

Parental Support and Academic Procrastination among University Students: The Mediating Roles of Autonomous Motivation and Adversity Quotient

Dukungan Orang Tua dan Prokrastinasi Akademik pada Mahasiswa: Peran Mediasi Motivasi Otonom dan Adversity Quotient

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Abstract

Procrastination in academic settings continues to pose a significant challenge across tertiary education and is influenced by social and psychological factors. The present investigation sought to explore the mediating function of autonomous motivation and the adversity quotient within the connection linking perceived parental social support to procrastination behavior among university learners. Employing a quantitative cross-sectional design, the study surveyed 156 undergraduate students enrolled in the Computer Systems program at Universitas Putra Indonesia YPTK Padang, recruited through purposive sampling. Standardized and validated instruments were administered to assess parental social support, autonomous motivation, the adversity quotient, and academic procrastination. The hypothesized structural model was tested using Partial Least Squares Structural Equation Modeling (PLS-SEM) conducted via SmartPLS 3. The findings revealed that parental social support exerted a significant negative direct influence on academic procrastination and showed significant positive associations with both autonomous motivation and the adversity quotient. Both mediators also significantly and negatively predicted procrastination and partially mediated the relationship between parental social support and academic procrastination. These results imply that parental support may attenuate students' procrastination tendencies through both direct and indirect pathways. The investigation enriches the existing scholarship by integrating Self-Determination Theory with resilience-oriented perspectives within a dual-mediation model and underscores the importance of familial and institutional support in strengthening students' academic self-regulation.

Keywords: Academic Procrastination, Parental Social Support, Autonomous Motivation, Adversity Quotient, University Students

Abstrak

Perilaku prokrastinasi di lingkungan akademik masih menjadi tantangan. Perilaku prokrastinasi akademik masih menjadi tantangan dalam pendidikan tinggi dan dipengaruhi oleh faktor sosial dan psikologis. Penelitian ini bertujuan menguji peran mediasi motivasi otonom dan adversity quotient dalam hubungan antara dukungan sosial orang tua dan prokrastinasi akademik mahasiswa. Penelitian menggunakan desain kuantitatif cross-sectional dengan melibatkan 156 mahasiswa Program Studi Sistem Komputer Universitas Putra Indonesia YPTK Padang yang dipilih melalui purposive sampling. Data dikumpulkan menggunakan instrumen tervalidasi untuk mengukur dukungan sosial orang tua, motivasi otonom, adversity quotient, dan prokrastinasi akademik. Model struktural diuji menggunakan Partial Least Squares Structural Equation Modeling (PLS-SEM) melalui SmartPLS 3. Hasil menunjukkan bahwa dukungan sosial orang tua berpengaruh negatif signifikan terhadap prokrastinasi akademik serta berpengaruh positif signifikan terhadap motivasi otonom dan adversity quotient. Kedua mediator berpengaruh negatif signifikan terhadap prokrastinasi akademik dan memediasi secara parsial hubungan tersebut. Temuan ini menunjukkan bahwa dukungan orang tua dapat mengurangi prokrastinasi melalui jalur langsung maupun tidak langsung. Penelitian ini berkontribusi pada literatur dengan mengintegrasikan Self-Determination Theory dan perspektif resiliensi dalam model mediasi ganda, serta menegaskan pentingnya dukungan keluarga dan institusi dalam memperkuat regulasi diri akademik mahasiswa.

Kata Kunci : Prokrastinasi Akademik, Dukungan Sosial Orang Tua, Motivasi Otonom, Adversity Quotient, Mahasiswa

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INTRODUCTION

Academic procrastination is broadly acknowledged as a persistent problem among tertiary learners and has continued to receive attention in educational psychology due to its negative consequences for academic achievement, psychological well-being, and students' persistence in higher education (Rozental et al., 2022). In general, academic procrastination refers to the deliberate delay of completing academic obligations, even though the person is aware that such delay is likely to have adverse consequences (Steel, 2007). A growing body of empirical studies has demonstrated that procrastinatory behavior is linked to diminished scholastic performance, affective difficulties, reduced learning effectiveness, and a greater risk of academic failure or withdrawal from academic responsibilities (Aznar-Díaz et al., 2020). Evidence from Indonesian higher education settings also indicates that procrastination remains a common issue among undergraduate students and may interfere with academic achievement, learning productivity, and self-regulatory competencies (Setiyono et al., 2023). While numerous students possess sufficient intellectual capacity to complete academic tasks, weaknesses in self-regulation often cause them to delay assignments and engage in less adaptive academic behaviors.

The rate of academic delays among students remains quite high across various types of educational institutions. Previous studies have reported that approximately 80–95% of university students have experienced procrastination, with a considerable number of students showing moderate to high levels of procrastination behavior (Kim & Seo, 2015; Rozental et al., 2022). A similar tendency can also be observed in Indonesia, particularly among undergraduate students who frequently spend substantial time on non-academic digital activities, such as social media use and online gaming. This condition suggests that academic procrastination should not be understood only as an individual behavioral problem, but also as a multifaceted phenomenon shaped by an interplay of social, psychological, and contextual determinants surrounding students' academic lives.

One external factor that has been associated with academic procrastination is parental social support. Social support from parents refers to the assistance and resources that parents provide to their children such as emotional support, information, practical help, and companionship which can help them overcome academic and psychological challenges. Previous research has indicated that parental social support is related to academic procrastination, although the strength and significance of this relationship may vary across student populations and research contexts (Atfilah, 2021; Eliana et al., 2019; Sisterindah & Qomariyah, 2023). In addition, research has shown positive associations linking parental support with scholastic adjustment, emotional health, and learning motivation among students in higher education (Sahdiana & Laili, 2026). Students who perceive greater support from their parents tend to report lower levels of academic procrastination. Previous studies

have demonstrated a negative association between parental social support and academic procrastination across different educational contexts. (Nurahmawati et al., 2022). Purede & Soetjningsih (2022) Azizah & Ruhaena (2022) found that greater parental social support was associated with lower academic procrastination among students and university students. Similarly, (Sisterindah & Qomariyah, 2023) reported a contribution of parental social support to academic procrastination among university students, while Eko et al. (2024) highlighted the role of parental support in explaining academic procrastination among university students. These results indicate that social support from parents is an important external factor associated with students' tendency to procrastinate on their academic assignments. These findings imply that family-related factors remain important in shaping students' academic self-regulation and academic behavior (Araya-Castillo et al., 2023; Won & Yu, 2018),

