



Learning Motivation and Parental Support Predict PJOK Achievement at SMPN 2 Kras

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Abstract

This cross-sectional study examined adjusted associations between learning motivation, parental support, and Physical Education, Sports, and Health (PJOK) achievement among Grade VII and VIII students at SMPN 2 Kras. The analytic sample comprised 150 students selected from 457 eligible students in 12 classes through proportional stratified random sampling. Student motivation was assessed with a 25-item PJOK-adapted questionnaire, parental support with a 30-item parent/guardian questionnaire, and achievement with second-semester 2025/2026 report-card scores (0-100). Multiple linear regression showed positive adjusted associations for learning motivation ($B = 0.385$, 95% CI [0.278, 0.492], $\beta = 0.442$, $t = 7.130$, $p < .001$) and parental support ($B = 0.274$, 95% CI [0.179, 0.369], $\beta = 0.354$, $t = 5.708$, $p < .001$). The model was significant, $F(2, 147) = 68.342$, $p < .001$, $R^2 = .482$, adjusted $R^2 = .475$. Because exposure and outcome were measured within one observational period at one school, these estimates do not establish temporal order or causal effects. The findings indicate that student- and family-level factors are jointly associated with PJOK achievement and warrant testing in longitudinal, multilevel, and intervention studies.

Keywords: learning motivation; parental support; learning achievement; physical education; PJOK

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Artikel Info:

Submitted: 05/08/2026

Revised: 31/08/2026

Accepted: 30/09/2026

Published: 04/10/2026

How to Cite: Hernawan, A., Hermanto, W., Muharram, N, A. (2026). Learning Motivation and Parental Support Predict PJOK Achievement at SMPN 2 Kras. *Journal Coaching Education Sports*, 7(2), 632-642

Author's Contribution: a) Desain Penelitian; b) Pengumpulan Data; c) Analisis Statistik; d) Penyusunan Naskah; e) Pengumpulan Dana



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A. Introduction

Physical Education, Sports, and Health (PJOK) is an integral component of the school curriculum because it develops physical fitness while also cultivating psychological, social, and moral dimensions. Through PJOK, students are expected to develop healthy movement habits and internalize sportsmanship, discipline, cooperation, and responsibility. These outcomes depend not only on the quality of instruction but also on students' willingness to engage actively in theory and practice and on a family environment that supports physical activity and learning.

The practical character of PJOK makes achievement different from achievement in predominantly cognitive subjects. Assessment integrates knowledge of rules and health concepts, affective behaviors such as discipline and sportsmanship, and psychomotor competence demonstrated through movement and physical performance. Consequently, students who understand the material but show low persistence during practice may not achieve optimal outcomes. Likewise, students with adequate physical potential may underperform when they lack learning goals, confidence, or consistent support from home.

School records used to define the local

context indicated that 30% of the analytic sample scored below the minimum mastery criterion of 75 in the second semester of 2025/2026; this is the same cohort analyzed in the regression. The previously reported mean of 72 could not be linked unambiguously to a dated, grade-specific dataset and was therefore removed. Informal impressions about student enthusiasm, uniform discipline, assignment completion, and parental attitudes were also removed because they were not collected through a documented observation protocol. The verified mastery distribution nevertheless provided a practical reason to examine how student motivation and perceived family resources covaried with achievement.

Learning motivation refers to the reasons and regulatory processes that energize and sustain learning. Self-Determination Theory distinguishes intrinsic motivation, several forms of extrinsic regulation, and amotivation rather than a single undifferentiated continuum (Deci & Ryan, 2000; Vallerand et al., 1992). In this study, the adapted questionnaire covered intrinsic and extrinsic reasons for engaging in PJOK. Items originally described as 'persistence' were treated as behavioral indicators associated with motivated engagement, not as an original Academic Motivation Scale

(AMS) regulation. This distinction is important because persistence and motivational quality are related but not interchangeable constructs.

The Theory of Planned Behavior (TPB) is used only as a secondary interpretive lens. TPB proposes that attitudes, subjective norms, and perceived behavioral control shape behavioral intentions (Ajzen, 1991). The present study did not measure those constructs or intentions directly and therefore did not test TPB. Parental support may plausibly provide social signals and practical resources relevant to participation, but this mechanism remains to be examined with a TPB-specific instrument.

Parental support includes emotional encouragement, tangible assistance, information, supervision, and appraisal. A broad meta-analysis indicates that parental involvement is positively associated with children's academic adjustment, although associations vary by form of involvement and study design (Barger et al., 2019). In PJOK, support may include encouragement, permission, equipment, transport, routines, and communication with teachers. Such support is conceptually distinct from students' own reasons for learning and may therefore account for unique variation in achievement.

