



# Antecedents of school burnout: A longitudinal mediation study

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## Abstract

School burnout is a growing problem among university students. This two-wave longitudinal study examined the mediating effects of academic self-efficacy, grit, and academic resilience in the relationship between academic perfectionism and helicopter parenting, and school burnout in university students based on the *Theory of Self- vs. Externally-Regulated Learning* (SRL vs. ERL), and Social Cognitive Theory (SCT). A total of 481 college students completed measurements at Time 1 (T1) and Time 2 (T2) ( $M_{age} = 22.2$ ; 61.5% female, 38.5% male). For analysis, the SPSS version 26 and Mplus version 7.0 were used. The results reveal that academic self-efficacy, grit, and academic resilience at Time 2 mediate the relationship between academic perfectionism and helicopter parent attitude at Time 1 and school burnout at Time 2. These findings reveal the key role of self-efficacy, grit, and academic resilience in reducing school burnout.

**Keywords** Academic perfectionism · Helicopter parent · Academic self-efficacy · Grit · Academic resilience · School burnout

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Serkan Cengiz and Adem Peker have contributed equally to this manuscript.

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## 1 Introduction

University education can be stressful, creating a new social environment and future career paths. The feeling of school-related stress is traditional for many students, but prolonged stress can lead to school burnout (Parviainen et al., 2021). School burnout is the physical, cognitive, and emotional exhaustion syndrome that students experience due to excessive exposure to high levels of academic stress (Salmela-Aro et al., 2009). There is some evidence supporting the existence of school burnout in college students (Love et al., 2020; May et al., 2015). School satisfaction is closely related to academic success (Korobova & Starobin, 2015), well-being (Kim et al., 2020), adequate school climate (Daily et al., 2020), and school participation (Kankhuni et al., 2023). However, school burnout can reduce academic performance (Evers et al., 2020). Additionally, studies have reported that school burnout leads to high levels of school dropout (Marôco et al., 2020), depression (Pokhrel et al., 2020), and anxiety (Fiorilli et al., 2020).

The SRL (Self-Regulated Learning) vs. ERL (Externally-Regulated Learning) theory suggests that students' self-regulation and the regulatory nature of the context are factors that jointly determine individuals' motivational-emotional outcomes toward school (De la Fuente et al., 2019). Therefore, at the personal level, maladaptive academic perfectionism (as a personal risk factor) and at the contextual level, parents' overprotective behavior (as a contextual risk factor) can lead to intense stress and ultimately school burnout. Likewise, the relationship between students' maladaptive perfectionist perceptions and the perceived oppressive attitude from the family and school burnout can be theoretically verified through Social Cognitive Theory SCT (Bandura, 2023). SCT assumes that behaviors underlie personal factors such as beliefs, values, attitudes, and factors that individuals learn by observing others and their environment. In this sense, students' perfectionist characteristics and perceptions of parents' oppressive attitudes during the teaching process may shape school burnout.

### 1.1 Academic perfectionism and school burnout

Academic perfectionism is a concept that includes high anxiety about making mistakes in academic studies and doubts about academic studies (Malik & Ghayas, 2016). Individuals with high academic perfectionism may be overly concerned about errors in personal performance in their school life and may be willing to choose easier tasks. Perfectionist concerns and experienced stress in academic studies are associated with school burnout (Garratt-Reed et al., 2018). Studies have confirmed perfectionism as an individual variable that can significantly predict school burnout (Lee et al., 2015; Luo et al., 2016).

When considering the SRL vs. ERL theory, maladaptive academic perfectionism as a personal risk factor is an example of disorganized behavior, that is, behavior characterized by rigid self-demand. In addition, criticism, perfectionist concerns, self-distracting negative emotionality, and the use of emotion-focused coping strategies are also high (De la Fuente et al., 2020). Maladaptive perfectionists have a very low ability to actively and adequately regulate personal expectations and behaviors

regarding academic success. A similar situation exists in terms of SCT. According to this approach, burnout will likely occur in individuals who lose their self-regulation skills (Charkhabi et al., 2013). Previous studies have shown that self-regulation is significantly effective in school burnout (Ching et al., 2023; Izadpanah, 2023). Considering these results, the limited self-control attitude in perfectionist individuals may lead to school burnout. Therefore, perfectionist individuals need to focus on their ability to control their thoughts, feelings, and actions. Previous research has demonstrated evidence that self-regulation has important links to self-efficacy (Ridder et al., 2012), grit (Kookan et al., 2021), and resilience (Artuch-Garde et al., 2017). The evidence shows self-efficacy, grit, and resilience are positive correlates of self-regulated behavior. Therefore, this study addressed the important positive correlates of self-regulation behavior (self-efficacy, grit, and academic resilience) to prevent school burnout.