Nevertheless, the influence of parental social support upon procrastinatory behavior may not operate only through a direct pathway. Current perspectives in educational psychology emphasize the need to examine psychological mechanisms that explain how social support from the environment influences students' academic behavior. One relevant mechanism is autonomous motivation, which refers to motivation that arises from personal values, interests, and self-determined goals (Kljajic et al., 2022; Senécal et al., 1995; Tao & Jing, 2023). In contrast, students with lower levels of autonomous motivation may be more vulnerable to delaying academic responsibilities and engaging in procrastination (Kljajic et al., 2022; Senécal et al., 1995; Tao & Jing, 2023)

Another psychological factor that may help explain academic procrastination is adversity quotient. The term denotes an individual's capacity to confront, navigate, and overcome difficulties or stressful situations (Stoltz, 2000). Students possessing an elevated adversity quotient typically exhibit enhanced resilience, superior emotional regulatory skills, and greater persistence when dealing with academic challenges (Phoolka & Kaur, 2012). In academic contexts, adversity quotient enables students to respond more adaptively to academic pressure and maintain productive learning behavior, which may reduce the tendency to procrastinate. Previous research has also demonstrated that social support and psychological hardiness contribute to students' ability to cope with academic stress and academic difficulties more effectively (Purba et al., 2025). Moreover, parental social support may strengthen students' adversity quotient by supporting their ability to cope with academic difficulties and persist in challenging situations (Nurahmawati et al., 2022). In addition, empirical research has shown that the resilience index, also known as the adversity quotient, serves as a mediating variable in the relationship between academic delay and parental social support. Muarifah et al. (2022) found that parental social support was associated with lower academic procrastination through adversity quotient during the COVID-19 pandemic, suggesting that students' capacity to cope with academic difficulties may

help explain how parental support is related to procrastination. However, the motivational pathway underlying this relationship, particularly the role of autonomous motivation, has received less attention and has not been sufficiently integrated with adversity quotient in explaining academic procrastination.

Notwithstanding the growing body of research examining the interconnections among parental social support, autonomous motivation, adversity quotient, and academic procrastination, several research gaps remain. First, previous investigations have established associations between parental social support and academic procrastination, but have generally focused on direct relationships or individual explanatory mechanisms (Eko et al., 2024; Nurahmawati et al., 2022; Sisterindah & Qomariyah, 2023). Although some studies have begun to examine psychological mechanisms underlying this relationship, such as adversity quotient (Muarifah et al., 2022), these mechanisms have not yet been comprehensively integrated with motivational processes such as autonomous motivation. Second, adversity quotient has been examined in relation to academic (Christover & Elvinawanty, 2020; Wardani & Nurwardani, 2019), while autonomous motivation has also been associated with lower levels of academic procrastination ((Bakali Tahiri & Mouratidis, 2024; Sénécal et al., 1995). However, research simultaneously examining autonomous motivation and adversity quotient as dual mediators remains limited. Third, although studies in Indonesia have examined parental social support, adversity quotient, autonomous motivation, and academic procrastination separately or through individual pathways, empirical research integrating these variables within a single model in Indonesian higher education remains scarce ((Azizah & Ruhaena, 2022; Eko et al., 2024; Muarifah et al., 2022). Therefore, a more integrative psychosocial model is needed to examine how interpersonal and intrapersonal factors jointly relate to academic procrastination among university students.

Specifically, current research does not provide sufficient information on whether social support from parents can reduce learning delays through mechanisms related to resilience and motivation. Although Muarifah et al. (2022) demonstrated that adversity quotient mediates the relationship between parental social support and academic procrastination, their study examined adversity quotient as the sole mediator among Madrasah Aliyah students during the COVID-19 pandemic. This finding highlights the importance of adversity quotient but leaves open the question of whether parental social support may also influence procrastination through autonomous motivation. Recent empirical evidence indicates that autonomous motivation is associated with lower academic procrastination among university students (Bakali Tahiri & Mouratidis, 2024). However, there has not yet been sufficient research on the role of autonomous motivation and resilience indices in explaining the relationship between parental social support and academic delay. Recent research has demonstrated that autonomous motivation is positively associated with

students' academic engagement (Li et al. 2025) and negatively associated with academic procrastination (Bakali Tahiri & Mouratidis, 2024), but this pathway has not been sufficiently examined alongside adversity quotient in the relationship between parental social support and academic procrastination. Thus, prior research has largely examined these motivational and resilience-related mechanisms separately, leaving limited evidence on whether they jointly explain how parental social support is associated with academic procrastination. This distinction is theoretically relevant because autonomous motivation reflects the internal reasons underlying students' academic engagement, whereas adversity quotient reflects their capacity to persist and adapt when facing difficulties (Ryan & Deci, 2020; Stoltz, 2000). Examining both mechanisms within the same model may therefore provide a more comprehensive explanation of how parental social support relates to students' academic procrastination.

In the context of higher education in Indonesia, there has not been much research on the joint mediating role of autonomous motivation and difficulty quotient in explaining the relationship between parental social support and academic delay. This issue deserves attention because recent research has highlighted the importance of social-contextual and psychological factors in understanding academic procrastination. For example, family social support has been shown to interact with psychological characteristics in predicting procrastination among undergraduate students (Miller et al., 2024), while adversity quotient and family social support have been examined simultaneously in relation to academic procrastination among Indonesian university students (Rahmawati et al., 2024). Furthermore, recent research has demonstrated that parental autonomy support is linked to autonomous motivation through basic psychological needs among university students (Li et al., 2025). Nevertheless, these motivational and adversity-related mechanisms have largely been examined separately. Therefore, this study proposes an integrative psychosocial framework to investigate academic delays among undergraduate students by combining parental social support, autonomous motivation, and an index of resilience to adversity. By simultaneously examining motivational and adversity-related mechanisms, this study seeks to provide a more comprehensive explanation of the pathways through which parental social support is associated with academic procrastination.

