

# Examine the Relationship between Hope and Resilience among Secondary School Students

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## Abstract

Adolescents face unprecedented challenges in sustaining hope for the future, making it a critical focus of educational and psychological inquiry. Hope is not only a psychological strength but also a moral virtue that represents a positive orientation toward goals, aspirations, and future possibilities. In parallel, resilience refers to the ability to withstand, adapt to, and recover from stressful experiences, crises, or adversity. For secondary school students, resilience functions as a protective factor that supports adaptive development, enhances coping strategies, and fosters growth when confronting challenges. Hope and resilience jointly function as fundamental psychological resources that equip adolescents with the skills and attitudes needed to thrive in uncertain and demanding contexts. The present study explored the relationship between hope and resilience among secondary school students in Taiwan. A total of 802 students participated, and data were gathered using validated scales designed to measure both constructs. The results demonstrated a significant positive correlation between hope and resilience, suggesting that adolescents who possess higher levels of hope are more capable of adapting to adversity. Moreover, hope was identified as a strong predictor of resilience. Within the dimensions of hope, positive emotions and optimism



emerged as the strongest predictors, while empathy and interpersonal interaction also contributed meaningfully to resilience outcomes. These findings highlight the importance of fostering hope and resilience in school settings. The study concludes with practical implications for educators and policymakers, emphasizing strategies such as optimism training, emotional development, and peer support.

**Keywords:** hope, resilience, secondary school students

#### 1. Introduction

Adolescents today face unprecedented challenges in maintaining hope for the future. According to The Guardian's report, "The Covid Generation," nearly half of teenagers express despair about their future, the highest level in the study's 14-year history (Hill, 2023). The pandemic has further undermined adolescents' engagement with learning: 50% of those uninfected and 57% of those infected report a significant decline in learning motivation, accompanied by persistent concerns about their knowledge and skill development. This crisis is particularly acute among families with lower socioeconomic status, highlighting the dual impact of the pandemic and social inequality on adolescents' sense of hope (Hill, 2023).

Hope is generally defined as an individual's goal-directed thinking process, characterized by the interplay between agency—the determination to achieve goals—and pathways—the perceived strategies to attain them (Snyder, 2002). Valle et al. (2006) emphasized that hope provides adolescents with a crucial psychological advantage, buffering the impact of trauma and enhancing overall life satisfaction. Similarly, Miller and Powers (1988) described hope as a multidimensional construct encompassing interpersonal interaction, personal autonomy, goal pursuit, and adaptation to reality, framing it as a dynamic and evolving life force. Snyder (1994) further asserted that hope is not merely a psychological trait but also a moral virtue that reflects a positive orientation toward future ideals.

Closely related is the concept of resilience, defined as the ability to withstand, adapt to, and recover from stress, crises, or adversity (Lucini, 2014). For adolescents, resilience is a key protective factor in navigating developmental challenges (Anderson et al., 2020). It represents an adaptive capacity built through experiences of overcoming adversity (Gartland et al., 2011). Goldstein and Brooks (2006) stressed that resilience research should focus not only on identifying resilience factors but also on applying this knowledge to foster adolescents' capacity for positive adjustment and growth.

Within the field of adolescent mental health, hope and resilience are widely recognized as essential psychological resources for coping with life's challenges. The World Health Organization (2021) has highlighted adolescence as a pivotal stage for cultivating hope and resilience. While hope motivates youth to envision and pursue positive goals, resilience equips them with the capacity to endure and overcome setbacks. Together, they form complementary pillars of psychological well-being, enabling adolescents to thrive despite adversity.

A growing body of research has explored these constructs separately or in relation to adolescent outcomes. Empirical studies consistently demonstrate a positive correlation



between hope and resilience (Çi œk, 2021; Kwon, 2002; McClintock, 2015; Ong et al., 2006), with findings indicating that hope significantly predicts resilience (Çiçek, 2021; Yaşar et al., 2023). Kwon (2002) found that individuals with higher levels of hope generally display stronger psychological adjustment abilities. Ong et al. (2006) further clarified that hopefulness not only reduces negative emotions but also accelerates stress recovery, as highly hopeful individuals exhibit lower stress reactivity and greater emotional resilience. McClintock (2015), focusing on African-American youth, identified hope as a central protective factor composed of goal-oriented determination and pathway planning—critical elements for resilience development. More recently, Çi œk (2021) highlighted the mediating role of social support and social connection in the relationship between hope and resilience among university students. Similarly, Yaşar et al. (2023), studying high school students, confirmed that hope not only predicts resilience but also mediates the relationship between self-compassion and resilience.