## 1.2 The role of academic self-efficacy, grit, and academic resilience

Students with high academic perfectionism may feel inadequate due to the anxiety of being unable to fulfill excessive academic tasks (Kumaraswamy, 2013). Previous studies have confirmed the negative effects of academic perfectionism on academic self-efficacy (Vidic & Cherup, 2019; Yao, 2009). The SRL vs. ERL theory of the different proposed combinations (De la Fuente et al., 2014) emphasized that self-monitoring and self-regulation are important in supporting students' effective learning. Accordingly, personal self-regulation can increase positive emotionality in learning environments, which can positively affect students' self-efficacy (Andrade & Valtcheva, 2009). Different combinations given in SRL vs. ERL theory (De la Fuente et al., 2014) emphasize that self-monitoring and self-regulation are important in supporting students' effective learning. Considering this approach, personal self-regulation can increase positive emotionality in learning environments, positively affecting students' self-efficacy. Again according to social cognitive theory (Bandura, 2023), one of the important factors that increase an individual's self-efficacy is their own experiences and evaluations of successful performance.

Students who provide positive evaluations of academic self-efficacy are likely to perform better with a better understanding of the demands of the task at hand. Achievement performance may trigger individuals to be more determined to complete their chosen tasks, which may positively affect their level of grit. Duckworth (2016) defined grit as a psychological characteristic used to explain individual determination and passion to achieve long-term goals. According to The SRL theory, grit positively affects participation and resilience in learning (Sibarani & Meilani, 2021). A student with high self-regulation may be able to set goals, self-educate, and improve themselves regularly. Also, these students may have higher grit. Gritter students show higher levels of resilience in the face of academic challenges (Wills & Hofmeyr, 2019). Various studies have shown that grit leads to increased resilience, especially for goals of personal importance (Im Jin & Kim, 2017; Mohan & Kaur, 2021). Besides these, according to The SRL vs. ERL theory, the learning process involves not only adequate endurance in the face of demands and problems but also the ability to self-regulate and high motivation to respond adequately to challenges

without experiencing any emotional problems (De la Fuente et al., 2017). Therefore, academic resilience may enable students to have a more optimistic view of their skills and environment and thus experience lower burnout. Research conducted on university students shows that academic resilience has a predictive effect on school burnout (Fernández-Castillo & Fernández-Prados, 2023; Yu & Chae, 2020). As a result, having personal contexts such as academic self-efficacy, grit, and academic resilience can suppress academic perfectionism's negative effects and ultimately reduce the risk of experiencing school burnout.

### 1.3 Helicopter parenting and school burnout

Another variable affecting school burnout is helicopter parental attitude. Helicopter parenting is a parenting approach that includes families' overprotective and controlling desire toward their children (Schiffirin et al., 2014). Emerging evidence has shown that helicopter parenting leads to negative consequences such as academic problems, burnout, and anxiety (Hong & Cui, 2020; Klein & Pierce, 2009). Moreover, researchers have associated helicopter parenting with reducing students' emotional decision-making and academic functioning levels (Lee & Kang, 2018; Luebke et al., 2018).

Helicopter parents provide many structured activities to improve language quality and cognitive reasoning to improve the development of their children in many areas after birth (Dupont et al., 2022). In particular, individuals in emerging adulthood report higher levels of stress and burnout (Segrin et al., 2015). University students, whom their parents constantly control, exhibit external locus of control, feel more anxiety, and show higher levels of burnout in the face of the slightest difficulties (Howard et al., 2022; Love et al., 2020). Consistent with this information, SCT has accepted that contextual attributes (external regulators) are effective in self-regulation as a process (Bandura, 2023). Again, considering the external regulation component of SRL vs. ERL theory (De la Fuente et al., 2017), parents' overprotective behavior as a contextual risk factor can be considered a behavior that does not support self-regulation. Excessive external control can be considered external control rather than improving self-regulation and self-efficacy. Therefore, this factor may also increase burnout in students.

### 1.4 The role of academic self-efficacy, grit, and academic resilience

An adaptive parenting environment during the college transition should include warm parents who support their child's autonomy and regulatory skills (Burke et al., 2016). From the perspective of SRL and ERL theory (e.g., De la Fuente et al., 2017), academic confidence, task engagement, and resilience, which include the construct of academic self-efficacy, are basic needs that promote success by increasing motivation. Instead of supporting the skills and academic competence of their children, helicopter parents' overly controlling approach can negatively affect people's academic self-efficacy beliefs (Glatz & Buchanan, 2021). Previous studies have found that individuals exposed to helicopter parents have lower self-efficacy (Choi, 2015; Padilla-Walker & Nelson, 2012). In addition, individuals' beliefs in their abilities impact the

persistence shown for academically challenging tasks (Sagone & De Caroli, 2013). In the anticipation stage of self-regulated learning, individuals focus on setting goals, finding ways to achieve goals, and maintaining interest in doing a task (Zimmerman, 2000). Grit, which allows students to establish and sustain long-term academic pursuits, can be a valuable resource for students in the foresight stage. Additionally, grit can positively affect academic resilience, including a better understanding of one's potential and ability to thrive and cope with challenging academic experiences. Students with high resilience levels have successful beliefs about themselves and effective skills (Romano et al., 2021). These students know how to regulate their behavior to achieve their goals despite their parents' overprotective behavior, and they may view the pressure they experience as a way to improve their skills. Therefore, students with high academic resilience are more likely to be protected against the process of school burnout due to excessive academic pressure and stress.