By examining autonomous motivation and the resilience index as parallel mediating variables in the relationship between parental social support and academic delay among undergraduate students in higher education in Indonesia, this study aims to fill this gap. By integrating these two psychological mechanisms within a single dual-mediation model, this study extends previous research that has examined social support, motivational processes, self-regulation, and adversity-related factors as separate or partially integrated predictors of academic procrastination (Aisha et al., 2024; Rohani et al., 2025). Recent evidence also indicates that parental autonomy support is linked to

autonomous motivation through the satisfaction of basic psychological needs among university students (Li et al., 2025). Moreover, emerging research has begun to examine motivational and resilience-related mechanisms simultaneously in explaining academic procrastination among university students (Fauziyah & Armiati, 2026). Nevertheless, the simultaneous role of autonomous motivation and adversity quotient as parallel mediators between parental social support and academic procrastination remains insufficiently examined. The study also provides contextual evidence from students in a Computer Systems program, where academic activities are closely intertwined with digital technologies and may coexist with non-academic digital activities. The findings are expected to contribute theoretically by integrating Self-Determination Theory with adversity-related perspectives and practically by informing universities, counselors, and parents about factors that may support students' academic self-regulation and reduce academic procrastination.

From a theoretical perspective, the present study is expected to contribute to the literature on academic procrastination by integrating Self-Determination Theory with an adversity-related perspective within a dual-mediation framework. Self-Determination Theory emphasizes the role of autonomous motivation in promoting self-regulated and adaptive academic functioning, whereas the adversity-related perspective highlights individuals' capacity to respond effectively to difficulties and persist in challenging circumstances (Ryan & Deci, 2020; Stoltz, 2000). By examining these mechanisms simultaneously, the present study extends previous research that has primarily considered motivational and adversity-related factors separately. From a practical perspective, the findings may provide useful insights for universities, counselors, and parents in developing strategies that foster students' autonomous motivation, adaptive responses to academic difficulties, and academic self-regulation, which may help reduce academic procrastination.

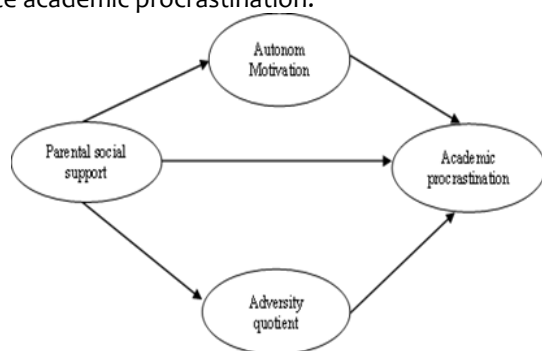


Figure 1. Hypothesized dual-mediation model of academic procrastination.

RESEARCH METHODS

The present investigation employed a quantitative methodology utilizing a survey-based cross-sectional design to explore the interconnections among parental social support, autonomous motivation, adversity quotient, and

procrastination tendencies among university students. The research model consisted of four main constructs. Academic procrastination was positioned as the endogenous variable, while parental social support served as the exogenous variable. Autonomous motivation and adversity quotient were included as mediating variables to explain the indirect influence of parental social support on procrastinatory behavior. In total, seven hypotheses were formulated to evaluate both direct and indirect pathways within the proposed model.

Research Subjects

The data were collected during the odd semester of the 2025–2026 academic year, and the study population consisted of undergraduate students enrolled in the Computer Systems Program at YPTK, Universitas Putra Indonesia. This study employed purposive sampling based on the following inclusion criteria: (1) students aged between 18 and 24 years, (2) students who maintained active relationships with their parents, and (3) students who actively participated in academic learning activities and assignments. Prior to data collection, an a priori power analysis was conducted using G*Power to determine the minimum required sample size. The analysis was based on a one-tailed test, an alpha level of 0.05, statistical power of 0.80, a medium effect size ($f^2 = 0.15$), and three predictors. The analysis indicated a minimum sample size of 47 respondents. The final sample of 156 respondents therefore exceeded the minimum sample size indicated by the power analysis. The final sample consisted of 100 male students (64.1%) and 56 female students (35.9%).

Research Instruments

The research instrument was developed through an extensive review of relevant literature so as to secure consistency with the aims of the investigation and theoretical framework (Hair et al., 2022). The instrument comprised four latent constructs with a total of 67 indicators before the validity testing process.

Academic procrastination was measured using 20 indicators adapted from (Solomon et al., 1984). Parental social support was measured using 16 indicators representing emotional, informational, instrumental, and companionship support adapted from (Zimet et al., 1988). Furthermore, autonomous motivation was measured using 15 indicators based on the Self-Determination Theory framework, while adversity quotient was measured using 16 indicators developed from the dimensions proposed by (Stoltz, 2000), including control, ownership, reach, and endurance.

All items were rated on a five-point Likert-type scale anchored from 1 (*strongly disagree*) to 5 (*strongly agree*). The confidentiality of participants' personally identifiable data, encompassing names, electronic mail addresses, and further contact particulars, was strictly maintained throughout the research process. Following the instrument validity testing process, 23 invalid indicators were eliminated. Therefore, the

final instrument used for primary data collection consisted of 44 valid indicators.

Research Methodology and Data Analysis

SmartPLS 3 software was used to test the proposed research model. A Partial Least Squares Structural Equation Modeling (PLS-SEM) model was used to analyze the data. This method was adopted given its suitability for prediction-oriented predictive frameworks and estimating complex relationships among latent constructs, including indirect effects through mediating variables.

The analytical process involved two principal phases: measurement model evaluation and structural model testing. The measurement model was initially scrutinized to confirm construct validity and internal consistency. The factor loadings and the average variances extracted (AVE) determine convergent validity. The heterotrait-monotrait ratio (HTMT), cross-loadings, and the Fornell-Larcker criteria determine discriminant validity (Hair et al., 2021).

Harman's one-factor test in SPSS was used to examine common method bias (CMB). The 44 retained items were included in a principal component analysis without rotation. Cronbach's alpha and composite reliability (CR) were used to measure the scale's reliability. Coefficients exceeding 0.700 indicate acceptable reliability. Subsequently, the structural model was assessed through the inspection of path coefficients, t-statistics, and p-values to ascertain the statistical significance of the proposed hypotheses. The indirect effects of autonomous motivation and adversity quotient were tested using bootstrapping procedures to verify their mediating roles in the proposed model.

