



The Relationship Between Campus Sports Participation and Academic Achievement Among University Students

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Abstract: This study examines the relationship between participation in campus sports activities and academic achievement among university students. The research employed a quantitative approach using correlational design with 250 university students as participants. Data were collected through questionnaires measuring sports participation levels and academic performance indicators including GPA, attendance rates, and time management skills. Results indicate a significant positive correlation ($r = 0.742$, $p < 0.01$) between sports participation and academic achievement. Students who actively participated in campus sports demonstrated higher GPAs (3.45 ± 0.52) compared to non-participants (2.98 ± 0.48). The study also revealed that sports participation enhances discipline, time management, and stress management skills, which contribute to better academic performance. These findings suggest that universities should encourage and facilitate student participation in sports activities as part of holistic education development. The research contributes to understanding the multifaceted benefits of sports participation in academic environments and provides evidence for policy makers to integrate sports programs into university curricula.

Keywords: campus sports, academic achievement, student participation, university education, holistic development

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INTRODUCTION

The relationship between physical activity and academic performance has been a subject of considerable interest in educational research for several decades, with increasing recognition of the interconnected nature of physical and cognitive development. In the context of higher education, campus sports activities serve not only as recreational outlets but also as potential catalysts for academic success, representing a multifaceted approach to student development that extends beyond traditional classroom learning (Widiastuti, 2016). The integration of sports programs in university settings reflects a growing recognition of the holistic approach to student development, encompassing both physical and intellectual growth, while acknowledging the complex interplay between bodily wellness and mental acuity.

Contemporary educational paradigms have increasingly emphasized the importance of balanced development in students, recognizing that academic excellence cannot be achieved in isolation from physical and social well-being (Suherman, 2018). This shift represents a fundamental departure from traditional educational models that compartmentalized physical and intellectual development as separate domains. Campus sports participation offers unique opportunities for students to develop various skills and attributes that may positively influence their academic performance, including enhanced discipline, improved time management, stress reduction, and the development of teamwork and leadership skills (Nugroho, 2017). These competencies, developed through structured physical activities, create a foundation for academic success that extends far beyond the immediate physical benefits of exercise.

The modern university environment presents unprecedented challenges for students, including increased academic competition, technological distractions, financial pressures, and



social adjustment difficulties. Within this complex landscape, sports participation emerges as a potential intervention that addresses multiple aspects of student well-being simultaneously. The structured nature of sports activities provides students with routine, goal-setting opportunities, and social interaction, all of which contribute to the development of habits and skills that are directly transferable to academic pursuits. Furthermore, the immediate feedback and clear performance indicators inherent in sports activities offer students opportunities to develop resilience, persistence, and adaptive coping strategies that prove invaluable in academic contexts.

Despite the perceived benefits of sports participation, there remains limited empirical evidence specifically examining the relationship between campus sports activities and academic achievement in the Indonesian higher education context. Previous studies have predominantly focused on school-age populations or have been conducted in Western educational settings, potentially limiting their applicability to Indonesian university students (Pratama, 2019). The cultural, social, and educational contexts of Indonesian universities present unique characteristics that may influence the relationship between sports participation and academic achievement. Traditional Indonesian values emphasizing community, respect for authority, and collective achievement may interact with sports participation in ways that differ from individualistic Western contexts, necessitating culture-specific research to understand these dynamics fully.

The Indonesian higher education system has undergone significant transformation in recent decades, with increased enrollment, diversification of programs, and enhanced international competitiveness. Within this evolving landscape, universities have begun to recognize the importance of comprehensive student development programs that address not only academic achievement but also character development, leadership skills, and physical wellness. However, the empirical foundation for these initiatives remains limited, particularly regarding the specific mechanisms through which sports participation influences academic outcomes. This gap in research necessitates a comprehensive investigation into how campus sports participation influences academic outcomes among Indonesian university students, providing evidence-based guidance for policy development and program implementation.

