



Parental Education Participation as a Moderated Mediation Effect on the Influence of Academic Stress on Career Maturity via School Life Satisfaction in Korean High School Students

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ABSTRACT

The problem and the aim of the study. South Korea's intensely competitive and exam-driven educational environment places considerable academic stress on high school students, potentially impeding their career development and psychological adjustment. Despite the recognized significance of school life satisfaction and parental education participation, their roles as mediators and moderators in the relationship between academic stress and career maturity remain unclear. *This study aims* to investigate the relationship between academic stress and career maturity among South Korean high school students, focusing on the mediating role of school life satisfaction and the moderated mediation effect of parental education participation.

Research methods. The study used data from the 16th wave of the Korean Welfare Panel Study (KOWEPS), drawing on a sample of 325 high school students. Using SPSS 24.0 and PROCESS macro 4.2 (Model 4 and Model 7), mediation and moderated mediation analyses were conducted to examine the hypothesized relationships.

Results. Mediation analysis showed that school life satisfaction fully mediated the relationship between academic stress and career maturity (indirect effect = -0.047, 95% CI: -0.075 to -0.021). The direct effect was not significant. Moderated mediation analysis further revealed that the indirect effect varied by the level of parental involvement, with stronger negative effects at moderate and high levels (e.g., $M+1SD$: effect = -0.057, 95% CI: -0.098 to -0.022).

Conclusion. This study emphasizes the role of school life satisfaction in the relationship between academic stress and career maturity, with parental education participation moderating this effect. Interventions to improve school life satisfaction and promote autonomy-supportive parental engagement are essential for supporting career development in high-stress environments.

KEYWORDS

academic stress, school life satisfaction, career maturity, parental education participation, moderated mediation

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INTRODUCTION

Adolescence is a pivotal developmental stage characterized by rapid physical and psychological changes, serving as a bridge between childhood and adulthood [1]. During this period, individuals transition from the dependency of childhood to the autonomy of adulthood, necessitating future planning and preparation, which often leads to increased stress levels [2].

Given that adolescents spend a significant portion of their time in school settings, relationships with peers and teachers become increasingly important, providing essential psychological support [3]. However, the academic demands inherent in school life can significantly influence adolescents' life satisfaction and career decision-making processes. Specifically, the discrepancy between expected and actual academic performance can lead to academic stress, manifesting as depression, anxiety, and feelings of helplessness [4].

This phenomenon is not confined to a single region but is a global concern. A study by WHO/Europe and the Health Behaviour in School-aged Children (HBSC) in 2024, encompassing approximately 280,000 adolescents across 44 countries in Europe, Central Asia, and Canada, reported that adolescents are experiencing significant academic pressure [5]. Furthermore, Seiffge-Krenke [6] conducted a study involving 12,172 adolescents from 21 countries, revealing that while adolescents in Central Europe and North America reported relatively low levels of school-related stress, those in Southern Europe, Latin America, the Middle East, and Asia, including South Korea, reported higher stress levels.

In the context of South Korea, adolescents face substantial academic stress due to a competitive entrance examination system and high societal expectations regarding academic achievement. This stress can impede career decision-making [7] and negatively affect school life satisfaction [8]. Consequently, academic stress serves as a barrier to career maturity [9], hindering both cognitive and affective exploration and preparation for future careers [10].

Career maturity is influenced not only by individual factors such as self-esteem, self-efficacy, anxiety, and depression but also by various social factors, including relationships with teachers, parents, peers, and the school environment [11]. For instance, higher levels of self-esteem and self-efficacy in adolescents are associated with increased career maturity [12]. Additionally, greater parental support for career development positively impacts career maturity and adaptability [13]. Moreover, a supportive school environment and a sense of belonging among peers contribute to life satisfaction, which, in turn, can positively influence career maturity [14].

While academic stress does not directly influence career maturity, it significantly affects it indirectly through mediating factors such as school connectedness and subjective well-being. Kim and Kim [9] found that these mediators play a crucial role in the relationship between academic stress and career maturity among adolescents. Furthermore, a longitudinal study by Lee and Kim [15] demonstrated that academic stress has a long-term causal impact on school life satisfaction, which in turn affects career maturity. These findings underscore the importance of addressing academic stress to promote better career development outcomes for high school students.

