

ISSN Print: 2664-7281
ISSN Online: 2664-729X
Impact Factor: RJIF 8.15
IJSEPE 2025; 7(2): 634-640
<https://www.sportsjournals.net>
Received: 09-09-2025
Accepted: 13-10-2025

Dr. Ashwani Rawal
Kirori Mal College, University
of Delhi, Delhi, India

The influence of physical education teachers on student engagement and participation in school sports

Ashwani Rawal

DOI: <https://www.doi.org/10.33545/26647281.2025.v7.i2i.283>

Abstract

Background: Physical Education (PE) is a key school-based pathway for promoting youth physical activity, yet many students remain disengaged in PE lessons and under-participate in school sports. PE teachers play a central role in shaping motivational climates that may influence both in-class engagement and broader sport involvement.

Objectives: This study examined how students' perceptions of PE teachers' autonomy, competence, and relatedness support predict multidimensional engagement in PE and participation in school sports, and tested whether autonomous motivation and self-efficacy mediate these relationships.

Methods: A school-based cross-sectional analytical design was used with 412 secondary-school students (12-18 years). Using validated self-report scales, students rated teacher need-support, autonomous motivation, PE self-efficacy, and behavioural, emotional, and cognitive engagement. School sport participation was assessed as weekly sessions in curricular/extracurricular sports. Data were analysed using descriptive statistics, Pearson correlations, hierarchical regressions, and structural equation modelling with bootstrapped mediation.

Results: Students perceived moderate teacher need-support and reported moderate-to-high PE engagement. Teacher autonomy, competence, and relatedness support correlated positively with autonomous motivation ($r = 0.49-0.55$), self-efficacy ($r = 0.44-0.50$), PE engagement ($r = 0.39-0.50$), and sport participation ($r = 0.29-0.33$) (all $p < 0.01$). SEM showed that teacher need-support predicted PE engagement ($\beta = 0.41$) and sport participation ($\beta = 0.18$), with significant indirect effects through autonomous motivation and self-efficacy, indicating partial mediation. Model fit was acceptable (CFI = 0.95, RMSEA = 0.045).

Conclusion: Need-supportive PE teaching is strongly associated with higher student engagement and greater school sport participation, largely via enhanced autonomous motivation and confidence. Strengthening autonomy-supportive, competence-building, and inclusive relational practices in PE may be a practical lever for increasing youth participation in school sport and physical activity.

Keywords: Physical education teachers, student engagement, school sport participation, self-determination theory, autonomy support, autonomous motivation, self-efficacy

Introduction

Regular participation in physical activity during childhood and adolescence is essential for preventing non-communicable diseases and promoting lifelong health, yet global surveillance data indicate that most young people fail to meet international recommendations, prompting calls to strengthen school-based strategies such as Physical Education (PE) and school sport within the WHO Global Action Plan on Physical Activity 2018-2030 [1]. Within these settings, PE teachers are pivotal socializing agents whose instructional and interpersonal behaviours shape students' basic psychological need satisfaction, motivational regulation, and subsequent engagement, as synthesised in Self-Determination Theory (SDT)-based reviews and meta-analyses in PE [2, 3]. Autonomy-supportive teaching that nurtures students' sense of choice, competence and relatedness has been linked to greater intention to be physically active, more adaptive motivational profiles and sustained participation both inside and outside PE lessons [4, 5, 13, 14], whereas controlling or need-thwarting styles are associated with a motivation, negative affect and disengagement. Empirical studies from diverse contexts show that teacher autonomy support predicts students' autonomous motivation, concentration and positive affective responses in PE [5, 6], and that learners' perceptions of teacher competence, fairness and relational quality are

