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Indonesian Journal of Physical Education and Sport Science IJPESS

Indonesian Journal of Physical Education and Sport Science

p-ISSN 2775-765X | e-ISSN 2776-0200

Volume 6, No. 3, September 2026. Page. x-xx

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The Influence of Parental and Physical Education Teacher Support on Students' Out-of-School Physical Activity Routines

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Received: xx Month 2023, Approved: xx Month 2023, Published: xx Month 2023

Abstract

Study purpose. This study aimed to examine the influence of parental support and physical education teacher support on students' physical activity routines outside of school hours.

Materials and methods. A quantitative research design was employed, involving 278 students as the main sample collected through a structured procedure. The research instruments were validated for reliability and validity before the data were analyzed using multiple linear regression.

Results. The results indicated that both parental support and physical education teacher support positively and significantly influenced students' physical activity routines ($R^2 = 0.368$, $F = 80.07$, $p < 0.001$). Specifically, parental support showed a robust effect ($t = 7.825$, $p < 0.001$) by functioning as a facilitator that provided access and domestic environmental support. Similarly, physical education teacher support significantly influenced the routines ($t = 4.156$, $p < 0.001$), acting as a catalyst for internalizing students' intrinsic motivation to engage in physical activities independently.

Conclusions. These findings confirmed that the synergy between the family environment and pedagogical instruction at school is a prerequisite for sustaining an active lifestyle. This study recommends an integrated intervention approach involving parents and educators to mitigate sedentary behavior among adolescents.

Keywords: Adolescents, Parental Support, Physical Activity, Physical Education, Teacher Support.

DOI: <https://doi.org/10.52188/ijpe.v3i1>

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Introduction

Physical activity is a fundamental instrument in maintaining physiological and psychological wellbeing during developmental years (Alvarado et al., 2023; Utama et al.,

2023). Maintaining an optimal level of physical fitness is crucial to prevent the risk of early degenerative diseases and support cognitive development (Bonanni et al., 2022). However, fulfilling the daily physical movement quota cannot rely solely on Physical Education, Sports, and Health (PE) lessons at school, which have a very limited duration (Pratomo et al., 2025). Therefore, the establishment of independent physical activity routines outside of school hours is a determining indicator for the success of long term active lifestyle education. This imperative establishes the urgency of investigating external micro-environmental drivers that bridge structured school learning and voluntary physical activity habituation at home (Putra et al., 2025). In this context, parental support within the domestic sphere and physical education teacher support within the pedagogical sphere represent the two foundational pillars that concurrently govern adolescents' behavioral adaptations toward physical exercise.

Field realities indicate a declining trend in leisure time physical activity participation among students (Felez-Nobrega et al., 2020; Mathisen et al., 2019). Various demographic reports highlight a high prevalence of sedentary behavior triggered by physical fatigue, limited time allocation, and a lack of adequate sports facilities in residential areas (Yu et al., 2025). This phenomenon of declining movement intensity necessitates interventions from authority figures in the students' immediate environment. The significance of this investigation is underscored by the critical transitional phase of junior high school students, where sedentary habits tend to solidify into long-term behavioral trajectories if external scaffolding is absent (Habyarimana et al., 2025; Lau et al., 2025). Without coordinated external reinforcement across both home and school settings, the limited movement quota achieved in formal PE classes fails to translate into autonomous and habitual physical exercise routines, exacerbating the vulnerability of youth to lifestyle-related health risks. The presence of parental support in the domestic environment and motivational interventions from PE teachers in educational institutions are believed to be the most potential external variables to stimulate fitness routines outside of school (Sevil-Serrano et al., 2022).

Several previous empirical studies have confirmed that family support can significantly increase participation in moderate to vigorous sports (Kääpä et al., 2022; Ning & Liu, 2026; Sharman et al., 2024). Concurrently, pedagogical approaches by teachers that facilitate movement autonomy also correlate positively with students' high intrinsic motivation for independent exercise (Utama et al., 2023; Wahid, 2025). However, an extensive review of existing literature reveals a critical research gap: the vast majority of prior studies have investigated parental and teacher influences in isolation through fragmented silos, either examining family dynamics strictly within domestic sociologies or evaluating teacher autonomy support solely within the boundaries of gymnasium classrooms. Consequently, there is an empirical void regarding how domestic logistical facilitation and school-based pedagogical guidance operate simultaneously and synergistically to cultivate active out-of-school routines. The novelty of this study lies in proposing and empirically testing an integrative model that bridges the Social Ecological Model and Self-Determination Theory, capturing the dual-domain synergy between micro-infrastructure domestic provision by parents and motivational-competence transfer by PE teachers.

