) and “I can get new friends” (get support from friends and family). The scale has shown good internal consistency ($\alpha = .95$), test-retest reliability and validity, including concurrent validity, when compared to other questionnaires regarding stress and coping theory (Chesney et al., 2006). The reliability analysis with the current sample showed similar results ($\alpha = .93$). In the current study, the items were rated on a 11-point scale. Sum scores of the full scale as well as the three subscales were used as independent variables.

The Resilience Scale (RS-14; Wagnild, 1993) is a questionnaire measuring perceived trait-like resilience. The original version included 25 items, while the short version used in the current study contains 14 items. Examples of included questions are “I usually manage one way or another”, “When I’m in a difficult situation, I can usually find my way out of it” and “I feel like I can handle many things at a time”. Studies examining RS-14 as a measure of adolescent resilience have shown good internal consistency ($\alpha = .91$) and validity across different subgroups, such as ethnicity, gender, geographic region and age (Pritzker & Minter, 2014). The internal consistency within the current sample was also good ($\alpha = .95$). While the longer version of the questionnaire has four subscales, the shortened version does not categorize the questions into subscales. The items were rated on a 7-point scale and added up to a total sum score, which was used as an independent variable.

Positive Practices Survey (PPS; Cameron et al., 2011) was initially developed to measure organizational climate, and has been adapted for an upper secondary school environment for this study. The questionnaire consists of 29 items, categorized into six subscales: (a) respect, integrity, and gratitude, (b) compassionate support, (c) caring, (d) meaning, (e) inspiration and (f) forgiveness. The subscales showed good internal consistency (from $\alpha = .86$ to $\alpha = .90$) in the current data. Some questions from the survey are “We show appreciation for one another” (respect, integrity, and gratitude), “We see the larger purpose in our schoolwork” (meaning) and “We do not blame one another when mistakes are made” (forgiveness). The questions were otherwise identical to the original PPS, but work-related words were changed to school-related words. The items were rated on a 5-point scale and the mean score of the full survey as well as the six subscales were used as independent variables.

Results

Assumptions and descriptive statistics

Before conducting the planned regression analyses, relevant statistical assumptions were examined. For all variables except economic situation, assumptions of multivariate normality, linear relationships between the independent and dependent variables, and homoscedasticity were met. Furthermore, multicollinearity statistics were acceptable for all statistical models that were used (Tolerance $>.31$, VIF <3.17 for all variables). The data was also examined for extreme outliers, but none were found. The distribution of values for the economic situation variable was negatively skewed, and it was therefore not analysed further. In conclusion, the relevant assumptions for conducting regression analyses were met for the rest of the variables. Next, descriptive statistics were examined to see the basic

Table 2. Descriptive statistics.

	Mean	SD	Min.	Max.
SBI				
Total	3.11	.95	1	6
Exhaustion	3.30	1.06	1	6
Cynicism	2.68	1.31	1	6
Inadequacy	3.38	1.34	1	6
CSE				
Total	139.35	39.53	0	260
Problem-based coping	65.46	19.03	0	120
Stop unpleasant thoughts and emotions	44.63	16.18	0	90
Support from friends and family	29.26	9.30	0	50
RS	45.38	18.64	14	98
PPS				
Total	3.73	.63	1	5
Respect, integrity and gratitude	3.89	.69	1	5
Compassionate support	3.92	.69	1	5
Caring	3.69	.89	1	5
Meaning	3.43	.78	1	5
Inspiration	3.49	.84	1	5
Forgiveness	3.72	.92	1	5

properties of our data. The means, standard deviations and ranges of all variables are presented in Table 2. Furthermore, a full correlation matrix was produced and can be found as an Appendix.

