



Physical Education Teachers' Impact on Moral Development of Adolescents: Pathways to Prosocial and Antisocial Behaviors

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Abstract

Introduction: The impact of teaching styles in physical education (PE) on prosocial and antisocial behaviors among children and adolescents is still not thoroughly investigated.

Objective: This study seeks to explore how various teaching approaches in PE affect adolescents' prosocial and antisocial behaviors, emphasizing moral development as a potential mediating factor.

Methods: This research employed a descriptive-correlational approach utilizing structural equation modeling. A sample of 396 adolescents, consisting of 196 boys and 200 girls, was selected through convenience sampling. The Multidimensional Perceived Autonomy Support Scale for Physical Education, the Moral Development Questionnaire and Prosocial and Antisocial Behavior in Sports Scale were used to measure the research variables, and the data analysis was performed using Smart PLS statistical software version 4, with a significance threshold set at 0.05.

Results: There was a significant structural relationship between the autonomy support style with prosocial behavior ($p=0.000$, $t=6.021$, $b=0.586$) and antisocial behavior ($p=0.000$, $t=-4.976$, $b=-0.487$). Also, the controlling style demonstrates a significant relationship with prosocial behavior ($p=0.000$, $t=-6.684$, $b=-0.652$) and antisocial behavior ($p=0.000$, $t=5.527$, $b=0.519$). Furthermore, moral development plays a significant mediating role in the relationship between autonomy-supportive style and both prosocial behavior ($p=0.000$, $t=3.846$, $b=0.361$) and antisocial behavior ($p=0.000$, $t=-2.714$, $b=-0.264$). Finally, moral development also acts as a significant mediator in the context of a controlling style, affecting prosocial behavior ($p=0.000$, $t=3.107$, $b=0.308$) and antisocial behavior ($p=0.000$, $t=-2.529$, $b=-0.242$).

Conclusion: The findings emphasize the critical role of moral development in influencing how various teaching methods can produce different behavioral outcomes in adolescents. These findings highlight the need for PE teachers to intentionally model and reinforce moral behaviors, as their daily interactions can significantly shape adolescents' prosocial or antisocial tendencies.

Keywords: Adolescent, Physical Education, Autonomy, Social Skills, Morals

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1. Introduction

The moral development of children and adolescents represents a crucial phase in their lives, with schools serving as a vital environment for this growth, second only to the family unit (1). Within the school setting, the foundational elements of morality, behavior, and ethical character begin to take shape, significantly influenced by the educational processes and curricula implemented (2). The role of morality in schools and the broader formal education system is multifaceted; it functions both as an objective to be achieved and as a powerful tool for fostering effective learning and personal development (3). Furthermore, the intellectual and moral capacities of individuals are the most valuable assets a society can possess in its pursuit of future goals and aspirations. Education and training systems are essential in nurturing these constructive forces, thereby equipping the next generation with the necessary skills and ethical frameworks to contribute positively to society (4).

Physical education (PE) is widely recognized as a cornerstone of educational frameworks globally, significantly contributing to the holistic development of students (5). PE encompasses a variety of structured activities designed to improve individuals' physical, mental, and social capabilities (6). The significance of PE in schools extends beyond merely honing motor skills; it serves as a vital instrument for fostering healthy, successful, and socially adept individuals (7). There are several compelling reasons for the prominent role of PE within educational frameworks. Primarily, participation in sports and physical activities enhances physical health, which is linked to a decreased risk of chronic illnesses and an improved quality of life for students. Additionally, PE plays a crucial role in boosting concentration and enhancing mental performance, while also positively influencing psychological well-being by alleviating stress and anxiety (8). Research indicates that by cultivating an engaging and active atmosphere, PE encourages students to engage in collaborative activities and interact with their peers (9,10). This environment



serves as an effective platform for nurturing and enhancing social skills that are crucial throughout an individual's life. For instance, participation in team sports such as soccer, basketball, and volleyball not only promotes cooperation and adherence to rules but also facilitates healthy interactions among students. Consequently, PE plays a pivotal role in instilling a sense of responsibility, boosting self-esteem, and enhancing communication abilities, all of which are essential for personal and social development.