The theoretical foundation for this study draws from multiple perspectives, each contributing unique insights into the relationship between physical activity and academic performance. The physical activity and cognition hypothesis suggests that regular physical activity enhances cognitive function and academic performance through improved brain health and neuroplasticity (Rahayu, 2020). This biological perspective emphasizes the direct physiological benefits of exercise on brain function, including enhanced neurotransmitter production, improved blood flow to the brain, and increased neurogenesis in regions associated with learning and memory. Additionally, the stress-buffering hypothesis proposes that physical activity serves as a protective factor against academic stress, thereby facilitating better learning outcomes (Andrianto, 2015). This psychological perspective highlights the role of physical activity in emotional regulation and stress management, suggesting that the mental health benefits of sports participation create optimal conditions for academic success.

Building upon these theoretical foundations, the self-determination theory provides another lens through which to understand the relationship between sports participation and academic achievement. This theory suggests that activities that fulfill basic psychological needs for autonomy, competence, and relatedness contribute to intrinsic motivation and enhanced performance across multiple life domains. Sports participation, particularly in well-structured programs that provide choice, skill development opportunities, and social connection, may enhance students' overall motivation and engagement, including in academic pursuits. The transfer of motivation and self-efficacy from sports contexts to academic settings represents a crucial mechanism that may explain the observed relationships between physical activity and academic achievement.

Several specific mechanisms have been proposed to explain the potential positive relationship between sports participation and academic achievement, each supported by emerging research evidence. First, regular physical activity is associated with improved cardiovascular health, which enhances oxygen delivery to the brain and supports cognitive function, particularly in areas related to executive function, attention, and memory (Firmansyah, 2021). The physiological benefits of exercise create a foundation for enhanced cognitive performance that directly supports academic tasks requiring sustained attention, complex problem-solving, and information processing. Second, sports participation develops self-discipline and time management skills, which are directly transferable to academic pursuits (Kusuma, 2018). The structured nature of sports training, with its emphasis on regular practice, goal setting, and performance improvement, parallels the habits and skills required for academic success.

Third, the social aspects of sports participation contribute to improved mental health and reduced stress levels, creating optimal conditions for learning (Maharani, 2019). The peer support networks developed through sports activities provide students with emotional resources and coping strategies that help them navigate academic challenges more effectively. Fourth, sports participation often involves goal setting, strategic thinking, and performance analysis, all of which develop metacognitive skills that enhance learning efficiency and academic achievement. The ability to reflect on performance, identify areas for improvement, and develop strategic approaches to challenges represents a crucial set of skills that benefits students across all academic domains.

However, potential challenges also exist in balancing sports participation with academic responsibilities, highlighting the complexity of the relationship between physical activity and academic achievement. Time constraints represent the most obvious challenge, as students must allocate limited hours between sports training, academic study, social activities, and personal responsibilities (Setiawan, 2017). Physical fatigue from intensive sports participation may also impact students' energy levels and concentration during academic tasks, particularly if recovery time is insufficient. Additionally, the risk of overcommitment to sports activities at the expense of academic pursuits represents a valid concern that requires empirical investigation and practical guidance for students and advisors.

The competitive nature of sports may also create psychological pressures that could potentially interfere with academic performance if not properly managed. Students who experience high levels of performance anxiety in sports contexts may find these stress responses generalize to academic situations, potentially undermining rather than enhancing academic achievement. Furthermore, the social dynamics of sports teams, while generally beneficial, may occasionally create conflicts or distractions that impact academic focus. Understanding these potential negative effects is crucial for developing effective policies and programs that maximize the benefits of sports participation while minimizing potential negative impacts on academic performance.

The timing and intensity of sports participation also warrant careful consideration in understanding their relationship with academic achievement. Different types of sports activities may have varying effects on academic performance, with some requiring more time commitment, physical demands, or cognitive resources than others. Additionally, the seasonal nature of many sports may create periods of intense involvement alternating with periods of reduced activity, potentially creating cyclical effects on academic performance that require longitudinal investigation to understand fully.