The school environment, where adolescents spend a significant portion of their time, plays a pivotal role in shaping their experiences of academic stress and career maturity. Positive relationships with teachers and peers contribute to school life satisfaction, which can mitigate the adverse effects of academic stress. Wentzel et al. [16] highlighted that meaningful social interaction within the school context provide essential social support, reducing academic stress levels. Similarly, Hoferichter et al. [17] emphasized the protective role of teachers and parents as primary sources of social support during stressful academic situations. In particular, teachers, through continuous interaction in the formal school setting, significantly influence students' school life satisfaction [18]. Moreover, positive peer relationships have been associated with higher levels of career maturity [19]. Telef et al. [20] further demonstrated that school life satisfaction mediates the negative impact of academic stress on career maturity, suggesting that fostering supportive relationships within the school can enhance students' career development.

Parental involvement also plays a critical role in adolescents' academic and career development. Gürbüz [21] proposed that parents function as moderating variables in the relationship between

academic stress and career maturity. As adolescents seek greater autonomy, the direct influence of parents may diminish; however, when parents acknowledge their children's autonomy and actively participate in educational support activities, they positively influence their children's self-esteem and school adaptation [22]. Youn et al. [23] found that parental emotional and physical support enhances cognitive factors like career self-efficacy, thereby positively impacting career maturity, particularly among Korean adolescents. This phenomenon is attributed to Korea's unique educational environment, characterized by university hierarchies and intense entrance exam competition, where parental support often extends beyond assistance to become a significant motivational factor [24]. However, excessive parental control can hinder adolescents' autonomy, leading to decreased life satisfaction and school adaptation [25]. These findings suggest that while parental educational involvement can serve as positive support, its methods and intensity must be carefully considered to avoid adverse outcomes. Therefore, a multifaceted analysis of parental educational participation is necessary to understand its impact on the relationship between academic stress and career maturity among adolescents.

This study thus investigates: (1) whether school life satisfaction mediates the relationship between academic stress and career maturity, and (2) whether parental educational involvement moderates this mediating pathway. The goal is to provide actionable insights for both school-based career guidance and family-level educational support strategies that can enhance adolescents' career development in high-stress contexts.

MATERIALS AND METHODS

Research Model

The research model of this study is illustrated in Figure 1. As shown in the figure, the model hypothesizes that school life satisfaction mediates the relationship between academic stress and career maturity among adolescents, while parent education participation moderates this mediating pathway.