RESEARCH RESULTS

Respondent Characteristics

The study involved 156 undergraduate students from the Computer Systems Study Program at Universitas Putra Indonesia YPTK Padang. Table 1 presents the demographic characteristics of the respondents in terms of gender, age, and semester of enrollment.

The sample consisted of 100 male students (64.10%) and 56 female students (35.90%). Regarding age, most respondents were aged 20–21 years (46.15%), followed by those aged 22–24 years (30.13%) and 18–19 years (23.72%). In terms of academic level, respondents were distributed across the 2nd, 4th, 6th, and 8th semesters, with the largest proportion in the 6th semester (30.13%).

Common Method Bias Assessment

Harman's single-factor test showed that the first factor accounted for 49.884% of the total variance, which was below the 50% threshold. This result indicates that no single factor accounted for the majority of the variance, suggesting

that common method bias was not a substantial concern in the present study.

Measurement Model Evaluation

The measurement model was evaluated to confirm the suitability of the indicators and the robustness of the latent constructs. This evaluation encompassed the inspection of indicator loadings, convergent validity, internal consistency, and discriminant validity. Following Hair et al. (2022) items yielding factor loadings exceeding 0.700 were deemed satisfactory, as they demonstrate sufficient representation of their corresponding constructs.

The outer loading analysis demonstrated that all retained indicators satisfied the recommended threshold value of 0.700. The highest loading value was observed for indicator AP10 of the academic procrastination construct (0.882), whereas the lowest acceptable loading value was identified for indicator AM15 of the autonomous motivation construct (0.702). Several indicators that did not meet the minimum loading requirement were removed from further analysis. The eliminated indicators included academic procrastination (AP1, AP12, AP14, AP18, AP19, and AP20), autonomous motivation (AM5, AM6, AM9, AM11, AM12, and AM14), adversity quotient (AQ4, AQ10, AQ12, AQ15, and AQ16), and parental social support (PSS6, PSS8, PSS9, PSS13, PSS15, and PSS16). Following the elimination process, 44 valid indicators were retained for further analysis, as presented in Table 1.

The reliability of each construct was assessed via Cronbach's Alpha (CA) and Composite Reliability (CR), using 0.700 as the minimum acceptable threshold. The analysis indicated that all constructs demonstrated adequate reliability. Specifically, academic procrastination, autonomous motivation, adversity quotient, and parental social support yielded Cronbach's Alpha values of 0.966, 0.908, 0.933, and 0.929, respectively. The Composite Reliability values also exceeded the recommended threshold, with coefficients of 0.970, 0.924, 0.943, and 0.940 for the same constructs. Overall, these findings provide evidence of strong internal consistency across all measurement constructs.

Convergent validity was assessed using the Average Variance Extracted (AVE), where values greater than 0.500 indicate that a construct explains more than 50% of the variance of its indicators. The results showed that all constructs exceeded the recommended threshold values. Academic procrastination, autonomous motivation, adversity quotient, and parental social support achieved AVE values of 0.695, 0.575, 0.601, and 0.612, respectively. Therefore, all constructs demonstrated adequate convergent validity.

Table 1. Internal Consistency Reliability, Reflective Indicator Loadings, and Discriminant Validity

Construct	Indicator	Loadings	CA	CR	AVE
Academic Procrastination	AP2	0.825	0.966	0.970	0.695
	AP3	0.870			
	AP4	0.878			
	AP5	0.879			
	AP6	0.786			
	AP7	0.848			
	AP8	0.830			
	AP9	0.846			
	AP10	0.882			
	AP11	0.828			
	AP13	0.808			
	AP15	0.811			
	AP16	0.764			
	AP17	0.809			
Autonomous motivation	AM1	0.781	0.908	0.924	0.575
	AM2	0.812			
	AM3	0.758			
	AM4	0.772			
	AM7	0.757			
	AM8	0.780			
	AM10	0.731			
	AM13	0.728			
	AM15	0.702			
Adversity quotient	AQ1	0.718	0.933	0.943	0.601
	AQ2	0.805			
	AQ3	0.825			
	AQ5	0.748			
	AQ6	0.803			
	AQ7	0.754			
	AQ8	0.752			
	AQ9	0.793			
	AQ11	0.731			
	AQ13	0.806			
Parental social support	AQ14	0.784	0.929	0.940	0.612
	PSS1	0.823			
	PSS2	0.803			
	PSS3	0.832			
	PSS4	0.724			
	PSS5	0.723			
	PSS7	0.752			
	PSS10	0.802			
	PSS11	0.829			
	PSS12	0.816			
	PSS14	0.708			

Discriminant validity was verified through the Fornell–Larcker criterion, cross-loading assessment, and the Heterotrait-Monotrait Ratio (HTMT). As shown in Table 2, the square root of the AVE for every construct surpassed its inter-construct correlations, confirming adequate discriminant validity per the Fornell–Larcker standard. To illustrate, the square root AVE value of academic procrastination (0.834) exceeded its correlations with adversity quotient (-0.672), autonomous motivation (-0.673), and parental social support (-0.659).

The cross-loading results reported in Table 3 further supported discriminant validity, as each indicator showed its strongest loading on the construct it was designed to measure. For instance, indicator AM1 showed the highest loading on autonomous motivation (0.781) compared to academic procrastination (-0.493), adversity quotient

(0.635), and parental social support (0.692). Similarly, indicator AP2 exhibited a stronger loading on academic procrastination (0.825) than on adversity quotient (-0.519), autonomous motivation (-0.506), and parental social support (-0.468). These findings confirm satisfactory discriminant validity.

Additional support for discriminant validity was obtained via the HTMT approach, with all HTMT estimates falling below the conservative cutoff of 0.900 (Henseler et al., 2015). The smallest HTMT value was observed between procrastination tendencies and parental social support (0.694), whereas the largest emerged between parental social support and autonomous motivation (0.893). Since all HTMT values were below 0.900 and significantly different from 1.000, the discriminant validity requirements were considered acceptable.