### 1.5 The current study

Previous studies provide information on factors that may affect school burnout. However, these studies mostly have a cross-sectional design (Jiang et al., 2021;

Wang, 2023). Moreover, modeling studies on factors that may be effective in reducing school burnout are quite limited. Because longitudinal studies examining school burnout are scarce, little is known about which factors temporally predict school burnout and are effective in reducing burnout. Therefore, more studies are needed to reveal the school burnout problem and produce solutions.

SCT examines an individual's behavior with personal and environmental factors (Fanti et al., 2012). At the same time, behavior, and personal and environmental characteristics mutually affect each other (Bandura, 2023). Similarly, from the perspective of SRL vs. ERL theory, academic perfectionism, as personalization, and helicopter parenting, as a process of contextual nature, can impair self-regulation ability. In this situation, personal characteristics such as academic self-efficacy, grit, and academic resilience are essential for university students to re-control their thoughts, feelings, and actions in the learning activity. Based on all this research and theoretical knowledge, this study examines the mediating role of academic self-efficacy, grit, and academic resilience in the relationship between academic perfectionism and helicopter parenting and school burnout among Turkish university students in two-time longitudinal data. For the general purpose, the following hypotheses were created:

**Hypothesis 1** The relationship between academic perfectionism at Time 1 and school burnout at Time 2 is mediated by academic self-efficacy, grit, and academic resilience at Time 2.

**Hypothesis 2** The relationship between the helicopter parent attitude at Time 1 and school burnout at Time 2 is mediated by academic self-efficacy, grit, and academic resilience at Time 2.

## 2 Method

### 2.1 Participants

The population of the research consists of 7.500 students studying at Atatürk University. The following criteria were applied for inclusion in the study: (i) studying in the undergraduate education program (formal education) at Atatürk University; (ii) continuing education in the faculties in the city center; (iii) students studying in the senior year and (iv) not extending the semester. Since it is difficult to apply the scale in faculties with many practical courses and distance education, these faculties were not included in the study.

A random sampling method determined which faculties would participate in the study. After creating a list of Atatürk University faculties, faculty selection was made with the help of a table of random numbers. In this context, a total of 4 faculties were determined (Faculties of Education, Engineering, Literature, and Theology). Students in these faculties constitute 30% of the students in the university overall. Finally, the G\*Power 3.1 program was used to determine sample size and power. The results showed a minimum sample size of 464 for models with an alpha level of 0.05 and a power level of 0.80. Considering possible data loss, we included 590 students in the study at the first stage. This number is considered sufficient for the sample size in the current study (Faul et al., 2007).

### 2.2 Measures

#### 2.2.1 Academic perfectionism

Odacı et al. (2017) developed the academic perfectionism scale. Items on the scale have a 5-point Likert rating between 1 (*never*) and 5 (*always*) (Example items include; I want to be the best student in the class). The scale consists of three sub-dimensions “Self-Doubt” (6 items), “Comparison” (4 items), and “Idealization” (3 items). The scale is also used by taking the total score. This study evaluated students’ academic perfectionist tendencies based on their total scores. Within the scope of this research, Cronbach’s  $\alpha$  value was determined as 0.81. For the scale’s construct validity, confirmatory factor analysis (CFA) was performed using the Mplus (8.3) program. Fit values provide evidence of the validity of the scale ( $RMSEA=0.076$ ;  $CFI=90$ ;  $TLI=0.90$ ;  $SRMR=0.05$ ;  $\chi^2/sd=2.2$ ).

#### 2.2.2 Helicopter parent attitude

The scale was developed by LeMoyne and Buchanan (2011). Okray (2016) adapted the scale to Turkish culture. The scale consists of 7 items and one dimension) (Example items include; Growing up, my parents controlled all my actions). Items on the scale have a 4-point Likert rating between 1 (*never like this*) and 4 (*totally like this*). This study calculated Cronbach’s  $\alpha$  0.70 for HPAS internal reliability. The increase in the total score obtained on the scale indicates the perception of Helicopter Parenting. For the scale’s construct validity, CFA was performed using the Mplus (8.3) program.

Fit values provide evidence of the validity of the scale ( $RMSEA=0.052$ ;  $CFI=97$ ;  $TLI=0.95$ ;  $SRMR=0.03$ ;  $\chi^2/sd=2.6$ ).

