

## **Unique Predictors of Depression among High-Achieving Tehran Adolescents: An Integrated Model**

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Depression is a major public health concern during adolescence, particularly in academically demanding settings. Although perceived social support, educational stress, hopelessness, and coping have each been linked to depression, their combined contribution has been insufficiently examined among Iranian adolescents. Guided by an integrated psychosocial framework, this study examined whether these factors uniquely predicted depressive symptoms among high-achieving adolescents in Tehran. A quantitative cross-sectional design was used with 450 secondary school students aged 15–19 years from eight semi-government schools in Tehran. Participants completed a demographic form, the Beck Depression Inventory (BDI/BDI-II), the Multidimensional Scale of Perceived Social Support (MSPSS), the Educational Stress Scale for Adolescents (ESSA), the Beck Hopelessness Scale (BHS), and the Coping Inventory for Stressful Situations (CISS). The mean depression score was 15.27 (SD = 8.37), indicating an overall mild level of depressive symptoms. In terms of severity, 53.8% of students were in the normal range, 22.0% had mild symptoms, 14.3% had moderate symptoms, and 9.9% had severe symptoms. Multiple linear regression assessed the unique contribution of the four predictors. The regression model explained 32% of the variance in depressive symptoms,  $R^2 = .32$ ,  $F(4, 400) = 47.16$ ,  $p < .001$ . Higher coping and greater perceived social support were associated with lower depressive symptoms, whereas higher educational stress and hopelessness were associated with higher depressive symptoms. Coping emerged as the strongest unique predictor. Depressive symptoms were linked to both risk and protective psychosocial factors. School-based interventions should strengthen coping and support while addressing academic stress and hopelessness.

**Keywords:** depression, social support, educational stress, hopelessness, coping skills

Adolescent depressive symptoms remain a major mental health concern because they are associated with impaired academic functioning, poorer social adjustment, and adverse developmental outcomes that may persist into adulthood (Beirão et al., 2020; Alaie et al., 2021). This concern is especially relevant in school contexts characterized by

sustained performance pressure, competitive evaluation, and strong future-oriented expectations (Pascoe et al., 2020). Recent evidence continues to show that school-related stress and achievement pressure are meaningfully associated with adolescent distress, including depressive symptoms, and that these associations may extend beyond

adolescence into early adulthood (Luthar et al., 2021).

In Iran, the issue is particularly salient because adolescents navigate not only normative developmental challenges, but also strong academic and family expectations linked to educational success (Bazargan et al., 2023; Hosseinkhani et al., 2020).

Within this broader context, semi-government schools in Tehran represent an important but insufficiently studied setting (Karimi et al., 2021; Bazargan et al., 2023). These schools are academically selective and performance-oriented, and their students are likely exposed to a distinctive combination of examination pressure, competitive standards, and elevated expectations from both school and family (Ahmadi & Sheykhholmoluki, 2023; Jafari et al., 2021). This matters because recent scholarships have argued that students in high-achieving school environments may show substantial emotional distress despite strong academic performance, making them a psychologically important population rather than simply a high-performing subgroup (Storch & Yang, 2024) Hosseinkhani et al., 2020; Ahmadi & Sheykhholmoluki, 2023).

The novelty of the present study lies precisely here. Although adolescent depression has been widely studied, the literature is still limited in explaining how key psychosocial and cognitive factors operate together among high-achieving adolescents in academically selective settings. Much of the existing work has focused on general adolescent populations, non-selective school samples, or single risk pathways examined in isolation. Even recent studies tend to test specific bivariate or mediated associations, such as academic stress with mental distress, social support with depression, or coping with emotional adjustment, rather than estimating the unique contribution of multiple

theoretically relevant predictors within one integrated model. As a result, there is still insufficient evidence about whether depressive symptoms in high-achieving adolescents are more strongly linked to contextual stress, interpersonal protection, cognitive vulnerability, or self-regulatory coping when these factors are considered simultaneously (Zahirinia, 2024; Liu et al., 2021, Salmanian et al., 2020; Jafari et al., 2021). This gap is particularly evident in Iranian school-based research and even more so in semi-government schools, where selective admission and sustained achievement demands may create a distinct psychosocial profile. By addressing these variables simultaneously, the present study moves beyond simple correlation to offer a more robust, multi-dimensional understanding of adolescent mental health."