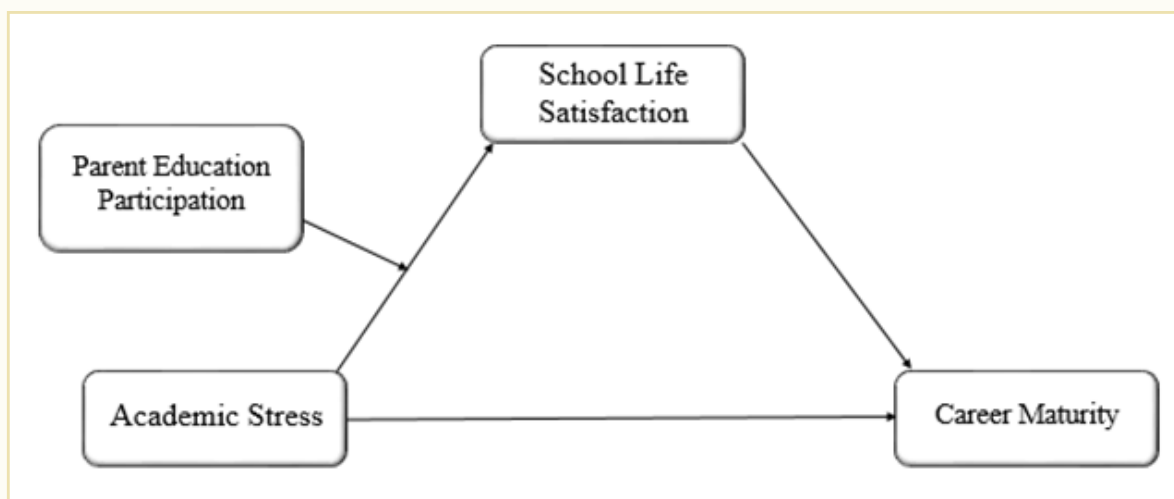


Figure 1 Research Model

Data Collection Procedures and Characteristics of the Study Sample

This study utilized data from the 16th wave of the Korea Welfare Panel Study (KOWEPS), specifically the supplementary survey on children and adolescents [26]. The analytical sample consisted of 325 high school students currently enrolled in school. Among the participants, 52.3% were female and 47.7% were male. By grade level, 35.4% were in the 11th grade, 34.8% in the 12th grade, and 29.8% in the 10th grade. In terms of age distribution, the majority were either 17 years old (36.6%) or 18 years old (32.9%). Regarding household income, 88.9% of the students came from general-income households, while 11.1% were from low-income households.

Measurement Tools

All variables were measured using a 4-point Likert scale, where higher scores indicate stronger agreement with the statement.

Academic Stress (independent variable) was measured using four items adapted from the Seoul Panel Study of Children [27], including statements such as "I feel stressed because my school grades are not good" and "I feel stressed due to pressure about the college entrance exam." The reliability of the scale was satisfactory (Cronbach's alpha = .839).

School Life Satisfaction (mediator) was assessed using a revised version of Cavazos's School Life Scale [28]. The scale consists of nine items, such as "I enjoy school life," "I respect my teachers," and "I have a good attitude in class." Internal consistency was acceptable (Cronbach's alpha = .801).

Parent Education Participation (moderator) was measured using a four-item scale from the Korea Welfare Panel Study [26]. Example items included "My parents visit school to talk with teachers" and "My parents participate in events such as parent-teacher meetings organized by the school." This scale demonstrated adequate reliability (Cronbach's alpha = .749).

Career Maturity (dependent variable) was assessed using 21 items adapted from the Seoul Panel Study of Children [27]. Example items include "I know what I am good at" and "I often reflect on who I am." The internal consistency of this scale was high (Cronbach's alpha = .843).

Data Analysis Methods

Statistical analyses were conducted using SPSS 24.0. Descriptive statistics, reliability analyses, and correlation analyses were first performed. Mediation and moderated mediation effects were tested using PROCESS Macro Version 4.2 (Model 4 and Model 7). Bootstrapping with 5,000 samples and a 95% confidence interval was used to assess indirect and conditional effects. The conditional effects were analyzed based on three levels of the moderator variable (M , $M \pm SD$). Prior to analysis the independent and moderator variables were mean-centered to reduce multicollinearity in the moderated mediation model.

RESULTS

General Trends of Key Variables and Correlations Between Variables

Preliminary analyses examined the distributional characteristics and intercorrelations of the main study variables. The mean score for academic stress was 2.478 ($SD = 0.682$), indicating a moderate level of stress among students. The mean score for school life satisfaction was relatively high at 3.357 ($SD = 0.362$), suggesting overall positive perceptions of school experience. Parental educational involvement had a mean of 2.379 ($SD = 0.626$), slightly below the midpoint, indicating modest levels of involvement. Career maturity showed a mean of 3.107 ($SD = 0.342$), reflecting a relatively high level of career preparedness.

To evaluate the normality of the data, skewness and kurtosis values were assessed. The absolute values of skewness ranged from 0.001 to 0.462, and those of kurtosis ranged from 0.090 to 0.381, all of which fall within the acceptable range ($|skewness| < 2$, $|kurtosis| < 7$), suggesting that the variables are approximately normally distributed.

Furthermore, when examining the correlations between the major variables with a focus on the dependent variable, career maturity, it was found that higher levels of academic stress were significantly associated with lower levels of career maturity ($r = -.117$, $p < .05$). In contrast, higher levels of school life satisfaction ($r = .420$, $p < .001$) and greater parental education participation ($r = .169$, $p < .001$) were significantly associated with higher levels of career maturity. Correlations are summarized in the text (no table presented). These results further support the hypothesized relationships among the key variables, suggesting both direct and indirect pathways influencing career maturity in Korean high school students.