The causal relationship between authority figure support and the formation of movement routines can be explained through the social ecological model and self determination theory (Efendi et al., 2025; Zhao et al., 2025). Parents act as facilitators overcoming movement accessibility barriers while simultaneously stimulating children participation through fitness oriented role modeling (Berthiaume et al., 2024). Meanwhile, PE teachers serve as pedagogical facilitators who construct movement competence understanding and build a sense of acceptance for students' self confidence (Sinulingga et al., 2026). The accumulation of facility interventions at home and school affirmations logically facilitates sports motivation, which culminates in the consistency of physical activity outside formal learning environments. Through this

synthesized framework, parental logistical facilitation removes physical and structural constraints, while teacher autonomy support provides the psychological competence and internal motivation required to sustain habitual participation.

Based on the theoretical arguments and the outlined literature gap, this study aims to empirically analyze the significance of the influence of parental and PE teacher support on students' physical activity routines outside of school. Theoretically, the findings of this study are expected to enrich sports literature by proposing a three center educational collaboration model in engineering active lifestyle habituation. Practically, the results are projected to become a strategic foundation for formulating collaborative policies between schools and families to suppress sedentary behavior rates among the younger generation.

Materials and methods

Study participants

The population of this study focused on the demographic of junior high school students who routinely participated in Physical Education (PE) learning. The population of this study focused on the demographic of junior high school students who routinely participated in Physical Education (PE) learning. The study was conducted across public and private junior high schools located in Surakarta City (Kota Surakarta), Central Java, Indonesia, spanning the period from October 2025 to January 2026. A purposive sampling technique was employed to select representative junior high schools across the city's administrative sub-districts. The selection of participants adhered to rigorous inclusion criteria: (1) actively enrolled as junior high school students (Grades 7–9, aged 12–15 years) in Surakarta participating in mandatory PE curriculum; (2) cohabiting with parents or primary guardians within the domestic environment; and (3) obtaining signed parental consent along with student assent to complete the survey. Conversely, the exclusion criteria eliminated students with diagnosed physical limitations preventing moderate-to-vigorous physical activity and those with incomplete survey submissions. Procedural sampling utilized a purposive sampling technique, which began with the involvement of 50 respondents in a pilot study phase to verify the precision of the measurement tool (Etikan, 2016). After the instrument feasibility parameters were met, data collection proceeded independently on 278 respondents as the main sample.

Study organization

This quantitative research applied a correlational study design with minimal intervention to investigate the determinants of physical activity routines among junior high school students (Creswell, 2018). Primary data collection utilized a structured self-administered questionnaire form with a 5-point Likert scale (1 = "Strongly Disagree" to 5 = "Strongly Agree") containing three main operational constructs:

1. The *Parental Support* variable was theoretically grounded in the Social Ecological Model (Sallis et al., 2012; Zhao et al., 2025) and operationalized across three core dimensions: (a) *Instrumental/Logistical Facilitation* (provision of sports apparel/equipment, financing access to facilities, and mobility/transportation support); (b) *Emotional and Permission Support* (granting autonomy/permission to engage in out-of-school activities, verbal affirmation, and encouragement); and (c) *Informational and Modeling Affirmation* (parental active role-modeling and physical health guidance).
2. The *PE Teacher Support* variable was developed based on the interpersonal climate dimensions of Self-Determination Theory (Deci et al., 2017) and comprised three primary indicators: (a) *Autonomy Support* (offering exercise choices, encouraging self-initiated movement, and minimizing controlling directives); (b) *Competence Support and Physiological Education* (delivering constructive movement feedback, teaching physiological benefits of fitness, and instilling motor confidence); and (c) *Activity*

Prescription and Goal-Setting (assigning structured independent movement tasks and guiding out-of-school exercise routines).

3. The dependent variable of *Physical Activity Routines* was operationalized following global adolescent physical activity guidelines (Bull et al., 2020), assessing four key attributes: weekly movement frequency, average daily duration, moderate-to-vigorous physical activity (MVPA) intensity, and behavioral consistency during out-of-school leisure time.