### 2.2.3 Academic self-efficacy

Jerusalem and Schwarzer (1981) developed the original version of the scale. Yılmaz et al. (2007) carried out the adaptation of the scale to Turkish culture. The scale consists of 7 items and one dimension (Example items include; Even if a written exam is very difficult, I know that I will pass it). Items on the scale have a 4-point Likert rating between 1 (*totally appropriate*) and 4 (*not suitable at all*). Within the scope of this study, Cronbach's  $\alpha$  was determined at 0.77. The increase in the total scores obtained on the scale shows that academic self-efficacy is high. For the scale's construct validity, CFA was performed using the Mplus (8.3) program. The fit values show that the scale's validity is acceptable ( $RMSEA=0.078$ ;  $CFI=94$ ;  $TLI=0.91$ ;  $SRMR=0.039$ ;  $\chi^2/sd=3.9$ ).

### 2.2.4 Short grit scale

Duckworth and Quinn (2009) developed the Short Grit Scale to determine the level of grit in university students. Sarıçam et al. (2016) carried out the adaptation of the scale to Turkish culture. The scale consists of two sub-dimensions, "Persistence in Effort" and "Consistency of Interest", and 8 items (Example items include; Obstacles can't intimidate me). The scale is also used by taking the total score. The items on the scale have a 5-point Likert rating from 1 (*does not describe me at all*) to 5 (*describes me completely*). Cronbach's alpha internal consistency coefficient for this study was calculated as 0.68. The increase in the scores that can be obtained from the scale indicates a high level of grit. For the scale's construct validity, CFA was performed using the Mplus (8.3) program. The fit values show that the scale's validity is acceptable ( $RMSEA=0.064$ ;  $CFI=95$ ;  $TLI=0.93$ ;  $SRMR=0.04$ ;  $\chi^2/sd=2.8$ ).

### 2.2.5 Maslach burnout inventory-student survey

Schaufeli et al. (1996) developed the Maslach burnout inventory-student form. Capri et al. (2011) adapted the inventory to Turkish culture. The scale consists of three sub-dimensions; "Exhaustion" (4 items), "Cynicism" (5 items), and "Efficacy" (4 items). While the exhaustion and cynicism sub-dimensions of the scale are scored normally, the items in the efficacy dimension are evaluated with reverse scores. Also, the scale can be used as a total score. The items on the scale have a 5-point Likert rating from 1 (*never*) to 5 (*always*) (Example items include; My desire for my lessons has decreased). The Cronbach's alpha reliability coefficient of the scale was determined as 0.78. High scores from the scale indicate a high level of school burnout. For the construct validity of the scale, CFA was performed using the Mplus (8.3) program. The fit values show that the validity of the scale is acceptable ( $RMSEA=0.075$ ;  $CFI=94$ ;  $TLI=0.93$ ;  $SRMR=0.04$ ;  $\chi^2/sd=3.8$ ).

### 2.2.6 Academic resilience scale (ARS-30)

ARS-30 was developed by Cassidy (2016) to measure the academic resilience levels of university students. ARS-30 was adapted to Turkish culture by authors (2021). The scale has a total of 30 questions and consists of three components: “Perseverance” (14 items), “Reflective and Adaptive Help-Seeking” (9 items), and “Negative Affect and Emotional Response” (7 items). The items on the scale have a 5-point Likert rating from 1 (*strongly disagree*) to 5 (*totally agree*) (Example items include; I would seek help from my tutors). The Cronbach  $\alpha$  for the total score of the scale was 0.89. High scores indicate a high level of academic resilience. For the scale’s construct validity, CFA was performed using the Mplus (8.3) program. The fit values show that the scale’s validity is acceptable ( $RMSEA=0.062$ ;  $CFI=91$ ;  $TLI=0.90$ ;  $SRMR=0.05$ ;  $\chi^2/sd=2.41$ ).

### 2.3 Procedure

This study was approved by the Ethics Committee of Atatürk University (Decision No: 04–08), and conducted by the Declaration of Helsinki. The researchers collected data before the midterm exam (T1) and after the midterm exam (T2). In both applications, the researchers entered the classes with the faculty members’ permission, explained the study’s purpose to the students, and stated that they could participate in the study voluntarily. Additionally, the researchers gave the students an informed consent form for the study.

