



Attachment, resilience, and academic self-concept: A mediation model among left-behind adolescents

Isfridus Tabin Tnopo¹, Nur Eva¹, Imanuel Hitipeuw¹, Januario Gonjaga²

¹Faculty of Psychology, Universitas Negeri Malang, Malang, Indonesia

²Pontificia Università Urbaniana, Roma, Italy

ABSTRACT

Background: Left-behind adolescents affected by parental labor migration are vulnerable to challenges in psychosocial adjustment and academic development. Although attachment relationships are known to support adolescent development, the psychological mechanisms through which they influence academic self-concept remain insufficiently understood.

Purpose: This study examined whether resilience mediates the relationships of parent and peer attachment with academic self-concept among left-behind adolescents.

Method: A cross-sectional study was conducted with 288 left-behind adolescents aged 15–19 years in Belu Regency, East Nusa Tenggara, Indonesia. Data were collected using the Academic Self-Concept Scale, the Inventory of Parent and Peer Attachment, and the Resilience Scale for Adolescents and analyzed using Partial Least Squares Structural Equation Modeling (PLS-SEM).

Findings: Parent attachment showed no significant direct effect on academic self-concept but demonstrated a significant indirect effect through resilience. Peer attachment had significant direct and indirect effects on academic self-concept. Resilience was the strongest predictor of academic self-concept and significantly mediated the effects of both attachment variables.

Implication: These findings highlight resilience as the key psychological mechanism linking supportive attachment relationships with positive academic self-concept, suggesting that resilience-oriented educational and psychological interventions may enhance academic adjustment among left-behind adolescents.

KEYWORDS

Parent attachment;
peer attachment;
academic self-concept;
left-behind adolescents;
migrant family

ARTICLE HISTORY

Received 3 March 2026

Revised 17 September 2026

Accepted 24 September 2026

Introduction

Adolescence marks a significant stage of human development, during which changes in biological, cognitive, emotional, and social functioning interact to shape young people's identities and educational experiences. During this period, individuals face the developmental task of identity versus role confusion, as conceptualized by Erikson (1968), while developing a more complex understanding of themselves and their identity (Santrock, 2011). One important domain of self-perception during adolescence is academic self-concept, which influences motivation, persistence, and long-term educational trajectories (Marsh & Martin, 2011).

However, not all adolescents experience this developmental phase within stable family environments. Global labor migration has contributed to an increase in the number of left-behind adolescents, who remain in their home communities while one or both parents migrate for employment. Empirical evidence from China, Southeast Asia, and Eastern Europe indicates that left-behind adolescents are at greater risk of experiencing emotional distress, loneliness, behavioral problems, and academic disengagement (Antia et al., 2020; Zhou et al., 2020; Rîjniță

& Luștrea, 2024). In Indonesia, this phenomenon reflects a substantial social reality. Official data from the Directorate General of Placement of KP2MI indicate that hundreds of thousands of Indonesian migrant workers are deployed annually, with women constituting the majority of migrant workers (Direktorat Jenderal Penempatan KP2MI, 2025). This condition is particularly evident in Belu Regency, East Nusa Tenggara, where maternal migration is highly dominant (89.70% of total migrants originating from Belu), leaving adolescents in caregiving arrangements characterized by very limited parental involvement (Balai Pelayanan Pelindungan Pekerja Migran Indonesia Nusa Tenggara Timur, personal communication, Oktober 30, 2025). Prolonged parental absence may create challenges for adolescents' social adjustment, particularly among families of Indonesian migrant workers (Hasanah & Alfiasari, 2023; Nugraha, 2025; Shu, 2021).

The experiences of left-behind adolescents can be examined through the combined perspectives of ecological systems theory, attachment theory, and the conceptualization of academic self-concept. From an ecological standpoint, parental migration represents a change in the exosystem that may indirectly influence caregiving arrangements and the emotional resources available within adolescents' immediate environments (Bronfenbrenner, 1979). Attachment Theory Bowlby, further explains that disruptions in parent-adolescent relationships resulting from physical separation may influence the internal working models adolescents use to regulate emotions and construct self-perceptions (Bowlby, 1969). Consequently, the microsystem, particularly parent-adolescent and peer relationships, becomes crucial in shaping the psychological adjustment and academic functioning of left-behind adolescents. Therefore, understanding academic self-concept among this population requires an integrated ecological perspective rather than examining each factor independently.

Academic self-concept, as conceptualized by Minchekar (2019), is a multidimensional construct encompassing perceptions of academic ability, study habits, academic interactions, effort, and future academic aspirations. This construct plays an important role in shaping motivation, achievement-related behaviors, and resilience within educational contexts. Empirical evidence indicates that adolescents with lower academic self-concept may experience reduced persistence, greater academic anxiety, and poorer academic performance (Céspedes et al., 2020). Within the context of left-behind adolescents, academic self-concept becomes particularly vulnerable due to reduced relational support from physically absent parents.

Attachment theory, as proposed by Bowlby, further explains how early emotional bonds shape internal working models that influence self-perception and coping mechanisms. During adolescence, attachment relationships become increasingly diverse as young people develop stronger connections beyond the family, particularly with peers. In this context, the Inventory of Parent and Peer Attachment (IPPA), developed by Armsden and Greenberg (1987), assesses relational experiences through dimensions of trust, communication, and alienation. Previous research has associated secure attachment with more favorable psychological and emotional outcomes, whereas insecure attachment has been linked to difficulties involving anxiety, self-esteem, and academic functioning (Armsden & Greenberg, 1987; Wentzel et al., 2021). Even under conditions of physical separation caused by migration, internalized emotional security may continue to function as a psychological foundation. In contrast, insecure attachment has been associated with anxiety, lower self-esteem, and maladaptive academic behaviors (Bowlby, 1969; Wentzel et al., 2021). Within the framework of this study, parent attachment and peer attachment are positioned as exogenous variables that structurally influence academic self-concept, both directly and indirectly through mediating mechanisms.

Peer attachment becomes increasingly important during adolescence because peers provide emotional validation and social comparison frameworks that influence academic self-confidence (Marsh & Martin, 2011). Supportive peer relationships are positively associated with academic engagement and school adjustment, whereas peer rejection or stigmatization may

undermine self-concept and increase academic stress (Rodríguez-Fernández A. & Fernández-Zabala, 2024). Research further suggests that peer relationships constitute an important social context in the development of adolescents' self-concept (Fernández-Zabala et al., 2020). For left-behind adolescents, whose interactions with parents are limited, peers play a greater role as sources of affirmation and direct feedback that shape beliefs regarding academic competence (Yue et al., 2020).

Nevertheless, empirical findings indicate that not all left-behind adolescents experience maladaptive outcomes; some are able to maintain academic engagement and psychological stability despite prolonged parental absence. At the same time, research has documented variability in the well-being of left-behind children, with factors such as parent-child communication and caregiving arrangements associated with their subjective well-being (Ye et al., 2020). Such differences indicate the importance of examining psychological resources that may help adolescents adapt to challenging circumstances. In this study, resilience is understood as a multidimensional capacity involving personal competence, social competence, structured style, family cohesion, and social resources (Hjemdal et al., 2006b). Recent studies have highlighted resilience as a mediating mechanism linking early relational security with positive psychosocial outcomes (Yu et al., 2020; Martín Quintana et al., 2023). From a conceptual perspective, internalized security in attachment relationships may provide adolescents with psychological resources for managing challenges and maintaining emotional stability despite parental physical absence. These resources may subsequently contribute to the development of a more positive academic self-concept (Masten & Barnes, 2018; Fellmeth et al., 2018).