The form distribution was executed with an informed consent protocol to guarantee respondent anonymity, reduce potential common method bias, and ensure a factual representation of student physical participation without social pressure interventions (Podsakoff et al., 2003).

Statistical analysis

Data analysis procedures used, software and steps. Data analysis techniques were performed using SPSS 25 software. The pre analysis on the pilot sample involved validity evaluation through Pearson Product Moment correlation and Cronbach Alpha reliability test (> 0.60) to ensure the internal consistency of the measurement. The main data matrix ($N=278$) was then evaluated for classical assumption feasibility, including residual normality, multicollinearity, and heteroskedasticity tests as prerequisites for Ordinary Least Squares (OLS) estimation. The final causality evaluation was formulated through Multiple Linear Regression Analysis to simultaneously test the model significance (F test), measure the partial determination of each predictor (t test) at a significance level of $p < 0.05$, and estimate the predictive capability of the model through the coefficient of determination (R^2).

Results

Empirical evidence in this study was based on a series of primary data processing stages collected from junior high school student participants. In the preliminary stage, 50 initial responses were specifically allocated as a pilot study sample to ensure the feasibility of the research measurement tool. After all feasibility parameters were met, data determination continued with 278 final respondents who were definitively positioned as the main sample to answer the research problem.

Research Instrument Testing Results

The instrument feasibility test was executed in the preliminary study phase by isolating 50 initial respondents. Construct validity measurement was conducted through Pearson Product Moment correlation estimation. Based on the data matrix computation, it was identified that all indicator items in the Parental Support, PE Teacher Support, and Physical Activity Routines instruments yielded correlation coefficient values ranging from 0.733 to 0.919. Considering that all of these estimated values absolutely exceeded the r table threshold of 0.279 at a 5 percent significance level, all statement items were declared valid and precise in measuring the targeted theoretical constructs.

In addition to validity, internal reliability testing was also estimated using the Cronbach Alpha coefficient to verify the consistency and stability of the instrument if replicated. Statistical calculation results recorded a coefficient value of 0.858 for Parental Support, 0.913 for PE Teacher Support, and 0.903 for Physical Activity Routines. Because the three coefficients projected values that significantly exceeded the minimum statistical prerequisite of 0.60, the questionnaire instrument was classified as highly reliable. These findings definitively confirmed that the research instrument met strict academic qualifications to be distributed in the main sample data collection stage.

Classical Assumption Testing Results

Before executing the multiple linear regression analysis on the main sample ($N = 278$), the feasibility of the model was ensured through the fulfillment of three classical assumption tests as statistical prerequisites. A summary of these prerequisite test results is presented in Table 1.

Table 1. Summary of Classical Assumption Testing Results

Test Type	Testing Method	Feasibility Parameter	Statistical Result	Conclusion
Normality	Kolmogorov Smirnov	Significance $p > 0.05$	$p = 0.087$	Normally distributed
Multicollinearity	Tolerance	Tolerance value > 0.10	0.709	Free from multicollinearity
	Variance Inflation Factor	VIF value < 10	1.409	Free from multicollinearity
Heteroskedasticity	(VIF) Breusch Pagan	Significance $p > 0.05$	$p = 0.665$	Homoskedasticity fulfilled

Based on the presentation in Table 1, the residual normality test using the Kolmogorov Smirnov method yielded a probability estimate of 0.087, which exceeded the significance threshold ($p > 0.05$). The fulfillment of this value represented that the data residual distribution was symmetrical, ensuring the model estimation was free from the bias of extreme outlier values. Furthermore, in the multicollinearity examination stage, both independent variables identically recorded a Tolerance coefficient of 0.709 and a Variance Inflation Factor (VIF) of 1.409. Obtaining numbers that met this statistical limit standard convincingly indicated the absence of overlapping correlation symptoms among predictors in the equation.

The absence of multicollinearity empirically proved that the Parental Support and PE Teacher Support variables operated as two independent factors without any predictive function redundancy. Next, the heteroskedasticity test through the Breusch Pagan approach projected a probability level of 0.665, which was clearly above the standard error tolerance value. This significance result guaranteed the occurrence of homoskedasticity, meaning that the residual variance was constant regardless of fluctuations in respondent physical activity routines. The fulfillment of all these prerequisite parameters confirmed that the formed regression equation met the Best Linear Unbiased Estimator (BLUE) criteria and was valid to proceed to the hypothesis causality analysis stage.