Perceived social support is conceptualized in the present study as a protective interpersonal resource that may reduce vulnerability to depressive symptoms. Recent evidence continues to show that stronger perceived support is associated with better adolescent mental health outcomes, while lower support is linked to greater emotional distress (Scardera et al., 2020; Letkiewicz et al., 2023; Fitzpatrick et al., 2024). At the same time, newer work suggests that support is not a uniform construct; its role may vary by source and by stress context. This is particularly relevant in academically demanding environments, where support from family, peers, and teachers may shape how students interpret and manage school-related pressure (Tomás et al., 2020; Lasarte et al., 2020). By contrast, adolescents who perceive lower levels of support may be more vulnerable to distress when academic and social pressures intensify (Scardera et al., 2020; Fitzpatrick et al., 2024). In the present study, therefore, perceived social support is treated as an independent contextual factor

associated with depressive symptoms, rather than as a coping strategy or a mediating mechanism.

Educational stress is treated here as a central contextual risk factor. In adolescence, school demands are developmentally consequential, and recent studies have reinforced the view that academic pressure is not merely an educational issue but a mental health issue. Newer longitudinal evidence indicates that academic pressure predicts depressive symptoms and self-harm risk, while recent school-based studies continue to identify academic stress as a significant correlate of adolescent emotional difficulties (Pascoe et al., 2020; Wuthrich et al., 2020; Steare et al., 2023). Earlier Iranian research also supports the relevance of cognitive vulnerability and psychosocial stressors in youth mental health. Depression-related distress in Iranian adolescents and young adults has been linked to broader psychosocial difficulties, including stress and loneliness (Ostovar et al., 2016, 2017). These findings provide useful context for the present study, which extends this line of work by examining multiple psychosocial and cognitive factors together in a high-achieving school population. For students in selective schools, such pressure may be especially intense because performance is not only expected but normalized. For students in semi-government schools, who study in comparatively selective and competitive educational environments, educational stress is therefore not a peripheral condition but a core contextual demand that may be directly associated with depressive symptoms.

Hopelessness contributes to the cognitive vulnerability component of the present model. It refers to negative expectations about the future and a diminished sense that desired outcomes can be achieved or influenced. Shankar & Gibb, (2025) indicates

that hopelessness-related cognitive patterns remain strongly associated with adolescent depressive outcomes, supporting the continued relevance of cognitive vulnerability perspectives in contemporary youth mental health research. In high-pressure school settings, hopelessness may become especially salient when students interpret setbacks as stable, global, or self-defining, thereby intensifying depressive risk (Marchetti et al., 2023; Marchetti et al., 2021). In academically demanding settings, hopelessness may become especially salient when students interpret educational setbacks as stable, uncontrollable, or self-defining. Under such conditions, future-oriented pessimism may intensify emotional distress and strengthen vulnerability to depressive symptoms (Marchetti et al., 2021; Barlati et al., 2022).

Coping strategies represent the self-regulatory process component of the model. Consistent with transactional stress theory, coping refers to the cognitive and behavioral efforts individuals use to manage internal and external demands. Recent research continues to show that coping is not simply an accompanying correlation of depression but a meaningful explanatory process: more adaptive coping patterns are associated with fewer depressive symptoms, whereas less effective coping is associated with poorer emotional adjustment (Liu et al., 2024; Hlatshwayo & Wild, 2025; Ng et al., 2024). This is especially important in high-achieving school settings, where students face recurring academic demands and may differ substantially in how they regulate those demands psychologically.

The present study is therefore grounded in an integrated psychosocial-cognitive framework that brings together Beck's cognitive theory, hopelessness theory and Lazarus and Folkman's transactional model of stress and coping. This integration is theoretically

justified and empirically timely. Recent studies continue to support the relevance of cognitive vulnerability, academic stress appraisal, perceived support, and coping processes in adolescent mental health, but they also suggest that these mechanisms are too often examined separately (Bu et al., 2025; Shankar & Gibb, 2025). By testing perceived social support, educational stress, hopelessness, and coping strategies within the same multivariable model, the present study aims to clarify their unique associations with depressive symptoms among high-achieving adolescents in Tehran's semi-government schools. In doing so, it addresses a more specific and underdeveloped gap in the literature: not whether these factors matter in adolescence generally, but how they operate together in a selective, high-pressure educational context where distress may remain hidden behind academic success. (Marchetti et al., 2021; Yang et al., 2025).