Although previous studies have examined the relationships among interpersonal support, academic motivation, and adolescents' psychological adjustment (Wentzel et al., 2021), as well as resilience as a protective factor in developmental adaptation (Masten, 2018; Ungar, 2021), limited research has examined how these established developmental mechanisms operate among left-behind adolescents within migrant-sending communities characterized by prolonged parental migration and dominant maternal absence. Focusing on adolescents experiencing parental migration in Belu Regency, East Nusa Tenggara, this study examines how attachment and resilience relate to academic self-concept within a family environment shaped by parental absence and broader ecological changes.

The present study investigates whether parent and peer attachment are associated with adolescents' academic self-concept, while examining resilience as a potential mediator of these associations among left-behind adolescents.

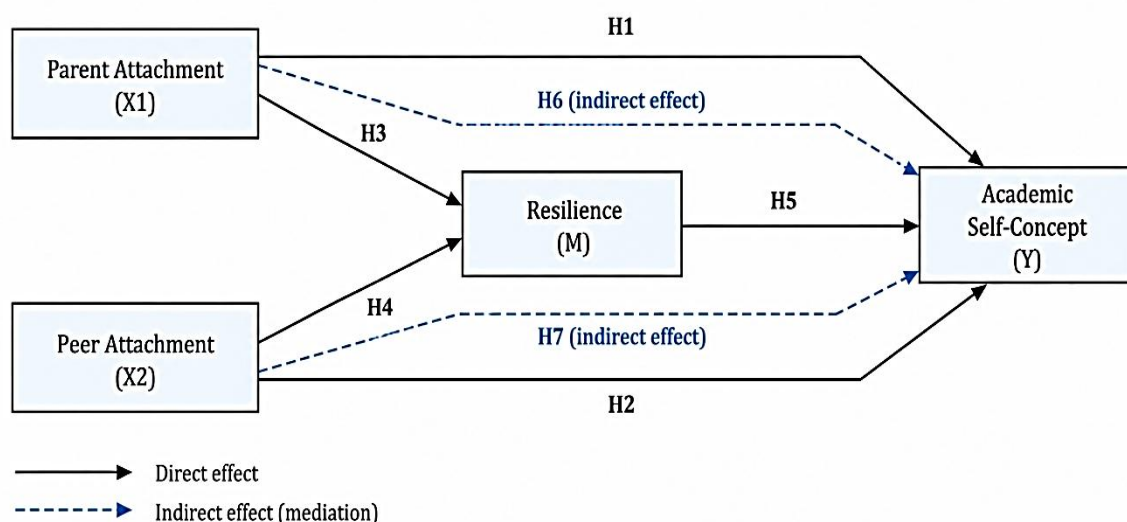


Figure 1. Conceptual Framework and Hypotheses

Research Hypotheses

H1: Parent attachment significantly predicts academic self-concept among left-behind adolescents.

H2: Peer attachment significantly predicts academic self-concept among left-behind adolescents.

H3: Parent attachment significantly predicts resilience among left-behind adolescents.

H4: Peer attachment significantly predicts resilience among left-behind adolescents.

H5: Resilience significantly predicts academic self-concept among left-behind adolescents.

H6: Resilience mediates the relationship between parent attachment and academic self-concept among left-behind adolescents.

H7: Resilience mediates the relationship between peer attachment and academic self-concept among left-behind adolescents.

Method

Research Design

This research adopted a quantitative, exploratory, cross-sectional design to investigate the structural associations among parent attachment, peer attachment, resilience, and academic self-concept. Partial Least Squares Structural Equation Modeling (PLS-SEM) was selected as the primary analytical technique because it aligns with the study's predictive and exploratory objectives. First, this study focused on examining predictive relationships and indirect effects among multiple latent constructs within a relatively complex structural model. Second, PLS-SEM is particularly suitable for variance-based prediction oriented research that emphasizes explained variance and model prediction rather than covariance reproduction (Hair et al., 2022; Sarstedt et al., 2022). Third, the method is particularly suitable for examining complex structural models involving mediation relationships and does not impose the same distributional requirements as covariance-based SEM (CB-SEM). While CB-SEM is commonly used for theory testing and model fit evaluation, PLS-SEM emphasizes the explanation of variance and prediction of endogenous constructs (Hair et al., 2022).

Participants

A total of 288 adolescents experiencing parental labor migration participated in this study. The participants were drawn from senior high schools in Belu Regency, East Nusa Tenggara, Indonesia, through a multistage sampling process. The sampling procedure involved cluster sampling across 12 districts, followed by purposive selection of students who satisfied the predetermined eligibility requirements. Participants were eligible if they were between 15 and 19 years of age, enrolled in either a senior high school or vocational high school, and had experienced parental labor migration for a minimum of one year. This age group was considered relevant because adolescence involves significant developmental changes in self-understanding, identity formation, and relationships with parents and peers (Santrock, 2011).

Belu Regency was selected as the research setting because it is one of the major migrant-sending regions in East Nusa Tenggara and is characterized by a high prevalence of maternal migration (89.70%), making it a contextually relevant setting for examining psychological processes among left-behind adolescents (Balai Pelayanan Pelindungan Pekerja Migran Indonesia Nusa Tenggara Timur, personal communication, Oktober 30, 2025).

The participant group included 85 male adolescents (29.5%) and 203 female adolescents (70.5%), averaging 17.02 years of age ($SD = 1.08$). In terms of parental migration patterns, 36.5% reported that only their fathers had migrated, 22.9% indicated migration involving only their mothers, and 40.6% reported that both parents had migrated. The adequacy of the sample was evaluated through a statistical power analysis performed in SmartPLS 4. Based on the methodological recommendations of Hair et al. (2022), the analysis applied an alpha level of .05

and statistical power of .80. The calculation indicated that at least 188 participants were required, based on the smallest meaningful path coefficient specified in the structural model. Since the study included 288 participants, the obtained sample exceeded the calculated minimum and provided the basis for conducting the PLS-SEM analysis..

Procedure

Self-report data were obtained through questionnaires delivered in two formats: online surveys via Google Forms and printed questionnaires, with the format determined by the facilities available at each participating school. Before initiating the fieldwork, the research team coordinated with relevant educational authorities, school principals, school counselors, and homeroom teachers. This coordination facilitated the identification of eligible participants and the scheduling of questionnaire administration.

The researchers were directly present at each participating school during data collection to explain the general purpose and procedures of the study and to assist participants when necessary. Participants who met the inclusion criteria completed the questionnaires in accordance with the data collection procedures established by each school. No financial incentives or rewards were provided for participation.

Ethical Considerations and Research Permissions

Research authorization was secured from the Faculty of Psychology, Universitas Negeri Malang, before fieldwork commenced. The permission letter was submitted through the relevant local educational authority to the participating schools, and permission to conduct the study was subsequently granted by the principals of the participating schools.

At the time this thesis research was conducted, formal ethical clearance was not required under the institutional procedures applicable to this type of student research. Consequently, the study was not assigned an Ethical Clearance Certificate Number, and approval from a formal ethics committee was not obtained. Despite this, the research was conducted in accordance with fundamental ethical principles governing research with human participants.

