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Near the Ceiling: Perceived Parental Involvement and Academic Self Efficacy among Adolescents in Jambi City, Indonesia

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ABSTRACT

Academic self efficacy is a proximal determinant of how adolescents respond to academic demands, and social cognitive theory identifies parents as key sources of efficacy information. However, direct evidence based on adolescents' own perceptions of parental involvement remains scarce outside university, Chinese, and Western samples. This study examined the association between perceived parental involvement and academic self efficacy among adolescents in Jambi City, Indonesia. A cross sectional correlational survey was conducted with 113 junior high, senior high, and vocational school students aged 12 to 19 years who were recruited through purposive sampling. Participants completed adapted versions of the Perceived Parental School Support scale and the Academic Self Efficacy Scale. Because both score distributions deviated markedly from normality, Spearman's rank correlation was used. Perceived parental involvement was positively and moderately associated with academic self efficacy ($\rho = .37$, 95% CI [.19, .52], $p < .001$). Involvement scores clustered near the scale maximum, revealing a ceiling effect that restricted variance and probably attenuated the observed association. The findings indicate that adolescents' perceptions of parental support are meaningfully linked to their academic confidence and underscore the need for more discriminating measures and for longitudinal designs that test mediating mechanisms.

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Introduction

Adolescence, which the World Health Organization defines as the period between 10 and 19 years of age, is a phase of rapid biological, cognitive, and socioemotional change during which young people are increasingly expected to direct their own learning (Sawyer, Azzopardi, Wickremarathne, & Patton, 2018; World Health Organization, n.d.). In Indonesia, this period spans junior secondary school (*Sekolah Menengah Pertama*, SMP), general senior secondary school (*Sekolah Menengah Atas*, SMA), and vocational senior secondary school (*Sekolah Menengah Kejuruan*, SMK), each of which imposes escalating demands for independent study, achievement, and preparation for further education or work. These demands unfold

against persistent concern about learning outcomes; in the Programme for International Student Assessment (PISA) 2022, Indonesian students aged 15 years obtained a mean mathematics score of 366, far below the OECD average of 472 (OECD, 2023). Identifying the psychological resources that enable adolescents to meet such demands is therefore a pressing task for educational psychology in Indonesia.

Among these resources, academic self efficacy is one of the most thoroughly documented. It refers to students' beliefs in their capability to organize and execute the courses of action required to attain designated academic outcomes (Bandura, 1993; Schunk, 1991). Rooted in social cognitive theory (Bandura, 1977, 1986), these beliefs shape which tasks students choose, how much effort they invest, how long they persist after setbacks, and how strategically they regulate their learning. A systematic review documented a consistent, moderate association between academic self efficacy and academic performance (Honicke & Broadbent, 2016), and recent evidence indicates that academic self efficacy predicts achievement both directly and indirectly through learning engagement (Luo, Chen, Yu, & Zhang, 2023). Because efficacy beliefs operate before outcomes are realized, they constitute a more proximal and more modifiable target for educational intervention than achievement itself (Bandura, 2012).

Social cognitive theory specifies four sources of efficacy information: mastery experiences, vicarious experiences, verbal or social persuasion, and physiological and affective states (Bandura, 1997). A comprehensive review of school based research concluded that mastery experience is generally the most powerful source, while social persuasion and vicarious experiences also make meaningful contributions (Usher & Pajares, 2008). According to the theory, persuasive information is most effective when it comes from credible and valued others (Bandura, 1997), and parents occupy precisely this position during adolescence. Through encouragement and expectations, through modeling ways of coping with academic difficulty, and through the emotional climate they create around schooling, parents supply efficacy relevant information that adolescents interpret and integrate into judgments of their own capability (Bandura, 1997; Fan & Williams, 2010). Crucially, the theory holds that such information has no automatic effect; it shapes efficacy beliefs only as it is perceived, weighed, and interpreted by the learner (Bandura, 1997). This premise implies that adolescents' perceptions of parental involvement, rather than parents' own accounts of what they do, constitute the theoretically proximal predictor of academic self efficacy.