Collectively, these studies provide robust evidence of the close relationship between hope and resilience. However, despite the breadth of research, there remains a relative paucity of studies focusing specifically on secondary school students. This age group is at a formative developmental stage, making the cultivation of psychological resources such as hope and resilience especially critical. To address this gap, the present study investigates the relationship between hope and resilience among secondary school students in central Taiwan. Specifically, it examines the correlation between the two constructs, and evaluates the predictive power of hope for resilience. Through this inquiry, the study aims to contribute new insights to the literature and offer practical implications for promoting adolescents' psychological well-being.

To explore this relationship in a distinct cultural context, the present study examined 802 secondary school students in Taiwan. Specifically, the study investigates the relationship between hope and resilience by addressing two research questions: 1) Is there a correlation between hope and resilience? 2) Can hope predict resilience?

#### 2. Method

## 2.1 Participants

Eight hundred two secondary school students were selected from central Taiwan. Of these, 410 were male (51.12%) and 392 were female (48.87%). In terms of grade level, 263 students were in Grade 7 (32.80%), 260 students were in Grade 8 (32.40%), and 279 students were in Grade 9 (34.80%). With respect to family socioeconomic status (SES), 281 students (35.04%) were classified as high SES, 212 (26.43%) as medium SES, and 309 (38.53%) as low SES. To protect confidentiality, all survey responses were completed anonymously.

#### 2.2 Instruments

#### 2.2.1 Hope Scale (HS)

One instrument was the Hope Scale. The Chinese version of the Hope Scale for Taiwanese secondary school students was developed by Lai and Wu (2013), drawing on existing



literature, hope-related scales, as well as interviews and survey data. The scale includes 21 items across four dimensions: Goal (6 items), Positive Emotions (5 items), Path Thinking (4 items), and Agency Thinking (6 items). Responses are rated on a six-point Likert-type scale, ranging from 1 (not at all) to 6 (completely conforming). Higher scores indicate a higher level of hope.

Regarding reliability, internal consistency analysis using Cronbach's  $\alpha$  showed coefficients of .88 for Goal, .85 for Positive Emotions, .88 for Agency Thinking, and .85 for Path Thinking. The total scale achieved an  $\alpha$  of .94, indicating strong reliability. For validity, the variance explained by the four dimensions ranged from 55% to 59%, with the total variance explained reaching 64.65%. All factor loadings were significant at p < .05, and the extracted variance exceeded the .50 criterion, providing evidence of good construct validity.

## 2.2.2 Resilience Scale (RS)

Another instrument was the Resilience Scale developed by Zhan et al. (2009). This instrument was designed to assess resilience in adolescents, based on theoretical and empirical research, and adapted from existing resilience assessment tools. The scale contains 28 items across four dimensions: Problem Solving and Cognitive Maturity (10 items), Hope and Optimism (6 items), Empathy and Interpersonal Interaction (9 items), and Emotional Regulation (3 items). Items are rated on a four-point Likert-type scale, ranging from 1 (very inconsistent) to 4 (very conforming), with higher scores reflecting stronger resilience.

Reliability analysis demonstrated high internal consistency, with Cronbach's  $\alpha$  coefficients of .91 for Problem Solving and Cognitive Maturity, .84 for Hope and Optimism, .92 for Empathy and Interpersonal Interaction, and .74 for Emotional Regulation. The total scale achieved an  $\alpha$  of .96. For validity, factor analysis revealed loadings ranging from .33 to .85 across the four dimensions, with cumulative variance explained at 54%. Correlation coefficients among the four dimensions ranged from .23 to .55, indicating moderate discriminant validity. Correlations with the total score ranged from .65 to .92 (p < .001), suggesting strong associations between each dimension and the overall construct of resilience.