Prior to questionnaire administration, participants were provided with oral and written information concerning the study's purpose and procedures, the voluntary nature of their involvement, the protection of response confidentiality, and the anonymity of their identities. They were also informed of their right to refuse participation or discontinue their involvement at any stage without adverse consequences. Written informed consent was obtained from all participants before data collection began. The research took place within the participating schools with the awareness and authorization of the relevant school authorities. Throughout the study, the researchers sought to minimize potential risks, protect participants' anonymity and confidentiality, and use the collected data solely for research purposes.

Measures

The Academic Self-Concept Scale (ASCS) and Resilience Scale for Adolescents (READ), which were adapted for the present study, underwent an expert review process prior to pilot testing and administration. The expert review panel consisted of three reviewers with complementary expertise: one psychologist and one psychometrician, both with expertise in psychological assessment and measurement, and one English language and translation expert with a bachelor's degree in English and current postgraduate training in psychology. The panel reviewed the conceptual relevance, clarity, linguistic equivalence, and cultural appropriateness of the adapted items. Their recommendations were incorporated into the instrument revisions before the pilot study. Content validity was subsequently evaluated using Aiken's V coefficient.

Academic self-concept was measured using the Academic Self-Concept Scale (ASCS) adapted from Minchekar (2019). The adaptation process followed translation-back-translation

procedures and expert review involving a three-member expert panel. Content validity was subsequently evaluated using Aiken's V coefficient ($V = .86-1.00$), resulting in the elimination of one item. A pilot study involving 60 participants indicated that all remaining 25 items were valid (item-rest correlation $\geq .30$, $p < .001$). Prior to the structural analysis, confirmatory factor analysis (CFA) supported the adequacy of the measurement model, with satisfactory goodness-of-fit indices (RMSEA = .023, CFI = .994, TLI = .993, GFI = .924, SRMR = .019). All factor loadings exceeded .70 and the Average Variance Extracted (AVE = .665) indicated adequate convergent validity. The scale demonstrated excellent internal consistency (Cronbach's $\alpha = .918$).

Parent attachment was assessed using the Indonesian adaptation of the Inventory of Parent and Peer Attachment (IPPA) parent subscale (Idriyani, 2020). After the elimination of three items that did not meet psychometric criteria, the final scale consisted of 22 valid items (item-rest correlation $\geq .30$, $p < .05$). CFA results indicated satisfactory model fit (RMSEA = .018, CFI = .997, TLI = .996, GFI = .937, SRMR = .019), with all factor loadings above .70 and AVE = .661, supporting convergent validity. The scale demonstrated good reliability (Cronbach's $\alpha = .868$).

Peer attachment was measured using the Indonesian adaptation of the IPPA peer subscale (Kusumawardani, 2019), consisting of 24 items. All items demonstrated satisfactory validity (item-rest correlation = .651-.854, $p < .001$). CFA indicated excellent model fit (RMSEA = .024, CFI = .994, TLI = .993, GFI = .925, SRMR = .020), with factor loadings above .70 and AVE = .654. The scale demonstrated excellent internal consistency (Cronbach's $\alpha = .974$).

Resilience was measured using the Resilience Scale for Adolescents-READ (Hjemdal et al., 2006a), which was adapted into Indonesian following the International Test Commission (ITC) Guidelines for Test Adaptation, including forward translation, expert judgment, backward translation, and pilot testing. Content validity evaluation using Aiken's V yielded coefficients ranging from .83 to 1.00. Following pilot testing with 60 participants, two items were removed and 26 valid items were retained. CFA supported the adequacy of the measurement model (RMSEA = .011, CFI = .998, TLI = .998, GFI = .926, SRMR = .019), with all factor loadings above .70 and AVE = .656. The scale demonstrated excellent reliability (Cronbach's $\alpha = .911$).

Data Analysis

Descriptive statistics, including means, standard deviations, correlations, and normality indices, were computed using JASP software. Normality was assessed through skewness and kurtosis values, with values within ± 2 considered acceptable (Gravetter et al., 2021).

Structural model analysis was conducted using SmartPLS 4 following a two-stage Partial Least Squares Structural Equation Modeling (PLS-SEM) procedure (Hair et al., 2022). The first stage involved assessing the measurement model (outer model). This assessment included indicator reliability based on outer loadings, internal consistency through Cronbach's alpha and composite reliability (CR), and convergent validity using the average variance extracted (AVE). Discriminant validity was evaluated through the Heterotrait-Monotrait ratio (HTMT), the Fornell-Larcker criterion, and cross-loading analysis. In addition, the model's approximate fit was examined using the standardized root mean square residual (SRMR).

Second, the structural model (inner model) was evaluated by examining collinearity statistics, path coefficients, coefficient of determination (R^2), effect size (f^2), predictive relevance (Q^2), and mediation effects. The significance of the proposed direct and indirect associations was tested through bootstrapping with 5.000 resamples and bias-corrected confidence intervals.

Result

Descriptive analysis

Table 1 presents descriptive statistics, reliability coefficients, normality indices, and Pearson correlations among the study variables. Parent attachment ($M=66.11$, $SD=16.23$), peer attachment ($M=72.02$, $SD=18.87$), resilience ($M=78.09$, $SD=20.48$), and academic self-concept ($M=75.07$, $SD=19.45$) demonstrated adequate variability. All constructs showed good internal consistency, with Cronbach's alpha values ranging from .868 to .974. Skewness and kurtosis values were within acceptable limits (± 2), indicating normal distribution.

Table 1.

Descriptive Analysis Results

Variable	M	SD	1	2	3	4	α	Skew	Kurtosis
Parent Attachment	66.11	16.23	—				.868	.090	-.409
Peer Attachment	72.02	18.87	.462**	—			.974	.109	-.429
Resilience	78.09	20.48	.391**	.410**	—		.911	-.074	-.351
Academic Self-Concept	75.07	19.45	.331**	.416**	.620**	—	.918	-.098	-.564

Note: * $p < 0.05$; ** = $p < 0.01$

As shown in Table 1 presents correlations for the study variables, parent attachment was positively correlated with peer attachment ($r = .462$, $p < .001$), resilience ($r = .391$, $p < .001$), and academic self-concept ($r = .331$, $p < .001$). Peer attachment was also positively associated with resilience ($r = .410$, $p < .001$) and academic self-concept ($r = .416$, $p < .001$). The strongest correlation was found between resilience and academic self-concept ($r = .620$, $p < .001$). None of the correlation coefficients exceeded .90, indicating no multicollinearity concerns.

Measurement Model

The quality of the measurement model was examined in SmartPLS 4 through Partial Least Squares Structural Equation Modeling (PLS-SEM), applying the two-stage analytical procedure recommended by Hair et al. (2022). Before proceeding to the structural model assessment, the analysis focused on establishing the convergent validity, internal consistency reliability, and discriminant validity of the measurement instruments.

Convergent validity was determined by examining the outer loading coefficients and Average Variance Extracted (AVE). Indicators with outer loadings exceeding .70 and constructs with AVE values greater than .50 were considered to meet the recommended criteria (Hair et al., 2022). Internal consistency reliability was assessed using Cronbach's alpha and Composite Reliability (CR), with coefficients above .70 interpreted as satisfactory (Nunnally & Bernstein, 1994).

Discriminant validity was evaluated through three complementary procedures: the Heterotrait–Monotrait ratio (HTMT), the Fornell–Larcker criterion, and cross-loading analysis. HTMT coefficients below .85 were interpreted as evidence of adequate discriminant validity (Henseler et al., 2015). In addition, discriminant validity is supported when the square root of AVE for each construct exceeds its correlations with other constructs and when indicators demonstrate higher loadings on their intended constructs than on other constructs. Model fit was additionally assessed using the standardized root mean square residual (SRMR), with values below .08 indicating acceptable model fit.