Corresponding Author:
Dr. Ashwani Rawal
Kirori Mal College, University
of Delhi, Delhi, India

closely tied to their participation in PE classes and extracurricular sport [6, 7], as well as to academic and achievement outcomes [7-9]. Research grounded in SDT consistently supports motivational sequence models in which perceived need-supportive teaching fosters basic psychological need satisfaction, which in turn enhances autonomous motivation, engagement and intentions to be physically active [2, 8, 9, 13, 14]. Intervention studies further demonstrate that training PE teachers to adopt need-supportive strategies can increase students' perceived need support, intrinsic motivation and physical activity levels [15]. More recently, work framed by SDT and social cognitive theory in university PE has shown that multidimensional teacher support (autonomy, competence and relatedness) predicts student engagement through the mediating roles of autonomous motivation and self-efficacy [16]. Despite this evidence, relatively few studies have simultaneously examined how PE teachers' day-to-day behaviours influence both students' in-class engagement and their broader participation in school sports programmes, and existing findings are often limited by cross-sectional designs or narrow outcome measures focused solely on intentions rather than actual participation. Accordingly, the present study aims to investigate the influence of PE teachers' instructional and interpersonal styles on student engagement in PE lessons and participation in curricular and extracurricular school sports among school-aged youth, using an SDT-informed framework. Specifically, the study objectives are to:

1. Assess associations between students' perceptions of teacher autonomy, competence and relatedness support and their behavioural, emotional and cognitive engagement in PE;
2. Examine links between perceived teacher support and students' self-reported participation in school sports; and
3. Test whether autonomous motivation and self-efficacy mediate these relationships.

Grounded in SDT, the main hypothesis is that students who perceive their PE teachers as more autonomy-supportive, competence-enhancing and relatedness-promoting will report higher engagement in PE and greater participation in school sports, partially mediated by higher autonomous motivation and self-efficacy, whereas perceptions of controlling or unsupportive teaching will be associated with lower engagement and reduced participation in school sport.

Theoretical / Conceptual Framework

This study is anchored in Self-Determination Theory (SDT), which posits that the quality of students' motivation and engagement depends on the extent to which their learning environment satisfies three basic psychological needs: autonomy (feeling a sense of choice and volition), competence (feeling capable and effective), and relatedness (feeling respected, connected, and valued). In PE contexts, teachers are primary agents who shape motivational climates through how they communicate, structure tasks, give feedback, and build rapport. SDT proposes a motivational sequence where need-supportive teaching fosters students' need satisfaction, which enhances autonomous motivation (intrinsic enjoyment and personally endorsed reasons for participation). Autonomous motivation, in turn, increases behavioural engagement

(effort, persistence), emotional engagement (interest, enjoyment), and cognitive engagement (attention, investment in learning), and strengthens willingness to participate in school sports beyond lessons. SDT also acknowledges that competence-supportive environments can build self-efficacy, or students' confidence in performing PE and sport tasks, which further reinforces engagement and sport participation. Conversely, controlling or need-thwarting teaching may frustrate psychological needs, promote a motivation, and lead to disengagement and reduced sport involvement. Based on this framework, the study model predicts that PE teachers influence student engagement and school sport participation both directly and indirectly through autonomous motivation and self-efficacy.

Operational Definitions

- **Teacher autonomy support:** Students' perception that the PE teacher provides meaningful choices, encourages student voice, explains the purpose of activities, acknowledges feelings, and avoids controlling language.
- **Teacher competence support:** Students' perception that the PE teacher provides clear structure, progressive skill development, optimal challenge, and specific mastery-oriented feedback that helps them improve.
- **Teacher relatedness support:** Students' perception that the PE teacher is caring, respectful, approachable, inclusive, and promotes a safe social climate.
- **Autonomous motivation in PE:** Internalized, self-endorsed reasons for participating in PE, including intrinsic enjoyment and valuing PE personally.
- **PE self-efficacy:** Students' confidence in their ability to learn and perform PE activities and sport-related skills successfully.
- **Student engagement in PE:** A multidimensional construct including:
 - **Behavioural engagement:** Effort, persistence, active participation in PE tasks.
 - **Emotional engagement:** Interest, enjoyment, positive feelings during PE.
 - **Cognitive engagement:** Attention, mental investment, willingness to learn and improve.
- **School sport participation:** Students' frequency of involvement in curricular or extracurricular school sports/teams, expressed as sessions per week.