Predictors for burnout

In order to investigate the relationships between resilience, coping, school atmosphere and burnout, a series of multiple regression analyses were conducted. First, a two-step hierarchical multiple regression analysis was conducted with burnout symptoms as the dependent variable to explore the relationships between the different predictors as total scales and burnout symptoms. Gender and age were entered at step one, while the scales measuring coping self-efficacy, resilience and school atmosphere were added at step two. The step one model was statistically significant and explained 6.1% of the variance in burnout symptoms ($F(2, 280) = 9.11, p < .001, r = .25$). While age did not predict burnout symptoms, gender had a significant effect, so that being female predicted more symptoms of burnout. When entering the predictors of step two, the new model explained an additional 24.8% of the variance, adding up to a total of 30.9% of variance explained ($F(5, 277) = 24.77, p < .001, r = .56$). Regarding the individual predictors, significant effects were found with coping self-efficacy and school atmosphere, with higher scores on these variables predicting

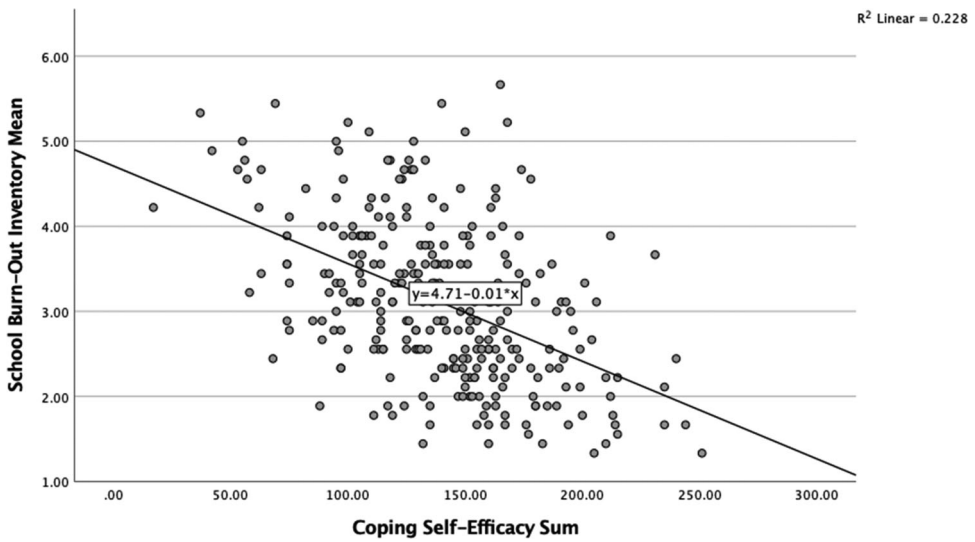


Figure 1. Scatterplot with regression line depicting the bivariate relationship between burnout symptoms and coping self-efficacy.

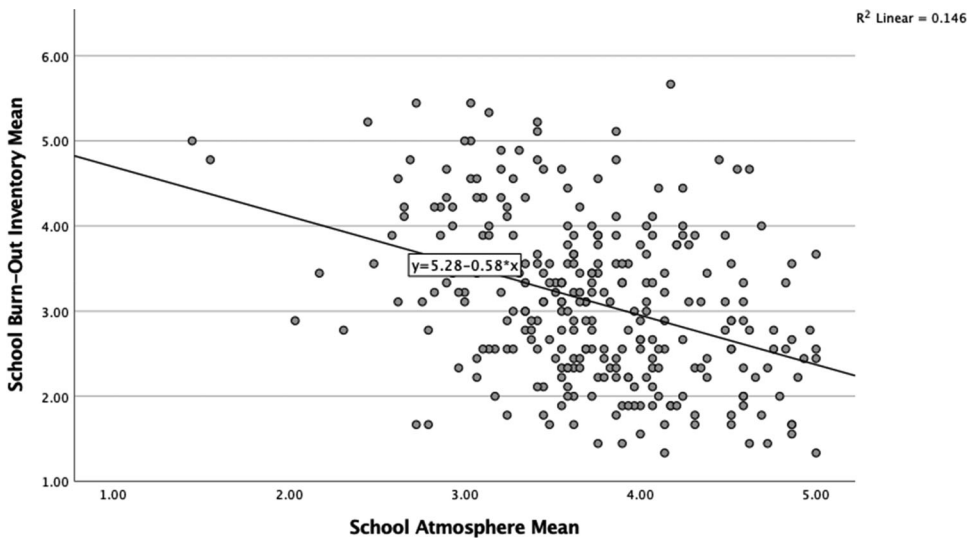


Figure 2. Scatterplot with regression line depicting the bivariate relationship between burnout symptoms and school atmosphere.