Table 2 presents the summary results of the measurement model evaluation, including mean outer loadings, internal consistency reliability, composite reliability, and convergent validity for each construct and dimension.

Table 2.

Constructs Reliability and Validity

Variables/Constructs	Dimensions	No. of Items	Mean Loadings	α	CR	AVE	Interpretation
Parent Attachment	Trust	9	.72	.868	.869	.534	Valid
	Communication	8	.74				
	Alienation	5	.74				
Peer Attachment	Trust	9	.77	.974	.975	.604	Valid
	Communication	9	.78				
	Alienation	6	.78				
Resilience	Personal Competence	5	.76	.911	.911	.605	Valid
	Family Cohesion	6	.78				
	Social Competence	5	.76				
	Social Resources	4	.80				
	Structured Style	6	.78				
Academic Self-Concept	Academic Ability	7	.77	.918	.918	.589	Valid
	Academic Study	4	.80				
	Academic Efforts	4	.74				
	Academic Interaction	5	.76				
	Academic Future	5	.76				

As presented in Table 2, all constructs demonstrated satisfactory convergent validity and internal consistency reliability. Mean loading values ranged from .74 to .81, exceeding the recommended threshold of .70. In addition, all constructs achieved Composite Reliability (CR) values above .70 and Average Variance Extracted (AVE) values above .50, indicating adequate reliability and convergent validity (Hair et al., 2022). These findings suggest that the indicators adequately represented their respective latent constructs. The complete factor loadings matrix is provided in the Supplementary Material (Appendix A).

Discriminant validity was further evaluated using the Heterotrait–Monotrait ratio (HTMT). According to Henseler et al. (2015), HTMT values below .85 indicate adequate discriminant validity between latent constructs. The HTMT results are presented in Table 3.

Table 3.

Heterotrait – Monotrait Ratio (HTMT)

Variable	ASC	PA	PeA
Parent Attachment	.343		
Peer Attachment	.429	.479	
Resilience	.638	.405	.422

Note: ASC (Academic Self-Concept), PA (Parent Attachment), PeA (Peer Attachment)

The HTMT assessment presented in Table 3 yielded values between .343 and .638, with each value remaining below the established criterion of .85. This pattern of results supports the presence of satisfactory discriminant validity, suggesting that the constructs represent distinct empirical concepts.

Discriminant validity was also examined using the Fornell–Larcker criterion. According to Fornell and Larcker (1981), discriminant validity is established when the square root of the

Average Variance Extracted (AVE) for each construct exceeds its correlations with other constructs. The results are presented in Table 4.

Table 4.
Fornell-Larcker

Variable	ASC	PA	PeA	RES
Academic Self-Concept	.767			
Parent Attachment	.335	.731		
Peer Attachment	.420	.464	.777	
Resilience	.624	.398	.414	.778

Note: ASC (Academic Self-Concept), PA (Parent Attachment), PeA (Peer Attachment), RES (Resilience)

As shown in Table 4, the square root of AVE values ranged from .731 to .778 and were consistently higher than the inter-construct correlations, which ranged from .335 to .624. These findings indicate that all constructs demonstrated satisfactory discriminant validity based on the Fornell–Larcker criterion.

Cross-loadings were additionally examined to further assess indicator discriminant validity. The results indicated that all indicators loaded more strongly on their respective constructs than on other constructs, supporting adequate discriminant validity at the indicator level. Due to space limitations, detailed cross-loading results are available in the Supplementary Material (Appendix B).

Model fit evaluation in PLS-SEM was conducted using the Standardized Root Mean Square Residual (SRMR) and Normed Fit Index (NFI), as recommended by Hair et al. (2022) and Henseler et al. (2015). SRMR was used to assess the average magnitude of residual correlations between the observed and model-implied correlation matrices, with values below .08 indicating a good model fit. NFI was additionally reported to evaluate the relative improvement of the proposed model compared to a null model, with values approaching or exceeding .90 is generally considered acceptable. Chi-square values were reported for descriptive and informational purposes only, considering their sensitivity to sample size in variance-based SEM approaches.

Table 5.
Model Fit Index

Index	Cut off Value	Model Value	Interpretation
SRMR	< .08	.038	Good Fit
NFI	≥ .90	.789	Acceptable
<i>Chi-Square</i>	Informational only	5.380.369	Informational

Based on Table 5, the SRMR value of .038 indicates a good model fit, as it falls below the recommended threshold of .08. The NFI value of .789, although below the conventional .90 criterion, remains acceptable within the context of PLS-SEM, where model fit indices are considered complementary rather than absolute decision criteria. The chi-square statistic is presented for informational purposes due to its sensitivity to sample size. Overall, the results suggest that the proposed model demonstrates adequate fit and is appropriate for structural model analysis.

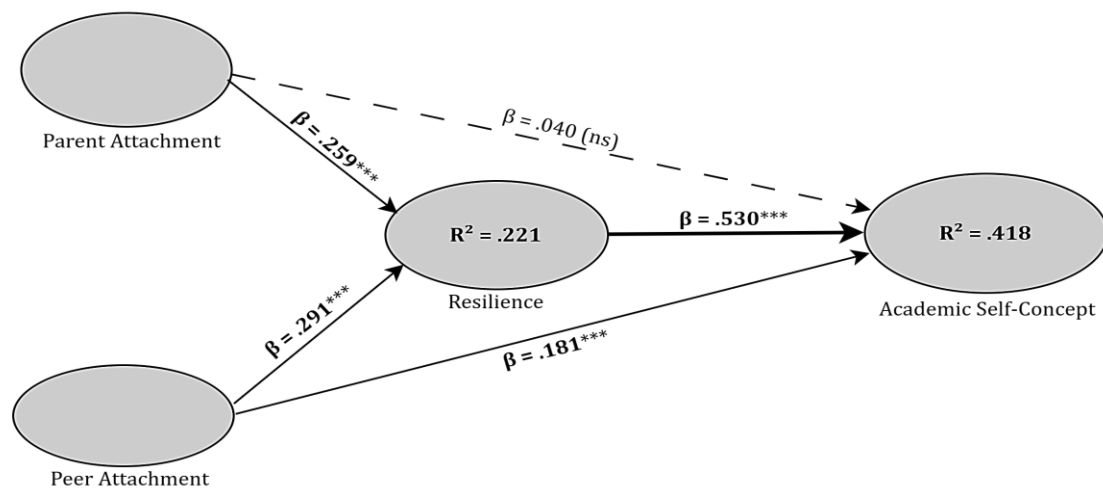
Structural Model Evaluation

Once the measurement model has demonstrated satisfactory quality, the analysis proceeds to the assessment of the structural model. This evaluation examines the proposed associations between latent constructs by considering both direct and mediated pathways. The

model is assessed through the estimation of path coefficients, their statistical significance, and the predictive performance of the model using bootstrapping procedures..

Several criteria are considered to evaluate the explanatory and predictive characteristics of the structural model. The path coefficients (β) describe the direction and magnitude of the relationships between constructs, whereas the coefficient of determination (R^2) indicates the proportion of variance in an endogenous construct accounted for by its predictor variables. The explanatory contribution of each exogenous construct is further examined through the effect size (f^2), which indicates the extent to which an individual predictor contributes to the explained variance of an endogenous construct. Predictive relevance was also assessed using the Q^2 value, which evaluates the model's out-of-sample predictive capability. The R^2 values and Q^2 value of the endogenous variables are presented in Table 6 and the effect size (f^2) of the exogenous constructs in Table 7, while the detailed structural path results are reported in Table 8.