## **Method**

### **Study Design**

This study used a quantitative, cross-sectional correlational design to examine the unique associations of perceived social support, educational stress, hopelessness, and coping strategies with depressive symptoms among adolescents in semi-government schools in Tehran, Iran. Data was collected at a single time point, allowing the study to estimate associations among variables and test their unique contributions within a multivariable framework without implying causality. Although the broader study also examined mediation, the present paper focuses specifically on the multivariable regression model in which depressive symptoms served as the outcome variable.

### **Sampling and Participants**

The study was conducted in Tehran, a major educational center with a highly competitive academic environment. Participants were 405 Iranian adolescents aged 15 to 19 years recruited from eight semi-government high schools across four geographical zones of the city. A multistage sampling procedure was employed. Four zones representing north, east, center, and south Tehran were first selected, after which one boys' school and one girls' school were chosen from each zone. Students were then selected through proportionate stratified random sampling to ensure adequate representation across school strata. Cochran's formula indicated a minimum required sample of 375 participants. To allow for potential attrition, additional questionnaires were distributed, and 450 usable responses were retained following data screening.

### **Measures**

Depressive symptoms were assessed using the Persian version of the Beck Depression Inventory-II (BDI-II), a 21-item self-report measure of symptoms experienced during the previous two weeks. Items are scored from 0 to 3, yielding a total score range of 0 to 63. Perceived social support was measured using the Multidimensional Scale of Perceived Social Support (MSPSS), a 12-item instrument rated on a 7-point Likert scale that assesses support from family, friends, and significant others. Educational stress was assessed using the Educational Stress Scale for Adolescents (ESSA), a 16-item, 5-point Likert measure covering study pressure, workload, concern about grades, self-expectation, and academic despondency. Hopelessness was measured using the Beck Hopelessness Scale (BHS), a 20-item true-false measure assessing pessimism, loss of motivation, and negative expectations about

the future. Coping strategies were assessed using the Coping Inventory for Stressful Situations (CISS), a 48-item, 5-point Likert measure assessing task-oriented, emotion-oriented, and avoidance-oriented coping, with 16 items in each subscale. In the main regression model, coping was also treated as an overall coping resource. A researcher-developed demographic form was used to collect information on gender, age, grade level, cumulative grade point average, and family income.

**Reliability**

Internal consistency was acceptable across the study measures. Cronbach’s alpha coefficients were .821 for depressive symptoms, .849 for perceived social support, .784 for educational stress, .714 for hopelessness, and .789 for coping strategies (Table 1).

*Table 1*  
Reliability coefficients for the pilot and actual study

Variable	No of Items	Cronbach’s Alpha Pilot Study (N= 50)	Cronbach’s Alpha Actual Study (N= 405)
Depression	21	.837	.821
Social Support	12	.892	.849
Educational stress	16	.713	.784
Hopelessness	20	.749	.714
Coping strategies	48	.752	.789

**Data Analysis**

Data were analyzed using descriptive and inferential statistics. Descriptive statistics, including frequencies, percentages, means, and standard deviations, were used to summarize the demographic characteristics of the respondents and the main study variables. Pearson correlation analysis was conducted to examine the bivariate relationships among perceived social support, educational stress, hopelessness, coping strategies, and depressive symptoms. Multiple linear regression analysis was then performed to determine the unique contribution of perceived social support,

educational stress, hopelessness, and coping strategies in predicting depressive symptoms.

Prior to conducting the multiple regression analysis, the assumptions underlying the model were examined. Normality, linearity, and homoscedasticity were assessed through inspection of histograms, normal probability plots, and scatterplots of residuals. In addition, multicollinearity diagnostics were performed using tolerance and variance inflation factor (VIF) values. Multicollinearity diagnostics showed that tolerance values ranged from .354 to .537 and VIF values ranged from 1.862 to 2.825, indicating no evidence of problematic multicollinearity (see Table 2).