Parental involvement denotes parents' investment of resources in their children's academic lives and is widely conceptualized as multidimensional. Grolnick and Slowiaczek (1994) distinguished behavioral involvement, such as participation in school activities; personal involvement, reflecting affective engagement with the child's schooling; and cognitive intellectual involvement, which exposes children to stimulating activities and materials. Quantitative syntheses have linked parental involvement with academic achievement (Fan & Chen, 2001) and have shown that, in adolescence, academic socialization, namely communicating the value of education, connecting schoolwork to future goals, and discussing learning strategies, is more strongly associated with achievement than homework assistance or presence at school (Hill & Tyson, 2009). The quality of involvement is as consequential as its quantity. Involvement that is autonomy supportive and emotionally positive tends to strengthen motivation, whereas controlling or intrusive involvement can undermine it (Gonida & Cortina, 2014; Pomerantz, Moorman, & Litwack, 2007). In the present study, parental involvement was operationalized from the adolescent's perspective through four aspects, namely emotional support, material support and a conducive home learning environment, participation in school activities, and supervision of study time. These aspects were derived from the Perceived Parental School Support framework (Adams & Christenson, 2000) and correspond to the personal, cognitive intellectual, and behavioral dimensions outlined above.

A growing body of research supports the link between parental involvement and academic self efficacy. Using a nationally representative sample of tenth grade students in the United States, Fan and Williams (2010) found that dimensions of parental involvement, particularly parents' educational aspirations for their children, positively predicted students' academic self efficacy, engagement, and intrinsic motivation. Among first year college students in China, Zhao, Qin, and Zhang (2026) reported a positive but weak correlation between parental educational involvement and academic self efficacy (r = .17), with academic self efficacy and professional identity transmitting part of the effect of involvement on learning engagement. In a sample of Chinese secondary school students aged 11 to 18 years, Chen et al. (2024) showed that parental educational involvement was related to learning engagement through gratitude and hope, indicating that parental influence operates through affective and cognitive appraisals rather than through behavior alone. Indonesian studies point in the same direction. Self efficacy has been found to mediate the relationship between parental

involvement and student engagement (Kelly & Aulia, 2024); parental involvement and academic self efficacy have each predicted engagement among senior high school students from economically disadvantaged families (Rismawati & Latifa, 2024) and among junior high school scholarship recipients (Fitriani & Septyanti, 2026); and self efficacy and parental support have jointly predicted learning outcomes through learning motivation (Hartini, Srigustini, & Solihat, 2026). Notably, among 400 vocational high school students, parental involvement predicted self efficacy less strongly than did teacher and peer support (Laka & Suryanto, 2024).

Despite this convergent evidence, three issues limit what the literature can say about adolescents. First, the most direct estimates of the association between parental involvement and academic self efficacy come from university students, among whom parental influence is expected to wane, or from Chinese and Western samples. Whether the association is stronger during adolescence, when academic socialization within the family is most salient (Hill & Tyson, 2009), remains insufficiently documented. The Indonesian studies reviewed above, moreover, mostly treat parental involvement and self efficacy as parallel predictors of engagement or achievement rather than reporting their direct association, and most of them were conducted in Java. Second, the informant perspective matters theoretically. Parent reported involvement may partly reflect reactive involvement that intensifies when parents perceive their child to be struggling; consistent with this possibility, a recent study found that parents' school based and home based involvement was negatively related to their perceptions of their adolescents' academic self efficacy (Puklek Levpušček & Štravs, 2026). Measuring involvement as perceived by adolescents is therefore more faithful to the social cognitive premise that efficacy information operates through the learner's interpretation. Third, adolescents' ratings of parental support may be concentrated at the favorable end of response scales, whether because involvement is genuinely high or because of socially desirable responding, a recognized source of method bias in self reports (Podsakoff, MacKenzie, & Podsakoff, 2012). When scores accumulate near the top of a scale, variance is restricted and correlations with other variables are attenuated (Bland & Altman, 2011; Šimkovic & Träuble, 2019), so that reported coefficients may understate the underlying association. This measurement issue has received little explicit attention in research on parental involvement and academic self efficacy.