One of the primary objectives of PE is to foster both physical and social skills among students. Physical skills encompass a range of attributes, including endurance, strength, flexibility, balance, and coordination, all of which are enhanced through various exercises and sports activities (11). Mastery of these skills not only improves students' performance in daily tasks but also elevates their capabilities in athletic pursuits. Furthermore, PE provides an ideal setting for engaging in group and competitive activities, which are instrumental in cultivating essential social skills such as teamwork, effective communication, respect for others, and the ability to tolerate differing opinions and demands (7,12,13). Participation in group activities, particularly team sports, compels students to collaborate and strategize towards shared objectives, thereby facilitating the development of critical skills like conflict resolution and problem-solving in diverse scenarios. These experiences equip students to navigate social challenges beyond the realm of sports, ultimately enabling them to forge healthy and constructive relationships with their peers.

PE teachers significantly influence students' sports and social behaviors within the school setting, extending beyond the primary factors that shape student conduct (14). Their roles encompass providing independent support, actively engaging with students, and serving as role models, all of which profoundly impact students' motivation for self-regulated participation in leisure-time physical activities (15,16). Consequently, education systems prioritize the training of PE teachers across various dimensions to enhance their teaching effectiveness. A critical aspect of this training involves the strategic application of diverse teaching styles, as each style offers distinct feedback mechanisms that can shape students' attitudes, preferences, and overall motivation towards sports (17,18). By understanding and implementing the appropriate teaching styles, PE teachers can foster an environment that not only promotes athletic success but also cultivates a lifelong appreciation for moral development among students.

Recent years have seen a growing interest in two distinct teaching styles: need-supporting and need-thwarting approaches (19,20). These styles are grounded in Self-Determination Theory (SDT), a motivational framework that has been applied across various domains, including health, sports, education, and the workplace (19,21). Health, as a fundamental intrinsic goal, is significantly shaped by individual habits and lifestyle choices, where motivation - defined as the energy directed toward achieving a goal - plays a crucial role in influencing these choices and facilitating sustained behavioral changes necessary for maintaining health. According to SDT, all individuals possess three essential psychological needs: autonomy, competence, and relatedness, which are vital for personal growth and development (22,23). Research

indicates that when these psychological needs are supported, students exhibit increased motivation and engagement in academic tasks (24,25). Conversely, when these needs are thwarted, students' motivation and engagement can suffer, leading to negative outcomes in their educational experiences (26). Despite this understanding, the specific effects of teaching styles in PE on prosocial and antisocial behaviors among children and adolescents remain underexplored. Consequently, this study aims to examine how different teaching styles in PE influence adolescents' prosocial and antisocial behaviors, with a particular focus on moral development as a potential mediating factor.

This study is important because it clarifies how PE teachers influence adolescents' moral development at a critical stage of social and emotional growth. By examining the pathways through which teacher behaviors shape students' prosocial and antisocial tendencies, the research provides valuable insight into the broader educational role of PE beyond physical skills. Understanding these mechanisms can help schools better support positive character development, guide teacher training, and ultimately foster healthier, more socially responsible behaviors among young people.