Overall, this comprehensive evaluation ensures that the structural model is statistically robust, theoretically meaningful, and demonstrates adequate explanatory and predictive power.



Note. *** $p < .001$; ns = non-significant.

Figure 2. Structural Model Illustrating

Table 6.

Coefficient of Determination (R^2) and Predictive Relevance (Q^2)

Endogenous Construct	R^2	Explanatory Power	Q^2	Predictive Relevance
Resilience	.221	Weak-Moderate	.210	Yes
Academic Self-Concept	.418	Moderate	.189	Yes

Note: $R^2 = .25$ (weak), $.50$ (moderate), $.75$ (substantial); $Q^2 > 0$: The model demonstrates adequate predictive relevance.

Based on Table 6, the R^2 value for Resilience is .221, indicating that Parent Attachment and Peer Attachment explain 22.1% of the variance in Resilience, reflecting weak to moderate explanatory power. Meanwhile, Academic Self-Concept has an R^2 value of .418, meaning that 41.8% of its variance is explained by Parent Attachment, Peer Attachment, and Resilience, indicating moderate predictive accuracy. The R^2 value for Resilience (.221) indicates weak explanatory power, while Academic Self-Concept (.418) demonstrates weak but meaningful explanatory capability in the context of social science research (Hair et al., 2021). Furthermore,

the Q^2 values for Resilience (.210) and Academic Self-Concept (.189) are greater than zero, confirming that the structural model demonstrates predictive relevance for both endogenous constructs.

Table 7.

Effect Size (f^2) of Exogenous Constructs

Structural Relationship	f^2	Effect Size
Parent Attachment → Academic Self-Concept	.002	Negligible
Parent Attachment → Resilience	.068	Small
Peer Attachment → Academic Self-Concept	.041	Small
Peer Attachment → Resilience	.086	Small
Resilience → Academic Self-Concept	.376	Large

Note: f^2 : .02 = small, .15 = medium, .35 = large

Based on Table 7 regarding effect size (f^2), Resilience shows a large effect on Academic Self-Concept ($f^2 = .376$), indicating that it plays a substantial role in explaining students' academic self-concept. In contrast, Parent Attachment and Peer Attachment exhibit small effects on Resilience ($f^2 = .068$ and .086, respectively) and small to negligible effects on Academic Self-Concept ($f^2 = .041$ and .002, respectively). These findings suggest that Resilience functions as a key explanatory mechanism in the model, particularly in mediating the relationship between attachment variables and Academic Self-Concept.

Hypotheses Testing

This section presents the results of both direct, indirect effects, and total effects among Parent Attachment, Peer Attachment, Resilience, and Academic Self-Concept. The direct effects were first examined to determine whether attachment variables significantly influence Academic Self-Concept and Resilience.

Table 8.

Hypothesis Testing (β Value and t Value)

	β -value	SD	T -value	p -value	Title
Direct Effect					
Parent Attachment → Academic Self-Concept	.040	.057	.690	.490	Not Significant
Parent Attachment → Resilience	.259	.058	4.493	.000*	Significant
Peer Attachment → Academic Self-Concept	.181	.052	3.494	.000*	Significant
Peer Attachment → Resilience	.291	.062	4.685	.000*	Significant
Resilience → Academic Self-Concept	.530	.043	12.256	.000*	Significant
Indirect Effect					
Parent Attachment → Resilience → Academic Self-Concept	.137	.032	4.220	.000*	Significant
Peer Attachment → Resilience → Academic Self-Concept	.155	.035	4.393	.000*	Significant
Total Effect					
Parent Attachment → Academic Self-Concept + Parent Attachment → Resilience → Academic Self-Concept	.177	.060	2.925	.003*	Significant
Peer Attachment → Academic Self-Concept + Peer Attachment → Resilience → Academic Self-Concept	.336	.056	6.012	.000*	Significant

Note: T -value: >1.96; * $p < .05$

Bootstrapping analysis was conducted in SmartPLS 4 to assess the structural model. The hypothesis testing outcomes are reported in Table 8, which summarizes the standardized path coefficients (β), t-statistics, and p-values associated with the direct, indirect, and total effects.

1. Hypothesis 1 (H1) proposed that parent attachment would positively predict academic self-concept. As shown in Table 8, the relationship was not statistically significant ($\beta = .040, t = 0.690, p = .490$). Therefore, H1 was not supported.
2. Hypothesis 2 (H2) proposed that peer attachment would positively predict academic self-concept. The results indicated a significant positive relationship ($\beta = .181, t = 3.494, p < .001$). Therefore, H2 was supported.
3. Hypothesis 3 (H3) proposed that parent attachment would positively predict resilience. The findings showed a significant positive effect ($\beta = .259, t = 4.493, p < .001$). Therefore, H3 was supported.
4. Hypothesis 4 (H4) proposed that peer attachment would positively predict resilience. The results demonstrated a significant positive effect ($\beta = .291, t = 4.685, p < .001$). Therefore, H4 was supported.
5. Hypothesis 5 (H5) proposed that resilience would positively predict academic self-concept. As presented in Table 8, resilience exerted a significant positive effect on academic self-concept ($\beta = .530, t = 12.256, p < .001$). Therefore, H5 was supported.
6. The indirect effects were subsequently examined to evaluate the mediating role of resilience.
7. Hypothesis 6 (H6) proposed that resilience mediates the relationship between parent attachment and academic self-concept. The indirect effect was statistically significant ($\beta = .137, t = 4.220, p < .001$), indicating that resilience significantly mediated this relationship. Therefore, H6 was supported.
8. Hypothesis 7 (H7) proposed that resilience mediates the relationship between peer attachment and academic self-concept. The results also revealed a significant indirect effect ($\beta = .155, t = 4.393, p < .001$). Therefore, H7 was supported.

Overall, six of the seven proposed hypotheses were supported. Only the direct effect of parent attachment on academic self-concept (H1) was not statistically significant, whereas all remaining direct and indirect relationships were statistically significant.

The type of mediation was determined using the Variance Accounted For (VAF) value. VAF is calculated as the ratio of the indirect effect coefficient to the total effect coefficient (Hair et al., 2022; Sarstedt et al., 2022). The VAF value for the relationship between Parent Attachment and Peer Attachment to Academic Self-Concept through Resilience.

Table 9.
Mediation Analysis (VAF)

Relationship	Direct Effect	Indirect Effect	Total Effect	VAF (%)	Mediation Type
Parent Attachment → Academic Self-Concept	.040	.137	.177	77.4*	Full
Peer Attachment → Academic Self-Concept	.181	.155	.336	46.1*	Partial

Note: VAF: <20% (No Mediation), 20% – 75% (Partial Mediation), >75% (Full Mediation)

Table 9 presents the mediation analysis results using the Variance Accounted For (VAF) approach to examine the extent to which Resilience mediates the relationship between

attachment variables and Academic Self-Concept. For the relationship between Parent Attachment and Academic Self-Concept, the direct effect is not significant ($\beta = .040$), whereas the indirect effect through Resilience is significant ($\beta = .137$), resulting in a total effect of .177. The VAF value of 77.4% indicates that most of the influence of Parent Attachment on Academic Self-Concept operates through Resilience. Given that the indirect effect is significant while the direct effect is not, Resilience can be interpreted as fully mediating the relationship between Parent Attachment and Academic Self-Concept.