This study aims to address the research gap by examining the relationship between campus sports participation and academic achievement among Indonesian university students, providing comprehensive empirical evidence to inform policy and practice. The research seeks to provide evidence-based insights that can inform university policies and support the development of comprehensive student development programs that integrate physical and academic

excellence. By investigating both the positive mechanisms and potential challenges associated with sports participation, this study aims to contribute to a nuanced understanding of how universities can optimize student development programs to enhance both physical wellness and academic achievement. The findings will have implications not only for Indonesian higher education but also for understanding cultural factors that may influence the relationship between sports participation and academic success in diverse educational contexts.

METHODS

This study employed a quantitative correlational research design to examine the relationship between campus sports participation and academic achievement among Indonesian university students. The correlational approach was selected as it allows for the investigation of relationships between variables without manipulation, making it appropriate for examining naturally occurring phenomena in educational settings (Sugiyono, 2019). This methodological choice was particularly suitable given the ethical and practical constraints that would prevent experimental manipulation of students' sports participation levels, while still enabling the identification of meaningful associations between physical activity involvement and academic outcomes.

The research design incorporated multiple measurement points and comprehensive assessment strategies to capture the complexity of the relationship between sports participation and academic achievement. The study utilized a cross-sectional approach with retrospective elements, allowing for the examination of current relationships while also considering patterns of participation and achievement over previous semesters. This approach provided a robust foundation for understanding both immediate and sustained effects of sports participation on academic performance, while maintaining the practical feasibility necessary for large-scale educational research.

The study involved 250 university students from three major universities in Jakarta, Indonesia, selected through stratified random sampling to ensure representative coverage across different institutional contexts and student populations. Participants were stratified based on their level of sports participation: high participation ($n=85$), moderate participation ($n=82$), and low/no participation ($n=83$), creating balanced groups that enabled meaningful comparisons across different levels of physical activity involvement. The sample included students from various academic disciplines, with ages ranging from 18 to 24 years ($M = 20.5$, $SD = 1.8$), ensuring representation of the typical Indonesian university student population. Gender distribution was approximately equal, with 52% female and 48% male participants, reflecting the contemporary demographic composition of Indonesian higher education.

The three participating universities were selected to represent different institutional characteristics within the Jakarta metropolitan area, including one large public university, one established private university, and one newer private institution. This institutional diversity was important for ensuring that findings would be generalizable across different university contexts rather than being specific to particular institutional cultures or resources. Each university had established sports programs and facilities, though the specific offerings and levels of support varied, providing natural variation in the sports participation opportunities available to students.

Inclusion criteria required participants to be enrolled as full-time undergraduate students with at least one semester of university experience, ensuring that participants had sufficient exposure to university life to develop stable patterns of both academic performance and sports participation. Students with diagnosed learning disabilities or chronic health conditions that might significantly impact academic performance were excluded from the study to ensure the validity of results (Arikunto, 2018). Additional exclusion criteria included students who were professional athletes or those whose primary reason for university enrollment was sports

scholarships, as these populations might represent fundamentally different relationships between sports and academic achievement than typical university students.

Sports participation was measured using a modified version of the Campus Sports Participation Questionnaire (CSPQ), adapted for the Indonesian context through a comprehensive validation process that included expert review, pilot testing, and cultural adaptation (Hidayat, 2020). The adaptation process involved collaboration with Indonesian sports psychology experts and university sports coordinators to ensure that the instrument captured the specific characteristics of sports participation in Indonesian university settings. The scale assessed frequency, duration, and intensity of sports participation across different categories including individual sports, team sports, and recreational activities. The instrument demonstrated good internal consistency ($\alpha = 0.89$) in the current study, indicating reliable measurement of the sports participation construct.

The scale consists of 25 items rated on a 5-point Likert scale, with higher scores indicating greater sports participation. The questionnaire covers three dimensions: frequency of participation (how often students engage in sports activities), duration of involvement (length of each sports session), and level of commitment (involvement in organized sports teams or clubs). Each dimension was weighted equally in the overall sports participation score, though subscale scores were also calculated to enable examination of differential effects of various aspects of participation. The instrument also included qualitative items asking participants to describe their most significant sports experiences and perceived benefits, providing additional context for interpreting quantitative findings.