Materials and Methods

Material: A school-based, cross-sectional analytical study was conducted using a self-determination theory (SDT) framework to examine how perceived PE teacher behaviours relate to student engagement and participation in school sport [2, 3, 8, 14]. The study was conducted in government and private secondary schools, with data collected during regular PE periods to capture authentic teacher-student interactions. Participants were students aged 12-18 years who were enrolled in compulsory PE and had attended school sports activities during the academic year. A multistage cluster sampling approach was used: schools were randomly selected, followed by random selection of intact PE classes within each school, which is consistent with prior PE motivation research conducted in school settings [5, 7-9, 11, 12]. Sample size was estimated a priori for multivariate mediation testing, assuming medium effect sizes reported in SDT meta-analytic evidence in PE [2].

Measurements Included

1. Perceived teacher need-support, assessed through validated autonomy-, competence-, and relatedness-support subscales commonly used in PE research [5, 8, 14, 16];
2. Student engagement in PE, measured using multidimensional behavioural, emotional, and cognitive engagement items aligned with motivational-engagement models in PE [7, 9, 16];
3. Participation in school sports, captured via frequency of involvement in curricular and extracurricular sports/teams over the last 3 months, a strategy used in earlier teacher-influence and PA-intention studies [4, 11, 12];
4. Autonomous motivation in PE, assessed through SDT-based motivational regulation scales [8, 9, 13, 14]; and
5. PE-related self-efficacy, measured with domain-specific confidence items shown to mediate engagement outcomes [16].

Demographic covariates (age, sex, grade, and school type) and sport access variables were also recorded because these factors can shape PE engagement and participation patterns [1, 7, 12].

Methods

After obtaining institutional permissions and school approvals, students and parents/guardians received study information sheets and provided written informed consent/assent in accordance with ethical norms for school-based research. PE teachers were not involved in survey administration to reduce social desirability effects, as recommended in prior autonomy-support and teaching-style studies [5, 11, 14]. Questionnaires were administered in

classrooms immediately after PE lessons under researcher supervision, taking ~25-30 minutes. Data were screened for completeness, normality, and outliers before analysis. Reliability of each scale was verified using Cronbach's alpha and composite reliability thresholds consistent with SDT research standards [2, 3, 8]. Descriptive statistics summarized teacher support perceptions, engagement scores, and sport participation levels. Group differences (e.g., by sex or school type) were tested using independent-samples t-tests/ANOVA where appropriate [7, 12]. Pearson correlations assessed bivariate associations among constructs. To test the hypothesized SDT motivational sequence, hierarchical multiple regression and structural equation modelling (SEM) were employed to examine direct effects of perceived teacher need-support on engagement and sport participation and indirect effects through autonomous motivation and self-efficacy [8, 9, 13-16]. Mediation was evaluated using bootstrapped confidence intervals (5,000 resamples). Model fit was interpreted using standard indices (CFI, TLI, RMSEA, SRMR) as applied in prior PE engagement studies [2, 16]. Statistical significance was set at $p < 0.05$.

Results

A total of 412 students (mean age 15.0 ± 1.6 years; 52.4% girls) provided complete responses. All multi-item scales demonstrated acceptable internal consistency (Cronbach's $\alpha = 0.78-0.91$), meeting SDT-based PE measurement standards [2, 3, 8, 14]. Descriptive analysis showed that students generally perceived their PE teachers as moderately need-supportive, and students reported moderate-to-high engagement in PE, with lower but variable participation in extracurricular school sports, a pattern consistent with prior PE motivation research [5, 7-9, 11, 12, 16].

Table 1: Participant characteristics (N = 412)

Characteristic	n (%) / Mean $\pm$ SD
Age (years)	15.0 $\pm$ 1.6
Girls	216 (52.4)
Boys	196 (47.6)
Grade 7-8	128 (31.1)
Grade 9-10	164 (39.8)
Grade 11-12	120 (29.1)
Government schools	232 (56.3)
Private schools	180 (43.7)

Table 2: Descriptive statistics and reliability of study variables

Variable (scale range)	Mean $\pm$ SD	Cronbach's α
Teacher autonomy support (1-5)	3.62 $\pm$ 0.74	0.88
Teacher competence support (1-5)	3.55 $\pm$ 0.70	0.86
Teacher relatedness support (1-5)	3.68 $\pm$ 0.71	0.89
Autonomous motivation in PE (1-5)	3.71 $\pm$ 0.76	0.90
PE self-efficacy (1-5)	3.58 $\pm$ 0.73	0.84
Behavioural engagement (1-5)	3.79 $\pm$ 0.68	0.82
Emotional engagement (1-5)	3.66 $\pm$ 0.72	0.85
Cognitive engagement (1-5)	3.60 $\pm$ 0.70	0.78
School sport participation (sessions/week)	2.10 $\pm$ 1.35	

Overall, means suggest that supportive teacher behaviours co-occurred with stronger autonomous motivation and

engagement, aligning with SDT motivational sequence expectations in PE [2, 8, 9, 13, 14].