In contrast, for the relationship between Peer Attachment and Academic Self-Concept, both the direct effect ($\beta = .181$) and the indirect effect through Resilience ($\beta = .155$) are significant, with a total effect of .336. The VAF value of 46.1% suggests that Resilience partially mediates this relationship. This indicates that Peer Attachment influences Academic Self-Concept both directly and indirectly through Resilience.

Overall, the findings confirm the central role of Resilience as a mediating variable, particularly in fully transmitting the effect of Parent Attachment and partially transmitting the effect of Peer Attachment on Academic Self-Concept.

Discussion

The present study provides evidence that attachment relationships and resilience jointly shape academic self-concept among left-behind adolescents, although the developmental pathways through which these associations operate differ according to the source of attachment. Overall, the findings indicate that attachment relationships remain important developmental resources within migration-affected families. However, parent attachment and peer attachment influence adolescents' academic self-concept through different mechanisms. Parent attachment contributed indirectly through resilience, whereas peer attachment exerted both direct and indirect effects. Resilience demonstrated the most substantial predictive contribution to academic self-concept, suggesting that it may serve as a key mechanism through which adolescents' relational experiences are transformed into positive perceptions of their academic abilities.

These findings provide empirical support for the ecological-developmental perspective that adolescent adjustment results from dynamic interactions between interpersonal relationships and adaptive psychological capacities rather than from relational experiences alone (Bronfenbrenner, 1979; Ungar, 2021). Within the context of prolonged parental migration, emotional support from parents and peers appears to influence academic development through different yet complementary pathways. While parent attachment primarily strengthens adolescents' adaptive capacity to cope with adversity, peer attachment contributes directly through daily social interactions and indirectly by fostering resilience. Collectively, these findings position resilience as the key psychological mechanism through which supportive relationships are transformed into positive academic self-concept.

The present study further revealed distinct developmental roles of parent and peer attachment in shaping adolescents' academic self-concept. Parent attachment did not directly predict academic self-concept, whereas peer attachment demonstrated a significant positive direct effect. These contrasting findings suggest that, although both attachment relationships remain psychologically important, their developmental functions differ during adolescence, particularly in families experiencing prolonged parental migration.

This pattern can be understood through Attachment Theory, which proposes that secure attachment provides internal working models that influence individuals' perceptions of themselves and others (Bowlby, 1969). During adolescence, however, the developmental significance of attachment figures gradually changes. While parents continue to provide emotional security, peers increasingly become important sources of social acceptance and competence-related feedback that contribute to adolescents' academic self-evaluations

(Armsden & Greenberg, 1987; Wentzel et al., 2021). This interpretation is consistent with broader evidence showing that supportive peer relationships are important for adolescents' social-emotional well-being and adjustment (Mitic et al., 2021). Consequently, supportive peer relationships may exert a more immediate influence on academic self-concept because they are embedded within adolescents' everyday academic and social experiences.

The absence of a direct relationship between parent attachment and academic self-concept should not be interpreted as evidence that parental attachment has lost its developmental importance. By contrast, the results indicate that parent attachment may influence academic self-concept indirectly rather than proximally, with its effects potentially unfolding through adolescents' adaptive resources, as evidenced by the significant indirect effect mediated by resilience. Rather, prolonged parental migration may reduce opportunities for everyday academic guidance, emotional encouragement, and direct parent-child interaction despite the persistence of emotional bonds. Consequently, adolescents may rely more heavily on proximal social environments, particularly peers, when evaluating their academic competence. This interpretation is consistent with Ecological Systems Theory, which emphasizes that developmental outcomes emerge through continuous interactions between individuals and their immediate social contexts (Bronfenbrenner, 1979). Accordingly, the present findings extend previous research by demonstrating that attachment relationships operate differently within migration-affected families than in intact family contexts (Fellmeth et al., 2018).

Beyond their differing contributions to academic self-concept, both parent attachment and peer attachment significantly strengthened adolescents' resilience, highlighting the importance of supportive interpersonal relationships as protective developmental resources. This finding is broadly consistent with evidence from left-behind adolescents showing that parental migration and parent-child relationships are associated with adolescents' psychological adjustment, although these associations may vary across contexts (Kharel et al., 2021). More specifically, evidence from left-behind adolescents indicates that better parent-child communication is associated with stronger psychological resilience, whereas parental absence is associated with poorer resilience (Zhou et al., 2021). Secure attachment relationships appear to provide emotional security, trust, and effective coping capacities that enable adolescents to adapt successfully despite prolonged parental separation (Bowlby, 1969). Emotional bonds with parents continue to function as enduring psychological resources, whereas supportive peer relationships provide belongingness, emotional validation, and opportunities for adaptive social learning during adolescence (Armsden & Greenberg, 1987). Together, these relational experiences enhance adolescents' ability to regulate emotions, cope with stress, and navigate developmental challenges successfully.

This finding is also consistent with Ecological Systems Theory, which conceptualizes resilience as an adaptive process emerging from continuous interactions between individuals and their surrounding social environments (Bronfenbrenner, 1979). Within migration-affected families, reduced parental availability may increase the developmental significance of other supportive social relationships, including peer relationships. Rather than developing in isolation, resilience appears to emerge from the combined influence of emotionally supportive family relationships and positive peer interactions. This interpretation aligns with previous studies demonstrating that secure attachment relationships promote resilience across diverse adolescent populations (Masten & Barnes, 2018; Shao & Kang, 2022; Yu et al., 2020), while extending this evidence to adolescents living in communities characterized by prolonged parental migration.

Building upon these findings, the present study identified resilience as the strongest predictor of academic self-concept, emphasizing its central role in adolescent academic development. Adolescents with higher resilience reported more positive perceptions of their academic abilities, suggesting that resilience enables them to maintain motivation, regulate

negative emotions, recover from setbacks, and sustain confidence despite experiencing prolonged parental migration. These findings indicate that supportive relationships alone may be insufficient to enhance academic self-concept unless adolescents are able to internalize these relational experiences into adaptive psychological capacities.

This explanation aligns with current perspectives on resilience, which regard it as an evolving adaptive process in which individuals draw upon personal and contextual resources to respond effectively to challenging circumstances (Masten & Barnes, 2018; Ungar, 2021). This perspective is also consistent with Hjemdal et al. (2006b), who demonstrated that resilience-related protective factors can buffer the development of psychological symptoms in the context of stressful life events. Rather than functioning solely as a protective factor, resilience may represent an important psychological pathway through which supportive relationships are associated with more positive academic self-perceptions. Previous studies have similarly reported positive associations between resilience and academic adjustment (Marsh & Martin, 2011; Fu & Zhou, 2022). However, the present findings further demonstrate that resilience occupies a central explanatory position within an integrated structural model linking attachment relationships and academic self-concept among left-behind adolescents.

The mediation analyses provide further support for this interpretation by indicating that resilience functions as an important mediating pathway through which attachment relationships are associated with academic self-concept. Parent attachment contributed indirectly through resilience, whereas peer attachment operated through both direct and indirect pathways. These distinct patterns suggest that emotionally supportive parent-child relationships primarily strengthen adolescents' internal adaptive capacities, while supportive peer relationships simultaneously reinforce academic confidence through everyday interactions and foster resilience that promotes positive academic self-perceptions. This integrated pattern reinforces the ecological perspective that adolescent development is shaped through complementary influences operating across multiple relational contexts rather than through isolated developmental processes.