*Table 2*  
Multicollinearity diagnostics using tolerance and VIF

<b>Variables</b>	<b>Tolerance</b>	<b>VIF</b>	<b>Evidence of Multicollinearity</b>
Social Support	.537	1.862	No evidence
Educational Stress	.491	2.037	No evidence
Hopelessness	.528	1.894	No evidence
Coping Strategies	.354	2.825	No evidence

**Ethical Considerations**

Ethical approval was obtained from the Ethics Committee for Research Involving Human Subjects, Universiti Putra Malaysia (JKEUPM-2019-280), together with authorization from the relevant educational authorities in Iran and the participating schools. Because the study involved minors, written parental consent and student assent were obtained prior to data collection. Participants were informed that participation was voluntary and that they could withdraw at any time without penalty. Data was collected using self-report questionnaires administered during school hours under research supervision. The instruments had previously been used in Iranian research, and the study reports that translation into Persian and back-translation into English, as well as related psychometric procedures, were carried out under the supervision of Azmoonyar Pooya, University of Tehran.

**Result**

The sample comprised 405 students with a nearly equal gender distribution, including 49.4% females and 50.6% males. In terms of age, most participants were 17 years old ( $n = 177, 43.7%$ ), followed by 18-year-olds ( $n = 108, 26.7%$ ) and 16-year-olds ( $n = 87, 21.5%$ ). A smaller proportion were 15 years

old ( $n = 26, 6.4%$ ). Overall, the sample was composed predominantly of students in late adolescence, indicating that the findings mainly reflect the experiences of older secondary school students.

With respect to academic performance, most participants had CGPAs between 19.10 and 19.50 ( $n = 210, 51.9%$ ), followed by those with CGPAs ranging from 18.51 to 19.00 ( $n = 125, 30.9%$ ). Smaller proportions fell within the 19.51 to 20.00 range ( $n = 63, 15.6%$ ) and the 18.00 to 18.50 range ( $n = 7, 1.6%$ ). These results indicate that the sample consisted largely of high-achieving students within the selected schools.

In terms of grade level, the largest proportion of respondents were in Grade 11 ( $n = 166, 40.9%$ ), followed by Grade 12 ( $n = 148, 36.5%$ ) and Grade 10 ( $n = 91, 22.6%$ ). This suggests that the sample was predominantly drawn from the upper secondary grades, with reasonably balanced representation across the three grade levels.

The geographic distribution of participants across the selected zones was relatively balanced. The largest proportion came from the East zone ( $n = 110, 27.2%$ ), followed closely by the North ( $n = 109, 26.9%$ ) and Center ( $n = 101, 24.9%$ ) zones. The South zone contributed the smallest proportion of participants ( $n = 85, 21.0%$ ).

Regarding family income, most participants came from households with monthly family income above USD 1,501 ( $n = 235, 58.0%$ ).

This was followed by those from households with incomes between USD 1,001 and 1,500 ( $n = 98, 24.2\%$ ), whereas a smaller proportion reported family income below USD 1,000 ( $n = 72, 17.8\%$ ). Overall, the

sample was characterized by relatively advantaged socioeconomic backgrounds (Table 3).

*Table 3*  
Distribution of sample size by selected zone

Zones	Selected High Schools	Gender Category	Total Population Of Students	Proportion Sample	Total Sample
Zone 2 (North)	Farhang	Male	756	25.77%	116
	Farzanegan	Female			
Zone 4 (East)	Abo Ali Sina	Male	882	29.78%	134
	Emam Mohammad Bagher	Female			
Zone 6 (Center)	Javidan	Male	653	22%	99
	Hazrat Zahra	Female			
Zone 16 (South)	Roshd	Male	660	22.45%	101
	Pardis	Female			
Total	8 schools		2960	100%	450

### Correlational Analysis

Pearson correlation analysis revealed that perceived social support was significantly and negatively associated with depressive symptoms,  $r = -.316, p < .01$ . Educational stress was significantly and positively associated with depressive symptoms,  $r = .243, p < .01$ , as was hopelessness,  $r = .180, p < .01$ . Coping strategies were significantly and negatively associated with depressive symptoms,  $r = -.326, p < .01$ . Overall, these findings indicate that higher perceived social support and coping were associated with lower depressive symptoms, whereas higher educational stress and hopelessness were

associated with higher depressive symptoms (Table 4).