2. Methods

2.1. Design and Participants

This research employed a cross-sectional descriptive-correlational approach utilizing structural equation modeling to analyze the data. The target population consisted of high school students aged 14 to 18 years, with a final sample of 396 adolescents, including 196 boys and 200 girls. A priori power analysis conducted using G*Power indicated that a minimum sample size of participants was required to detect a medium effect size with adequate statistical power ($\alpha = .05$, power = .80); the final sample of 396 participants therefore exceeded this requirement. The mean age of the participants was 16.27 years, accompanied by a standard deviation of 0.46. The age range of 14-18 was selected because adolescence represents a critical developmental period for moral reasoning and social behavior, yet this range may also introduce potential confounding variables such as differing levels of cognitive maturity, peer influence, and school environment, which should be considered when interpreting the findings. Recruitment was conducted through convenience sampling methods. Before the study commenced, both the participants and their parents were provided with detailed information regarding the objectives and methodologies of the research. To qualify for inclusion, participants had to be enrolled in high school, free from any physical or mental health conditions, and not currently taking any special medications. Those who did not satisfy these criteria or who did not complete the questionnaire were excluded from the analysis. The study was carried out in strict adherence to the ethical guidelines outlined in the Declaration of Helsinki, which emphasizes the importance of safeguarding the rights and welfare of research participants. Prior to the commencement of the study, both the participants and their parents were provided with detailed information regarding the objectives and

methodologies involved, ensuring that they had a clear understanding of what their involvement entailed. To further uphold ethical standards, informed written consent was obtained from all participants, as well as from their guardians, thereby ensuring that the rights of minors were respected and protected throughout the research process.

2.2. Measurements

2.2.1. Physical Education Teaching Style

A modified version of the Multidimensional Perceived Autonomy Support Scale for Physical Education (MD-PASS-PE) (27) and the Controlling Style factor from the Empowerment in Sport Questionnaire (EDMCQ-C) (28) was employed. This adapted scale comprises 19 items categorized into four distinct factors: Organizational Autonomy Support, Procedural Autonomy Support, and Cognitive Autonomy Support, each containing five items, along with a Teacher Controlling Style factor that includes four items. Respondents evaluate each item using a seven-point Likert scale, where 1 indicates strong disagreement and 7 signifies strong agreement. The items are designed to assess various psychosocial competencies associated with the teacher and the learning environment established in PE. To derive a General Autonomy Support Factor, the mean of the three autonomy support factors was calculated. In this study, the Cronbach's alpha coefficient was determined to be 0.94 and 0.90 for the autonomy support style and controlling style, respectively, indicating excellent internal consistency.

2.2.2. Moral Development

In this research, the Moral Development Questionnaire (MDQ) was employed to evaluate the participants' moral development (29). This instrument comprises a series of questions organized into six distinct moral categories, with each category featuring three hypothetical scenarios designed to elicit responses. Participants indicate their level of agreement using a Likert scale that ranges from "completely disagree" (1) to "completely agree" (5). The scoring system for the questionnaire allows for a total score between 18 and 90, where a score of 90 reflects a high level of moral development, while a score of 18 suggests minimal moral development. In this study, the reliability of the questionnaire was confirmed with a Cronbach's alpha coefficient of 0.93, indicating a high level of internal consistency among the items.

2.2.3. Prosocial and Antisocial Behavior

The assessment of prosocial and antisocial behaviors was conducted using a 20-item Prosocial and Antisocial Behavior in Sports Scale (PABSS) (30). Participants were instructed to evaluate their engagement in various behaviors, with each item rated on a 5-point Likert scale ranging from 1 (never) to 5 (very often). Higher scores in the prosocial categories indicate a greater tendency among students to engage in supportive behaviors towards their peers and rivals, whereas elevated scores in the antisocial categories suggest a higher likelihood of exhibiting negative behaviors in PE. In this study, the Cronbach's alpha coefficient was found to be 0.89 and 0.92 for prosocial

and antisocial behaviors, respectively, demonstrating excellent internal consistency.

2.3. Procedure

In the implementation phase of the project, initial efforts were directed towards establishing coordination with the Education Department to secure the necessary permissions for conducting the research. This foundational step was followed by a visit to the school, where the research objectives were clearly articulated, emphasizing the importance of the findings to both the educational community and the broader context. During this visit, efforts were made to ensure that both parents and students understood the purpose of the study, thereby obtaining their informed consent. Following this preparatory work, a sample of 396 high school students was selected through a convenience sampling method, which allowed for the efficient gathering of participants. These students were then provided with questionnaires designed to capture relevant data pertaining to the research objectives. Upon completion, the questionnaires were collected systematically for subsequent analysis, marking a significant step in the research process.