Addressing these issues, the present study examined the association between perceived parental involvement and academic self efficacy among SMP, SMA, and SMK students in Jambi City, a provincial capital in Sumatra outside the Javanese settings in which most of the Indonesian studies reviewed above were conducted. The study makes two contributions. Substantively, it provides an adolescent perceived estimate of the association across three school types, which can be compared with the weaker coefficient reported for university students. Methodologically, it explicitly examines the distributional properties of the parental involvement measure and evaluates how a ceiling effect conditions the magnitude and interpretation of the observed association. Grounded in social cognitive theory, it was hypothesized that perceived parental involvement would be positively associated with academic self efficacy (H1).

Method

This study used a quantitative correlational design in which data were collected at a single time point (cross sectional survey). Perceived parental involvement served as the predictor variable and academic self efficacy as the criterion variable. Because no variable was manipulated and each participant was assessed once, the design supports inferences about association but not about causal direction (Creswell & Creswell, 2018).

Participants were 113 students enrolled in SMP, SMA, and SMK institutions in Jambi City, Indonesia, who were recruited through purposive sampling during 2026. The inclusion criteria were (a) active enrollment at a participating school, (b) age between 10 and 19 years, in line with the World Health Organization definition of adolescence, and (c) voluntary participation confirmed through informed consent. Participants were aged 12 to 19 years (M = 16.49, SD = 1.13), and 62.8% were female (Table 1). A sensitivity analysis indicated that, with N = 113 and a two tailed α of .05, the study had 80% power to detect correlations of $|\rho| \geq .26$, a magnitude between the small and medium benchmarks proposed by Cohen (1988).

Perceived parental involvement was measured with an Indonesian adapted version of the Perceived Parental School Support (PPSS) scale (Adams & Christenson, 2000), which assesses adolescents' perceptions of their parents' support for schooling. Its 10 items cover four aspects: emotional support (attention, recognition, and encouragement), material support and a conducive learning environment at home, active participation in school activities and communication with teachers, and supervision and organization of study time. Items were rated on a Likert scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*), producing total

scores from 10 to 50, with higher scores reflecting greater perceived involvement. In the present sample, internal consistency was Cronbach's α = .915 and McDonald's ω = .907.

Academic self efficacy was measured with an Indonesian adapted version of the Academic Self Efficacy Scale, which was developed from the self efficacy component of the instrument of Pintrich and De Groot (1990) and revised by Liang (2000). The original scale comprises 22 items across two dimensions, self efficacy for learning ability and self efficacy for learning behavior, and has shown high internal consistency in recent research (Zhao et al., 2026). The version administered in this study consisted of 20 items rated on the same five point format (possible score range 20 to 100), with higher scores indicating stronger academic self efficacy. In the present sample, internal consistency was Cronbach's α = .879 and McDonald's ω = .867. Both coefficients are reported because ω relaxes the restrictive assumptions underlying α (Hayes & Coutts, 2020), and values of .70 or higher, the conventional benchmark, were regarded as acceptable (Taber, 2018).

Data were collected through two parallel channels to maximize accessibility. An online questionnaire was distributed via Google Forms, and the questionnaire was also administered in person during visits to several schools in Jambi City so that students with limited digital access could participate. Before responding, all participants received an explanation of the purpose of the study, the response procedure, and their rights as respondents. Participation was voluntary, informed consent was obtained from all participants, and responses were recorded anonymously and treated as confidential in accordance with the principles of research ethics.

Analyses were performed in JASP in three stages. First, descriptive statistics (mean, median, standard deviation, minimum, and maximum) were computed. To evaluate potential ceiling effects, the positions of the mean and median relative to the maximum possible score and the distance between the mean and that maximum in standard deviation units were examined (Šimkovic & Träuble, 2019; Terwee et al., 2007). Second, univariate normality was assessed with the Shapiro Wilk test, which is more powerful than the Kolmogorov Smirnov test in small to moderate samples (Ghasemi & Zahediasl, 2012; Mishra et al., 2019); a p value below .05 indicated a significant departure from normality. Third, because normality was not satisfied, the hypothesis was tested with Spearman's rank order correlation (ρ), a nonparametric coefficient that assesses monotonic association without assuming normality and is less sensitive to extreme values than Pearson's r (Schober, Boer, & Schwarte, 2018). A 95% confidence interval for ρ was obtained through Fisher's z transformation with the standard error recommended by Bonett and Wright (2000). Effect size was interpreted against the conventions of Cohen (1988), namely .10, .30, and .50 for small, medium, and large effects, and against empirically derived benchmarks for individual differences research, namely .10, .20, and .30 for relatively small, typical, and relatively large effects (Gignac & Szodorai, 2016). All tests were two tailed with α = .05.

