

Career Anxiety in the Context of Vocational Education: The Serial Mediation Effects of Hope, Self-Efficacy, and Psychological Resilience

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This study examined the mediating roles of self-efficacy and psychological resilience in the effect of hope on career anxiety among vocational high school students. The study was conducted using a quantitative, cross-sectional, and correlational design. The study group consisted of 440 students enrolled in various vocational high schools. Data were collected using the Dispositional Hope Scale, the Self-Efficacy for Children Scale, the Child and Youth Resilience Measure, and the Career Anxiety Scale. Data were analyzed using Pearson correlation analysis, regression-based serial multiple mediation analysis, and bootstrap resampling. Correlation findings indicated that hope was significantly and positively associated with self-efficacy and psychological resilience and significantly and negatively associated with career anxiety. The mediation analysis revealed that hope had a significant total effect on career anxiety. However, when self-efficacy and psychological resilience were included in the model, hope's direct effect on career anxiety was found to be non-significant. In contrast, hope's total indirect effect on career anxiety remained significant. The findings indicated that the effect of hope on career anxiety was significantly mediated through self-efficacy, psychological resilience, and a serial indirect pathway involving both constructs. In conclusion, hope does not function as a standalone predictor that directly reduces career anxiety; rather, it operates as a higher-order psychological resource that exerts its influence through self-efficacy and psychological resilience. These findings suggest that hope, self-efficacy, and psychological resilience should be addressed together in school-based interventions aimed at reducing career anxiety among vocational high school students.

Introduction

High school years represent a critical developmental period, as students often begin to experience uncertainty regarding their education, career, and future plans. Career-related uncertainties are often associated with increased career anxiety in students' career decision-making processes (Kuloğlu et al., 2025). Career anxiety refers to a state of distress and

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tension stemming from feelings of inadequacy, uncertainty, and anticipated failure during the decision-making process regarding career and vocational choices (Osipow, 1999; Savickas, 2013).

Recent PISA 2022 reports indicate that approximately two-fifths of 15-year-old students in OECD countries lack a clear career plan and that career uncertainty has increased significantly in recent years. According to the same reports, young people experiencing career-related uncertainty may face more negative employment outcomes later in life. Therefore, career anxiety should be viewed not merely as an emotional state, but also as a phenomenon related to the transition from school to further education and the workforce (OECD, 2024, 2025).

This study examines the serial mediating roles of self-efficacy and psychological resilience in the relationship between vocational high school students' hope levels and career anxiety. Existing research suggests that career anxiety is typically explained through single or dual variables. In contrast, studies examining hope, self-efficacy, and psychological resilience together in a serial framework remain limited. This study seeks to address this gap by testing a serial mediation model involving these three psychological resources.

Literature Review

Hope is defined as an individual's capacity to generate pathways toward achieving their goals and to sustain motivation to proceed along those pathways (Snyder et al., 1996; Snyder, 2002). Self-efficacy refers to an individual's belief in their ability to perform specific tasks. Individuals with high self-efficacy view challenging tasks not as threats but rather as opportunities for growth. This enables them to exert greater effort, recover more quickly from failure, and demonstrate greater resilience (Bandura, 1997; Schunk & DiBenedetto, 2020).

Psychological resilience is defined as an individual's capacity to recover, adapt, and maintain functioning in the face of stressful, uncertain, and traumatic events. This concept refers not only to coping with difficulties but also to growing through them (Luthar et al., 2000; Masten, 2001). Individuals with high resilience tend to perceive the difficulties they face as manageable, develop effective coping strategies, and utilize their social support networks. These individuals tend to be less affected by negative life events and report higher well-being and life satisfaction (Connor & Davidson, 2003; Masten, 2001).

The Relationship Between Career Anxiety and Hope

Research on the relationship between career anxiety and hope generally suggests that career anxiety decreases as hope increases. Zhao and colleagues (2024) found that higher hope among students was associated with lower intolerance of uncertainty and job-search anxiety. Belle and colleagues (2022) reported that hope, as a component of psychological capital, plays a protective role against employment anxiety among students nearing graduation. The study by In (2016) showed that hope positively predicted career decision self-efficacy. Hirschi and colleagues (2015) further demonstrated that hope is an important psychological resource in career development and increases career exploration behaviors.