2.4. Statistical Analysis

To analyze the data collected, descriptive statistics were utilized, focusing on various measures of central tendency and dispersion, such as the mean, standard deviation, skewness, and kurtosis. These metrics provided a comprehensive overview of the data's distribution and variability. In the subsequent inferential statistics phase, structural equation modeling was employed after verifying that all necessary assumptions were met. This advanced analytical technique allowed for the exploration of complex relationships between variables. The entire analysis was performed using Smart PLS statistical software, version 4, with a significance threshold set at 0.05, ensuring that the results were statistically robust and reliable. For the SEM analysis, key assumptions - including multivariate normality, absence of multicollinearity, adequate sample size, and acceptable model fit - were evaluated prior to interpretation. Multivariate normality was assessed through skewness and kurtosis values, multicollinearity was examined using variance inflation factors (VIF), and sample adequacy was confirmed based on recommended participant-to-parameter ratios. Model fit indices (CFI, TLI, RMSEA, SRMR) were also inspected to ensure that the specified model met established SEM criteria.

3. Results

Table 1 presents a comprehensive overview of various aspects of teaching styles, specifically focusing on autonomy support and controlling approaches, as well as moral development and the exhibition of prosocial and antisocial behaviors among students. The data reveals that the skewness and kurtosis values for all examined variables fall within the range of -2 to +2. This range confirms that the data adheres to the assumption of normal distribution, thereby validating the statistical analyses conducted.

Table 1. Description of Research Variables.

	Skewness,	Kurtosis	Mean	SD	Maximum	Minimum
Autonomy Support Style	0.263	0.542	4.28	0.43	7	1
Controlling Style	0.439	0.824	3.74	0.22	5	1
Moral Development	0.829	1.241	51.37	5.17	79	22
Prosocial Behavior	0.308	0.529	3.22	0.44	5	1
Antisocial Behavior	-0.528	-0.741	2.18	0.35	5	1

Table 2 presents the Cronbach's alpha coefficients for various constructs, indicating strong internal consistency across the measures. Specifically, the autonomy support style achieved a Cronbach's alpha of 0.941, while the controlling style recorded a value of 0.902. The moral development construct demonstrated a reliability coefficient of 0.934, and the prosocial behavior measure yielded a value of 0.892. Additionally, the antisocial behavior construct had a Cronbach's alpha of 0.922. In terms of composite reliability, the autonomy support style scored 0.923,

the controlling style 0.899, moral development 0.920, prosocial behavior 0.884, and antisocial behavior 0.907. Furthermore, the average variance extracted (AVE) values were also assessed, revealing that autonomy support style had an AVE of 0.663, controlling style 0.576, moral development 0.568, prosocial behavior 0.593, and antisocial behavior 0.602. All these metrics surpass the established thresholds for reliability and validity, thereby confirming that the questionnaires employed in this study are both reliable and valid for measuring the intended constructs.

Table 2. Validity and Reliability.

	Cronbach's Alpha	Composite Reliability	AVE
Autonomy Support Style	0.941	0.923	0.663
Controlling Style	0.902	0.899	0.576
Moral Development	0.934	0.920	0.568
Prosocial Behavior	0.892	0.884	0.593
Antisocial Behavior	0.922	0.907	0.602