less burnout symptoms. The bivariate relationship between coping self-efficacy and burnout symptoms is depicted in [Figure 1](#), while the bivariate relationship between school atmosphere and burnout symptoms are depicted in [Figure 2](#). The relationship between resilience and burnout was, unexpectedly, positive, so that higher scores on resilience predicted more burnout symptoms. This effect, however, was only close to significant. These results support the first hypothesis for coping and school atmosphere, but not for resilience.

The same analysis was conducted only with female participants, so that only age was entered at stage one. This was done since the sample contained only 22.5% males. The results did not differ from those containing all participants.

To investigate the second hypothesis, the scales measuring coping self-efficacy and school atmosphere were examined further to see whether all subscales predicted burnout symptoms, or whether specific subscales were more relevant than others. First, a multiple regression analysis was conducted to analyse different strategies of coping self-efficacy. The independent variables were the three subscales from CSE and the dependent variable the full SBI scale. Results showed that subscales measuring problem-focused coping and getting support from friends and family were statistically significant predictors, so that higher scores on these subscales were associated with less burnout symptoms. The subscale measuring the coping method of stopping unpleasant thoughts and emotions was not significant. Overall, this multiple regression model showed similar explanatory value as the primary analysis, $F(3, 280) = 29.61, p < .001, r = .49, r^2 = .24$.

Next, a similar multiple regression analysis was conducted to further analyse the subscales of the scale measuring school atmosphere. The independent variables were the subscales from PPS and the dependent variable was the full SBI scale. Results showed that only the subscale measuring meaning was a statistically significant predictor, so that higher results on this subscale predicted less burnout symptoms. The subscales measuring respect, integrity, and gratitude, caring, and forgiveness were non-significant, but still in the expected direction, while the subscales compassionate support and inspiration showed a non-significant positive relationship with burnout symptoms. The multiple regression model as a whole showed similar explanatory value as the primary analysis, $F(6, 277) = 8.78, p < .001, r = .45, r^2 = .21$. Further details of the statistical analyses can be found in [Table 3](#).

Examining burnout subscales

Moreover, the subscales of burnout, namely exhaustion, cynicism, and inadequacy, were investigated separately with multiple regression analyses to see whether the predictors affected certain symptoms more than others. Regarding exhaustion, the only significant predictor was problem-focused coping, which showed a negative association ($F(10,273) = 5.86, p < .001, r = .42$). This model explained 17.7% of the variance for exhaustion. Problem-focused coping was the only significant predictor also to the symptom inadequacy, showing a similar negative association ($F(10, 273) = 5.58, p < .001, r = .41$). For inadequacy, the predictors explained 17% of the variance. However, problem-focused coping was not significantly associated with cynicism. Instead, resilience had a significant positive relationship, and the school atmosphere subscale measuring meaning had a significant negative relationship with cynicism ($F(10, 273) = 13.62, p < .001, r = .58$). This model explained 33.3% of the variance. These results are also presented in further detail in [Table 3](#).

Discussion

The aim of the current study was to investigate how coping strategies, resilience and school atmosphere may act as protecting factors against developing symptoms of burnout in adolescents. Results showed that high coping self-efficacy and a good school atmosphere were related

Table 3. Results from multiple regressions analyses.