While collecting data in both stages, the researchers asked students who wanted to participate in the study to write pseudonyms on the measurement tools. In this way, data sets collected at two different times were matched to bring together the answers of the same people. After matching, criteria such as matching participant responses, answering the items completely, and participating in the application in both stages were also taken into account. According to these criteria, the researchers administered the scales to 590 students at Time 1 (T1) ( $M_{age} = 22.45$ ,  $SD=3.71$ ). The researchers went to the faculties mentioned above to conduct the second application 7 weeks after the first application. The researchers administered the scales for the second time to 501 students who participated in the first time (84.9% of Time 1 participants). 89 students who participated in the study the first time could not participate in the second study due to illness and not coming to school or going to the city where they lived before. However, after data that did not meet normality criteria were excluded from the study, the final sample at Time 2 consisted of 481 individuals ( $M_{age} = 22.2$ ,  $SD=1.18$ ; 61.5% female, 38.5% male). The range was 20–24 and over, and 8.3% were 20 years old, 29.5% were 21 years old, 31.8% were 22 years old, 15.4% were 23 years old and 15% were 24 years old and over. 43.5% of the participants were in the 3rd grade, and 56.5% were in the 4th grade. 47.2% of the students were at the Faculty of education, 20.8% were at the faculty of letters, 18.9% were at the faculty of theology and 13.1% were at the faculty of engineering.



## 2.4 Data analysis

This research was designed according to the longitudinal model. The longitudinal model is designed to examine more than one characteristic of people with the same characteristics over time or to investigate the temporal changes of these individuals (Lynn, 2009). In this context, we applied the helicopter parent attitude and academic perfectionism scales to the participants at Time 1. At Time 2 (seven weeks after the first application), we administered the participants' academic self-efficacy, grit, resilience, and school burnout scales. However, the researchers used SPSS 23.0 to examine the relationships between descriptive and correlation analysis. Also, a mediation model (model-80) was created to examine the longitudinal effects of academic self-efficacy, grit, and academic resilience (T2) on the relationship between academic perfectionism and helicopter parenting (T1), and school burnout (T2). With this model, the indirect effect of academic perfectionism and helicopter parenting (T1) on school burnout (T2) through academic self-efficacy, grit, and resilience (T2) was evaluated. Accordingly, first, the direct effects of academic perfectionism and helicopter parenting on school burnout were examined. The second stage determined the mediating effect of academic self-efficacy, grit, and resilience on the relationship between academic perfectionism, parental attitude, and school burnout. In the last stage, the sequential mediating effect of academic self-efficacy, grit, and academic resilience in the direct relationship between academic perfectionism and parental attitude on school burnout was determined. For indirect effects, a sample option of 5,000 bootstraps was chosen. In this analysis method, the fact that the lower and upper limits of the confidence intervals do not include zero shows that the results are significant (Hayes, 2017).

## 3 Results

### 3.1 Descriptive and correlation analysis

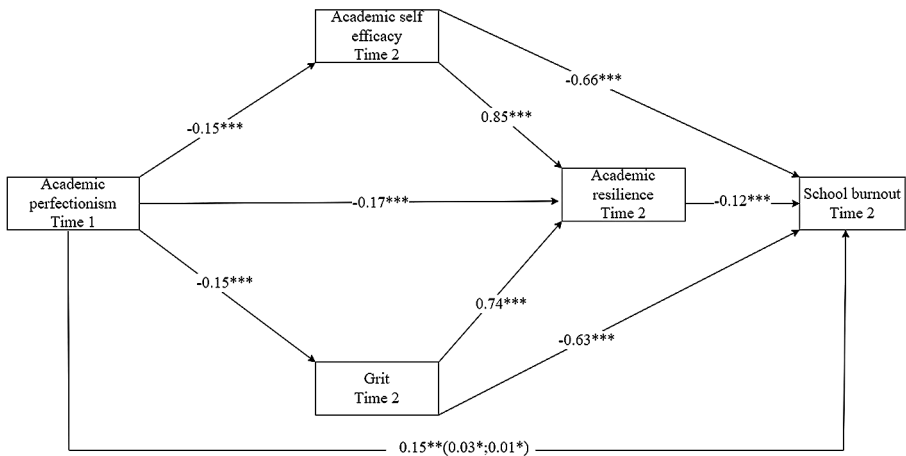
Descriptive statistics and correlations for the study variables are shown in Table 1. The results show that there is a significant positive correlation between school burnout (T2), academic perfectionism (T1), and helicopter parent attitude (T1). Besides there are significant negative relationships between school burnout (T2), academic self-efficacy (T2), grit (T2), and academic resilience (T2). Finally, skewness and kurtosis vary between 0.02 and 0.74, showing that the data meet the normality assumption (Tabachnick et al., 2013).