Results and Discussions

Table 1 summarizes the characteristics of the 113 participants. Female students made up 62.8% of the sample. Most participants were 16 or 17 years old (69.9% combined), and SMA students formed the largest group (57.5%), followed by SMK (33.6%) and SMP (5.3%) students. All frequencies and percentages are reported for the analytic sample of 113 participants.

Table 1. Characteristics of Participants (N = 113)

Characteristic	Category	*n*	%
Gender	Male	42	37.2
	Female	71	62.8
Age (years)	12	1	0.9
	13	1	0.9
	14	3	2.7
	15	14	12.4
	16	29	25.7
	17	50	44.2
	18	13	11.5
	19	2	1.8
School level	SMP	6	5.3
	SMA	65	57.5

Characteristic	Category	*n*	%
	SMK	38	33.6
	Not reported	4	3.5
	Total	**113**	**100.0**

Note. Percentages are based on *N* = 113 and may not total 100 because of rounding. SMP = junior secondary school; SMA = general senior secondary school; SMK = vocational senior secondary school.

As shown in Table 2, perceived parental involvement scores were concentrated at the upper end of the scale. The mean of 45.27 corresponded to 88.2% of the possible score range, and the median of 47.00 indicates that at least half of the participants scored between 47 and 50, that is, within the top 7.5% of the range. The mean lay only 0.75 *SD* below the maximum possible score, so the upper tail of the distribution was effectively truncated, whereas a long lower tail extended to a minimum of 17, approximately 4.5 *SD* below the mean. This configuration, in which the mean falls below the median and observations accumulate against the scale maximum, is characteristic of a ceiling effect (Šimkovic & Träuble, 2019). Academic self efficacy scores were also negatively skewed (*M* = 24.96, *Mdn* = 26.00), with a lower tail reaching 10, almost 5 *SD* below the mean. Consistent with these patterns, the Shapiro Wilk test indicated significant departures from normality for perceived parental involvement ($W = .546$, $p < .001$) and for academic self efficacy ($W = .657$, $p < .001$). Because *p* was below .05 for both variables, the normality assumption was rejected and the hypothesis was tested with the nonparametric Spearman coefficient.

Table 2. Descriptive Statistics and Normality Tests for the Study Variables

Variable	Possible range	Observed range	*M*	*Mdn*	*SD*	*W*	*p*
Perceived parental involvement	10 to 50	17 to 50	45.27	47.00	6.31	.546	< .001
Academic self efficacy	20 to 100	10 to 29	24.96	26.00	3.03	.657	< .001

Note. *M* = mean; *Mdn* = median; *SD* = standard deviation; *W* = Shapiro Wilk statistic. Possible range refers to the lowest and highest obtainable total scores.

Table 3 shows that perceived parental involvement was positively associated with academic self efficacy, $\rho(111) = .37$, 95% CI [.19, .52], $p < .001$. The direction and statistical significance of the coefficient are consistent with H1. In magnitude, the coefficient reaches the medium benchmark of Cohen (1988) and exceeds the value of .30 that Gignac and Szodorai (2016) identified as relatively large in individual differences research; it is therefore more accurately described as moderate than as weak. Squaring the coefficient indicates that the two rank orders shared approximately 14% of their variance, which leaves most of the variability in academic self efficacy attributable to other factors. The confidence interval is nevertheless wide, spanning effects from small to fairly strong, which cautions against overinterpreting the point estimate.