The Relationship Between Career Anxiety and Self-Efficacy

Studies suggest that self-efficacy serves a protective role against career-related anxiety. Career self-efficacy negatively predicted job-search anxiety (Li et al., 2025). Higher

job-search self-efficacy is also associated with lower employment anxiety (Çarkıt, 2025). Career decision self-efficacy has been shown to reduce career anxiety and to play a moderating role (Müceldili et al., 2025). In a study with adolescents, career exploration self-efficacy mediated processes related to career anxiety (Bilgiz Öztürk & Peker, 2025). Among university students, career choice self-efficacy significantly and negatively predicted career anxiety (Feng et al., 2025).

The Relationship Between Career Anxiety and Psychological Resilience

Studies generally report a negative relationship between career anxiety and psychological resilience. Aksu and Kuas (2024) showed that higher psychological resilience among students was associated with lower career anxiety. Yang and colleagues (2025) indicated that psychological resilience reduces employment anxiety and partially explains the effect of academic stress on anxiety. Wang and Zhang (2025) identified psychological resilience as a protective mechanism that reduces career anxiety. Fang and Xu (2025) demonstrated that psychological resilience mediates the reduction of employment anxiety through social support.

The Current Study

In the current study, vocational high school students were selected as the sample group. This selection was based on the expectation that this group may experience elevated career anxiety. This assumption is based on several considerations. First, vocational high school students constitute a numerically substantial and distinct group within the secondary education system. In the 2024–2025 academic year in Türkiye, the number of students enrolled in vocational high schools accounted for 31.23% of the total number of students in general secondary education (Ministry of National Education [MoNE], 2025). Second, academic achievement differs considerably across school types, and these differences tend to disadvantage vocational high school students. The PISA 2018 Türkiye report illustrates this pattern: among secondary education institutions, there was a 216-point difference between the school types with the highest and lowest mathematics performance. Accordingly, science high schools were the most successful school type, whereas vocational high schools were among the lower-performing school types (OECD, 2022). Third, vocational high school students make field, program, and career-related choices relatively earlier than their peers in other school types. Consequently, these young people may face decisions that could affect their professional futures while they are still in the relatively early stages of adolescence (MoNE, 2013; OECD, 2022).

Hope represents an individual's sense of purpose regarding the future and goal-oriented mental orientation rather than a specific career behavior. For this reason, hope was regarded as a precursor to more immediate psychological processes that may influence career anxiety. Self-efficacy was placed second in the model because the general orientation that begins with hope may be transformed into a more concrete assessment of the individual's own capabilities, that is, the belief that "I can do this". Within the social cognitive theory framework, self-efficacy is one of the fundamental cognitive mechanisms influencing an individual's effort in the face of challenges, ability to overcome obstacles, and persistence in behavior (Lent et al., 1994). In this regard, while hope serves as a general source that initiates an individual's orientation and motivation, self-efficacy can be viewed as the transformation of this motivation into a personal perception of competence.

Psychological resilience was positioned third in the model because it reflects an individual's



capacity to maintain a sense of competence under conditions of stress and uncertainty. In other words, while self-efficacy expresses an individual's belief in their ability to perform a task, psychological resilience indicates the extent to which this belief is maintained under adverse conditions and how well the individual can adapt to such conditions. For this reason, psychological resilience was positioned as the mediator most proximal to career anxiety in the proposed model, and self-efficacy was assumed to function as a prior cognitive source that supports psychological resilience. Thus, the model is structured as follows: hope → self-efficacy → psychological resilience → career anxiety.

The model used general self-efficacy rather than career self-efficacy as a deliberate theoretical choice. The present study examines career anxiety within the context of adolescents' broader psychological resources rather than explaining it solely through a narrow perception of self-efficacy related to career decision-making. Career anxiety among vocational high school students is influenced not only by career-specific cognitive evaluations such as "Can I make the right career decision?" or "Can I choose the right profession?" but also by broader functions such as social coping, emotional regulation, general coping capacity, and academic competence. Therefore, the study used a general self-efficacy construct that encompasses competence perceptions across different life domains. Selecting career self-efficacy could have introduced two conceptually similar constructs into the same model and produced a narrower, domain-specific explanation. In contrast, general self-efficacy enabled career anxiety to be examined not only in relation to career decision-making processes but also in connection with students' broader psychological resources. Accordingly, the hypotheses of the study are as follows:

- H1. Hope has a significant negative total effect on career anxiety.
- H2. Hope significantly predicts self-efficacy in a positive direction.
- H3. Self-efficacy significantly predicts psychological resilience in a positive direction.
- H4. Psychological resilience significantly predicts career anxiety in a negative direction.
- H5. Self-efficacy and psychological resilience act as serial mediators in the relationship between hope and career anxiety.