Table 2. Fornell–Larcker Criterion: Discriminant Validity Assessment

	Academic Procrastination	Adversity Quotient	Autonomous Motivation	Parental Social Support
Academic Procrastination	0.834			
Adversity Quotient	-0.672	0.820		
Autonomous Motivation	-0.673	0.775	0.823	
Parental Social Support	-0.659	0.813	0.759	0.782

Table 3. The Results of Discriminant Validity Cross Loadings

	Academic Procrastination	Adversity Quotient	Autonomous Motivation	Parental Social Support
AM1	-0.493	0.635	0.781	0.692
AM2	-0.598	0.640	0.812	0.679
AM3	-0.540	0.714	0.758	0.675
AM4	-0.500	0.644	0.772	0.571
AM7	-0.473	0.582	0.757	0.630
AM8	-0.567	0.647	0.780	0.643
AM10	-0.483	0.583	0.731	0.603
AM13	-0.451	0.613	0.728	0.575
AM15	-0.473	0.526	0.702	0.528
AP2	0.825	-0.519	-0.506	-0.468
AP3	0.870	-0.569	-0.591	-0.581
AP4	0.878	-0.572	-0.568	-0.586
AP5	0.879	-0.610	-0.563	-0.606
AP6	0.786	-0.494	-0.469	-0.432
AP7	0.848	-0.608	-0.616	-0.602
AP8	0.830	-0.574	-0.589	-0.563
AP9	0.846	-0.635	-0.626	-0.590
AP10	0.882	-0.604	-0.607	-0.566
AP11	0.828	-0.553	-0.579	-0.546
AP13	0.808	-0.517	-0.576	-0.560
AP15	0.811	-0.543	-0.534	-0.524
AP16	0.764	-0.448	-0.479	-0.491
AP17	0.809	-0.564	-0.517	-0.544
AQ1	-0.421	0.718	0.582	0.538
AQ2	-0.490	0.805	0.663	0.722
AQ3	-0.495	0.825	0.676	0.618
AQ5	-0.524	0.748	0.620	0.587
AQ6	-0.615	0.803	0.677	0.720
AQ7	-0.568	0.754	0.645	0.641
AQ8	-0.571	0.752	0.678	0.570
AQ9	-0.508	0.793	0.660	0.687

AQ11	-0.532	0.731	0.593	0.558
AQ13	-0.511	0.806	0.604	0.678
AQ14	-0.471	0.784	0.578	0.570
PSS1	-0.499	0.723	0.682	0.823
PSS2	-0.530	0.614	0.654	0.803
PSS3	-0.513	0.653	0.649	0.832
PSS4	-0.493	0.639	0.618	0.724
PSS5	-0.512	0.636	0.668	0.723
PSS7	-0.538	0.623	0.591	0.752
PSS10	-0.508	0.599	0.660	0.802
PSS11	-0.500	0.610	0.669	0.829
PSS12	-0.488	0.666	0.604	0.816
PSS14	-0.573	0.583	0.632	0.708

Table 4. HTMT Criterion: Discriminant Validity Results

	Academic Procrastination	Adversity Quotient	Autonomous Motivation	Parental Social Support
Academic Procrastination				
Adversity Quotient	0.702			
Autonomous Motivation	0.714	0.888		
Parental Social Support	0.694	0.867	0.893	

Structural Model Evaluation

The bootstrapping method was used in SmartPLS 3 to evaluate the structural model. The analysis focused on path coefficients, t-values, and p-values. In addition, the coefficient of determination (R^2), predictive relevance (Q^2), and standardized root mean square residual (SRMR) were used to evaluate the model's explanatory and predictive capabilities. The results showed that the R^2 values were 0.498 for Academic Procrastination, 0.661 for Adversity Quotient, and 0.677 for Autonomous Motivation, indicating that the model explained 49.8%, 66.1%, and 67.7% of the variance in these constructs, respectively. The Q^2 values were 0.340, 0.384, and 0.380 for Academic Procrastination, Adversity Quotient, and Autonomous Motivation, respectively, indicating predictive relevance because all values were greater than zero. In addition, the SRMR values for the saturated model and the estimated model were 0.063 and 0.072, respectively—both below the generally recommended threshold of 0.08—indicating acceptable model fit. The comprehensive results of the structural model evaluation are presented in Table 5 and Figure 2. In accordance with Hair et al. (2021), a proposed path was considered statistically significant when the t-value exceeded 1.96 and the p-value was below 0.05.

The bootstrapping analysis showed that the strongest statistical effect was found in the path from parental social support to autonomous motivation, with a t-statistic of 32.224. This result indicates a highly robust relationship between the two constructs. Meanwhile, the smallest significant t-statistic was found in the direct path from parental social support to academic procrastination, with a value of 2.026.

The path analysis revealed that parental social support exerted a statistically significant negative influence on academic procrastination ($\beta = -0.206$; $t = 2.026$; $p = 0.043$),

thereby confirming H1. This outcome indicates that students perceiving higher levels of parental support tend to exhibit diminished procrastinatory tendencies. Furthermore, parental social support yielded a significant positive impact on both autonomous motivation ($\beta = 0.823$; $t = 32.224$; $p < 0.001$) and adversity quotient ($\beta = 0.813$; $t = 30.612$; $p < 0.001$), lending empirical support to H2 and H3. Collectively, these findings suggest that robust parental support is positively related to enhanced autonomous motivation and an improved ability to navigate academic difficulties.

The results further revealed that autonomous motivation significantly and negatively predicted academic procrastination ($\beta = -0.274$; $t = 2.482$; $p = 0.013$), confirming H4. Likewise, adversity quotient showed a significant negative effect on academic procrastination ($\beta = -0.280$; $t = 2.692$; $p = 0.007$), supporting H5. These findings indicate that students with higher autonomous motivation and stronger adversity quotient are less likely to postpone academic tasks.

The mediation analysis demonstrated that autonomous motivation significantly transmitted the effect of parental social support on academic procrastination ($\beta = -0.226$; $t = 2.466$; $p = 0.014$), thereby supporting H6. Similarly, adversity quotient was found to be a significant mediator in the relationship between parental social support and academic procrastination ($\beta = -0.228$; $t = 2.657$; $p = 0.008$), supporting H7. These results show that parental support may reduce academic procrastination not only through a direct pathway but also indirectly by strengthening students' autonomous motivation and adversity quotient.

The total effect analysis also indicated that parental social support had a significant negative overall effect on academic procrastination ($\beta = -0.453$; $t = 4.422$; $p < 0.001$). Since both the direct and indirect effects were statistically significant, the mediation model can be interpreted as partial mediation.