## 2.3 Data Analysis

The statistical software SPSS for Windows was employed for data analysis. First, subscale scores were computed for each respondent by summing the item scores on the perceived HS and RS scales, respectively. Next, Pearson's product—moment correlation was conducted to examine the relationship between HS and RS. Subsequently, multiple regression analysis was performed with HS as the dependent variable and RS as the independent variable, to test whether students' perceived HS could be predicted by their perceived RS. All analyses employed an alpha level of .05 for statistical significance. The following tables present descriptive statistics for the study variables, the intercorrelation matrix, and the results of the simple and multiple regression analyses.



#### 3. Results

## 3.1 The Correlation between Hope and Resilience

Table 1 presents the Pearson product—moment correlation coefficients between the dimensions of HS and RS among secondary school students (N = 802). All correlations were statistically significant at the .001 level.

Overall, HS correlated strongly and positively with RS (r = .71, p < .001), indicating that students with higher hope reported greater resilience. Among the HS dimensions, Path Thinking (r = .66, p < .001) and Agency Thinking (r = .67, p < .001) demonstrated the strongest associations with RS, highlighting the importance of goal-directed strategies and motivational drive. Positive Emotions also showed a substantial correlation (r = .63, p < .001), whereas Goal exhibited a weaker yet still significant relationship (r = .54, p < .001).

At the subscale level, the highest correlation was observed between Path Thinking and Problem-Solving and Cognitive Maturity (r = .72, p < .001), followed by Agency Thinking and Problem-Solving and Cognitive Maturity (r = .70, p < .001). These results underscore the central role of strategic and motivational aspects of HS in fostering cognitive maturity and problem-solving skills. By contrast, the weakest association was between Goal and Emotional Regulation (r = .27, p < .001), suggesting that goal-setting alone contributes relatively little to emotional regulation compared with other HS components.

Table 1. Correlation Coefficients of HS and RS

RS HS	problem-solving and cognitive maturity	hope and optimism	empathy and interpersonal interaction	emotional regulation	overall
Goal	.58***	.40***	.43***	.27***	.54***
Positive Emotions	.60***	.55***	.51***	.32***	.63***
Path Thinking	.72***	.49***	.49***	.35***	.66***
Agency Thinking	.70***	.53***	.50***	.37***	.67***
Overall	.73***	.56***	.55***	.37***	.71***

*N*=802; \*\*\* *p* < .001

## 3.2 Predictive Analysis of Overall Hope on Overall Resilience

Tables 2 and 3 showed that a simple regression analysis revealed that overall HS significantly predicted overall RS, F(1, 800) = 816.35, p < .001. The correlation coefficient was R = .71, and the coefficient of determination was  $R^2 = .51$ , indicating that 51% of the variance in RS could be explained by hope. The regression coefficient was significant, t (800) = 28.57, p < .001, confirming that overall HS positively predicts overall RS.



Table 2. Summary of Simple Regression Analysis of Overall HS on Overall RS

Source of variation	SS	df	MS	F
regression	88.39	1	88.39	816.35***
residual	86.62	800	0.11	
total	175.01	801		

N=802; \*\*\* p < .001

Table 3. Summary of Predictive Analysis of Overall HS on Overall RS

CV	Overall resilience					
PV	В	β	t	R	$R^2$	
constant	1.38		24.06***			
overall	0.38	.71	28.57***	0.71	0.51	

N=802; \*\*\*\* p < .001. CV= criterion variables; PV= predictor variables; B = unstandardized coefficient;  $\beta$  = standardized coefficient.

## 3.3 Predictive Analysis of Hope Subscales on Overall Resilience

Tables 4 and 5 showed that a multiple regression analysis was conducted to examine the contribution of the four HS subscales. The overall model was significant, F(4, 797) = 222.03, p < .001, accounting for 53% of the variance in resilience (R = .73,  $R^2 = .53$ ). Positive Emotions ( $\beta = .26$ , t = 6.81, p < .001), Path Thinking ( $\beta = .29$ , t = 6.69, p < .001), and Agency Thinking ( $\beta = .23$ , t = 4.99, p < .001) were significant predictors, whereas Goal was nonsignificant. These findings suggest that emotional positivity, pathway strategies, and motivational agency are stronger predictors of RS than goal-setting alone.