Hypothesis Testing Results

After all model prerequisites were met, the analysis stage continued with hypothesis testing using Multiple Linear Regression Analysis to examine the significance of the independent variable influence simultaneously and partially. A summary of the statistical computation results is presented in Table 2.

Table 2. Summary of Multiple Linear Regression Analysis Results

Independent Variable	Regression Coefficient (B)	Standard Error (SE)	t Value	Significance (p)	Description
(Constant)	0.597	1.414	0.423	0.673	
Parental Support (X1)	0.568	0.073	7.825	< 0.001	Significant
PE Teacher	0.302	0.073	4.156	< 0.001	Significant

Support (X2)

Note: $R^2 = 0.368$, $F(2, 275) = 80.07$, $p < 0.001$

Based on the presentation in Table 2, the simultaneous model significance test yielded an F value of 80.07 with a probability level well below the error threshold ($p < 0.001$). The fulfillment of this significance value confirmed that the Parental Support and PE Teacher Support variables together provided a linear influence on the formation of student physical activity routines. Regarding the predictive capability of the model, statistical analysis recorded a coefficient of determination (R^2) of 0.368. This figure represented that 36.8 percent of the total fluctuation in student physical activity routines could be proportionally explained by the synergy of support from both authority figures, while the rest was influenced by other external factors outside the boundaries of this research model.

In the partial significance test, the analysis results proved that the Parental Support variable had a positive and measurable determination on children physical routines ($t = 7.825$, $p < 0.001$). A positive regression coefficient of 0.568 indicated that any escalation in support from the family environment would directly imply an increase in the frequency and stability of student movement outside of school. In line with these findings, the PE Teacher Support variable was also empirically proven to have a positive and significant partial influence with a t value of 4.156 ($p < 0.001$). The regression coefficient of 0.302 for this variable established that pedagogical guidance from physical educators continued to play a crucial role as a driver of student motivation to keep exercising independently.

Discussion

The significant influence of parental and PE teacher support on student physical activity routines outside of school confirms both figures as primary determinants in active lifestyle habituation. The empirical findings of this study support the social ecological model theory and self determination theory within the adolescent context, while simultaneously mapping the causality mechanism between external intervention and the internalization of independent behavior (Deci et al., 2017; Kilanowski, 2017). This research synthesizes statistical evidence through a critical review of contemporary literature to unravel the role of this support synergy as a primary prerequisite for physical activity sustainability. The analytical emphasis is directed toward theoretical explanations and the derivation of practical implications necessary to break the chain of sedentary behavior among the junior high school population.

Determination of Parental Support on Student Physical Activity Routines

Empirical data places parental support as the primary predictor of the consistency of student physical activity routines outside of school hours ($t = 7.825$, $p < 0.001$). When evaluating the operational indicators, instrumental/logistical facilitation emerged as the most dominant component driving this relationship, closely followed by parental permission and emotional encouragement. In urban environments such as Surakarta, junior high school students encounter structural barriers, including limited neighborhood green spaces, traffic congestion, and financial constraints for sports facility access. By providing sports apparel, funding entrance fees to recreational facilities, and facilitating safe transportation, parents act as primary micro-infrastructure providers who directly remove environmental resistance. These findings provide theoretical confirmation for the Social Ecological Model, which positions the domestic microsystem as the most deterministic layer in governing adolescent physical behaviors (Oudat et al., 2025; Zhao et al., 2025).

A synthesis of previous literature indicates that the effectiveness of family support relies heavily on demographic characteristics. Research by Olana & Tefera (2022) found that among adolescents in urban Ethiopia with established infrastructure, family support tended to be

motivational, whereas in this study sample, the parental role is prescriptive and facilitative. This difference affirms a theoretical gap that in the junior high school student population within environments possessing limited sports facilities, the parental role transforms into a fitness manager for the child. The absence of logistics such as granting mobility permission, financial support for sports access, and the provision of domestic movement space causes student intentions to be active to stall due to facility barriers (Johnson et al., 2025). Consistency in physical activity outside of school will not form independently as long as parental figures have not positioned themselves as micro infrastructure providers in the home environment.