Table 5. Indirect Effect, Direct Effect, Total Effect

H	Relationships	Path (β)	T Statistics	P Values
Direct effect				
H1	Parental Social Support -> Academic Procrastination	-0.206	2.026	0.043
H2	Parental Social Support -> Autonomous Motivation	0.823	32.224	0.000
H3	Parental Social Support -> Adversity Quotient	0.813	30.612	0.000
H4	Autonomous Motivation -> Academic Procrastination	-0.274	2.482	0.013
H5	Adversity Quotient -> Academic Procrastination	-0.280	2.692	0.007
Indirect effect				
H6	Parental Social Support -> Autonomous Motivation -> Academic Procrastination	-0.226	2.466	0.014
H7	Parental Social Support -> Adversity Quotient -> Academic Procrastination	-0.228	2.657	0.008
Total effect				
	Parental Social Support -> Academic Procrastination	-0.453	4.422	0.000

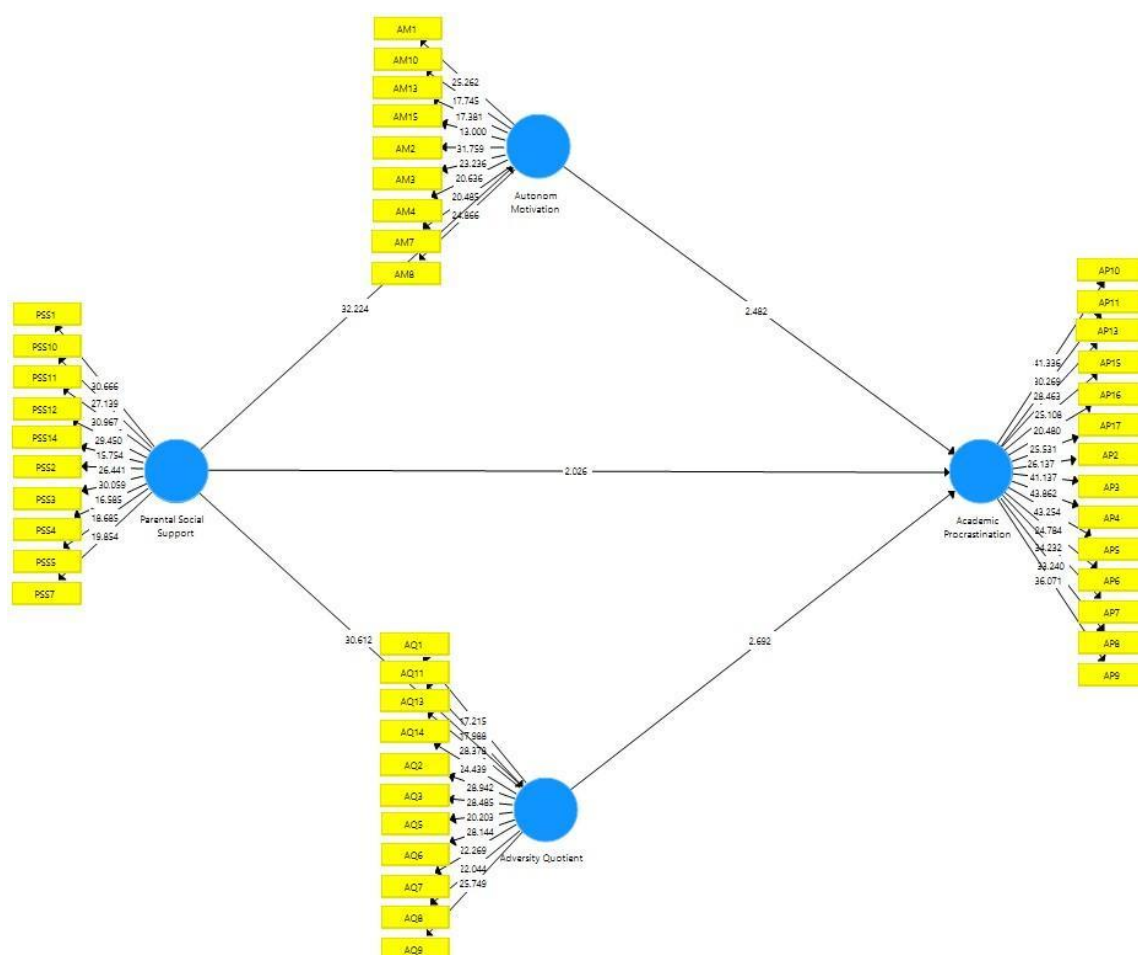


Figure 2. Structural model estimation results using PLS-SEM in SmartPLS 3 (n = 156)

DISCUSSION

The findings of this study show that parental social support, autonomous motivation, and adversity quotient are significantly associated with academic procrastination among undergraduate students at Universitas Putra Indonesia YPTK Padang. Parental social support was associated with lower academic procrastination both directly and indirectly through autonomous motivation and adversity quotient. These findings extend previous research by indicating that academic procrastination may be understood in relation to both interpersonal and individual psychological factors. All proposed hypotheses were supported, indicating a consistent pattern across the relationships examined in this study. However, these findings should be interpreted with caution because indicator refinement and hypothesis testing were conducted using the same sample. In addition, the data were collected from a single source at one point in time. Although the assessment of common method bias did not indicate a substantial concern, the possibility of method-related effects cannot be completely ruled out. Therefore, the findings should be interpreted as significant associations among the variables rather than evidence of causal effects. Future research may employ independent samples and longitudinal designs to further examine the temporal relationships among these variables.

The significant association between parental social support and academic procrastination suggests that students who perceive stronger parental support tend to report lower levels of procrastination. In other words, greater parental social support is associated with a lower tendency to postpone academic tasks (Nurahmawati et al., 2022). Emotional, informational, and instrumental support from parents may provide psychological resources that help students manage academic demands, regulate their emotions, and maintain persistence in completing academic responsibilities. Supportive parental relationships may also provide students with a sense of security when facing academic difficulties, making it easier to initiate and maintain task-related behavior rather than avoid demanding responsibilities. Thus, the relevance of parental support may extend beyond the availability of practical assistance to the psychological resources that students derive from supportive family relationships.