Methodology

This study aimed to examine structural relationships between variables. Accordingly, it was designed as a quantitative study and conducted using a cross-sectional data collection strategy. According to Büyüköztürk and colleagues (2018), a correlational design examines the statistical relationships among variables and the direction of these relationships. A cross-sectional design involves collecting data at a single time point to examine the variables of interest (Creswell & Creswell, 2018). In this study, hope was designated as the independent variable and career anxiety as the dependent variable, and a serial multiple mediation model involving the sequential mediating roles of self-efficacy and psychological resilience was tested. The proposed serial mediation model was tested using a regression-based mediation analysis approach, which allows for the simultaneous examination of indirect effects within the same model (Hayes, 2018).

Participants

The study group consisted of 440 volunteer high school students enrolled in selected vocational high schools who met the inclusion criteria. Twenty-two percent of the participants

were female ($n = 97$), and 78% were male ($n = 343$). This gender imbalance reflects the predominantly male enrollment in vocational high schools in Türkiye (MoNE, 2025). Of the students, 25.2% were in 9th grade, 31.6% were in 10th grade, 22% were in 11th grade, and 21.1% were in 12th grade.

G*Power 3.1.9.7 software was used to calculate the sample size for the study. The power analysis indicated that the minimum sample size required for the study, based on 95% statistical power, a 5% significance level, and a 5% error margin for a model with three predictor variables, was 383. Considering potential data loss or incomplete responses, the target sample size was increased by approximately 25%.

Data Collection Tools

Demographic Information Form

This form was developed by the researcher to determine the characteristics of the study group. The form includes questions for participants regarding variables such as gender, grade level, parents' education levels, and total family income.

Dispositional Hope Scale

The *Dispositional Hope Scale*, developed by Snyder and colleagues (1991) to measure individuals' sustained levels of hope, was adapted into Turkish by Tarhan and Bacanlı (2015). The scale assesses individuals' motivation toward their goals and their capacity to generate alternative pathways for achieving these goals. It includes two subscales: "Actuating Thinking" and "Alternative Ways Thinking." The scale consists of 12 items (e.g., "I can find many ways to achieve my goals"). The items are rated on an 8-point Likert scale (1 = Strongly disagree, 8 = Strongly agree), with higher scores indicating higher levels of hope. The internal consistency coefficient in the adaptation study was .84 (Tarhan & Bacanlı, 2015). In this study, analyses were conducted using the total score, and Cronbach's alpha was .63. Although this value is lower than those of the other instruments, values of .60 and above may be considered acceptable in some research contexts; therefore, findings related to hope should be interpreted cautiously (Karagöz, 2019).

The Self-Efficacy for Children Scale

The *Self-Efficacy for Children Scale*, developed by Muris (2001) to assess adolescents' perceptions of self-efficacy in academic, social, and emotional domains, was adapted into Turkish by Telef and Karaca (2012). The scale evaluates the extent to which individuals perceive themselves as competent across different areas of life. It includes three subscales: "Academic Self-Efficacy," "Social Self-Efficacy," and "Emotional Self-Efficacy." The scale consists of 21 items (e.g., "How well can you control your emotions?"). The items are rated on a 5-point Likert scale (1 = Not at all true, 5 = Very true), with higher scores indicating stronger self-efficacy perceptions. In the Turkish adaptation study, Cronbach's alpha for the total scale was .86 (Telef & Karaca, 2012). In this study, analyses were conducted using the total score, and Cronbach's alpha was .86.

Child and Youth Resilience Measure (CYRM)

The *Child and Youth Resilience Measure*, developed by Liebenberg and colleagues (2013) to assess psychological resilience among children and adolescents, was adapted into



Turkish by Arslan (2015). The scale measures individuals' resilience in the face of difficult life events. It is unidimensional and consists of 12 items (e.g., "There are people who are there for me during difficult times in my life"). The items are rated on a 5-point Likert scale (1 = Does not describe me at all, 5 = Describes me completely), with higher scores indicating greater psychological resilience. Cronbach's alpha in the Turkish adaptation study was .91 (Arslan, 2015). In this study, Cronbach's alpha was .83.