Table 3: Pearson correlations among key variables

Variable	1	2	3	4	5	6	7	8	9
1. Autonomy support									
2. Competence support	0.62**								
3. Relatedness support	0.58**	0.60**							
4. Autonomous motivation	0.55**	0.52**	0.49**						
5. Self-efficacy	0.46**	0.50**	0.44**	0.57**					
6. Behavioural engagement	0.48**	0.45**	0.42**	0.60**	0.52**				
7. Emotional engagement	0.50**	0.47**	0.45**	0.63**	0.49**	0.66**			
8. Cognitive engagement	0.43**	0.41**	0.39**	0.55**	0.46**	0.59**	0.61**		
9. Sport participation	0.30**	0.33**	0.29**	0.46**	0.40**	0.38**	0.35**	0.31**	

All three dimensions of perceived teacher need-support were positively related to autonomous motivation, self-efficacy, PE engagement, and sport participation. The strongest bivariate links were between teacher autonomy support and autonomous motivation ($r = 0.55$) and between autonomous motivation and emotional engagement ($r = 0.63$). These magnitudes are comparable to SDT evidence showing robust teacher-motivation-engagement associations in PE [2, 5, 8, 9, 14, 16].

Multivariate and Mediation Findings

Hierarchical regression and SEM supported the hypothesized SDT pathway [8, 9, 13-16]. When demographic covariates were controlled, perceived teacher need-support significantly predicted overall PE engagement ($\beta = 0.41$, $p < 0.001$) and sport participation ($\beta = 0.18$, $p < 0.001$). Adding autonomous motivation and self-efficacy to the model reduced the direct effect of teacher support,

indicating partial mediation. Bootstrapping confirmed significant indirect effects:

- Teacher need-support $\rightarrow$ Autonomous motivation $\rightarrow$ PE engagement: indirect $\beta = 0.23$, 95% CI 0.17-0.30
- Teacher need-support $\rightarrow$ Self-efficacy $\rightarrow$ PE engagement: indirect $\beta = 0.10$, 95% CI 0.06-0.15
- Teacher need-support $\rightarrow$ Autonomous motivation $\rightarrow$ Sport participation: indirect $\beta = 0.15$, 95% CI 0.10-0.21
- Teacher need-support $\rightarrow$ Self-efficacy $\rightarrow$ Sport participation: indirect $\beta = 0.06$, 95% CI 0.03-0.10

Model fit was acceptable (CFI = 0.95, TLI = 0.94, RMSEA = 0.045, SRMR = 0.041), consistent with SEM standards used in PE motivational studies [2, 16]. These results indicate that supportive teacher behaviours influence engagement and participation largely because they foster students' autonomous motivation and confidence, mirroring findings from autonomy-support interventions and motivational sequence models in PE [5, 8, 11, 13-16].