This relationship is particularly relevant to Computer Systems students, whose academic activities are closely connected with digital technologies and online environments. Digital environments can facilitate academic learning while simultaneously providing opportunities for non-academic activities that compete for students' attention. In such contexts, students may need to regulate their time, attention, and academic priorities while navigating multiple digital demands. Therefore, parental support may provide an important social context for maintaining academic priorities without necessarily restricting students' autonomy.

These findings are consistent with previous research indicating that social and parental support are associated with academic procrastination and other forms of academic

adjustment. Research among Indonesian university students has similarly identified psychosocial and self-regulatory factors as relevant to academic procrastination (Setiyono et al., 2023). More specifically, previous research has shown that parental support is associated with lower academic procrastination, while parenting characteristics and related psychological processes may further shape students' procrastination behavior (Eko et al., 2024; Li et al., 2023). Li et al. (2023) for example, found that positive parenting was associated with lower academic procrastination, whereas negative parenting was associated with higher procrastination, with self-efficacy and causal attribution contributing to these relationships. These findings suggest that the quality and manner of parental involvement may be more important than the mere presence of parental support.

From the perspective of Self-Determination Theory, social environments that support autonomy can facilitate more self-determined forms of motivation and adaptive self-regulation, whereas controlling environments may undermine autonomy (Ryan & Deci, 2020). Accordingly, the present findings do not imply that greater parental involvement is necessarily beneficial under all circumstances. Rather, parental support may be more adaptive when it provides encouragement, guidance, and emotional availability while preserving students' sense of autonomy and competence. This perspective helps explain why parental support may be associated with more adaptive academic functioning without requiring excessive parental control.

In addition to its direct association with academic procrastination, parental social support was positively and significantly associated with autonomous motivation in the present study. This finding is consistent with Self-Determination Theory, which posits that supportive social environments facilitate the satisfaction of the basic psychological needs for autonomy, competence, and relatedness, thereby fostering self-determined forms of motivation and adaptive self-regulation (Grolnick & Ryan, 1989; Ryan & Deci, 2020). Consistent with this theoretical perspective, research among university students has shown that parental autonomy support is related to autonomous motivation, which subsequently facilitates academic engagement, (Li et al., 2025). Recent evidence has also indicated that parental support can foster learning motivation through emotional, appreciative, instrumental, and informational forms of support (Sahdiana & Laili, 2026).

The motivational relevance of parental support is particularly salient because autonomous motivation has been associated with more adaptive academic behavior. Earlier research demonstrated that autonomous reasons for engaging in academic activities were associated with lower academic procrastination (Senécal et al., 1995). More recent evidence similarly indicates that autonomous motivation is negatively associated with procrastination among university students (Bakali Tahiri & Mouratidis, 2024). Taken together, these findings suggest that parental social support may be associated with academic procrastination not only through students' capacity to cope with academic difficulties, as

reflected in adversity quotient, but also through the quality of motivation underlying their academic behavior.

The present findings further suggest that parental social support may function not merely as an external resource but also as a social-contextual factor that facilitates the internalization of academic values and the development of more self-determined motivation. When students perceive parental support while maintaining a sense of autonomy and personal agency, they may be more inclined to initiate and regulate academic activities voluntarily. This interpretation is consistent with Self-Determination Theory, which emphasizes that autonomy-supportive environments facilitate the internalization of values and the development of autonomous motivation (Ryan & Deci, 2020). Consequently, the findings of this study indicate a positive relationship between parental social support and autonomous motivation. This may explain why parental support is not only associated with lower rates of academic procrastination but is also linked to a motivational orientation that is more rooted in autonomy.

Nevertheless, autonomous motivation may not solely depend on parental support. Other contextual influences, including peer relationships, institutional learning environments, and academic culture, may also shape students' motivational orientations. Therefore, strengthening students' motivation requires collaborative support from families, universities, and broader social environments.

The findings further indicated that parental social support positively affected adversity quotient. Students who receive stronger parental support tend to demonstrate greater resilience and stronger coping abilities when facing academic difficulties. In line with (Stoltz, 2000), parental support may strengthen students' psychological endurance, emotional control, and adaptive coping strategies. Students with higher adversity quotient are generally more capable of managing academic pressure and maintaining persistence in completing academic tasks. The present findings further support previous studies highlighting that psychological hardiness and social support play important roles in helping students cope with academic stress and challenges effectively (Purba et al., 2025). The finding can be understood from a resilience perspective, in which supportive social relationships provide psychological resources that help individuals interpret difficulties as manageable challenges rather than reasons to withdraw. In academic settings, this may allow students to remain engaged with demanding tasks even when they experience pressure or setbacks.

However, adversity quotient alone may not entirely eliminate procrastination behavior because academic self-regulation, time management skills, and learning strategies may also influence students' academic performance. Consequently, future studies should integrate additional psychological and behavioral variables to obtain a more comprehensive understanding of academic procrastination.

The findings further indicate that autonomous motivation was significantly associated with lower academic

procrastination. Students with higher levels of self-determined motivation tended to be less inclined to postpone academic tasks, as they viewed academic activities as meaningful and aligned with their personal values. Autonomous motivation encourages students to maintain stronger commitment, persistence, and self-regulation in completing academic responsibilities. These findings support previous studies reporting that autonomous motivation contributes positively to academic engagement while being associated with lower procrastination tendencies (Senécal et al., 1995; Wolters, 2003). This result is also consistent with (Syahrina et al., 2022), who found that academic motivation mediated the relationship between academic self-efficacy and academic procrastination. Their findings reinforce the view that motivational processes are central to understanding students' procrastination tendencies. In this context, autonomous motivation functions as an important psychological mechanism explaining how parental social support is associated with lower academic procrastination. From the perspective of Self-Determination Theory, this finding suggests that procrastination may be less likely when academic behavior is internally regulated and personally valued rather than driven primarily by external pressure. The result therefore extends the discussion beyond the presence of parental support by showing the importance of how students internalize and regulate their own academic motivation.