Related research offers two consistent but incompletely integrated lines of evidence. First, Self-Determination Theory

research in physical education links more autonomous motivation with engagement and adaptive learning outcomes (Vasconcellos et al., 2020). Second, parental involvement research links family support with academic adjustment across school contexts (Barger et al., 2019). However, evidence based on a student's PJOK motivation, a corresponding caregiver's support report, and a multidomain school achievement score within the same model remains limited. Existing evidence also rarely addresses possible overlap between motivated classroom behavior and affective grading.

This study therefore offers an incremental contribution: it estimates the unique and joint cross-sectional associations of a student-reported personal factor and a caregiver-reported contextual factor with authentic PJOK report-card achievement. Its practical contribution is diagnostic rather than causal; it identifies covariation that can guide hypotheses for future intervention studies. The research questions were: (1) Is learning motivation associated with PJOK achievement after adjustment for parental support? (2) Is parental support associated with PJOK achievement after adjustment for learning motivation? and (3) How much in-sample variation in PJOK achievement is accounted for jointly by both variables?

B. Methods

This study employed a cross-sectional correlational design at SMPN 2 Kras, Kediri Regency, East Java, during the 2025/2026 academic year. The target population comprised 457 enrolled Grade VII and VIII students distributed across 12 classes. Eligible students were those actively enrolled in either grade, with a second-semester PJOK report-card score and linked student and parent/guardian questionnaires. Records with an unlinked questionnaire, an incomplete scale, or a missing achievement score were to be excluded from complete-case analysis. The source document did not retain grade-specific population counts, class-level sampling fractions, nonresponse numbers, replacement procedures, or a participant flow log; these reporting gaps are acknowledged as limitations and must be reconstructed from school sampling records before publication.

A sample of 150 students was selected by proportional stratified random sampling, with class and sex described in the source records as strata. Within each stratum, the intended procedure was proportional allocation followed by random selection from enrollment lists. The archived manuscript did not specify the randomization method or allocation counts. No a priori power analysis was retained.

For transparency, a sensitivity calculation for $n = 150$, two predictors, $\alpha = .05$, and 80% power corresponds approximately to a minimum detectable Cohen f^2 of .066 under independent observations; this does not account for class clustering and is not a substitute for an a priori design calculation.

Learning motivation was assessed with 25 five-point items (1 = strongly disagree to 5 = strongly agree) adapted from the AMS framework (Vallerand et al., 1992) for PJOK. Scores were summed (theoretical range 25-125), with higher scores indicating more favorable endorsed motivation/engagement. The source file did not document forward-back translation, permission, item-source mapping, expert content-validity ratings, or factor analysis. Consequently, the measure is described as an AMS-informed adapted questionnaire rather than a validated equivalent of the original multidimensional AMS. The final item wording and subscale mapping should be supplied as supplementary material before publication.

Parental support was assessed using 30 five-point items (theoretical summed-score range 30-150) informed by Hoover-Dempsey and Sandler's (1997) parental-involvement framework and adapted to emotional, instrumental, informational, and appraisal support in PJOK. One parent or guardian was intended to complete the

questionnaire for each sampled student. Questionnaires were linked to student records through study codes rather than names. However, the retained records did not identify caregiver type, administration mode, parent response rate, multiple-child responses, missing-item rules, or the precise confidentiality workflow. These details require confirmation from the field log before publication.

PJOK achievement was obtained from official second-semester 2025/2026 report cards and ranged from 0 to 100, with 75 as the school mastery criterion. The archived description combined cognitive (30%), affective (30%), and psychomotor (40%) components. The manuscript did not retain the governing assessment-policy citation, common rubrics/tests, component-level reliability, teacher assignment, or evidence that standards were comparable across grades and classes. Because affective grading may include participation, discipline, or persistence, it can overlap conceptually with motivation and inflate the observed association (criterion contamination). The composite is therefore interpreted as the school's operational PJOK grade, not as a standardized achievement test.

A 30-participant pilot outside the analytic sample was reported, but recruitment, participant composition, and parent/student representation were not

archived. Corrected item-total correlations were reported as .415-.680 for motivation and .410-.712 for parental support. Total-score Cronbach alpha was .864 and .891, respectively; confidence intervals and subscale reliabilities were unavailable. These statistics indicate internal consistency and item discrimination only; they do not establish content or factorial validity for multidimensional adapted instruments. The small pilot and absent dimensional analyses limit measurement claims.