Career Anxiety Scale

The *Career Anxiety Scale*, developed by Çetin Gündüz and Nalbantoğlu Yılmaz (2016), assesses career anxiety among high school students in relation to career decision-making processes. The scale includes two subscales: "Anxiety Regarding Career Choice" and "Anxiety Regarding Family Influence." It consists of 14 items (e.g., "The thought of whether the profession I choose will suit me worries me"). The items are rated on a 5-point Likert scale (1 = Strongly disagree, 5 = Strongly agree), with higher subscale scores indicating higher anxiety in the relevant dimension. Cronbach's alpha internal consistency coefficients for the subscales were .79 and .74, respectively (Çetin Gündüz & Nalbantoğlu Yılmaz, 2016). In this study, Cronbach's alpha for the total scale was .91.

Data Analysis

First, missing data checks were performed. Percentage and frequency analyses were conducted to determine demographic characteristics. Internal consistency reliability was assessed using Cronbach's alpha, and normality was assessed using skewness and kurtosis values. Relationships between variables were examined using Pearson's correlation analysis. The serial mediating roles of self-efficacy and psychological resilience in the relationship between hope and career anxiety were tested using the SPSS PROCESS macro (Model 6). To assess the significance of indirect effects, 5,000 bootstrap samples were generated with 95% confidence intervals. Following Preacher and Hayes (2008), indirect effects were considered statistically significant when the bootstrap confidence intervals did not include zero.

Results

Descriptive statistics and correlation coefficients for the variables are presented in Table 1. Preliminary analysis results indicated that the skewness and kurtosis values of the study variables ranged between ± 2 . Absolute values below 2 indicated acceptable normality (George & Mallery, 2010). Common method bias was assessed using Harman's one-factor test in the preliminary analyses. No single factor explained more than 50% of the variance.

There was a positive and significant relationship between hope and self-efficacy ($r = .55, p < .01$) and between hope and psychological resilience ($r = .65, p < .01$), whereas hope was negatively and significantly related to career anxiety ($r = -.30, p < .01$). Self-efficacy was positively and significantly related to psychological resilience ($r = .59, p < .01$) and negatively and significantly related to career anxiety ($r = -.34, p < .01$). Finally, psychological resilience was negatively and significantly related to career anxiety ($r = -.43, p < .01$). The relationships between the variables are presented in Table 1.

Table 1. Descriptive Statistics and Correlations for Research Variables

Variable	1	2	3	4	M	SD	Skew	Kurt	Min	Max
1. Hope	-				48.24	9.17	-.82	1.12	13	64
2. Self-Efficacy	.55**	-			66.19	12.70	.08	.40	23	105
3. Psychological Resilience	.65**	.59**	-		46.40	8.05	-.71	.29	15	60
4. Career Anxiety	-.30**	-.34**	-.43**	-	34.21	11.61	.26	-.48	14	68

** $p < .01$

Serial Multiple Mediation Analysis

Figure 1 presents the results of the serial mediation analysis. First, the findings of this study confirm Hypothesis 1. Hope had a negative and statistically significant total effect on career anxiety (total effect, $B = -.378$, $p < .001$). However, when self-efficacy and psychological resilience were included in the analysis, the direct effect of hope on career anxiety was not statistically significant (direct effect, $B = -.005$, $p > .05$). This suggests that the relationship between hope and career anxiety occurs largely through mediating variables. Additional findings showed that hope positively predicted self-efficacy ($B = .753$, $p < .001$) and psychological resilience ($B = .404$, $p < .001$). Second, the findings also confirm Hypotheses 2 and 3. Self-efficacy had a positive and statistically significant effect on psychological resilience ($B = .216$, $p < .001$). Thus, higher hope was associated with higher self-efficacy, and higher self-efficacy strengthened psychological resilience. Third, psychological resilience negatively and significantly predicted career anxiety ($B = -.492$, $p < .001$), supporting Hypothesis 4. However, the direct effect of self-efficacy on career anxiety was also statistically significant ($B = -.124$, $p < .05$). Finally, the indirect effect of hope on career anxiety was tested. As shown in Table 2, the total indirect effect of hope on career anxiety was statistically significant ($B = -.373$, 95% CI $[-.505, -.252]$). More specifically, the indirect paths from hope to career anxiety through self-efficacy ($B = -.093$, 95% CI $[-.175, -.011]$) and through psychological resilience ($B = -.199$, 95% CI $[-.304, -.112]$) were significant. The serial indirect path from hope to career anxiety through self-efficacy and psychological resilience was also statistically significant ($B = -.080$, 95% CI $[-.124, -.044]$). These findings support Hypothesis 5 by indicating that self-efficacy and psychological resilience play serial mediating roles between hope and career anxiety.