### Multiple Regression Analysis

Multiple linear regression analysis was performed to examine the unique contributions of perceived social support, educational stress, hopelessness, and coping strategies to depressive symptoms among Iranian adolescents attending semi-government schools. The overall model was statistically significant,  $F(4, 400) = 47.16, p < .001$ , and explained 32% of the variance in depressive symptoms ( $R = .57, R^2 = .32$ , adjusted  $R^2 = .31$ ; standard error of the estimate = 6.94).

Table 4  
Pearson correlations

		Depression	Social Support	Educational Stress	Hopelessness	Coping Strategies
Depression	Pearson Correlation	–				
	Sig. (2-tailed)					
Social Support	Pearson Correlation	-.316**	–			
	Sig. (2-tailed)	.000				
Educational Stress	Pearson Correlation	.243**	.111*	–		
	Sig. (2-tailed)	.000	.025			
Hopelessness	Pearson Correlation	.180**	-.064	.107*	–	
	Sig. (2-tailed)	.000	.200	.031		
Coping Strategies	Pearson Correlation	-.326**	.197**	-.185**	.013	–
	Sig. (2-tailed)	.000	.000	.000	.790	

Note.  $p < .05$ ,  $p < .01$  (two-tailed).

\*\* Indicates correlation is significant at the .01 level (two-tailed).

\* Indicates correlation is significant at the .05 level (two-tailed).

Table 5  
Multiple linear regression analysis predicting depressive symptoms (N = 405)

Predictor	B	SE B	$\beta$	t	p
Constant	22.43	3.81	-0.29	5.89	< .001
Social support	-0.19	0.03	-0.22	-6.36	< .001
Educational stress	0.20	0.04	0.14	4.79	< .001
Hopelessness	0.49	0.15	0.23	3.28	.001
Coping strategies	-0.09	0.02	-0.29	-5.10	< .001

Note.  $R = .57$ ,  $R^2 = .32$ , adjusted  $R^2 = .31$ ,  $F(4, 400) = 47.16$ ,  $p < .001$ , SE of the estimate = 6.94. B = unstandardized coefficient; SE B = standard error of the unstandardized coefficient;  $\beta$  = standardized coefficient.

All four predictors made significant unique contributions to the model. Perceived social support was a significant negative predictor of depressive symptoms,  $B = -0.19$ ,  $SE = 0.03$ ,  $\beta = -0.22$ ,  $t = -6.36$ ,  $p < .001$ . Educational stress significantly and positively predicted depressive symptoms,  $B = 0.20$ ,  $SE = 0.04$ ,  $\beta = 0.14$ ,  $t = 4.79$ ,  $p < .001$ . Hopelessness also showed a significant positive association with depressive symptoms,  $B = 0.49$ ,  $SE = 0.15$ ,  $\beta = 0.23$ ,  $t = 3.28$ ,  $p = .001$ . Coping strategies emerged as a significant negative predictor,  $B = -0.09$ ,  $SE = 0.02$ ,  $\beta = -0.29$ ,  $t = -5.10$ ,  $p < .001$ . Based on the standardized coefficients, coping showed the strongest unique association with depressive symptoms among the predictors examined (Table 5).

### Discussion

The present study found that depressive symptoms were common among high-achieving adolescents in semi-government schools in Tehran. Although the largest proportion of students fell within the normal range, the overall mean score was in the mild range, and nearly half of the sample (46.2%) reported mild to severe depressive symptoms. This pattern is consistent with recent evidence showing that adolescent depressive symptoms are common and frequently present at subclinical or mild-to-moderate levels (Madigan et al., 2023; Mofatteh, 2020).

The proportion of students with moderate and severe depressive symptoms is especially noteworthy because elevated depressive symptoms during adolescence are associated with impaired functioning and increased risk of adverse outcomes across later development (Copeland et al., 2021). In academically demanding school environments, these findings strengthen the rationale for treating depressive symptoms as

an important school mental health outcome requiring early identification and preventive attention.