Table 1

Descriptive Statistics for Major Variables <N=325>

		Mean		Skewness		Kurtosis	
		Statistics	S.D.	Statistics	S.E.	Statistics	S.E.
Independent	Academic Stress	2.478	.682	-.462	.135	-.192	.270
Mediating	School Life Satisfaction	3.357	.362	-.092	.135	-.381	.270
Moderating	Parent Education Participation	2.379	.626	.283	.137	.090	.272
Dependent	Career Maturity	3.107	.342	-.001	.135	.047	.270

Mediating Effect of School Life Satisfaction

The academic stress of high school students was found to have a negative impact on career maturity (Table 2). Specifically, as academic stress increased, career maturity decreased (Coeffect = $-.059$, $p < .05$).

Next, the mediating effect of school life satisfaction on the relationship between academic stress and career maturity was tested. The results indicated a full mediation effect (Table 2) (Figure 2). Academic stress had a negative impact on school life satisfaction (Coeffect = $-.109$, $p < .001$), and school life satisfaction had a positive impact on career maturity (Coeffect = $.391$, $p < .001$). In other words, as academic stress increased, school life satisfaction decreased, which in turn led to a reduction in career maturity.

Bootstrap analysis was conducted to verify the significance of the mediating effect of school life satisfaction. The influence of academic stress on career maturity (Coeffect = $-.109$) decreased when school life satisfaction was included (Coeffect = $-.016$), and the statistical significance of the direct effect disappeared. Additionally, the indirect effect of school life satisfaction was found to be significant, with a mediation effect value of $-.043$ ($-.073$ to $-.017$).

Therefore, it can be concluded that academic stress does not have a direct impact on career maturity; rather, its effect on career maturity is mediated through school life satisfaction.

Table 2

The Mediating Effect of School Life Satisfaction

Variable	Coeffect	SE	T vale
Dependent: Career Maturity			
Constant	3.252	.017	45.648***
Academic Stress	-.059	.028	-2.116*
$R^2=.014$, $F=4.477$, $p<.035$			
Dependent: School Life Satisfaction			
Constant	3.627	.074	48.813***
Academic Stress	-.109	.029	-3.770***
$R^2=.042$, $F=14.209$, $p<.001$			
Dependent: Career Maturity			
Constant	1.834	.189	9.727***
Academic Stress	-.016	.026	-.620

School Life Satisfaction	.391	.049	8.013***
$R^2=.178$, $F=34.783$, $p<.001$			
Indirect effects of School Life Satisfaction			
	Effect	BootSE	BooLLCI
Academic Stress→School Life Satisfaction→Career Maturity	-.043	.014	-.073
* $p<.05$, *** $p<.001$			

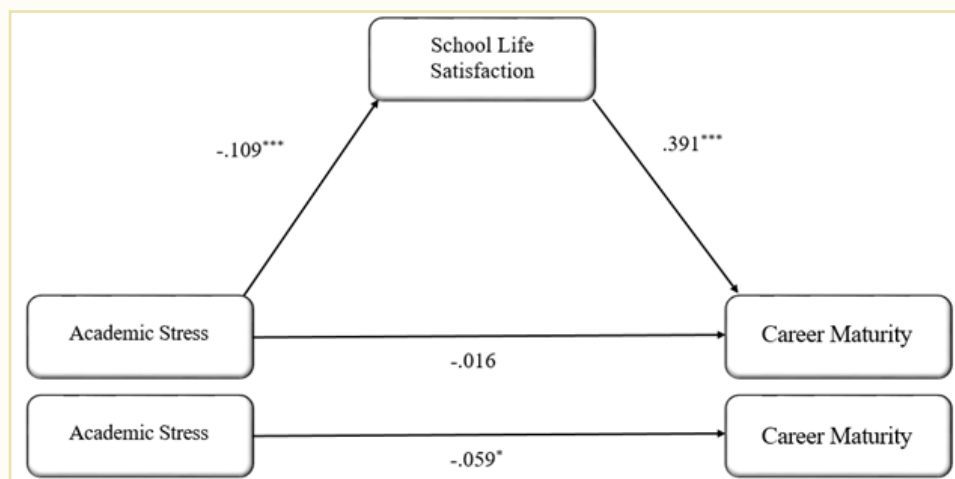


Figure 2 The Mediating Effect of School Life Satisfaction

Moderated Mediation Effect of Parent Education Participation

The analysis of the moderating effect of parent education participation revealed that the influence of academic stress on school life satisfaction in high school students is moderated by parent education participation (Table 3) (Figure 3). Academic stress had a significant negative effect on school life satisfaction (Effect = -0.099, $p < .001$), and the interaction between academic stress and school life satisfaction had a significant negative impact on career maturity (Effect = -0.075, $p < .05$). Additionally, the increase in R^2 due to the addition of the interaction term was statistically significant ($\Delta R^2 = 0.010$, $p < .05$).