Overall, the present findings provide a more comprehensive understanding of adolescent development within migration-affected families by demonstrating that attachment relationships influence academic self-concept through distinct yet complementary pathways. Beyond examining previously documented associations among attachment, resilience, and academic functioning, this study contributes by integrating these constructs within a single structural model among left-behind adolescents, a population that remains underrepresented in psychological research. By identifying resilience as the central psychological mechanism linking supportive relationships and academic self-concept, the present study extends the application of Attachment Theory and Ecological Systems Theory to migration-affected family contexts while providing a clearer explanation of how relational resources foster positive educational development.

From a practical perspective, these findings suggest that interventions designed to strengthen academic self-concept among left-behind adolescents should extend beyond improving parent-child and peer relationships alone. Educational and psychological interventions should also explicitly cultivate resilience by promoting emotional regulation, adaptive coping, problem-solving abilities, and access to supportive social resources. Strengthening these adaptive capacities may enable adolescents to transform supportive relationships into sustained academic confidence despite the challenges associated with prolonged parental migration.

Implications

The findings also carry important practical implications. Schools may play a significant role in strengthening adolescents' resilience through interventions focusing on emotional

regulation, problem-solving skills, and supportive peer interaction. Creating inclusive and supportive school climates may help peer relationships function as protective relational resources that enhance academic self-concept (Rodríguez-Fernández & Fernández-Zabala, 2024). At the family level, maintaining warm, consistent, and meaningful communication between migrant parents and adolescents remains important despite geographical separation. Consistent with Bronfenbrenner's ecological perspective, efforts to support adolescents' academic development may be more effective when interventions target not only individuals but also family, school, and broader social environments simultaneously.

Limitations

Despite these contributions, the study has certain limitations that warrant consideration. Its cross-sectional approach restricts the extent to which causal relationships can be inferred and prevents the assessment of developmental trajectories over time. Furthermore, the use of self-reported data may expose the findings to potential response bias. Subsequent research could adopt longitudinal approaches and incorporate information from multiple informants to provide a more comprehensive understanding of the evolving interplay between ecological contexts and adolescent development. Further research may also incorporate contextual variables such as long-distance parent-child communication quality, teacher support, family cohesion, and socioeconomic conditions that may strengthen or weaken adolescents' adaptive academic development within migrant-family contexts.

Conclusion

The findings emphasize resilience as a key mechanism through which attachment relationships are associated with academic self-concept among left-behind adolescents. Parent attachment influenced academic self-concept indirectly through resilience, whereas peer attachment showed both direct and indirect effects. These findings suggest that within migration-affected family contexts, adaptive psychological capacities and supportive relational environments play important roles in shaping adolescents' academic self-perceptions. The study further emphasizes the importance of strengthening resilience and social support systems to support positive academic development among left-behind adolescents.

Acknowledgement

The authors gratefully acknowledge the participation of the students and the valuable cooperation of school administrators throughout the data collection period. Appreciation is also extended to everyone who contributed to and supported the successful completion of this research.

Author Contributions

ITT was responsible for formulating the research concept, establishing the study design, gathering the data, conducting the statistical analyses, interpreting the results, and drafting the initial manuscript. NE provided overall supervision, participated in refining the research design and methodology, and undertook critical revisions to enhance the manuscript's intellectual content. NE also reviewed and endorsed the final manuscript. IH supported the formulation of the research framework, offered methodological direction, and critically evaluated the manuscript before approving its final version. JG contributed to the theoretical foundation by offering scholarly perspectives on the interplay between attachment, resilience, and academic self-concept during adolescence, including their relevance to psychological and educational adjustment. In addition, JG assisted in elaborating the theoretical and educational or practical

implications of the findings, critically reviewed the manuscript, and approved its final version. All authors reviewed and approved the final manuscript.

References

- Antia, K., Boucsein, J., Deckert, A., Dambach, P., Račaitė, J., Šurkienė, G., ... & Winkler, V. (2020). Effects of international labour migration on the mental health and well-being of left-behind children: A systematic literature review. *International journal of environmental research and public health*, 17(12), 1-17. <https://doi.org/10.3390/ijerph17124335>
- Armsden, G. C., & Greenberg, M. T. (1987). The Inventory of Parent and Peer Attachment: Individual differences and their relationship to psychological well-being in adolescence. *Journal of Youth and Adolescence*, 16(5), 427–454. <https://doi.org/10.1007/BF02202939>
- Bowlby, J. (1969). *Attachment and loss: Volume 1. Attachment*. Basic Books.
- Bronfenbrenner, U. (1979). *The ecology of human development: Experiments by nature and design*. Harvard University Press.
- Céspedes, C., Rubio, A., Viñas, F., Cerrato, S. M., Lara-Órdenes, E., & Ríos, J. (2021). Relationship between self-concept, self-efficacy, and subjective well-being of native and migrant adolescents. *Frontiers in Psychology*, 11, 1-11. <https://doi.org/10.3389/fpsyg.2020.620782>
- Direktorat Jenderal Penempatan KP2MI. (2025). *Rekapitulasi jumlah penempatan pekerja migran indonesia berdasarkan jenis kelamin PMI*. Satu Data KemenP2MI. <https://sdi.bp2mi.go.id/id/dataset/rekapitulasi-jumlah-penempatan-pekerja-migran-indonesia-berdasarkan-jenis-kelamin-pmi-2025>
- Erikson, E. H. (1968). *Identity: Youth and crisis*. W. W. Norton & Company.
- Fellmeth, G., Rose-Clarke, K., Zhao, C., Busert, L. K., Zheng, Y., Massazza, A., ... & Devakumar, D. (2018). Health impacts of parental migration on left-behind children and adolescents: a systematic review and meta-analysis. *The Lancet*, 392(10164), 2567–2582. [https://doi.org/10.1016/S0140-6736\(18\)32558-3](https://doi.org/10.1016/S0140-6736(18)32558-3)
- Fernández-Zabala, A., Ramos-Díaz, E., Rodríguez-Fernández, A., & Núñez, J. L. (2020). Sociometric popularity, perceived peer support, and self-concept in adolescence. *Frontiers in Psychology*, 11, 1-10. <https://doi.org/10.3389/fpsyg.2020.594007>
- Fornell, C., & Larcker, D. F. (1981). Structural equation models with unobservable variables and measurement error: Algebra and statistics. *Journal of Marketing Research*, 18(3), 382–388. <https://doi.org/10.2307/3150980>
- Fu, Y., & Zhou, X. (2022). Effects of parental migration on chinese children's mental health: Mediating roles of social support from different sources. *Child & Family Social Work*, 27(3), 465–477. <https://doi.org/10.1111/cfs.12899>
- Gravetter, F. J., Wallnau, L. B., Forzano, L.-A. B., & Witnauer, J. E. (2021). *Essentials of statistics for the behavioral sciences* (10th ed.). Cengage Learning.
- Hair, J. F., Hult, G. T. M., Ringle, C. M., & Sarstedt, M. (2022). *A primer on Partial Least Squares Structural Equation Modeling (PLS-SEM)* (3rd ed.). Sage Publications.
- Hair Jr, J. F., Hult, G. T. M., Ringle, C. M., Sarstedt, M., Danks, N. P., & Ray, S. (2021). Evaluation of the structural model. In *Partial Least Squares Structural Equation Modeling (PLS-SEM) using R: A workbook* (pp. 115-138). Springer International Publishing. https://doi.org/10.1007/978-3-030-80519-7_6
- Hasanah, N. N., & Alfiasari. (2023). The importance of social support for adolescent's adjustment capabilities of Indonesian migrant worker family. *Journal of Child, Family, and Consumer Studies*, 2(2), 101–112. <https://doi.org/10.29244/jcfcs.2.2.101-112>
- Henseler, J., Ringle, C. M., & Sarstedt, M. (2015). A new criterion for assessing discriminant validity in variance-based structural equation modeling. *Journal of the Academy of Marketing Science*, 43(1), 115–135. <https://doi.org/10.1007/s11747-014-0403-8>
- Hjemdal, O., Friborg, O., Stiles, T. C., Martinussen, M., & Rosenvinge, J. H. (2006a). A new scale for adolescent resilience: Grasping the central protective resources behind healthy development. *Measurement and Evaluation in Counseling and Development*, 39(2), 84–96. <https://doi.org/10.1080/07481756.2006.11909791>