The findings are also consistent with the study's integrated theoretical framework. From a transactional perspective, adolescents' emotional outcomes depend partly on how they appraise educational demands and the resources available to manage them, whereas cognitive theory emphasizes the role of maladaptive beliefs and negative interpretations in increasing vulnerability to depression. Recent evidence linking academic pressure to adolescent mental health problems supports this broader framework (Stearns et al., 2023).

Although female students had higher mean depressive-symptom scores than male students, the difference was not statistically significant. This suggests that gender alone was not a strong explanatory factor in this sample. One possible interpretation is that the common academic pressures of semi-government schools may have affected both boys and girls in relatively similar ways. This interpretation should remain cautious, however, because the present study did not test gender-specific mechanisms directly. Overall, the finding suggests that psychosocial factors such as educational stress, hopelessness, perceived social support, and coping may be more central than gender in explaining depressive symptoms in this context.

Perceived social support is conceptualized in the present study as a protective interpersonal resource associated with lower depressive symptoms in adolescence. Recent evidence suggests that adolescents who perceive stronger support from family, peers, and other significant relationships tend to report fewer depressive symptoms and better psychosocial adjustment (Låftman et al., 2025; Liu et al., 2023). In academically demanding school settings, such support may be especially

important because it can provide emotional reassurance, practical guidance, and a stronger sense that stressors are manageable (Liu et al., 2022). Educational stress is another central variable because adolescence is a developmental period in which school demands become increasingly consequential for emotional well-being. Recent evidence shows that academic pressure is consistently associated with adolescent depression and related mental health difficulties, underscoring its importance as a psychosocial risk factor in school-based research (Stearns et al., 2023). Hopelessness adds a distinct cognitive dimension to the model. Rather than being treated simply as a byproduct of low mood, it is conceptualized as a cognitive vulnerability involving negative expectations about the future and a reduced sense of control over desired outcomes. Recent longitudinal evidence indicates that negative future-related thinking, including hopelessness, predicts depressive symptoms in adolescents (Tang et al., 2024). Coping strategies are equally important because they reflect how adolescents respond to academic and emotional demands. In this study, coping is conceptualized in line with transactional stress theory and examined across task-oriented, emotion-oriented, and avoidance-oriented dimensions. Taking together, these variables support an integrated account in which depressive symptoms in high-pressure school settings are associated with the combined influence of interpersonal resources, contextual stress, cognitive vulnerability, and coping processes (Stapley et al., 2023; Marchetti et al., 2021).

Multiple linear regression showed that perceived social support, educational stress, hopelessness, and coping strategies were all significant unique predictors of depressive symptoms among Iranian adolescents attending semi-government schools in Tehran. Perceived social support was a

significant negative predictor, indicating that higher perceived support was associated with lower depressive symptoms after controlling for the other variables. This is consistent with recent evidence showing that supportive relationships are associated with lower depressive symptoms in adolescents and young adults. In the context of Tehran's semi-government schools, perceived social support therefore appears to function as an important protective interpersonal resource. Educational stress was a significant positive predictor, indicating that greater academic strain was associated with higher depressive symptoms even after the other predictors were considered. This finding is consistent with current evidence linking academic pressure to adolescent depression and broader mental health difficulties. Hopelessness was also a significant positive predictor, suggesting that more negative expectations about the future were associated with higher depressive symptoms. Recent longitudinal work continues to support the importance of hopelessness-related cognitive vulnerabilities in adolescent depressive outcomes. Coping strategies emerged as the strongest unique predictor and significantly negatively predicted depressive symptoms, indicating that students with greater coping resources reported lower depressive symptoms after controlling for the other variables. Recent evidence also supports the relevance of coping-related processes to adolescent depressive symptoms over time. Taken together, these findings suggest that depressive symptoms in this population are associated not only with academic stress and cognitive vulnerability, but also with the availability of interpersonal and self-regulatory resources.

Taken together, the findings support an integrated psychosocial model of depressive symptoms in which educational stress and hopelessness operate as risk-related factors,

whereas perceived social support and coping operate as protective factors. Within this model, coping emerged as the strongest unique predictor, suggesting that adolescents' responses to stress may be at least as important as the stressors themselves in understanding depressive symptoms in high-pressure school environments. This broader pattern is consistent with recent evidence showing that academic pressure is linked to adolescent depression and related mental health difficulties, while interpersonal support and coping-related processes remain important protective correlations (Kaepler et al., 2024; Scardera et al., 2020; Steare et al., 2023).