### 3.2 Direct and indirect effects of academic self-efficacy, grit, and academic resilience on academic perfectionism and school burnout

Analysis procedures, firstly, the direct effect of academic perfectionism (T1) on students' school burnout (T2) was considered. Results showed that academic perfectionism (T1) significantly predicted school burnout (T2) ( $\beta=0.15$ ,  $SE=0.05$ ,  $p<.05$ ). In the second stage of the analysis process, the predictive levels of the variables were

**Table 1** Descriptive statistics, and correlations for the study variables

Variables	1	2	3	4	5	6
1. School burnout (T2)	1	0.34*	0.26*	-0.51*	-0.50*	-0.47*
2. Academic perfectionism (T1)		1	0.22*	-0.35*	-0.27*	-0.27*
3. Helicopter parent attitude (T1)			1	-0.18*	-0.24*	-0.18*
4. Academic self-efficacy (T2)				1	0.48*	0.49*
5. Grit (T2)					1	0.41*
6. Academic resilience (T2)						1
<i>M</i>	35.20	36.09	10.27	19.55	27.62	16.26
<i>SD</i>	9.82	8.29	4.04	3.55	4.81	16.57
Skewness	0.33	0.09	0.02	-0.09	-0.04	-0.62
Kurtosis	-0.44	0.05	-0.29	0.23	-0.09	0.74

\* $p < .05$ **Fig. 1** Mediation model regarding the mediating effects of academic self-efficacy, grit, and academic resilience on the relationship between academic perfectionism, and school burnout. Note: \*\* $p < .05$ , \*\*\*total effect, \*indirect effect

determined. The results showed that academic perfectionism (T1) affected academic self-efficacy (T2) ( $\beta = -0.15$ ,  $SE = 0.02$ ,  $p < .05$ ), academic self-efficacy (T2) affected academic resilience (T2) ( $\beta = 0.85$ ,  $SE = 0.20$ ,  $p < .05$ ), and academic resilience (T2) significantly predicted school burnout (T2) ( $\beta = -0.12$ ,  $SE = 0.03$ ,  $p < .05$ ). Secondly, academic perfectionism (T1) affected grit (T2) ( $\beta = -0.15$ ,  $SE = 0.03$ ,  $p < .05$ ), and grit (T2) affected academic resilience (T2) ( $\beta = 0.74$ ,  $SE = 0.15$ ,  $p < .05$ ). The results of the third stage of the analysis showed that academic perfectionism (T1) affected academic resilience (T2) ( $\beta = -0.17$ ,  $SE = 0.08$ ,  $p < .05$ ), and academic self-efficacy (T2) ( $\beta = -0.66$ ,  $SE = .12$ ,  $p < .05$ ), and grit ( $\beta = -0.53$ ,  $SE = 0.09$ ,  $p < .05$ ) negatively predicted school burnout (T2). The results regarding the predictive effects of the variables are presented in Fig. 1.

At the end of the analysis process, the indirect effects of, academic self-efficacy (T2), grit (T2), and academic resilience (T2) on academic perfectionism (T1) and

school burnout (T2) were examined (Model-80). The results reveal that when the variables of academic self-efficacy (T2), grit (T2), and academic resilience (T2) were added to the model (Model-80), there was a significant decrease in the direct effect of academic perfectionism (T1) on school burnout (T2). Indirect effect tests show that academic self-efficacy (T2), grit (T2), and resilience (T2) mediate the relationship between academic perfectionism (T1) and school burnout (T2) ( $\beta=0.03$ , 95%  $CI=0.0150-0.0491$ ;  $\beta=0.014$ ; 95%  $CI=0.0052-0.0270$ ). All variables in the model explain 62.07% of the variance of school burnout. Results showing indirect and total effects are shown in Table 2.

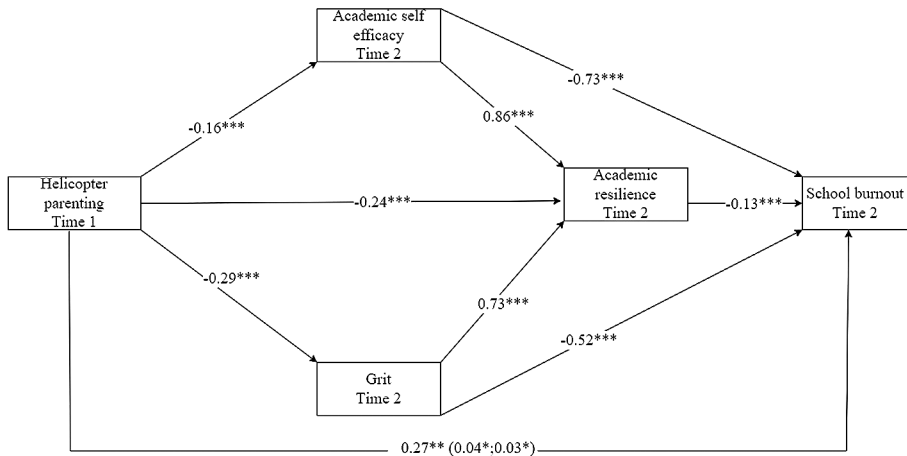
### 3.3 Direct and indirect effects of academic self-efficacy, grit, and academic resilience on helicopter parenting and school burnout