Table 3

Moderated Mediating Effect of Parent Education Participation

Mediating Variable Model (DV: School Life Satisfaction)			
Variable	Effect	SE	t value
Constant	3.354	.020	172.361***
Academic Stress(A)	-.099	.029	-3.456***
Parent Education Participation (B)	.113	.031	3.601***
AxB	-.075	.041	-1.812*
$R^2=.093$, $F=10.792$, $p<.001$			
R^2 change =.010, $F=3.284$, $p<.05$			
Dependent Variable Model (DV: Career Maturity)			
Constant	1.812	.166	10.918***
Academic Stress	-.012	.026	-.446
School Life Satisfaction	.385	.049	7.834***
$R^2=.172$, $F=32.877$, $p<.001$			

Conditional Effects of Parent Education Participation			
Parent Education Participation	Effect	SE	t value
-.626(M-SD)	-.053	.040	-1.322
.000(M)	-.099	.029	-3.456***
.626(M+SD)	-.147	.038	-3.897***

Johnson-Neyman Conditional Effect Significance Level Area		
Parent Education Participation	% below	% above
.422	19.749	80.251

*p<.05, ***p<.001

Furthermore, when analyzing the conditional effects of academic stress on school life satisfaction according to the level of parent education participation, significant effects were observed at both the M and M+SD levels of parent education participation, whereas no significant effect was found at the M-SD level. Specifically, when the level of parent education participation was at the median (M), the effect was -0.099, while in the high participation group (M+SD), the effect increased to -0.147, indicating a stronger negative impact.

To identify the significant range of conditional effects, the Johnson-Neyman technique, a spotlight analysis method, was applied. The moderating effect was found to be significant in the range where parent education participation was greater than 0.422, and 80.251% of Korean high school students fell within this range.

Figure 3 illustrates the moderating effect of parent education participation on the relationship between academic stress and school life satisfaction. As academic stress increases, school life satisfaction decreases across all levels of parent education participation. However, the rate of decline differs depending on the level of parental education participation. Specifically, students with a moderate (M) or high (M + 1SD) level of parent education participation exhibit a steeper decrease in school life satisfaction as academic stress increases. This suggests that the negative impact of academic stress on school life satisfaction is more pronounced among students whose parents are more actively involved in educational activities. In other words, higher levels of parent education participation intensify the detrimental effect of academic stress on students' satisfaction with school life.