A key contribution of the present study is that coping strategies showed the largest standardized coefficient in the final regression model. After controlling perceived social support, educational stress, and hopelessness, greater coping was associated with lower depressive symptoms. This finding is important because it suggests that psychological adjustment in academically demanding settings may depend not only on the level of stress adolescents face, but also on the resources they use to manage that stress. In semi-government schools in Tehran, where students are likely to experience sustained performance demands and future-oriented pressure, stronger coping resources may help adolescents regulate distress, respond more constructively to academic challenges, and maintain better psychological functioning. Because this study was cross-sectional, however, coping should be interpreted as the strongest unique statistical predictor in the model rather than as a confirmed causal mechanism (Kaepler et al., 2024; Kuo et al., 2024; Wilson et al., 2025).

The integrated pattern of results also aligns most closely with transactional and cognitive perspectives on adolescent depression.

Educational stress remained a significant positive predictor even after the other psychosocial variables were considered, which suggests that academic pressure has a distinct association with depressive symptoms rather than merely reflecting overlap with other vulnerabilities. Hopelessness was the next strongest positive predictor, reinforcing the importance of negative future-oriented cognition within adolescent depression. At the same time, perceived social support showed a significant unique negative association, suggesting that support from family, peers, and other important relationships may function as an important contextual resource within adolescents' broader stress and coping processes. The most defensible conclusion, therefore, is that depressive symptoms in this sample are associated with the combined influence of academic strain, cognitive vulnerability, interpersonal resources, and coping capacity, rather than any single factor in isolation (Scardera et al., 2020; Steare et al., 2023; Tang et al., 2024).

The findings also have practical implications. They suggest that prevention and intervention efforts in high-pressure school settings should address not only depressive symptoms themselves, but also modifiable psychosocial conditions, particularly academic stress, coping capacity, perceived social support, and hopelessness-related cognitions. At the same time, the results should be interpreted cautiously because cross-sectional designs support statistical association and prediction, not causal inference; reciprocal relations are also plausible, such that depressive symptoms may influence perceived support, coping, and future-related thinking over time.

### **Strengths and Limitations**

This study has several strengths. First, it examined depressive symptoms among high-achieving adolescents in semi-government schools, a population that remains underrepresented in the literature despite being exposed to substantial academic demands. Second, the study adopted an integrated psychosocial framework by examining perceived social support, educational stress, hopelessness, and coping strategies within the same multivariable model. This allowed the analysis to move beyond simple bivariate associations and identify the unique statistical role of each factor while the others were held constant. Third, the findings have practical relevance because they highlight multiple modifiable psychosocial correlates of depressive symptoms in a competitive educational context, with coping emerging as the strongest unique predictor.

Several limitations should also be acknowledged. Most importantly, the cross-sectional design does not permit causal inference, and the observed associations may be reciprocal. For example, depressive symptoms may influence how adolescents perceive social support, appraise educational stress, and use coping strategies, rather than only the reverse. In addition, all variables were assessed through self-report measures, which may have introduced shared method variance and response bias. The study was

also conducted in semi-government schools in Tehran, and the findings therefore may not generalize to adolescents in other educational settings, regions, or cultural contexts. Finally, although the broader thesis examined mediation, the present paper focused specifically on the multivariable regression model; accordingly, the findings should be interpreted as evidence of significant unique associations rather than indirect pathways or mechanisms.

### **Conclusion**

This study contributes to the literature by showing that depressive symptoms among high-achieving adolescents in semi-government schools in Tehran are associated with the combined influence of educational stress, hopelessness, perceived social support, and coping strategies. Within this model, coping emerged as the strongest unique predictor, underscoring the importance of adolescents' self-regulatory responses to stress in academically demanding settings. While causal inferences cannot be drawn from the cross-sectional design, the findings identify several modifiable psychosocial factors that may be relevant targets for school-based mental health prevention and early intervention. Overall, the study supports a multidimensional understanding of adolescent depressive symptoms in competitive school contexts and highlights the value of integrated approaches that address stress, cognition, support, and coping together.

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