Table 4. Summary of Multiple Regression Analysis of HS subscales on Overall RS

Source of variation	SS	df	MS	$\overline{F}$
regression	92.24	4	23.06	222.03***
residual	82.77	797	0.10	
total	175.01	801		

N=802; \*\*\* p < .001

Table 5. Summary of Predictive Analysis of HS Subscale and Overall RS

CV	Overall resilience					
PV	В	β	t	R	$R^2$	
constant	1.38		24.51***			
Goal	0.02	.04	1.11	.73	.53	
Positive Emotions	0.12	.26	6.81***			
Path Thinking	0.13	.29	6.69***			
Agency Thinking	0.11	.23	4.99***			

N=802; \*\*\*\* p < .001. CV= criterion variables; PV= predictor variables; B = unstandardized coefficient;  $\beta$  = standardized coefficient.



3.4 Predictive Analysis of Hope Subscales on Problem-Solving and Cognitive Maturity of Resilience

Tables 6 and 7 showed that the regression model predicting problem-solving and cognitive maturity of RS was significant, F(4, 797) = 267.43, p < .001, with R = .76 and  $R^2 = .57$ , indicating that 57% of the variance was explained. Path Thinking ( $\beta = .40$ , t = 9.93, p < .001) was the strongest predictor, followed by Agency Thinking ( $\beta = .23$ , t = 5.27, p < .001), Positive Emotions ( $\beta = .11$ , t = 2.97, p < .01), and Goal ( $\beta = .10$ , t = 2.99, p < .01). This result highlights the central role of pathway thinking in the development of cognitive maturity and problem-solving ability.

Table 6. Summary of Multiple Regression Analysis of HS subscales on *problem-solving and cognitive maturity* of RS

Source of variation	SS	df	MS	F
regression	129.10	4	32.28	267.43***
residual	96.19	797	0.12	
total	225.29	801		

N=802; \*\*\* p < .001

Table 7. Summary of Predictive Analysis of HS subscales on problem-solving and cognitive maturity of RS

CV	problem-solving and cognitive maturity					
PV	В	β	t	R	$R^2$	
constant	1.04		17.16***			
Goal	0.05	.10	$2.99^{**}$	.76	.57	
Positive Emotions	0.06	.11	$2.97^{**}$			
Path Thinking	0.22	.40	9.93***			
Agency Thinking	0.13	.23	5.27***			

N=802; \*\*p < .01; \*\*\*p < .001. CV= criterion variables; PV= predictor variables; B = unstandardized coefficient;  $\beta$  = standardized coefficient.

#### 3.5 Predictive Analysis of Hope Subscales on Hope and Optimism of Resilience

Tables 8 and 9 showed that the model predicting hope and optimism was significant, F(4, 797) = 108.35, p < .001, accounting for 35% of the variance (R = .59, R  $^2$ = .35). Positive Emotions emerged as the strongest predictor ( $\beta$  = .37, t = 8.41, p < .001), followed by Agency Thinking ( $\beta$  = .19, t = 3.59, p < .001) and Path Thinking ( $\beta$  = .15, t = 2.92, p < .01). Goal did not significantly contribute. These findings suggest that optimism is closely tied to emotional positivity and agency.



Table 8. Summary of Multiple Regression Analysis of HS subscales on hope and optimism of RS

Source of variation	SS	df	MS	$\overline{F}$
regression	111.04	4	27.76	108.35***
residual	204.18	797	0.26	
total	315.22	801		

N=802; \*\*\*p < .001

Table 9. Summary of Predictive Analysis of HS subscales on hope and optimism of RS

CV	hope and optimism					
	В	eta	t	D	$\mathbf{p}^2$	
PV				Κ	Λ	
constant	1.21		13.78***			
Goal	-0.05	08	-1.80	.59	.35	
Positive Emotions	0.23	.37	8.41***			
Path Thinking	0.09	.15	$2.92^{**}$			
Agency Thinking	0.13	.19	3.59***			

N=802; \*\*p < .01; \*\*\*p < .001. CV= criterion variables; PV= predictor variables; B = unstandardized coefficient;  $\beta$  = standardized coefficient.