C. Result and Discussion

Result

Analyses used SPSS 26. Motivation and parental-support totals were entered as summed raw scores. Multiple linear regression estimated the adjusted associations with PJOK grade: $Y = a + b_1X_1 + b_2X_2 + e$. Two-sided alpha was .05. Unstandardized coefficients, standard errors, 95% confidence intervals, standardized coefficients, t tests, model F, R², and adjusted R² were reported. Residual normality and homoscedasticity should be assessed from Q-Q and residual-versus-fitted plots; influential observations from standardized residuals, leverage, and Cook's distance; and independence from the sampling structure. The archived output contained only a Kolmogorov-Smirnov

test, linearity tests, tolerance/VIF, and Glejser tests, so influential-case diagnostics and class-clustered standard errors could not be added retrospectively. The model

therefore assumes independent observations, an assumption that may be optimistic for students nested in classes.

Table 1. Distribution of Learning Motivation

Category	Frequency	Percentage
Strongly agree	54	36%
Agree	69	46%
Neutral	21	14%
Disagree	6	4%
Strongly disagree	0	0%
Total	150	100%

Source: Processed research data (2026)

Table 2. Distribution of Parental Support

Category	Frequency	Percentage
Strongly agree	45	30%
Agree	66	44%
Neutral	33	22%
Disagree	6	4%
Strongly disagree	0	0%
Total	150	100%

Source: Processed research data (2026)

Table 3. PJOK Learning Achievement

Category	Score range	Frequency	Percentage
High	85–100	42	28%
Moderate	75–84	63	42%
Low / below KKM	<75	45	30%
Total	—	150	100%

Source: Processed research data (2026)

For descriptive presentation, each respondent's mean item score was classified using equal-width response-scale intervals: 1.00–1.80 = strongly disagree, 1.81–2.60 = disagree, 2.61–3.40 = neutral, 3.41–4.20 = agree, and 4.21–5.00 = strongly agree. Thus, Tables 1 and 2 classify respondent-level mean scores; they do not aggregate

individual item-response frequencies. Under this rule, 123 students (82%) were in agree/strongly agree motivation categories and 111 caregivers (74%) were in agree/strongly agree support categories. Forty-five students (30%) had PJOK grades below 75.

Table 4. Multiple Regression Coefficients

Predictor	B	Std. Error	Beta	t	p
Constant	28.450	4.215	—	6.750	<.001
Learning motivation (X1)	0.385	0.054	0.442	7.130	<.001
Parental support (X2)	0.274	0.048	0.354	5.708	<.001

Source: Processed research data (2026)

The estimated regression equation was $Y = 28.450 + 0.385X_1 + 0.274X_2 + e$. The positive coefficients indicate that higher motivation and stronger parental support were associated with higher PJOK achievement when the other

predictor was held constant. Learning motivation had the larger standardized coefficient ($\beta = .442$), indicating a stronger unique statistical contribution than parental support ($\beta = .354$).

Table 5. Simultaneous Model and Determination

R	R ²	Adjusted R ²	F	p	Std. Error
0.694	0.482	0.475	68.342	<.001	5.365

Source: Processed research data (2026)

The fitted equation was PJOK grade = $28.450 + 0.385(\text{motivation total}) + 0.274(\text{parental-support total})$. Holding the other score constant, a one-point increase in the motivation total was associated with a 0.385-point higher PJOK grade (95% CI [0.278, 0.492]); a one-point increase in parental support was associated with a 0.274-point higher grade (95% CI [0.179, 0.369]). These slopes apply within the observed sample; extrapolation across the full theoretical score ranges may produce implausible values and is not warranted. Although beta was numerically larger for motivation (.442) than support (.354), the study did not formally test the difference. Partial R² values derived from the *t* statistics were .257 and .181, respectively, and should not be interpreted as intervention priorities.

Discussion

The model was significant, $F(2, 147) = 68.342$, $p < .001$, $R = .694$, $R^2 = .482$, and adjusted $R^2 = .475$. Thus, the two scores jointly accounted for 48.2% of the in-sample variation in the school PJOK grade. The remaining 51.8% is simply variation not explained by this model; it cannot be assigned to particular omitted factors. Because no cross-validation or independent test sample was used, R^2 describes model

fit rather than out-of-sample predictive performance.

Learning motivation showed a positive adjusted association with PJOK achievement ($B = .385$, 95% CI [.278, .492], $p < .001$) after parental support was held constant. This pattern is compatible with Self-Determination Theory and broader physical-education evidence linking more autonomous motivation with engagement and adaptive outcomes (Deci & Ryan, 2000; Vasconcellos et al., 2020). Nevertheless, the cross-sectional coefficient does not establish directionality. Higher grades may strengthen competence perceptions and subsequent motivation, and both may reflect prior achievement, health, sex, grade, teaching quality, or class climate.