Similarly, adversity quotient was negatively and significantly associated with academic procrastination. Students with higher adversity quotient demonstrated stronger resilience and greater ability to cope effectively with academic challenges, thereby reducing procrastination tendencies. This finding supports previous arguments that psychological resilience plays an important role in helping students maintain productive academic behavior despite experiencing academic pressure and difficulties (Phoolka & Kaur, 2012; Stoltz, 2000). Students who are capable of adapting to stressful academic situations are more likely to complete tasks consistently and avoid maladaptive procrastination behavior. This study found that the adversity quotient serves as a mediating variable in the relationship between academic delays and parental social support during the COVID-19 pandemic. This finding is consistent with a similar study (Muarifah et al., 2022). This similarity indicates that students' resilience and capacity to manage difficulties remain important psychological mechanisms through which parental support may be associated with lower procrastination. However, the present study extends their findings by incorporating autonomous motivation as an additional mediator, thereby offering a broader dual mediation framework involving both motivational and resilience-related mechanisms. The difference is important because (Muarifah et al., 2022) focused on adversity quotient as the mediating mechanism, whereas the present study considers adversity quotient together with autonomous motivation. This broader approach suggests that the relationship between parental support and procrastination

may involve both students' willingness to engage in academic activities and their capacity to persist when facing difficulties.

An important contribution of this study lies in the integration of autonomous motivation and adversity quotient within a dual-mediation framework explaining academic procrastination. Compared with previous studies that have examined these relationships separately or focused on a single mediating mechanism, the present study considers motivational and adversity-related mechanisms simultaneously in explaining the association between parental social support and students' academic procrastination (Fauziyah & Armiati, 2026; Rahmawati et al., 2024). The findings further revealed that autonomous motivation and adversity quotient significantly mediated the relationship between parental social support and academic procrastination. These results indicate that parental social support is associated with lower academic procrastination both directly and indirectly through students' autonomous motivation and adversity quotient. Because both the direct and indirect pathways were statistically significant, the mediation observed in this study represents partial mediation. This integrated psychosocial framework contributes to the academic procrastination literature by providing a broader explanation of how social support, motivation, and adversity-related capacity are associated with academic behavior within an Indonesian higher education context. The theoretical implication is that these two mechanisms should not necessarily be viewed as competing explanations of procrastination. Instead, the findings suggest complementary pathways through which parental social support may be associated with academic procrastination: autonomous motivation concerns the reasons underlying students' engagement in academic tasks, whereas adversity quotient concerns their capacity to respond and persist when those tasks become difficult. Integrating these perspectives therefore provides a more nuanced framework for understanding academic procrastination than examining either motivational or adversity-related mechanisms in isolation.

By integrating self-determination theory and the resilience perspective into a dual-mediation framework, this study makes a theoretical contribution to expanding research on academic procrastination. The findings emphasize that academic procrastination should not merely be viewed as an individual self-regulation problem but also as a phenomenon shaped by interactions between social support, motivation, and psychological resilience. In line with this argument, Syahrina & Muarifah (2023) reported that conscientiousness and self-regulated learning were associated with academic procrastination among Computer Systems students. This supports the present study by showing that students' internal regulatory capacities are closely related to procrastination behavior. In higher education, social support has been identified as a key factor contributing to students' academic adjustment and emotional well-being (Tan & Sumargi, 2025). Taken together, these findings imply that Self-Determination Theory and

resilience perspectives can be complementary in explaining academic procrastination. The former helps explain the motivational quality underlying students' engagement, while the latter helps explain their persistence and adaptation in the face of academic difficulties. The present dual-mediation model therefore provides a theoretical basis for understanding procrastination as an outcome of the interaction between social conditions and students' internal psychological resources.

Practically, the findings suggest that universities and families should collaboratively create supportive academic environments that strengthen students' autonomous motivation, adversity quotient, and academic self-management skills. For Computer Systems students, these efforts may also consider the digital environment in which academic activities take place, including guidance on managing non-academic digital activities and maintaining focus on academic responsibilities.

Although this study offers several contributions, its limitations should be considered. First, the participants were recruited from a single university, which may constrain the generalizability of the results across different higher education contexts. Second, this study did not include additional variables such as socio-economic background, parenting style, academic workload, digital media use or cultural differences that may also influence procrastination behavior. Third, because a cross-sectional research design does not allow for the identification of causal relationships between the variables under study. Therefore, future research should involve a larger and more diverse sample, use a longitudinal research design, and examine additional psychological and contextual variables, such as digital media use. This will help us understand academic delays in this context.

CONCLUSION

This study demonstrates that parental social support is significantly associated with lower academic procrastination among university students. Parental social support was also positively associated with autonomous motivation and adversity quotient, while both autonomous motivation and adversity quotient were negatively associated with academic procrastination. Furthermore, the mediation analysis indicated that autonomous motivation and adversity quotient partially mediated the relationship between parental social support and academic procrastination, suggesting that parental support may be related to procrastination both directly and through students' motivational regulation and capacity to cope with academic difficulties.

These findings highlight the importance of considering academic procrastination not only as an individual self-regulation problem but also as a phenomenon shaped by social and psychological factors. Universities, counselors, and parents may therefore strengthen students' academic functioning by providing supportive environments that foster autonomous motivation and adversity quotient.

Future research should examine these relationships using longitudinal designs and more diverse student populations to strengthen the generalizability of the findings.

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ETHICAL APPROVAL

This study was conducted in accordance with applicable ethical principles for psychological research involving human participants. Ethical considerations, including informed consent, confidentiality, voluntary participation, and the participants' right to withdraw, were observed throughout the research process.

DECLARATION OF INTEREST

The authors declare that there are no conflicts of interest related to the research, authorship, or publication of this article.

TRANSPARENCY OF DATA

The data supporting the findings of this study are not publicly available due to ethical and confidentiality considerations concerning the research participants. The data may be made available from the corresponding author upon reasonable request, subject to applicable ethical and institutional restrictions.

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AI USAGE STATEMENT

The authors declare that no artificial intelligence (AI) tools were used in the research, data analysis, or preparation of this manuscript.

AUTHORS' CONTRIBUTIONS

Isna Asyri Syahrina: Conceptualization, methodology, investigation, data collection, data analysis, and writing—originaldraft.

Rina Mariana: Methodology, supervision, validation, and writing—review and editing.

Krisnova Nastasia: Supervision, validation, interpretation of results, and writing—review and editing.

All authors: Reviewed and approved the final version of the manuscript and agreed to be accountable for all aspects of the work.

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