The practical implications of these findings demand a shift in active lifestyle promotion strategies from the boundaries of educational institutions toward the domestic sphere. Health intervention programs targeting students through classroom PE materials show limited effectiveness if they do not integrate educational modules for parents. Parents must understand that their support is the primary determinant for the consistency of child movement, which transcends the effectiveness of teacher instruction in the field. Thus, parental support is an absolute prerequisite that must be fulfilled before other motivational factors can operate effectively.

PE Teacher Support for Movement Independence

Statistical analysis confirms that pedagogical support from PE teachers contributes positively and significantly to student physical activity routines ($t = 4.156$, $p < 0.001$). Detailed indicator examination reveals that the teacher's provision of movement autonomy and structured activity prescription (independent fitness tasks) serve as the most impactful pedagogical dimensions influencing out-of-school routines. Through the lens of Self-Determination Theory (Deci et al., 2017), PE teachers who employ autonomy-supportive teaching, such as providing exercise options, encouraging self-paced progression, and avoiding rigid controlling directives, directly satisfy students' basic psychological needs for autonomy and competence.

Rather than confining motor instructions to formal class hours, physical educators who prescribe structured, home-based activity goals and offer constructive physiological feedback foster self-efficacy and internal motivation. Students internalize these movement guidelines, translating them into habitual, voluntary exercise regimens within their residential environments. These empirical insights align with Anwar et al. (2025) and Gourlan & Guéritat (2025), confirming that autonomy-supportive instruction bridges the gap between structured classroom motor learning and sustained leisure-time physical habits. While teachers do not control the domestic environment, their pedagogical credibility empowers students with the movement literacy and self-regulation skills needed to initiate and sustain physical activities outside school.

These results align with the findings of Yang et al. (2022) regarding the urgency of self-efficacy but offer a different perspective compared to the study by Laursen & Faur (2022), which emphasized the dominance of peer influence. This difference in results is caused by a school culture that positions the PE teacher as the primary academic authority in determining student physical activity standards. During the early adolescent transition phase, fitness guidelines and direct directions from teachers are considered far more credible information sources compared to peer group influence.

This study provides a novel contribution by identifying the parental role as a micro infrastructure facilitator and the PE teacher position as a catalyst for the internalization of intrinsic motivation in student populations with public facility limitations. These findings theoretically integrate the social ecological model with self determination theory to explain the complexity of movement behavior determinants outside of school. Practical implications

demand the restructuring of health promotion policies that integrate the synergy between the domestic environment and pedagogical instruction at school.

The main limitation of this study lies in the cross sectional research design, which does not allow for drawing temporal causality conclusions, as well as the use of self report instruments that potentially bring about subjectivity bias. Given the complexity of physical activity behavior, future research is recommended to apply a longitudinal design to map changes in student movement patterns over a longer time period. In addition, the integration of qualitative methods is needed to explore the depth of student perceptions regarding structural barriers undetected by quantitative questionnaires. The expansion of geographical coverage and the diversification of school demographics are also urgently needed to test the generalization of these findings in a broader social context.

Conclusions

This study concludes that parental support and PE teacher support act as important determinants that synergistically increase student physical activity routines outside of school. These findings strengthen the validity of the Social Ecological Model and Self Determination Theory in dissecting the dynamics of adolescent health behavior through the integration of domestic and pedagogical interventions. Nevertheless, the use of a cross sectional research design and self report instruments limits the capacity to generalize temporal causality and the potential for respondent subjectivity. Therefore, future research is recommended to apply a longitudinal design to map behavioral pattern fluctuations over a longer time span. In addition, the integration of mixed methods and the diversification of socioeconomic demographic coverage are necessary to enrich the depth of student perceptions. The strengthening of an integrated intervention model involving cross sector collaboration becomes a main urgency in future active lifestyle promotion policies.

Acknowledgment

The authors gratefully acknowledge the financial support provided by Universitas Sebelas Maret through the 2026 Annual Budget under the Research Group Capacity Strengthening Scheme (Category B). This research was carried out based on Research Assignment Agreement Number 462/UN27.22/PT.01.03/2026.

Conflict of interest

The authors declare no conflicts of interest related to the research, authorship, and publication of this article.

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Cite this article as:

Wulansari. D.A. *et al.* (2026). The Influence of Parental and Physical Education Teacher Support on Students' Out-of-School Physical Activity Routines. *Indonesian Journal of Physical Education and Sport Science (IJPESS)*, 6(3), xx-xx.