Analysis procedures, firstly, the direct effect of helicopter parenting (T1) on students' school burnout (T2) was considered. Results show that helicopter parenting (T1) significantly predicted school burnout (T2) ( $\beta=0.27$ ,  $SE=0.09$ ,  $p<.05$ ). In The second stage of the analysis process, the predictive levels of the variables were determined. The results showed that helicopter parenting (T1) affected academic self-efficacy (T2) ( $\beta = -0.16$ ,  $SE=0.04$ ,  $p<.05$ ), academic self-efficacy (T2) affected academic resilience (T2) ( $\beta=0.86$ ,  $SE=0.20$ ,  $p<.05$ ), and academic resilience (T2) significantly predicted school burnout (T2) ( $\beta = -0.13$ ,  $SE=0.03$ ,  $p<.05$ ). Secondly, helicopter parenting (T1) affected grit (T2) ( $\beta = -0.29$ ,  $SE=0.05$ ,  $p<.05$ ), and grit (T2) affected academic resilience (T2) ( $\beta=0.73$ ,  $SE=0.16$ ,  $p<.05$ ). The results of the third stage of the analysis showed that helicopter parenting (T1) affected academic resilience (T2) ( $\beta = -0.24$ ,  $SE=0.16$ ,  $p<.05$ ), and academic self-efficacy (T2) ( $\beta = -0.73$ ,  $SE=0.12$ ,  $p<.05$ ), and grit ( $\beta = -0.52$ ,  $SE=0.09$ ,  $p<.05$ ) negatively predicted school burnout (T2). The results regarding the predictive effects of the variables are presented in Fig. 2.

**Table 2** Total, direct, and indirect effects of academic perfectionism on school burnout through academic self-efficacy, grit, and academic resilience

Total effect	Unstandardized regression coefficient	Standardized regression coefficient	SE	LLCI	ULCI
<b>Direct effect</b>					
AP → SB	0.15	-	0.05	0.0645	0.2440
<b>Indirect effect</b>					
Total indirect effect	0.25	0.21	0.03	0.1804	0.3172
AP → ASE → SB	0.10	0.08	0.02	0.0572	0.1460
AP → GR → SB	0.08	0.07	0.02	0.0470	0.1237
AP → AR → SB	0.02	0.02	0.01	0.0002	0.0472
AP → ASE → AR → SB	0.03	0.03	0.01	0.0150	0.0491
AP → GR → AR → SB	0.014	0.01	0.01	0.0052	0.0270

AP academic perfectionism, ASE academic self-efficacy, GR grit, AR academic resilience, SB school burnout, SE standard error, LLCI/lower limit confidence interval 95%, ULCI upper limit confidence interval 95%



**Fig. 2** Mediation model regarding the mediating effects of academic self-efficacy, grit, and academic resilience on the relationship between helicopter parenting, and school burnout. Note: \*\*\* $p < .05$ , \*\*total effect, \*indirect effect

**Table 3** Total, direct, and indirect effects of helicopter parenting on school burnout through academic self-efficacy, grit, and academic resilience

Total effect	Unstandardized regression coefficient	Standardized regression coefficient	SE	LLCI	ULCI
<b>Direct effect</b>					
HP → SB	0.27.3	-	0.09	0.0963	0.4507
<b>Indirect effect</b>					
Total indirect effect	0.36	0.15	0.07	0.2253	0.4981
HP → ASE → SB	0.12	0.014	0.04	0.0511	0.1937
HP → GR → SB	0.15	0.016	0.04	0.0808	0.2330
HP → AR → SB	0.03	0.01	0.02	-0.0062	0.0817
HP → ASE → AR → SB	0.035	0.01	0.01	0.0139	0.0636
HP → GR → AR → SB	0.027	0.004	0.01	0.0091	0.0515

HP helicopter parenting, ASE academic self-efficacy, GR grit, AR academic resilience, SB school burnout, SE standard error, LLCI lower limit confidence interval 95%, ULCI upper limit confidence interval 95%

At the end of the analysis process, the indirect effects of, academic self-efficacy (T2), grit (T2), and academic resilience (T2) on helicopter parenting (T1) and school burnout (T2) were examined (Model-80). The results reveal that when the variables of academic self-efficacy (T2), grit (T2), and academic resilience (T2) were added to the model (Model-80), there was a significant decrease in the direct effect of helicopter parenting (T1) on school burnout (T2). Indirect effect tests show that academic self-efficacy (T2), grit (T2), and resilience (T2) mediate the relationship between helicopter parenting (T1) and school burnout (T2) ( $\beta=0.035$ , 95%  $CI=0.0139-0.0636$ ;  $\beta=0.027$ , 95%  $CI=0.0091-0.0515$ ). All variables in the model explain 39% of the variance of school burnout. Results showing indirect and total effects are shown in Table 3.