Model	Dependent variable	Predictors	B	SE	Standardized β	t	p
1	SBI	Step 1					
		Gender	.56	.13	.25	4.27	<.001
		Age	.03	.07	.03	.52	.602
		Step 2					
		Gender	.34	.12	.15	2.96	.003
		Age	.03	.06	.02	.48	.630
2	SBI	CSE	-.01	.00	-.34	-6.07	<.001
		RS-14	.01	.00	.10	1.89	.060
		PPS	-.34	.08	-.22	4.09	<.001
		CSE – Problem-based coping	-.02	.00	-.36	-4.10	<.001
		CSE – Stop unpleasant thoughts and emotions	.00	.01	-.02	-.22	.828
		CSE – Support from friends and family	-.02	.01	-.17	-2.53	.012
3	SBI	PPS – Respect, integrity, and gratitude	-.12	.13	-.09	-.93	.353
		PPS – Compassionate support	.08	.13	.06	.66	.512
		PPS – Caring	-.15	.10	-.14	-1.53	.129
		PPS – Meaning	-.44	.08	-.36	-5.43	<.001
		PPS – Inspiration	.01	.09	.01	.15	.878
		PPS – Forgiveness	-.01	.07	-.01	-.10	.923
4	SBI – Exhaustion	CSE – Problem-based coping	-.01	.01	-.24	-2.51	.013

(Continued)

Table 3. (Continued).

Model	Dependent variable	Predictors	B	SE	Standardized β	t	p
		CSE – Stop unpleasant thoughts and emotions	-.00	.01	-.06	-0.70	.483
		CSE – Support from friends and family	-.01	.01	-.08	-1.09	.276
		RS-14	.00	.00	.03	0.53	.597
		PPS – Respect, integrity, and gratitude	-.14	.15	-.09	-0.94	.350
		PPS – Compassionate support	.07	.15	.05	0.51	.612
		PPS – Caring	-.11	.12	-.09	-0.97	.332
		PPS – Meaning	-.09	.10	-.07	-0.94	.346
		PPS – Inspiration	.08	.10	.06	0.74	.457
		PPS – Forgiveness	.04	.08	.03	0.44	.660
		CSE – Problem-based coping	-.01	.01	-.15	-1.72	.087
	SBI – Cynicism	CSE – Stop unpleasant thoughts and emotions	.00	.01	.01	0.16	.877
		CSE – Support from friends and family	-.01	.01	-.07	-1.06	.291
		RS-14	.01	.00	.13	2.38	.018
		PPS – Respect, integrity, and gratitude	.06	.17	.03	0.33	.744
		PPS – Compassionate support	-.05	.16	-.03	-0.33	.744
		PPS – Caring	-.00	.13	-.003	-0.03	.974
		PPS – Meaning	-.72	.11	-.42	-6.77	<.001

(Continued)

Table 3. (Continued).

Model	Dependent variable	Predictors	B	SE	Standardized β	t	p
		PPS – Inspiration	.02	.12	.01	0.14	.886
		PPS – Forgiveness	-.03	.09	-.02	-0.35	.726
	SBI – Inadequacy	CSE – Problem-based coping	-.02	.01	-.22	-2.30	.022
		CSE – Stop unpleasant thoughts and emotions	.00	.01	.01	0.09	.928
		CSE – Support from friends and family	-.01	.01	-.10	-1.35	.178
		RS-14	.00	.00	.04	0.64	.525
		PPS – Respect, integrity, and gratitude	-.25	.19	-.13	-1.28	.200
		PPS – Compassionate support	.14	.19	.07	0.73	.465
		PPS – Caring	-.12	.15	-.08	-0.78	.434
		PPS – Meaning	-.13	.12	-.07	-1.05	.294
		PPS – Inspiration	-.02	.13	-.02	-0.18	.857
		PPS – Forgiveness	.02	.10	.01	0.14	.886

Note: SBI: Student Burnout Inventory; CSE: Coping Self-Efficacy Scale; RS-14 = Resilience Scale; PPS: Positive Practices Survey.

to less experienced burnout symptoms, as stated in the first hypothesis. Speaking against the first hypothesis was the relationship between resilience and burnout symptoms that showed an unexpected positive association, although this relationship was non-significant. Furthermore, the analyses also showed that females experienced more burnout than males.