The analysis utilizing Pearson's correlation coefficient demonstrated a significant relationship between the autonomy support style and various developmental outcomes, specifically moral development ($p < 0.001$, $r = 0.634$), prosocial behavior ($p < 0.001$, $r = 0.593$), and antisocial behavior ($p < 0.001$, $r = 0.483$). Conversely, the controlling style exhibited a significant negative correlation with moral development ($p < 0.001$, $r = -0.540$) and prosocial behavior ($p < 0.001$, $r = -0.661$), while showing a significant positive correlation with antisocial behavior ($p < 0.001$, $r = 0.509$). Furthermore, a significant correlation was identified between moral development and both prosocial behavior ($p < 0.001$, $r = 0.579$) and antisocial behavior ($p < 0.001$, $r = -0.451$). These results lend credence to the hypothesis of a linear relationship among the examined variables. Additionally, the variance inflation factor (VIF) values for all research variables remained below the critical threshold of 10, suggesting that multicollinearity is not a concern within this analysis.

The findings from the path analysis conducted using Smart PLS software, as detailed in Table 3 and Figure 1, reveal a significant structural relationship between the autonomy support style and various developmental outcomes. Specifically, the analysis indicates a significant positive correlation between autonomy support style and moral development ($p = 0.000$, $T = 6.857$, $b = 0.627$), as well as prosocial behavior ($p = 0.000$, $T = 6.021$, $b = 0.586$). Conversely, a significant negative association is observed with antisocial behavior ($p = 0.000$, $T = -4.976$, $b = -0.487$). In contrast, the controlling style demonstrates a significant negative relationship with moral development ($p = 0.000$, $T = -5.628$, $b = -0.537$) and prosocial behavior ($p = 0.000$, $t = -6.684$, $b = -0.652$), while exhibiting a positive correlation with antisocial behavior ($p = 0.000$, $T = 5.527$, $b = 0.519$). Additionally, the analysis highlights a significant structural relationship between moral development and both prosocial behavior ($p = 0.000$, $T = 5.822$, $b = 0.575$) and antisocial

behavior ($p = 0.000$, $T = -4.528$, $b = -0.452$), underscoring the intricate interplay between these variables in the context of behavioral outcomes.

Furthermore, the findings reveal that moral development plays a significant mediating role in the relationship between different teaching styles and behavioral outcomes. Specifically, it significantly mediates the relationship between an autonomy-supportive style and both prosocial behavior ($p = 0.000$, $T = 3.846$, $b = 0.361$) and antisocial behavior ($p = 0.000$, $T = -2.714$, $b = -0.264$). Furthermore, moral development also acts as a significant mediator in the context of a controlling style, affecting prosocial behavior ($p = 0.000$, $T = 3.107$, $b = 0.308$) and antisocial behavior ($p = 0.000$, $T = -2.529$, $b = -0.242$). These results underscore the importance of moral development as a key factor that shapes how different teaching approaches can lead to varying behavioral outcomes in adolescents, highlighting its role in fostering positive social interactions while potentially mitigating negative behaviors.

The Stone-Geisler Q2 index values are all positive, which signifies that the structural model exhibits a high level of quality. Notably, the model's Standardized Root Mean Square Residual (SRMR) is recorded at 0.077, which is comfortably below the acceptable limit of 0.08, indicating a good fit between the observed and predicted values. Furthermore, the goodness of fit index (GOF) for the overall model assessment stands at 0.38, exceeding the minimum threshold of 0.36. These findings collectively reinforce the conclusion that the model demonstrates a robust fit, suggesting that it effectively captures the underlying relationships within the data.

Table 3. Structural Model Coefficients and Values for the Direct Path.

Direct Path	b	T-Value	p-Value
Autonomy Support Style => Moral Development	0.627	6.857	0.000
Autonomy Support Style => Prosocial Behavior	0.586	6.021	0.000
Autonomy Support Style => Antisocial Behavior	-0.487	-4.976	0.000
Controlling Style => Moral Development	-0.537	-5.628	0.000
Controlling Style => Prosocial Behavior	-0.652	-6.684	0.000
Controlling Style => Antisocial Behavior	0.519	5.527	0.000
Moral Development => Prosocial Behavior	0.575	5.822	0.000
Moral Development => Antisocial Behavior	-0.452	-4.528	0.000
Indirect Path			
Autonomy Support Style => Moral Development => Prosocial behavior	0.361	3.846	0.000
Autonomy Support Style => Moral Development => Antisocial behavior	-0.264	-2.714	0.000
Controlling Style => Moral Development => Prosocial behavior	0.308	3.107	0.000
Controlling Style => Moral Development => Antisocial behavior	-0.242	-2.529	0.000