Table 3. Correlation between Perceived Parental Involvement and Academic Self Efficacy

Variables	*n*	ρ	95% CI	*p*
Perceived parental involvement and academic self efficacy	113	.371	[.195, .524]	< .001

Note. CI = confidence interval, obtained through Fisher's *z* transformation with the standard error of Bonett and Wright (2000). The test is two tailed.

The central finding is that adolescents who perceived their parents as more involved in their schooling also reported stronger beliefs in their academic capabilities. This pattern accords with social cognitive theory, in which parents act as sources of social persuasion, as models of coping with academic challenges, and as architects of an emotional climate that makes effort and setbacks less threatening (Bandura, 1997, 2012). Because the predictor was measured from the adolescent's perspective, the finding speaks directly to the theoretical claim that efficacy information influences beliefs to the extent that it is noticed and interpreted by the learner (Usher & Pajares, 2008). Encouragement that goes unnoticed, or that is experienced as pressure, is unlikely to strengthen academic self efficacy, whereas involvement that is experienced as supportive appears to be meaningfully linked to adolescents' academic confidence.

The magnitude of the association is informative when set against previous estimates. The coefficient observed here is roughly twice the correlation reported for first year college students in China (r = .17; Zhao et al., 2026). Although differences in measures and cultural settings preclude a direct comparison, this contrast is consistent with the developmental view that academic socialization by parents is most influential during adolescence, when students still rely on their parents to interpret the value of schooling and to scaffold their learning, and that this influence diminishes as young people gain autonomy (Hill & Tyson, 2009). The finding also aligns with evidence that parental involvement predicts adolescents' academic self efficacy together with their engagement and intrinsic motivation (Fan & Williams, 2010), and with Indonesian studies in which parental involvement and self efficacy jointly predict engagement and learning outcomes (Fitriani & Septyanti, 2026; Hartini et al., 2026; Kelly & Aulia, 2024; Rismawati & Latifa, 2024). At the same time, the moderate size of the coefficient corroborates the observation of Laka and Suryanto (2024) that parental involvement is only one of several social sources of self efficacy and may be outweighed by teacher and peer support in secondary school settings.

A distinctive finding of this study concerns the distribution of perceived parental involvement. Scores clustered against the scale maximum, which restricted the range of the predictor. Range restriction is well known to attenuate correlation coefficients because the association is estimated within a narrower band of the predictor than exists in the population (Bland & Altman, 2011; Sackett, Lievens, Berry, & Landers, 2007). Ceiling effects compound this problem. When many respondents obtain identical maximal or near maximal scores, the measure can no longer discriminate among adolescents who differ in the quality or intensity of the involvement they experience, and the resulting ties carry little information about covariation (Šimkovic & Träuble, 2019). Rank based coefficients such as Spearman's ρ protect against nonnormality and extreme values, but they cannot recover information that is lost through compression at the top of the scale. Accordingly, the observed coefficient is more plausibly an underestimate than an overestimate of the association that would emerge with a measure that discriminates well across the full range of involvement. Because the unrestricted population variance is unknown, a formal correction for range restriction was not possible, and this interpretation remains provisional; nonetheless, the moderate association reported here is best regarded as a conservative estimate.

Several explanations for the ceiling effect deserve consideration. First, most adolescents in the sample may genuinely experience high levels of parental attention to their schooling. Research on Indonesian parenting indicates that traditional cultural values, including an emphasis on family harmony and on children's respect for their parents, shape parenting goals and practices (Riany, Meredith, & Cuskelly, 2017), and such values could raise the normative level of perceived involvement. Because cultural orientation was not measured in this study, however, this explanation remains a hypothesis rather than a finding, and the present data cannot establish whether cultural values moderate the association. Second, adolescents may have rated their parents favorably because of social desirability or loyalty toward their families, a known source of bias in self reported data (Podsakoff et al., 2012). Third, the PPSS items largely index the presence of support rather than its quality. Items that capture less readily endorsed forms of involvement, such as autonomy support, constructive responses to failure, or the absence of pressure (Gonida & Cortina, 2014; Pomerantz et al., 2007), might differentiate more effectively among adolescents who all report that their parents are involved.