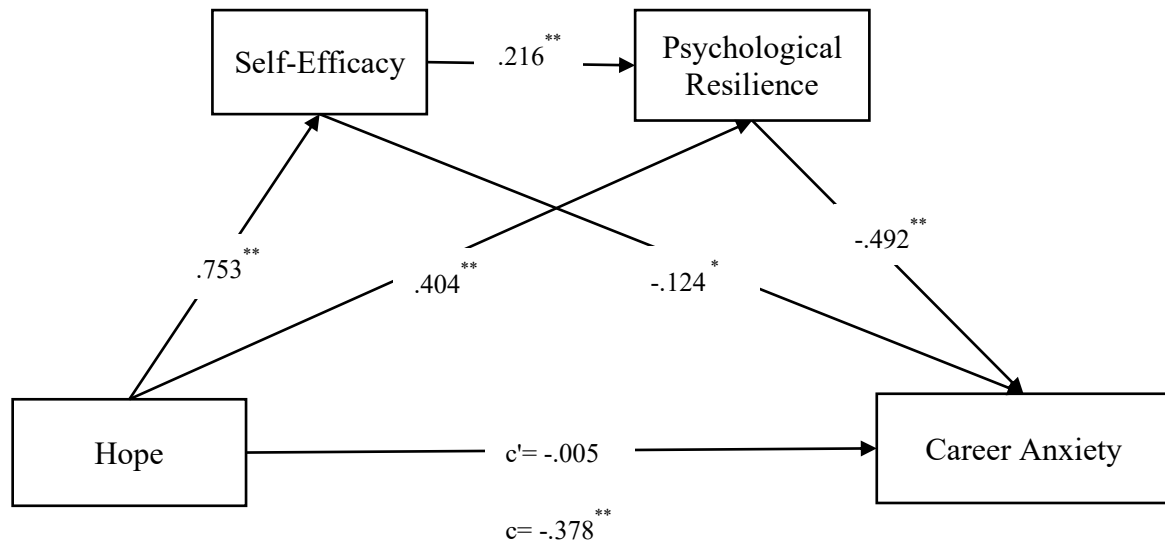
Figure 1. Serial multiple mediation analysis * $p < .05$, ** $p < .01$

Table 2. Direct, Indirect, and Total Effects of Hope on Career Anxiety

	Coefficient	95% CI	
		LL	UL
Hope → Self-Efficacy → Career Anxiety	-.093	-.175	-.011
Hope → Psychological Resilience → Career Anxiety	-.199	-.304	-.112
Hope → Self-Efficacy → Psychological Resilience → Career Anxiety	-.080	-.124	-.044
Total effect	-.378	-.492	-.265
Direct effect	-.005	-.150	.139
Total indirect effect	-.373	-.505	-.252

Note. Values shown are unstandardized coefficients.

Discussion and Conclusion

In this study, hope was negatively related to career anxiety among vocational high school students; however, when self-efficacy and psychological resilience were included in the model, the direct effect of hope on career anxiety was found to be non-significant. Nevertheless, both the individual indirect pathways through self-efficacy and psychological resilience and the sequential indirect pathway (hope → self-efficacy → psychological resilience → career anxiety) were significant. This pattern suggests that hope functions not merely as a protective factor that directly reduces career anxiety on its own but rather as a higher-order psychological resource that operates through students' sense of self-efficacy and ability to recover in the face of uncertainty. In other words, hope initiates students' orientation toward the future; however, the effect of this resource on career anxiety materializes through the more immediate psychological processes of perceived competence and resilience. In this regard, the findings align with other studies indicating that hope serves as a protective resource in anxiety processes related to employment and career development (Belle et al., 2022; Circir et al., 2023; Hirschi et al., 2015).

Another finding highlights the mediating role of self-efficacy. The results indicate that hope

significantly and positively predicts self-efficacy and that self-efficacy, in turn, significantly reduces career anxiety both indirectly and directly. This suggests that simply holding future-oriented hope is not sufficient on its own; anxiety is reduced more effectively when this hope is supported by cognitive resources such as “I can fulfill career-related tasks,” “I can make the right choice,” and “I can cope with the obstacles I face.” The persistence of self-efficacy’s direct effect, even when incorporated into the psychological resilience model, indicates that this variable is not merely an indirect source that nurtures resilience regarding career anxiety but also a more immediate determinant that directly influences cognitive evaluations in career decision-making processes. This finding is consistent with other studies showing that self-efficacy reduces career and employment anxiety among adolescents and young adults (Bilgiz Öztürk & Peker, 2025; Cırcır et al., 2023).