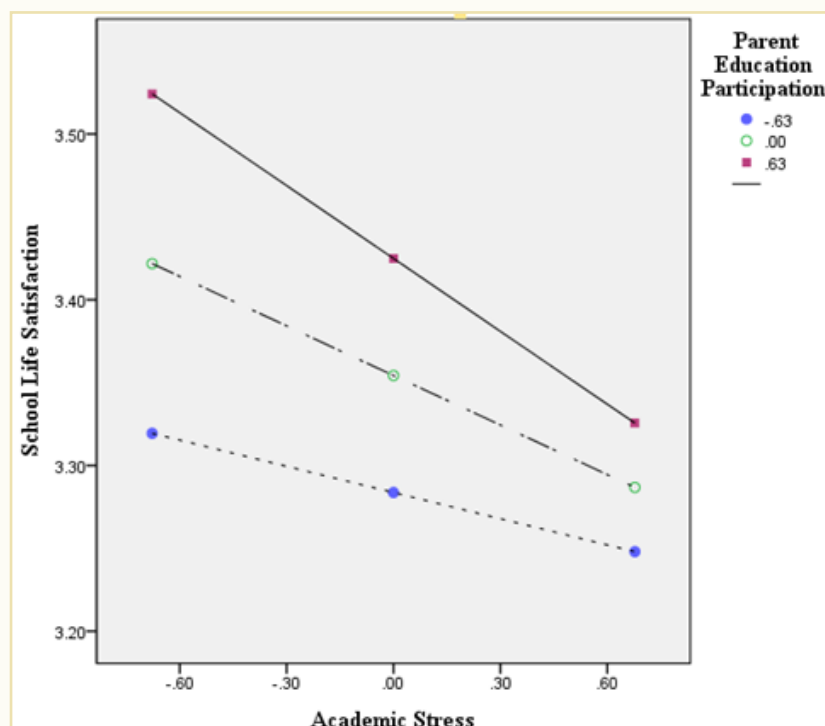


Figure 3 Moderating Effect of Parent Education Participation

Table 4**Direct Effects and Conditional Indirect Effects**

Direct Effect of Academic Stress on Career Maturity				
Effect	SE	t value	LLCI	ULCI
-.012	.026	-.446	-.064	.041
Conditional Indirect Effect (Academic Stress->School Life Satisfaction->Career Maturity)				
Parent Education Participation	Effect	BootSE	BootLLCI	BootULCI
-.626(M-SD)	-.020	.016	-.054	.009
.000(M)	-.038	.013	-.067	-.014
.626(M+SD)	-.057	.019	-.098	-.022
LLCI=bootstrap lower bound within 95% confidence interval				
ULCI=bootstrap upper limit within 95% confidence interval				

As shown in Table 4, the direct effect of academic stress on career maturity was not statistically significant (Effect = $-.012$, 95% CI [$-.064$, $.041$]), as the confidence interval includes zero. This suggests that academic stress does not exert a direct influence on career maturity among Korean high school students.

Similarly, the conditional indirect effects were also found to be non-significant at different levels of parent education participation. When parent education participation was at the mean level (M), the conditional indirect effect was $-.038$ (95% CI [$-.067$, $-.014$]), and when it was one standard deviation above the mean (M + 1SD), the effect was $-.057$ (95% CI [$-.098$, $-.022$]). In both cases, the confidence intervals included zero, indicating a lack of statistical significance.

Taken together, these findings suggest that academic stress does not directly influence career maturity, nor does it have a statistically significant indirect effect via school life satisfaction across different levels of parent education participation. Rather, academic stress appears to influence career maturity only through school life satisfaction, and this mediating pathway is conditionally moderated by the level of parent education participation.

DISCUSSION

The findings of this study contribute to a nuanced understanding of how academic stress impacts career maturity among South Korean high school students through school life satisfaction, and how this pathway is further moderated by parental educational involvement.

First, Korean high school students in this study demonstrated generally high levels of school life satisfaction and career maturity, while their levels of academic stress were found to be moderate. These findings may be partially attributed to the nature of the longitudinal panel data used in this study. Students who have participated in multiple waves of a long-term panel survey, during grades 4, 5, or 6 of elementary school and continued to respond every three years until reaching high school, are likely to come from relatively stable family environments and benefit from sustained support systems, which could contribute to positive school experiences and better career-related development. Such a background may have positively influenced both their satisfaction with school life and their level of career maturity. Longitudinal panel data are particularly useful in capturing the psychological and social stability of participants over time and may reflect positive developmental traits associated with consistent social support [29].

In contrast, levels of parent education participation were found to be generally low. This aligns with existing findings that Korean parents are actively involved in school-related activities during their children's elementary years but tend to become less directly involved as their children enter middle and high school. Although their concern for academic achievement and university entrance remains high, their actual participation in school education activities tends to decrease [22].

Second, the mediation analysis revealed that school life satisfaction fully mediated the relationship between academic stress and career maturity. This suggests that the detrimental effects of academic stress on adolescents' career development are not direct but instead operate through a reduction in school life satisfaction.

This finding suggests that rather than solely focusing on reducing academic stress, strategies that enhance students' positive experiences and satisfaction in school may be more effective in promoting their career maturity. Social relationships are typically the strongest predictor of school life satisfaction [16], and positive interactions with school members can help students who experience anxiety and depression due to academic stress to perceive the school environment more positively [18]. Therefore, even within a highly competitive academic context, continuous efforts are needed to foster a school culture in which students feel a sense of belonging and support.