- Hjemdal, O., Friborg, O., Stiles, T. C., Martinussen, M., & Rosenvinge, J. H. (2006b). Resilience predicting psychiatric symptoms: A prospective study of protective factors and their role in adjustment. *Personality and Individual Differences*, 41(1), 189–200. <https://doi.org/10.1016/j.paid.2005.11.019>
- Idriyani, N. (2020). *Adaptasi alat ukur kelekatan dengan orang tua* [Undergraduate thesis, UIN Syarif Hidayatullah Jakarta]. <https://repository.uinjkt.ac.id/dspace/handle/123456789/59974>
- Kharel, M., Akira, S., Kiriya, J., Ong, K. I. C., & Jimba, M. (2021). Parental migration and psychological wellbeing of left-behind adolescents in Western Nepal. *PLoS ONE*, 16(1 January), 1–13. <https://doi.org/10.1371/journal.pone.0245873>
- Kusumawardani, A. (2019). *Pengaruh peer attachment dan religiusitas terhadap regulasi emosi remaja dengan orang tua tunggal* [Undergraduate thesis, UIN Syarif Hidayatullah Jakarta]. <https://repository.uinjkt.ac.id/dspace/handle/123456789/47697>
- Marsh, H. W., & Martin, A. J. (2011). Academic self-concept and academic achievement: Relations and causal ordering. *British Journal of Educational Psychology*, 81(1), 59–77. <https://doi.org/10.1348/000709910X503501>
- Martín Quintana, J. C., Alemán Ramos, P. F., & Morales Almeida, P. (2023). The influence of perceived security in childhood on adult self-concept: The mediating role of resilience and self-esteem. *Healthcare*, 11(17), 1-15. <https://doi.org/10.3390/healthcare11172435>
- Masten, A. S. (2018). Resilience theory and research on children and families: Past, present, and promise. *Journal of Family Theory & Review*, 10(1), 12-31. <https://doi.org/10.1111/jftr.12255>
- Masten, A. S., & Barnes, A. J. (2018). Resilience in children: Developmental perspectives. *Children*, 5(7), 1-16. <https://doi.org/10.3390/children5070098>
- Minchekar, V. S. (2019). Construction and validation of Academic Self Concept Scale (ASCS). *International Journal of Indian Psychology*, 7(2), 2349–3429. <https://doi.org/10.25215/0702.085>
- Mitic, M., Woodcock, K. A., Amering, M., Krammer, I., Stiehl, K. A. M., Zehetmayer, S., & Schrank, B. (2021). Toward an integrated model of supportive peer relationships in early adolescence: A systematic review and exploratory meta-analysis. *Frontiers in Psychology*, 12, 1-28. <https://doi.org/10.3389/fpsyg.2021.589403>
- Nugraha, A. S. (2025). Konstruksi identitas anak pekerja migran Indonesia yang ditinggalkan (studi kasus anak motherless di Desa Sambirejo, Kecamatan Jumantono, Kabupaten Karanganyar, Jawa Tengah). *Journal of Development and Social Change*, 8(1), 43–69. <https://doi.org/10.20961/jodasc.v8i1.99403>
- Nunnally, J. C., & Bernstein, I. H. (1994). *Psychometric Theory* (3rd ed.). McGraw-Hill.
- Rîjñiță, D., & Luștea, A. (2024). Effects of parental migration on adolescents' self-esteem and anxiety. *Revista de Asistență Socială*, XXIII(1), 47–60. <https://doi.org/10.24193/ras.2024.1.04>
- Rodríguez-Fernández A., R.-D. E. A. I., & Fernández-Zabala, A. (2024). Family and peer support, resilience, and academic adjustment in adolescents: A path analysis. *Scandinavian Journal of Psychology*, 65(1), 14–24. <https://doi.org/10.1111/sjop.12842>
- Santrock, J. W. (2011). *Educational psychology* (5th ed.). McGraw-Hill Education.
- Sarstedt, M., Ringle, C. M., & Hair, J. F. (2021). Partial least squares structural equation modeling. In *Handbook of market research* (pp. 587-632). Springer International Publishing. https://doi.org/10.1007/978-3-319-05542-8_15-2
- Shao, Y., & Kang, S. (2022). The association between peer relationship and learning engagement among adolescents: The chain mediating roles of self-efficacy and academic resilience. *Frontiers in Psychology*, 13, 1-13. <https://doi.org/10.3389/fpsyg.2022.938756>
- Shu, B. (2021). Parental migration, parental emotional support, and adolescent children's life satisfaction in rural China: The roles of parent and child gender. *Journal of Family Issues*, 42(8), 1663–1705. <https://doi.org/10.1177/0192513X20946345>
- Ungar, M. (2021). *Multisystemic Resilience: Adaptation and Transformation in Contexts of Change*. Oxford University Press.

- Wentzel, K. R., Jablansky, S., & Scalise, N. R. (2021). Peer social acceptance and academic achievement: A meta-analytic study. *Journal of Educational Psychology*, 113(1), 157–180. <https://doi.org/10.1037/edu0000468>
- Ye, L., Qian, Y., Meng, S., Ye, D., Rong, C., Vandenhousten, E. E., Jing, F., & Mao, Y. (2020). Subjective well-being of left-behind children: A cross-sectional study in a rural area of Eastern China. *Child and Adolescent Psychiatry and Mental Health*, 14, 1-7. <https://doi.org/10.1186/s13034-020-00333-7>
- Yu, S., Zhang, C., Zhou, Y., Shi, Y., & Xu, W. (2020). Longitudinal relationship between inferiority and maladjustment among college students: The mediation of dispositional mindfulness and moderation of left-behind experience. *Children and Youth Services Review*, 116, 1-8. <https://doi.org/10.1016/j.chidyouth.2020.105249>
- Yue, Z., Liu, X., & Li, X. (2020). Peer relationships and academic self-concept among left-behind adolescents in rural China. *Journal of Adolescence*, 79, 120–131. <https://doi.org/10.1016/j.adolescence.2020.01.010>
- Zhou, C., Lv, Q., Yang, N., & Wang, F. (2021). Left-behind children, parent-child communication and psychological resilience: A structural equation modeling analysis. *International Journal of Environmental Research and Public Health*, 18(10), 1-10. <https://doi.org/10.3390/ijerph18105123>
- Zhou, X., Li, W., & Sun, Q. (2020). Peer support, resilience, and academic outcomes among left-behind adolescents. *Child Indicators Research*, 13(4), 1259–1273. <https://doi.org/10.1007/s12187-019-09688-5>