Problem-focused coping and social support as predictors of less burnout

The relationship between coping self-efficacy and burnout symptoms was in line with earlier findings (Shin et al., 2014) and the first hypothesis. Coping was in general negatively associated with burnout symptoms and came up as the strongest predictor when compared to resilience and school atmosphere. When examining different methods of coping, namely problem-focused, stopping unpleasant thoughts and emotions and seeking support from friends and family, only the problem-focused coping and seeking support were significant predictors for burnout symptoms. These relationships were medium-sized, although problem-focused coping was close to being strong. Furthermore, problem-focused coping was significantly associated with less exhaustion and less feelings of inadequacy but did not have a significant relationship with cynicism. Seeking social support was significantly related to only the burnout scale as a whole. The results regarding the different methods of coping are in line with the second hypothesis, stating that problem-focused coping and social support would have the strongest associations with burnout symptoms.

An explanation as to why these specific methods of coping had stronger associations with burnout symptoms could be connected to the nature of burnout as a syndrome. As burnout is characterized by an excessive amount of stress over a prolonged time (Maslach et al., 2001), concrete solution-focused methods such as decreasing the workload should be more effective than trying to stop unpleasant emotions and thoughts, by, e.g. trying to find the positive in the situation. Emotion-focused coping, such as acceptance, reappraisal, and meaning-focused coping, does not seem to be useful when suffering from burnout symptoms, but it can be useful in other kinds of challenges. For example, acceptance, as used in acceptance and commitment therapy, has been proven to be useful for people with a chronic illness (Öst, 2014), and meaning-focused coping can be useful in less situation-specific problems (Folkman, 2008) such as anxiety related to climate change (Ojala, 2016).

Seeking social support, in turn, could be effective in preventing burnout because of how friends and family can be supportive while making decisions about stressors and give concrete help with finding solutions for how to deal with stress. A healthy social life also balances the focus on work in everyday life and helps with distancing oneself from work. Positive relationships are one of the pillars of well-being in general (see e.g. Ryff, 1989; Seligman, 2011), which supports the encouraging results regarding seeking social support. However, when looking at specific burnout symptoms, seeking social support did not have a significant relationship with any one of them, only with the burnout scale as a whole.

The unexpected relationship between resilience and burnout symptoms

While the association between resilience and burnout symptoms in general was non-significant, it was not far from significant and the direction of the results was opposite to our first hypothesis, revealing a positive relationship. This meant that adolescents who saw themselves as more resilient also experienced somewhat more burnout symptoms. Furthermore, a significant

positive relationship was found between resilience and the burnout subscale cynicism. These relationships were surprising, since resilience in theory points to a psychological tolerance against developing symptoms of psychopathology when faced with challenges and hardships.

As resilience can be operationalized in different ways, there is no universal definition of what traits resilient individuals have, or even if resilience is a trait or a state. Therefore, different questionnaires measure different ways of being resilient. The RS-14 questionnaire used in the current study views resilience as a positive personality characteristic that enhances individual adaptation (Ahern et al., 2006). When developing the questionnaire, five personality components were found to contribute to a resilient individual: equanimity, perseverance, self-reliance, meaningfulness, and existential aloneness (Wagnild & Young, 1993). While the questionnaire has previously shown moderate correlations with constructs that are linked with resilience, such as depression ($r = -.37$) and life satisfaction ($r = .30$), results from the current study suggest that these components might contribute to higher burnout symptoms as well. For example, questions belonging to the components perseverance (e.g. "I usually manage one way or another") and self-reliance (e.g. "I feel that I can handle many things at a time") could also measure how much individuals push themselves into achieving more, perhaps more than they can handle.

The idea that there are universal protective factors are thus not supported by the present results. Instead, the results are more in line with the idea that different risks require different traits to protect individuals (Crosnoe et al., 2002; Gutman et al., 2002). Perhaps those adolescents who have more concrete methods of coping are the most resilient ones specifically against burnout symptoms, in the word's true definition. This might be the case especially since the work in upper secondary school requires much conscious effort, not just confidence in oneself. Moreover, it is important to note that resilience is not only a trait, but that the context also plays a crucial role for the outcome (Fergus & Zimmerman, 2005).