Third, the moderated mediation analysis revealed that the indirect effect of academic stress on career maturity via school life satisfaction was conditioned by the level of parental education participation. Specifically, the negative effect of academic stress on school life satisfaction was stronger among students whose parents were moderately or highly involved in school-related activities. This effect was more pronounced among students whose parents demonstrated moderate (M) or high (M + 1SD) levels of educational participation. This suggests an interaction effect whereby academic stress and parental education participation may jointly diminish students' satisfaction with school life. The measure of parent education participation used in this study includes a wide range of activities such as parent-child communication about school and peer relationships, attendance at school events, communication with teachers, and monitoring of homework. Previous research has shown that when parental education participation provides academic guidance and emotional support, it can alleviate students' academic stress [22]. However, excessive or controlling parental education participation may have the opposite effect—intensifying psychological pressure and performance-related stress in students [25] [30]. Based on these findings, the current study suggests that parental participation in education may serve as a psychological burden, particularly when students are already experiencing high levels of academic stress. Therefore, it is important that parental education participation be characterized not by interference but by respectful attention and emotional attunement to the adolescent's needs.

At the same time, it is also important to acknowledge the potential benefits of parent education participation for school life satisfaction. The results showed that, in general, students with higher levels of parental education participation reported greater satisfaction with school life. This may be explained by the collectivist, family-centered cultural values of Korean adolescents, particularly the influence of Confucian norms such as *hyo* (filial piety) [24]. In this cultural context, parental education participation may be interpreted positively, even when it is intensive, and may be perceived by adolescents as an expression of protection and care. Accordingly, in situations involving high academic stress, it is essential to guide parental education participation toward forms that emphasize emotional support and respect for autonomy. Parental behaviors that acknowledge adolescents' opinions and support their self-determination in academic decision-making are likely to foster more adaptive outcomes.

CONCLUSION

This study aimed to understand the effects of academic stress on the career maturity of Korean high school students within the highly competitive, college entrance exam-oriented educational environment. It also sought to propose practical strategies at both the school and family levels to enhance students' career maturity. To this end, data from the 16th wave of the Korean Welfare Panel Study (KOWEPS) supplementary survey on children were used, with a sample of 325 high school students. Mediation and moderated mediation analyses were conducted using SPSS and the PROCESS macro.

The key findings are as follows. First, high school students demonstrated high levels of school life satisfaction and career maturity, a moderate level of academic stress, and a relatively low level of parent education participation. Second, school life satisfaction fully mediated the relationship between academic stress and career maturity. Third, parent education participation moderated the

negative effect of academic stress on school life satisfaction. Fourth, through this pathway, parent education participation exhibited a moderated mediation effect.

These results align with cultural understandings of parent-child relationships in South Korea, where parental education participation is often driven by strong expectations for academic achievement. Although adolescents may interpret such involvement as an expression of protection or care due to cultural norms of filial piety, the psychological burden of fulfilling parental expectations may outweigh the supportive benefits, especially in contexts of high academic stress.

This study contributes to existing literature by clarifying the dual role of school life satisfaction as a mediator and parental education participation as a moderator in the academic stress-career maturity pathway. These findings suggest that interventions aimed at enhancing students' school satisfaction and fostering autonomy-supportive forms of parental education participation could be effective strategies for supporting adolescents' career development. Schools and policymakers should consider creating programs that promote positive student-teacher and peer relationships and provide guidance to parents on how to support their children in developmentally appropriate, emotionally attuned ways. Nevertheless, some limitations must be acknowledged. The use of secondary data restricted the inclusion of additional contextual or ecological variables that could influence the observed relationships. Future research should consider more comprehensive models that integrate factors such as peer influence, academic self-efficacy, and school climate. Additionally, longitudinal analyses would be beneficial to clarify the temporal dynamics among academic stress, school satisfaction, and career development.

In conclusion, this study highlights the importance of psychological and environmental mediators and moderators in understanding how academic stress affects adolescents' career maturity. It offers valuable insights for educators, practitioners, and parents seeking to foster well-rounded, future-oriented students in competitive academic contexts.

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