3.6 Predictive Analysis of Hope Subscales on Empathy and Interpersonal Interaction of Resilience

Tables 10 and 11 showed that the regression model was significant, F(4, 797) = 89.28, p < .001, with R = .56 and  $R^2 = .31$ , explaining 31% of the variance. Positive Emotions ( $\beta = .26$ , t = 5.58, p < .001), Path Thinking ( $\beta = .17$ , t = 3.25, p < .01), and Agency Thinking ( $\beta = .15$ , t = 2.65, p < .01) were significant predictors, while Goal was nonsignificant. These results underscore the significance of both emotional and cognitive aspects of hope in promoting empathy and social interaction.

Table 10. Summary of Multiple Regression Analysis of HS subscales on empathy and interpersonal interaction of RS

Source of variation	SS	df	MS	F
regression	67.58	4	16.89	89.28***
residual	150.82	797	0.19	
total	218.39	801		

N=802; \*\*\* p < .001



Table 11. Summary of Predictive Analysis of HS subscales on empathy and interpersonal interaction of RS

CV	empathy and interpersonal interaction					
	В	β	t	D	$\mathbf{p}^2$	
PV				Κ	K	
constant	1.76		23.30***			
Goal	0.03	.06	1.31	.56	.31	
Positive Emotions	0.13	.26	5.58***			
Path Thinking	0.09	.17	5.58*** 3.25** 2.65**			
Agency Thinking	0.08	.15	2.65**			

N=802; \*\*p < .01; \*\*\*p < .001. CV= criterion variables; PV= predictor variables; B = unstandardized coefficient;  $\beta$  = standardized coefficient.

## 3.7 Predictive Analysis of Hope Subscales on Emotional Regulation of Resilience

Tables 12 and 13 showed that the regression model predicting emotional regulation was also significant, F(4, 797) = 34.32, p < .001, though with a smaller effect size (R = .38,  $R^2 = .15$ ). Agency Thinking ( $\beta = .18$ , t = 2.98, p < .01), Path Thinking ( $\beta = .13$ , t = 2.32, p < .05), and Positive Emotions ( $\beta = .11$ , t = 2.06, p < .05) significantly predicted emotional regulation, whereas Goal was nonsignificant. These findings indicate that hope partially explains emotional regulation, primarily through agency and pathway components.

Table 12. Summary of Multiple Regression Analysis of HS subscales on emotional regulation of RS

Source of variation	SS	df	MS	F
regression	50.42	4	12.60	34.32***
residual	292.72	797	0.37	
total	343.14	801		

N=802; \*\*\* p < .001

Table 13. Summary of Predictive Analysis of HS subscales on emotional regulation of RS

CV		emotional regulation				
	В	B	t	D	$\mathbf{p}^2$	
PV				Λ	Λ	
constant	1.65		15.68***			
Goal	-0.00	00	-0.04	.38	.15	
Positive Emotions	0.07	.11	$2.06^{*}$			
Path Thinking	0.09	.13	$2.32^{*}$			
Agency Thinking	0.12	.18	2.98**			

N=802; \*p < .05; \*\*p < .01; \*\*\*p < .001 CV= criterion variables; PV= predictor variables; B = unstandardized coefficient; β = standardized coefficient.

This study demonstrated a strong and consistent relationship between hope and resilience



among secondary school students. Overall hope significantly predicted resilience, explaining over half of its variance, with pathway and agency components emerging as particularly influential. Among the four hope dimensions, Path Thinking consistently stood out as the strongest predictor of problem-solving and cognitive maturity, while Positive Emotions was most closely tied to optimism, empathy, and interpersonal interaction. Although goal-setting contributed modestly to some outcomes, it was not a significant predictor in most models.