Another speculation as to why individuals who saw themselves as more resilient experienced more burnout symptom may be that the belief that one is a resilient person steers a person more than resilience itself. Perhaps adolescents cannot measure their own resilience adequately, leading them to believe they are more resilient than they really are. If one has the mentality of believing or wanting to believe that one can get through anything, one might push oneself into achieving more than one can handle, which leads to elevated burnout symptoms.

A positive school atmosphere predicts less burnout symptoms

Our results showed that a more positive school atmosphere was associated with less burnout symptoms in adolescents and was the strongest predictor for less cynicism towards school. This is in line with earlier research on the relationship between school atmosphere and burnout (Salmela-Aro et al., 2008, 2022) and with the first hypothesis. Interestingly, the only significant subscale was meaning, even though the other subscales were hypothesized to show similar relationships to burnout. More specifically, students who found their school atmosphere uplifting, motivating, and therefore their schoolwork as meaningful, experienced less symptoms of burnout. Especially the non-significant results concerning the subscales measuring compassionate support and caring were surprising, as the subscale measuring seeking social support as a coping strategy showed a significant relationship to

burnout. Earlier studies have also shown that social support in a school context acted as protective factors against stress and burnout (Glozah & Pevalin, 2014; Kiuru et al., 2008). A possible explanation as to why seeking social support as a coping strategy was linked to less symptoms of burnout while compassionate support and a caring school atmosphere were not, could be that seeking social support as a conscious effort is more effective than simply having a supportive environment. Moreover, a supportive and caring school atmosphere does not imply that individual students have close relationships, which might be a more important factor in preventing burnout.

Implications

Results from this study have implications for both clinical and school contexts. It is evident that burnout is a condition with severe consequences, and the results of this study point towards methods that could potentially help adolescents in preventing symptoms of burnout. Schools could emphasize teaching efficient problem solving, planning, and carrying out plans when faced with difficulties. Other abilities that according to the current study are associated with less symptoms of burnout are seeing things from different perspectives, being assertive and standing up for what you want, impulse control, seeking social support, finding new friends, and developing new hobbies. All of these abilities could be taught and practiced in a school setting.

Students who found their schoolwork as meaningful experienced less symptoms of burnout, which is something schools could utilize. Teaching students *why* it is important to learn, not only *that* it is important to learn, could make a difference in students' well-being. This could also make more students mastery-oriented instead of performance-oriented, the former having a previously proven association with less symptoms of burnout (Tuominen et al., 2008). All of the points mentioned here are important for the clinical context as well, as the same factors could be used in treatment for burnout or school-related stress.

While demographics of the participants was not the main interest of the current study, the gender differences in burnout experiences still were apparent. Because of this, it would be important to clarify further how females could be supported more in school environments to prevent this gender gap. These results are in line with other Finnish studies, showing that males suffer less than half as much from burnout than females (Finnish Institute for Health & Welfare, 2021). Moreover, this study could not investigate how socioeconomic status would affect the presented relationships, since close to none of the participants had lower socioeconomic statuses. An important demographic group is therefore missing from the current study.

Strengths and limitations

One should emphasize that current study does not provide any information on causal relationships between the presented factors, as it is cross-sectional. It is therefore not possible to establish whether the factors in fact predict burnout or simply co-exist. Therefore, longitudinal studies are needed to investigate the nature of the relationships further. Moreover, intervention studies could give information on whether changing the school atmosphere and teaching coping methods could affect burnout levels in adolescents. Such interventions could for example be positive psychology interventions.

Another limitation of the study is the fact that all results are based on self-observation questionnaires. While this gives important information on how participants view themselves, questionnaires cannot be taken as objective observations of a phenomenon. As discussed earlier, participants might for example view their own capabilities higher than they actually are. It is also impossible to know whether participants have responded to the questionnaire truthfully, since participants could also answer the questions based on what they think the researchers want to know or what appears socially acceptable.