## 4 Discussion

In this study, researchers aim to examine the effects of academic perfectionism and helicopter parenting on school burnout over time and to examine the potential mediators of academic self-efficacy, grit, and academic resilience. The results of the study show that there are negative relationships between academic perfectionism and helicopter parenting and school burnout over time. At the same time, the current study revealed that this relationship is mediated by academic self-efficacy, grit, and academic resilience.

University students may face ongoing challenges, stresses, and pressures throughout their education. Academic perfectionist attitudes and expectations may be among the important difficulties experienced. This study shows that personal resources such as academic self-efficacy, grit, and academic resilience may effectively reduce the negative effect of academic perfectionism on school burnout. The result of our first hypothesis is consistent with SRL vs. ERL Theory (De La Fuente et al., 2017). Academic perfectionist students may need help planning their learning process and setting goals. When students choose not to think about their learning processes, this results in impulsive learning that can harm their motivation and academic success. As a protective mechanism, academic self-efficacy can allow students to regulate their behavior in terms of how much time they devote to which course (Amagir et al., 2020). A longitudinal study showed that academic self-efficacy impacts on students' academic achievement averages (Caprara et al., 2011). However, increasing self-efficacy and self-regulatory capacity can increase an individual's sense of responsibility, positively impacting grit. There are studies in the literature that support this conclusion. For example, Jung and Jeong (2018) proved that students' academic self-efficacy positively affects grit. A longitudinal study on factors supporting grit confirmed that self-efficacy positively impacts individuals' grit behavior (Tang et al., 2019). Considering SRL vs. ERL Theory (De La Fuente et al., 2017), grit can be considered a factor positively affecting self-management. Students with high levels of grit can choose strategies that suit them in every difficulty. These strategies, which include passion and constant persistence for long-term success, can help college students achieve temporary and permanent stability and prevent them from experiencing school burnout.

Another study result reveals that academic self-efficacy, grit, and academic resilience mediate over time the relationship between helicopter parenting and school burnout. Overprotection and interventions for emerging adults can harm motivation in different areas (Alhadabi et al., 2019). Previous research has identified self-efficacy as a significant link between family processes and important emerging adult outcomes such as mental health (Bartlett, 2017; Reed et al., 2015). Helicopter parents can often message their children that they need to do well academically to love and accept them. This may reduce individuals' extrinsic motivation for learning. SCT (Bandura, 2002) framework, self-efficacy enables individuals to believe that they can choose the approach that will enable them to achieve their goals most effectively and efficiently. Considering that helicopter parenting reduces the sense of authority over individuals, academic self-efficacy belief may also increase students' perseverance by increasing their intrinsic learning motivation. We can expect a determined

student to be more persistent in the face of difficulties after such interventions from their parents. Research has reported that the more gritty students are determined to continue pushing forward to achieve their goals over long periods, rather than giving up immediately (Khan et al., 2023; Wicaksono et al., 2023). Students with high levels of grit can demonstrate success and determination in their studies despite difficulties. This may positively affect their academic resilience. Kim and Kim (2016) found that students who used academic resilience were more successful in coping with feelings of academic fear and hopelessness. Resilient learners also have a lower risk of experiencing school burnout because they can maintain regular functioning and create beneficial changes despite significant adversity. From the perspective of SRL vs. ERL, the learning process involves not only withstanding the negative effects of personal factors but also self-regulation to respond adequately to pressures and expectations from the environment without succumbing to emotional disturbances. For this reason, personal factors such as academic self-efficacy, grit, and academic resilience can prevent the pressures and expectations of helicopter families from creating stress in the individual and leading to school burnout.

#### 4.1 Limitations and suggestions

This study has some limitations. As the first limitation, the prediction between the dysregulatory contextual factor and the dysregulatory personal factor is not established, an aspect that the afore mentioned theory has also predicted. It seems reasonable to assume that the motivational-affective state of burnout will be predicted in a combined way by the dysregulation of personal and contextual factors. As a second limitation, the relationship with the engagement factor has not been demonstrated, in an inverse contrasting model of the one proposed. As a third limitation, not taking more than two measurements can be shown in the study. The number of measurements can be increased in future studies.

## 5 Conclusion

This study shows that academic perfectionism and helicopter parenting of university students have positive relationships with school burnout while increasing academic self-efficacy, grit, and academic resilience over time are important variables in reducing school burnout. Academic perfectionism and helicopter parenting can increase school burnout. Therefore, improving university students' skills such as academic self-efficacy, grit, and academic resilience can reduce school burnout. The present study deepens our understanding of the mechanisms underlying the effects of academic perfectionism and helicopter parenting on school burnout in Turkish culture. Mental health professionals can use concepts such as academic self-efficacy, grit, and academic resilience to reduce school burnout among university students.

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## Declarations

**Ethics approval** This study was approved by the Ethics Committee of Atatürk University (Decision No: 04–08).

**Conflict of interest** The authors declare that they have no conflict of interest.

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