The result should also be interpreted in light of the outcome's composition. If the affective component rewards participation, discipline, effort, or persistence, conceptually similar content may appear in both the motivation questionnaire and the criterion. Such overlap can increase the coefficient without representing an equally strong association with cognitive or psychomotor learning. Future studies should report domain-specific outcomes and test the adapted measure's factor

structure.

Parental support also showed a positive adjusted association with PJOK grade ($B = .274$, 95% CI [.179, .369], $p < .001$). This is consistent with broader evidence that parental involvement is associated with children's academic adjustment (Barger et al., 2019). It does not confirm a support mechanism or causal benefit. Socioeconomic resources, prior achievement, student health, sex, grade, and teacher/class effects could confound the estimate; successful students may also elicit more encouragement or resources from caregivers.

TPB helps generate possible explanations but was not tested. Parental encouragement may contribute social approval, while equipment, time, and transportation may increase perceived opportunity to participate. Direct measures of attitudes, subjective norms, perceived behavioral control, and intention would be required to evaluate this pathway. Likewise, longitudinal measurement would be necessary to establish whether support precedes changes in motivation or achievement.

The joint model's R^2 of .482 indicates substantial in-sample covariation, not predictive accuracy or proof that coordinated school-family programs will

improve grades. The incremental contribution is that student and caregiver reports retained associations when entered together, suggesting they are overlapping but noninterchangeable correlates. This pattern supports further study of personal regulation and the immediate social environment within the same longitudinal or multilevel framework.

Integration of Theoretical Perspectives

Self-Determination Theory is the primary explanatory framework because it directly addresses motivational regulation. Parental support may function as a contextual condition that supports or frustrates autonomy, competence, and relatedness. TPB is retained only as a hypothesis-generating lens for future work. The present regression did not estimate interactions, mediation, temporal sequences, or any construct-specific TPB pathway.

The observed associations justify candidate strategies for evaluation, not immediate claims of effectiveness. Teachers could test autonomy-supportive task choices, graded challenges, competence-focused feedback, and transparent assessment rubrics in controlled or longitudinal evaluations. Because the outcome included cognitive, affective, and psychomotor components, reporting each

domain separately would clarify whether a strategy relates to knowledge, conduct, movement performance, or the composite grade.

Schools could pilot concise, resource-sensitive guidance for caregivers on encouragement, safe practice, sleep, nutrition, and genuinely necessary equipment. Emotional and informational support should not be conflated with a family's ability to purchase equipment. Any program should be evaluated for feasibility, equity, and change in prespecified outcomes; the present study did not test an intervention.

Several limitations constrain interpretation. First, the cross-sectional design cannot establish temporal order and is vulnerable to reverse causation. Second, omitted confounders include prior achievement, socioeconomic conditions, health and fitness, sex, grade, teacher practice, facilities, and peer climate. Third, students were nested within 12 classes, but grading comparability and clustered residuals were not evaluated. Fourth, the PJOK composite may contain teacher/rater effects and criterion contamination because affective grading can overlap with motivated behavior.

Fifth, adaptation and dimensional validity of both questionnaires were incompletely documented; total alpha

values do not validate their proposed subscales. Sixth, student motivation and caregiver support were self-reported and may be affected by social desirability. Seventh, parent response, caregiver type, item-level missingness, and linkage procedures were not fully archived. Eighth, the single-school sample limits generalizability. Future studies should preregister a power analysis, document participant flow, validate translated instruments, report subscale reliability with confidence intervals, analyze domain-specific achievement, include grade/teacher fixed effects or multilevel models, and use repeated measurements or experimental designs.

D. Conclusion

Among 150 Grade VII and VIII students at SMPN 2 Kras, learning motivation and parent/guardian-reported support were each positively associated with the school's composite PJOK grade after mutual adjustment. The model explained 48.2% of in-sample grade variation (adjusted $R^2 = .475$). These findings are correlational: they do not demonstrate that increasing either score will cause achievement to improve. Interpretation is further limited by incomplete measurement-adaptation documentation, possible overlap between

motivation and affective grading, unmeasured confounding, class clustering, and the single-school setting. Longitudinal, multilevel, and intervention studies using validated measures and domain-specific achievement outcomes are needed before instructional or family programs can be judged effective.

E. Acknowledgments

The author expresses appreciation to the Postgraduate Program of Universitas Nusantara PGRI Kediri, the principal and PJOK teachers of SMPN 2 Kras, the participating students, and their parents or guardians for their cooperation during the research process.

F. Conflict of Interest

No conflict of interest.

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