Taken together, these findings suggest that hope—particularly its strategic and motivational aspects—plays a central role in enhancing students' resilience, cognitive maturity, optimism, and social-emotional functioning. Educational programs aiming to strengthen resilience should therefore emphasize cultivating students' agency, pathway thinking, and positive emotions, while recognizing that goal-setting alone may be insufficient without the motivational and emotional resources that support its realization.

#### 4. Discussion

The results of this study indicate that the overall sense of hope and resilience among secondary school students in central Taiwan are strongly and positively correlated. Thus, students with higher levels of hope demonstrate stronger resilience. This finding is consistent with the results of previous research (Çi çek, 2021; Kwon, 2002; Ong et al., 2006). A possible explanation is that hope helps reduce negative emotions and promotes stress adjustment. Individuals with higher levels of hope tend to exhibit greater tolerance for frustration and better psychological adaptability, which in turn fosters stronger resilience (Kwon, 2002; McClintock, 2015). In the context of secondary schools, where students frequently face academic pressure, interpersonal conflicts, and challenges related to self-identity, hope enables them to adopt effective coping strategies, strengthen problem-solving abilities, and regulate emotions, thereby enhancing their adaptability and resilience.

Further analyses revealed that all dimensions of hope—goal, positive emotions, path thinking, and agency thinking—correlated significantly with aspects of resilience. This result aligns with the findings of Çiçk (2021). Clear goal provides students with direction, positive emotions help reduce stress, and agency thinking sustains persistence. Together, these factors encourage students to maintain a positive outlook, flexibly adjust their strategies, and seek diverse solutions when encountering challenges, thereby reinforcing resilience.

Regression analysis further confirmed that hope significantly predicts resilience. Specifically, the dimensions of positive emotions, path thinking, and agency thinking showed the strongest predictive effects on resilience. These findings are consistent with Yaşar et al. (2023), suggesting that students with higher hope, particularly those who sustain positive emotions and plan multiple feasible pathways, display greater resilience. In practice, students who maintain an optimistic outlook, flexibly generate solutions, and commit to sustained action are better equipped to adapt to adversity and restore psychological balance.

Among the hope dimensions, positive emotions emerged as the most powerful predictor of resilience, particularly for "hope and optimism" and "empathy and interpersonal interaction." This result supports prior research, which highlights that positive emotions aid environmental



adaptation, reduce negative outcomes, and enhance mental health (Barankin & Khanlou, 2007; Kaplan et al., 1996; Rak & Patterson, 1996). Snyder (2002) emphasized that individuals with high hope sustain positive emotions longer, strengthening their ability to cope with setbacks. Similarly, Tugade and Fredrickson (2004) argued that positive emotions broaden individuals' psychological resources, allowing them to face adversity with flexibility.

In summary, this study provides empirical evidence that hope is a critical factor in predicting resilience among secondary school students. Positive emotions, in particular, play a central role by not only regulating short-term affect but also promoting long-term psychological adaptation. These findings underscore the importance of fostering students' hope and positive emotions in educational and counseling practices to strengthen resilience, enhance coping skills, and support holistic development.

However, several limitations warrant consideration. First, the cross-sectional design prevents causal inference; longitudinal research is needed to establish how hope and resilience influence one another over time. Second, the reliance on self-report measures may introduce social desirability bias. Incorporating teacher evaluations, peer reports, or behavioral observations could strengthen validity. Third, the sample was drawn from a single region in Taiwan, which may limit generalizability. Future studies should consider diverse geographical and cultural contexts to capture a broader picture of adolescent hope and resilience. Finally, while this study focused on hope as a predictor, resilience may also contribute to the development of hope in a reciprocal manner—a possibility worth exploring through cross-lagged or experimental designs.

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#### **Authors' contributions**

Both authors contributed to the study design and manuscript revision. Huei-Ling Huang was responsible for data collection, while Prof. Su-Ching Lin drafted and approved the final version of the manuscript.

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## **Competing interests**

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

## **Informed consent**

Obtained.



# **Ethics approval**

The Publication Ethics Committee of the Macrothink Institute.

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## Provenance and peer review

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## Data availability statement

The data that support the findings of this study are available on request from the corresponding author. The data are not publicly available due to privacy or ethical restrictions.

## **Data sharing statement**

No additional data are available.

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