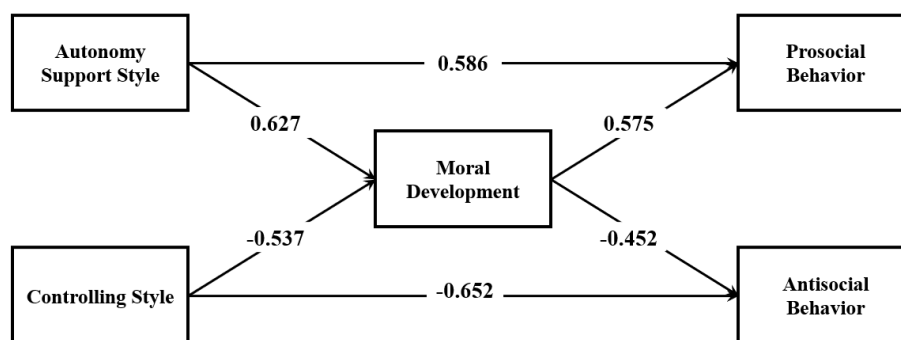


Figure 1. Standardized Coefficients of Paths.

4. Discussion

In recent years, there has been an increasing focus on two contrasting pedagogical approaches: need-supporting and need-thwarting teaching styles. Despite the expanding research in this area, the specific impacts of these teaching styles within the realm of PE on the prosocial and antisocial behaviors of children and adolescents remain insufficiently investigated. This study seeks to explore the influence of various teaching styles in PE on adolescents' prosocial and antisocial behaviors, particularly examining moral development as a potential mediating factor. The results indicate a notable positive structural relationship between the autonomy-supportive teaching style and prosocial behavior, while simultaneously revealing a significant negative structural relationship with antisocial behavior. Conversely, the controlling teaching style is associated with a significant negative relationship with prosocial behavior and a positive correlation with antisocial behavior. Furthermore, the analysis underscores a significant structural relationship between moral development and both types of behavior, highlighting the complex interactions among these variables in shaping behavioral outcomes. Importantly, the findings suggest that moral development serves as a crucial mediator in the relationship between an autonomy-supportive style and both prosocial and antisocial behaviors. Additionally, moral development also plays a significant mediating role in the context of a controlling style, influencing both prosocial and antisocial behaviors. These results are consistent with previous research (18,32-36), emphasizing the critical role of moral development in determining how different teaching approaches can lead to diverse behavioral outcomes in adolescents, thereby fostering

positive social interactions while potentially reducing negative behaviors.

To interpret these findings, it can be stated that the self-determination theory posits that behaviors supportive of individual needs and the fulfillment of fundamental psychological requirements can lead to the internalization of these behaviors. Internalization refers to the transformation of actions that were initially motivated by external factors into those driven by internal motivations (32,33). This concept underscores the idea that behavioral contexts are not static; rather, they are adaptable and can be influenced by supportive elements within an environment that fosters autonomous behavior, such as PE. The findings of the current study align with previous research, demonstrating that fostering students' feelings of autonomy, competence, and relatedness can effectively satisfy their basic psychological needs within PE (33). These results suggest that when students recognize the supportive actions of PE teachers concerning autonomy, competence, and relatedness, they are more likely to internalize their motivations, which in turn enhances their intention to engage in PE.