The role of psychological resilience as an individual mediator should be considered as a distinct mechanism. The findings indicate that hope enhances psychological resilience and that psychological resilience, in turn, significantly reduces career anxiety. These findings suggest that career anxiety is not merely a cognitive decision-making issue but is also related to emotional regulation and resilience in situations of uncertainty and pressure. Students with high psychological resilience can manage career uncertainties more successfully and are less exposed to the negative effects of anxiety. Therefore, psychological resilience plays a role in reducing the intensity of career anxiety. Previous studies also emphasize the role of psychological resilience in reducing career and employment anxiety (Wang & Zhang, 2025; Yang et al., 2025). Additionally, the positive relationship between self-efficacy and psychological resilience indicates that the perception of competence serves as a key source that fosters resilience (Cassidy, 2015; Karababa et al., 2025).

When individual and serial mediation pathways are considered together, the findings suggest that career anxiety is shaped within a multi-layered process. Hope functions as a fundamental source of motivation in guiding students toward the future and setting goals, self-efficacy transforms this motivation into an “I can do it” belief, and psychological resilience contributes to sustaining this motivation in the face of difficulties and uncertainties. This suggests that self-efficacy and psychological resilience are not interchangeable variables; rather, they are distinct yet functional psychological variables that play different roles in reducing career anxiety. Although the indirect effect mediated by psychological resilience appears descriptively higher than that mediated by self-efficacy, no statistical significance test was conducted for this difference; therefore, it cannot be concluded that psychological resilience is a stronger predictor. Nevertheless, this pattern may indicate that career anxiety is particularly closely related to emotional resilience and the capacity to cope with uncertainty.

These findings have several practical implications. Since vocational high school students face the necessity of making field, program, and career choices from an early age, interventions aimed at reducing career anxiety should not be limited to career introduction and vocational information. Multi-component interventions that simultaneously support students’ levels of hope, self-efficacy, and psychological resilience through school-based psychological counseling services may be beneficial. In this context, psychoeducational initiatives focused on goal-setting, creating small success experiences, developing alternative pathways, strengthening skills to cope with uncertainty, and providing opportunities for modeling could be prioritized. In conclusion, this study demonstrates that vocational high school students’ career anxiety is not directly explained by hope alone but is largely associated with self-efficacy and psychological resilience. The study’s primary contribution lies in revealing that the psychological structure explaining career anxiety is not one-dimensional; rather,



motivational, cognitive, and resilience-based resources operate sequentially.

Limitations and Future Research

Certain limitations must be considered when interpreting this study. First, due to the cross-sectional nature of the research, while the relationships between variables are theoretically meaningful, the lack of experimental testing limits the temporal and causal validity of the mediational model. Therefore, future longitudinal and experimental studies should more rigorously test the effects of hope, self-efficacy, and psychological resilience on career anxiety over time. Additionally, because the data were collected via self-report, participants' responses may have been influenced by their subjective perceptions. Furthermore, the study group consisted solely of vocational high school students, which limits the generalizability of the findings. Future research should involve samples from different school types, utilize multiple data sources from students, teachers, and parents, and include socioeconomic variables in the model. Finally, the internal consistency coefficient of the hope scale was lower than that of the other scales; therefore, findings related to this variable should be interpreted carefully. Future studies may re-examine the structure of hope based on its subdimensions or using alternative measurement models.

Declarations

Funding: *This research has not received any funding support.*

Ethics Statements: *For this research, ethical committee approval was obtained from the Necmettin Erbakan University Social and Human Sciences Scientific Research Ethics Committee (Decision No: 2025/445) on May 16, 2025, and data collection permission was obtained from the Ministry of National Education on July 25, 2025.*

Conflict of Interest: *The authors declare that there is no conflict of interest. The authors have not been involved in any editorial board or guest editorship process that could influence the evaluation or publication process of this study.*

Informed Consent: *Participants were informed about the purpose, scope, and data collection process of the study. It was explained that the study was voluntary, that the data obtained would be used solely for scientific purposes, and that it would be processed anonymously. Informed consent was obtained from parents before the data collection process began.*

Data Availability: *Data collected and analyzed as part of the research can be obtained from the corresponding author upon request.*

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