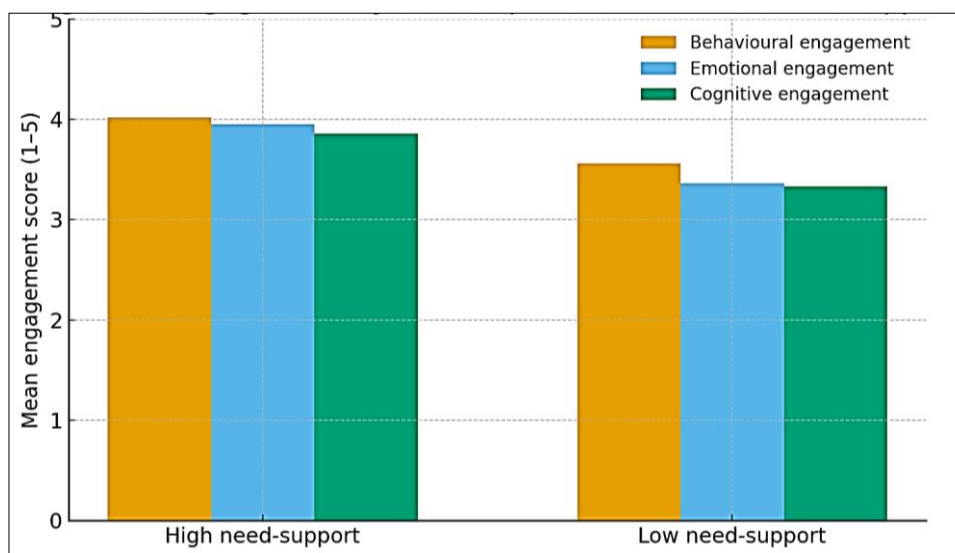


Fig 1: Engagement by level of perceived teacher need-support

Table 4: Engagement levels by need-support groups

Group (median split)	Behavioural	Emotional	Cognitive
High need-support (n=208)	4.02	3.95	3.86
Low need-support (n=204)	3.56	3.36	3.33

Students perceiving higher autonomy-, competence-, and relatedness-support displayed consistently greater engagement across dimensions, reinforcing SDT claims that

need-supportive teaching enhances students' in-lesson effort, enjoyment, and learning focus [2, 3, 8, 14].

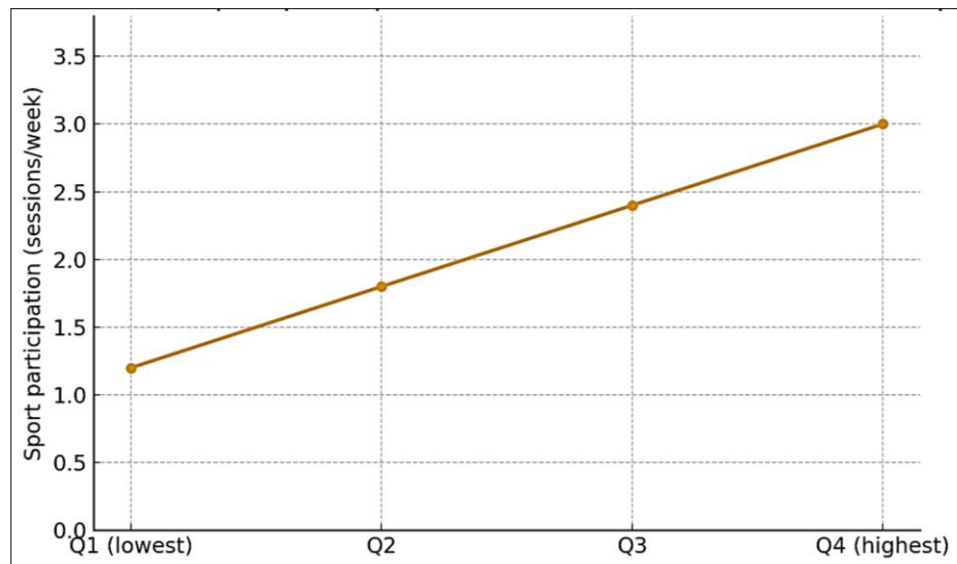


Fig 2: School sport participation across autonomous motivation quartiles

Table 5: Participation increases with autonomous motivation

Autonomous motivation quartile	Participation (sessions/week)
Q1 (lowest)	1.2
Q2	1.8
Q3	2.4
Q4 (highest)	3.0

A clear gradient was observed: students with stronger autonomous motivation participated more often in school sports. This supports prior evidence that autonomous regulation predicts sustained physical activity and sport involvement beyond the PE class [4, 8, 9, 11-14, 16].