Alternative explanations for the association itself must also be acknowledged. Because the data were collected at a single time point, the direction of influence cannot be established. Adolescents with stronger academic self efficacy may elicit more supportive involvement or may interpret their parents' behavior more favorably, whereas parents may intensify their involvement reactively when their children struggle (Pomerantz et al., 2007; Puklek Levpušček & Štravs, 2026). Third variables may also contribute. Prior academic success, the most powerful source of self efficacy (Usher & Pajares, 2008), could increase both parents' willingness to engage and students' confidence, and family socioeconomic resources were not measured. Finally, both constructs were assessed through self reports from the same respondents on one occasion, so shared method variance may have inflated the coefficient to some degree (Podsakoff et al., 2012). Taken together with the attenuating influence of the ceiling effect, these considerations indicate that the true association could be somewhat smaller or somewhat larger than observed, which reinforces the importance of interpreting the confidence interval rather than the point estimate alone.

With these caveats in mind, the findings carry practical relevance for families, schools, and school counselors. Because perceived support, rather than mere parental presence, appears to matter, involvement efforts may be most effective when they prioritize verbal encouragement that attributes success to effort and

strategy, constructive discussion of learning difficulties, and autonomy supportive monitoring of study time rather than pressure or control (Gonida & Cortina, 2014; Pomerantz et al., 2007). Schools could strengthen partnerships with families through regular communication about students' learning progress, and school counselors could engage parents as partners in programs designed to build academic self efficacy among students who report low academic confidence. The present results also show, however, that parental involvement accounts for a limited share of the variability in academic self efficacy. Interventions should therefore combine family based components with structured opportunities for mastery experiences and with teacher and peer support (Laka & Suryanto, 2024; Usher & Pajares, 2008).

This study has several limitations that also define directions for further research. First, purposive sampling and the uneven distribution across school levels, with only six SMP students, limit generalization beyond the present sample and preclude comparisons among school types; future studies should use stratified probability sampling with adequate subsamples for each school level. Second, the single time point design does not permit causal inference; longitudinal studies using cross lagged panel models could clarify whether involvement predicts later self efficacy, whether efficacy elicits involvement, or both. Third, the ceiling effect in the PPSS calls for measurement refinement, for example by adding items that capture the quality of involvement, using response formats with more categories, and reporting the proportion of respondents at the maximum score, for which a threshold of 15% is commonly used to flag ceiling effects (Terwee et al., 2007). Fourth, mediating and moderating mechanisms were not examined. Building on evidence that gratitude and hope (Chen et al., 2024), professional identity (Zhao et al., 2026), and learning motivation (Hartini et al., 2026) transmit parental influence, future research should test analogous mechanisms, such as academic identity, hope, and learning motivation, in adolescent samples. If cultural values are proposed as an explanation, they should be measured directly, for example with a scale of individualism and collectivism, and tested as moderators. Multiple informant designs that combine adolescent, parent, and teacher reports would further reduce shared method bias.

Conclusions

Among adolescents in Jambi City, perceived parental involvement was positively and moderately associated with academic self efficacy, a pattern consistent with the account of social cognitive theory in which parents serve as influential sources of efficacy information. Because the data are correlational and were gathered at a single time point, this finding should be understood as an association rather than as evidence of a causal effect. The distinctive contribution of the study lies in showing that perceived parental involvement clustered near the scale maximum; the resulting ceiling effect restricted variance and probably attenuated the observed association, which suggests that the role of parents in adolescents' academic confidence may be larger than the coefficient implies. The association also appears stronger than estimates reported for university students, consistent with the greater salience of family academic socialization during adolescence. In practice, efforts to strengthen academic self efficacy should foster supportive and autonomy oriented parental involvement while integrating mastery experiences and support from teachers and peers. Advancing this line of inquiry will require measures that discriminate at the upper end of involvement, longitudinal and multiple informant designs, and explicit tests of the mediating and cultural mechanisms through which parental involvement shapes adolescents' beliefs about their academic capabilities.

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Declaration of Artificial Intelligence Use

Generative artificial intelligence tools were used to assist with language editing and with the organization of the manuscript during revision. The authors reviewed and verified all content, and the analyses, data interpretation, and conclusions remain the sole responsibility of the authors.

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