The population studied in this paper is a minority population in Finland. Swedish is one of the two official languages of Finland but is only spoken by 5.2% of the population (Official Statistics of Finland (OSF), 2021). Swedish-speaking Finns live mostly on the coast-line of Finland and generally have moderate to high socioeconomic status, which is also true in this study. This study therefore represents the population of Swedish-speaking Finns rather well but should be generalized to other populations with caution. Moreover, the study group included only general upper secondary school students, and not students in vocational upper secondary education or students who did not continue their education after comprehensive school.

Conclusion

The prevalence of burnout in adolescents in Finland is high and increasing. Therefore, it is important to investigate which students are at risk for developing burnout and finding appropriate resources to support them. Results from the current study showed that using methods of coping, especially problem-focused methods and seeking support from friends and family, is associated with less burnout symptoms. A positive school atmosphere was also associated with less burnout symptoms, specifically when students feel motivated and feel like their work has meaning. Resilience had a surprising positive relationship with cynicism, so that students who reported being more resilient also experienced higher levels of cynicism. If this surprising finding turns out to be replicable, its underlying mechanisms should be investigated further. The current study concludes that there are potential ways of preventing burnout in adolescents, such as focusing on teaching adolescents efficient coping skills, and providing supportive social surroundings and meaning to their schoolwork.

Notes

1. Study with Strength (swe: Studera Starkt) is a collaborative research project between Helsinki University and Folkhälsan Research Center that aims to investigate whether positive psychology interventions work to increase well-being in Swedish-speaking upper secondary schools in Finland. The intervention is built on evidence-based methods used to increase well-being. The intervention included 17 lessons during approximately 8 weeks, each lesson being around 75 minutes long. The study had a waitlist design. Themes such as positive emotions, strengths, mindset, and mindfulness were a part of the intervention.

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Data availability statement

Data is available from the research group upon request.

Disclosure statement

There are no potential competing interests.

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Appendix. Correlation matrix for all variables.

	SBI					CSE					RS		PPS					
	Tot	E	C	I	Tot	PBC	SUTE	SFF	Tot	Tot	Tot	RIG	S	Ca	M	I	F	
SBI	1																	
SBI-E	.80	1																
SBI-C	.80	.37	1															
SBI-I	.76	.43	.50	1														
CSE	-.48	-.40	-.37	-.36	1													
CSE-PBC	-.47	-.39	-.37	-.35	.94	1												
CSE-SUTE	-.39	-.34	-.28	-.29	.91	.78	1											
CSE-SFF	-.39	-.30	-.32	-.30	.74	.60	.54	1										
RS	.25	.16	.26	.16	-.029	.28	-.025	-.024	1									
PPS	-.38	-.23	-.39	-.29	.36	.34	.29	.36	-.021	1								
PPS-RIG	-.30	-.21	-.27	-.25	.28	.26	.25	.25	-.020	.89	1							
PPS-S	-.26	-.16	-.27	-.20	.26	.22	.21	.27	-.016	.89	.78	1						
PPS-Ca	-.32	-.22	-.27	-.26	.34	.28	.30	.35	-.016	.86	.76	.72	1					
PPS-M	-.43	-.22	-.53	-.25	.36	.37	.26	.32	-.019	.69	.45	.44	.44	1				
PPS-I	-.28	-.16	-.29	-.23	.31	.26	.25	.35	-.012	.79	.61	.65	.69	.51	1			
PPS-F	-.25	-.13	-.28	-.18	.22	.24	.13	.20	-.016	.69	.52	.53	.48	.46	.45	1		

Note: SBI: School Burnout Inventory; SBI-E: Exhaustion; SBI-C: Cynicism; SBI-I: Inadequacy; SBI-H: Inadequacy, CSE: Coping Self-Efficacy Scale; CSE-PBC: Problem-Based Coping; CSE-SUTE: Stop Unpleasant Thoughts and Emotions; CSE-SFF: Support from Friends and Family; RS: Resiliency Scale; PPS: Positive Practices Survey; PPS-RIG: Respect, Integrity, and Gratitude; PPS-S: Compassionate Support; PPS-Ca: Caring; PPS-M: Meaning; PPS-I: Inspiration; PPS-F: Forgiveness.
All correlations are significant at the .05 level.