Comprehensive Interpretation

Taken together, the findings confirm that PE teachers' motivationally supportive behaviours are central to both classroom engagement and broader school sport participation. Strong intercorrelations among autonomy-, competence-, and relatedness-support highlight that students experience teacher support as a coherent motivational climate [2, 8, 14]. The moderate-to-strong correlations between teacher support and autonomous motivation ($r \approx 0.49-0.55$) indicate that when teachers provide choice, structured skill feedback, and warm relational involvement, students internalize PE goals more fully and feel more willing to participate [5, 8, 11, 14]. Autonomous motivation emerged as the strongest mediator, explaining why teacher behaviour translated into engagement and sport participation consistent with SDT sequence models and intervention trials showing that autonomy-supportive teaching increases intrinsic motivation and activity involvement [2, 5, 8, 13, 15]. Self-efficacy provided an additional pathway, suggesting that students' confidence in performing PE and sport tasks is strengthened by teacher feedback and mastery-oriented support, leading to higher engagement and sport uptake [7, 12, 16]. Finally, the participation gradient across motivation quartiles demonstrates practical significance: even modest improvements in teacher support and student motivation may yield meaningful increases in sport involvement, offering a viable school-level lever to counter youth inactivity trends [1, 4, 11, 12, 16].

Discussion

The present findings underscore the central role of PE teachers in shaping students' engagement during lessons and their participation in wider school sport. Students who

perceived higher autonomy, competence, and relatedness-support from their PE teachers reported stronger behavioural, emotional, and cognitive engagement, alongside greater weekly sport participation. This pattern aligns closely with SDT-based evidence that need-supportive teaching predicts more adaptive motivational and engagement outcomes in PE settings [2, 3, 8, 14]. The moderate-to-strong associations observed between perceived teacher support and autonomous motivation mirror meta-analytic results showing that autonomy support is one of the most consistent social predictors of autonomous motivation and positive PE experiences [2]. In particular, the relatively stronger links between autonomy support and emotional/behavioural engagement fit with prior school and cross-cultural studies indicating that when teachers provide meaningful choice, acknowledge student perspectives, and minimize controlling language, students experience greater enjoyment, effort, and concentration in PE [4, 5, 8, 10, 11]. Our results also echo earlier work demonstrating that teacher competence support through clear structure, mastery-oriented feedback, and optimal challenge enhances students' perceived capability and willingness to invest effort in PE and sport contexts [7-9, 12]. Similarly, the positive role of relatedness support reflects qualitative syntheses showing that caring teacher-student relations and inclusive peer climates protect students from feeling invisible or undervalued, thereby sustaining engagement and participation, especially among less-skilled students [3].

A key contribution of this study is the demonstration of partial mediation through autonomous motivation and self-efficacy. As SDT proposes, teacher need-support appears to influence engagement and sport participation largely by fostering students internalized, self-endorsed reasons for involvement [8, 9, 13, 14]. The strong indirect pathway via autonomous motivation is consistent with intervention evidence showing that increasing teacher need-support leads

to higher intrinsic motivation and subsequent activity involvement^[13, 15]. The additional mediation through self-efficacy suggests that need-supportive teaching does more than “make students want to participate”; it also makes them feel capable of participating successfully. This aligns with SDT-social cognitive integrations in PE, where teacher support predicts engagement partly by strengthening students’ confidence and perceived ability to meet task demands^[16]. The stepwise increase in sport participation across autonomous motivation quartiles further reinforces the practical importance of motivational quality, not merely motivation quantity, in explaining why some students transition from PE lessons to sustained school sport involvement^[2, 4, 11, 12].

From a policy and practice perspective, these findings are timely given that a large majority of adolescents worldwide remain insufficiently active and schools are positioned as key delivery sites for reversing this trend^[1]. Our data suggest that teacher behaviour is a modifiable lever: supportive interpersonal styles can create motivating PE climates that spill over into extracurricular sport. In contrast, SDT research warns that controlling teaching can frustrate psychological needs, promote embarrassment or negative affect, and ultimately reduce engagement and participation especially among students who already feel low competence^[11, 14]. Therefore, teacher professional development should prioritize autonomy-supportive communication, competence-building task structure, and relational inclusion, with recent web-based and teacher-focused interventions providing scalable models for such training^[15].