The findings of this research suggest a significant relationship between school education and the development of students' personalities. Many students enter the educational system with limited life experience, making them particularly susceptible to external influences. Unfortunately, it is not long before their personalities may begin to take on negative traits, often as a result of interactions with peers who exhibit maladaptive behaviors (34,35). However, there is a viable opportunity to guide these students toward positive social development before they engage in antisocial actions. Our study indicates that implementing teaching strategies that address the specific needs of children can effectively foster their social personalities. For example, educational programs that emphasize autonomy, competence, and

relatedness within the classroom environment are designed to mitigate the emergence of antisocial behaviors (18,33). It is crucial to recognize that neglecting to address these concerning behaviors in schools could have far-reaching consequences for society, potentially leading to disorder and unrest. As these students mature, they may carry antisocial tendencies into adulthood, ultimately becoming part of the future workforce and influencing the social fabric of the nation (34,35).

The mediating role of moral development in PE is significantly influenced by an autonomy-supportive teaching style, which fosters character development and instills cultural moral ideals in children and adolescents. This teaching approach is particularly effective in navigating the complex emotions and unpredictable scenarios that arise in PE, thereby promoting moral behavior. By creating an environment conducive to learning values such as honesty, loyalty, self-respect, and fairness, educators can facilitate the moral growth of their students (33,35,36). Participants in PE are able to differentiate between the social contractual elements of sportsmanship - such as the customary handshake after a competitive match and refraining from derogatory remarks towards opponents - and the deeper ethical principles that underpin sports, which include honesty, teamwork, kinship, and fair play. Engaging in games and sports within this educational context allows for the observation and cultivation of various levels of moral behavior, providing a fertile ground for genuine moral development (31,32,36). However, the cultivation of sportsmanship is not an automatic outcome of mere participation; it requires a structured environment and the presence of dedicated teachers and coaches who can guide students through cognitive dissonance and meaningful developmental experiences. Consequently, it is essential for educators and coaches to embody autonomy, competence, confidence, and motivation, while also demonstrating consistency in their support for school-students, prioritizing their growth as individuals before their development as competitors.

Despite its contributions, this study has several limitations that should be acknowledged. First, the use of self-reported data may have introduced social desirability or recall bias, potentially influencing the accuracy of adolescents' responses. Second, the sample, although relatively large (n=396), was drawn from a specific population, which may limit the generalizability of the findings to other regions or school contexts. Additionally, the cross-sectional design prevents any causal conclusions about the relationships between PE teachers' behaviors and adolescents' moral development. Future research would benefit from longitudinal designs, observational methods, and more diverse samples to strengthen the understanding of these developmental processes.

4.1. Conclusion

The findings of the current study underscore a significant relationship between a needs-supportive teaching style and the enhancement of prosocial behaviors, alongside a reduction in antisocial behaviors, within PE for adolescents, emphasizing the critical role of moral development in determining how different teaching approaches can lead to diverse

behavioral outcomes, thereby fostering positive social interactions while potentially reducing negative behaviors. This outcome highlights the critical role that PE plays in the overall development of students in a school setting. Moreover, these findings suggest that PE teachers can play a direct role in promoting adolescents' moral and social development by incorporating structured moral reasoning activities, modeling prosocial behaviors, and addressing antisocial tendencies during daily interactions, highlighting the practical value of integrating character education into PE programs. Based on the study's results, it is recommended that PE instructors actively foster an environment that supports students' autonomy, competence, and sense of belonging. This can be achieved by offering students greater choices regarding the types of exercises they engage in during class, which not only boosts their self-confidence but also strengthens peer relationships. Such an approach not only enriches the educational experience but also contributes to a more positive social atmosphere among students.

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Footnotes

Authors' Contribution: This study was carried out solely by the corresponding author.

Conflicts of Interest

Non to declare.

Data Availability: The data that support the findings of this study are openly available upon request from the corresponding author.

Ethical Approval: The author confirms that all steps and requirements of this study comply with ethical guidelines. Participants were informed about the characteristics of the study and gave written informed consent.

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