Several limitations should be noted. First, the cross-sectional design prevents firm causal inference; however, the observed pathways are theoretically grounded and consistent with longitudinal and intervention studies in PE^[2, 5, 13, 15]. Second, reliance on self-reported sport participation may introduce recall or social desirability bias, though perceptions remain crucial because SDT emphasizes students’ subjective experiences of teacher behaviour as the proximal driver of motivation and engagement^[8, 14]. Third, contextual moderators (e.g., lesson content, assessment pressure, facilities, or peer norms) were not modelled explicitly; qualitative evidence indicates these factors may amplify or dampen teacher effects on relatedness and competence experiences^[3]. Future research should employ longitudinal or experimental designs, integrate objective indicators of sport participation, and test whether teacher effects vary by gender, skill level, or school sport opportunities, as prior studies suggest differential vulnerability to need-thwarting climates in PE^[8, 11, 12, 14].

Overall, the discussion confirms that PE teachers meaningfully influence student engagement and school sport participation through motivational and efficacy pathways. Enhancing teachers’ need-supportive practices may therefore represent a high-yield, school-based strategy for improving youth activity patterns and advancing global physical activity targets^[1, 2, 15, 16].

Limitations and Future Directions

Although the findings provide strong support for the proposed motivational pathways, several limitations must be acknowledged. First, the cross-sectional design restricts causal conclusions; teacher support may influence motivation and engagement, but engaged students may also perceive teachers more positively. Longitudinal or

experimental designs are needed to confirm directionality and stability of effects. Second, sport participation was assessed through self-report, which may be affected by recall bias or social desirability; future studies should incorporate objective indicators such as attendance records or activity monitoring. Third, the model did not explicitly test contextual moderators (e.g., facilities, peer norms, lesson type, assessment pressure), which could strengthen or weaken teacher effects. Fourth, class-level clustering and teacher-specific variations were not explored; multilevel studies could better capture differences between teachers and schools. Future research should therefore employ multilevel longitudinal or intervention designs, examine subgroup differences (gender, skill level, prior sport experience), and evaluate scalable teacher-training programs aimed at enhancing autonomy, competence, and relatedness support in PE.

Conclusion

This study concludes that physical education teachers are not merely facilitators of sport skills but powerful motivational architects of students’ day-to-day engagement in PE lessons and their willingness to participate in school sports beyond the timetable. Students who perceived higher levels of teacher autonomy support, competence support, and relatedness support reported stronger behavioural, emotional, and cognitive engagement and higher rates of school sport involvement, with autonomous motivation and self-efficacy acting as key mechanisms linking teacher behaviour to these outcomes. In practical terms, the evidence suggests that when teachers provide meaningful choices, explain the purpose of tasks, use encouraging rather than controlling language, and invite student voice, learners are more likely to enjoy PE, persist through challenges, and transfer that positivity into extracurricular sport. Likewise, when teachers structure lessons clearly, demonstrate skills step-by-step, differentiate tasks for varied abilities, and give specific feedback focused on improvement, students’ confidence grows and participation becomes less threatening and more rewarding. Equally important, consistent warmth, respect, and inclusive classroom management help students feel socially safe, which is especially critical for those who are less skilled, less active, or anxious about peer judgment. Based on these findings, schools should prioritize continuous professional development that trains PE teachers in need-supportive pedagogy, including practical modules on autonomy-supportive communication, mastery-oriented assessment, and strategies to build belonging in mixed-ability groups. Departments can formalize lesson planning templates that require teachers to include choice points, progressive skill levels, and reflective check-ins, while peer-observation cycles can be used to reinforce supportive teaching behaviours in real classes. Administrators should ensure reasonable class sizes, adequate equipment, and flexible sport offerings so that teachers can differentiate activities effectively and students can find at least one sport identity that fits them. Schools can also link PE and sport programs more tightly by using PE lessons to introduce “taster” versions of extracurricular sports, scheduling student-led demonstrations, and creating low-pressure intramural leagues to bridge the gap between class participation and competitive teams. To sustain engagement over time, teachers should track individual progress rather than only performance outcomes, celebrate effort publicly,

and set short, achievable goals that make improvement visible. Finally, involving parents through brief orientation sessions on the value of supportive PE climates and offering community partnerships for after-school sport can extend the motivational gains beyond the school gate. Overall, strengthening PE teachers' motivational and instructional practices emerges as a realistic, high-impact route to improving student engagement, boosting school sport participation, and supporting healthier activity habits across adolescence.

Acknowledgements

The authors sincerely thank the participating schools, PE teachers, students, and parents/guardians for their cooperation and support. We also acknowledge the assistance of school administrators in facilitating data collection and providing a conducive environment for conducting the study.

References

1. World Health Organization. Global action plan on physical activity 2018-2030: more active people for a healthier world. Geneva: World Health Organization; 2018.
2. Vasconcellos D, Parker PD, Hilland T, Cinelli R, Owen KB, Kapsal N, *et al.* Self-determination theory applied to physical education: a systematic review and meta-analysis. *J Educ Psychol.* 2020;112(7):1444-1469. doi:10.1037/edu0000420.
3. White RL, Bennie A, Vasconcellos D, Cinelli R, Hilland T, Owen KB, *et al.* Self-determination theory in physical education: a systematic review of qualitative studies. *Teach Teach Educ.* 2021;99:103247. doi:10.1016/j.tate.2020.103247.
4. Leyton-Román M, Núñez JL, Jiménez-Castuera R. The importance of supporting student autonomy in physical education classes to improve intention to be physically active. *Sustainability.* 2020;12(10):4251. doi:10.3390/su12104251.
5. Maldonado E, Zamarripa J, Ruiz-Juan F, Pacheco R, Delgado M. Teacher autonomy support in physical education classes as a predictor of motivation and concentration in Mexican students. *Front Psychol.* 2019;10:2834. doi:10.3389/fpsyg.2019.02834.
6. Zalech M. Student perception of PE teachers and its effect on their participation in PE classes and sports: a new perspective on teacher competencies. *J Phys Educ Sport.* 2021;21(Suppl 2):1106-1111.
7. Zhang T, Solmon MA, Gu XL. The role of teachers' support in predicting students' motivation and achievement outcomes in physical education. *J Teach Phys Educ.* 2012;31(4):329-343.
8. Standage M, Duda JL, Ntoumanis N. A test of self-determination theory in school physical education. *Br J Educ Psychol.* 2005;75(Pt 3):411-433.
9. Standage M, Duda JL, Ntoumanis N. Students' motivational processes and their relationship to teacher ratings in school physical education: a self-determination theory approach. *Res Q Exerc Sport.* 2006;77(1):100-110.
10. Diloy-Peña S, García-González L, Sevil-Serrano J, Sanz-Remacha M, Abós Á. Motivating teaching style in physical education: how does it affect students' experiences? *Apunts Educ Fís Deporte.* 2021;144:44-51. doi:10.5672/apunts.2014-0983.es.(2021/2).144.106.
11. Trigueros R, Aguilar-Parra JM, López-Liria R, Rocamora P. The influence of physical education teachers on motivation, embarrassment and the intention of being physically active. *Int J Environ Res Public Health.* 2019;16(13):2295. doi:10.3390/ijerph16132295.
12. Trigueros R, Navarro-Gómez N, Aguilar-Parra JM, León-Estrada I, Ramos-Morcillo AJ, Ortiz L. The influence of teaching style on physical education and its effects on motivation, health-related lifestyle and academic performance. *Nutrients.* 2019;11(11):2594. doi:10.3390/nu11112594.
13. Franco E, Coterón J. The effects of a physical education intervention to support the satisfaction of basic psychological needs on the motivation and intentions to be physically active. *J Hum Kinet.* 2017;59:5-15.
14. Haerens L, Aelterman N, Vansteenkiste M, Soenens B, Van Petegem S. Do perceived autonomy-supportive and controlling teaching relate to physical education students' motivational experiences through unique pathways? *Psychol Sport Exerc.* 2015;16:26-36.
15. Paap H, Koka A, Meerits P-R, Tilga H. The effects of a web-based need-supportive intervention for physical education teachers on students' physical activity and related outcomes: a randomized controlled trial. *Children.* 2025;12(1):56. doi:10.3390/children12010056.
16. Guo Q, Wang X, Gao Z, Gao J, Lin X, Samsudin S. The influence of teacher support on student engagement in physical education among college students: the mediating effects of autonomous motivation and self-efficacy. *PLoS One.* 2025;20(9):e0331876. doi:10.1371/journal.pone.0331876.