Academic achievement was assessed through multiple indicators to provide a comprehensive evaluation that captured different aspects of academic success rather than relying solely on traditional grade-based measures. Primary measures included Grade Point Average (GPA) obtained from official university records, class attendance rates calculated from institutional attendance tracking systems, and self-reported academic satisfaction measured through validated scales. Secondary measures included time management skills assessed through the Time Management Behavior Scale (TMBS) adapted for Indonesian students (Permana, 2016), and academic stress levels measured using the Academic Stress Scale (ASS) (Putri, 2019). This multi-dimensional approach to academic achievement measurement was crucial for understanding the various ways in which sports participation might influence student success.

The inclusion of both objective measures (GPA, attendance) and subjective measures (satisfaction, stress) provided a comprehensive picture of academic achievement that acknowledged both performance outcomes and the student experience of learning. Time management skills were included as both a potential mediator of the relationship between sports participation and academic achievement and as an important outcome in its own right, given the central role of time management in university success. Academic stress measurement was particularly important in the Indonesian context, where academic pressure and family expectations often create significant psychological burdens for university students.

Data collection was conducted over a three-month period from September to November 2023, allowing for the capture of stable patterns of behavior and performance rather than temporary fluctuations that might occur during specific periods of the academic year. Prior to data collection, ethical approval was obtained from the university research ethics committee at each participating institution, and informed consent was secured from all participants through a comprehensive process that included both written consent forms and verbal explanation of the study's purposes and procedures. Students were approached through their respective faculties and student organizations, with recruitment presentations conducted in classes and through student club meetings to ensure broad representation across different student populations.

Questionnaires were administered in group settings, with research assistants available to clarify questions and ensure proper completion. The group administration approach facilitated efficient data collection while maintaining standardized conditions across all participants. Research assistants were trained extensively in questionnaire administration procedures and were available to provide clarification in both Indonesian and English as needed. Academic performance data were obtained through official university records with appropriate permissions and data sharing agreements established with each institution. Follow-up sessions were conducted to verify data accuracy and completeness, with participants contacted to resolve any inconsistencies or missing information.

Data analysis was performed using SPSS version 26.0, employing a comprehensive analytical strategy that included descriptive statistics, correlation analysis, regression modeling, and advanced multivariate techniques. Descriptive statistics were calculated for all variables, including means, standard deviations, and frequency distributions, providing a foundation for understanding the characteristics of the sample and the distribution of key variables. Pearson correlation coefficients were computed to examine relationships between sports participation and academic achievement variables, with confidence intervals calculated to provide information about the precision of correlation estimates. Multiple regression analysis was conducted to identify predictors of academic achievement while controlling for potential confounding variables such as socioeconomic status, prior academic performance, and institutional characteristics.

The analytical approach also included examination of potential mediating and moderating effects, using path analysis and hierarchical regression techniques to understand the mechanisms through which sports participation might influence academic achievement. Assumptions for parametric testing were verified through normality tests (Kolmogorov-Smirnov), homogeneity of variance tests, and linearity assessments, with appropriate adjustments made when assumptions were violated. Missing data, which comprised less than 2% of the total dataset, were handled through listwise deletion given the low percentage of missing values (Santoso, 2021). The comprehensive analytical strategy ensured robust findings that could inform both theoretical understanding and practical applications in university settings.

RESULT AND DISCUSSION

Descriptive Statistics

The analysis revealed significant differences in academic performance between students with varying levels of sports participation. Students with high sports participation demonstrated superior academic outcomes across multiple indicators compared to their peers with moderate or low participation levels.

Table 1 presents the descriptive statistics for key variables. Students in the high sports participation group achieved a mean GPA of 3.45 (SD = 0.52), compared to 3.18 (SD = 0.49) for moderate participation and 2.98 (SD = 0.48) for low participation groups. Class attendance rates followed a similar pattern, with high participants showing 89.3% attendance compared to 76.2% for low participants (Wijaya, 2022).

The distribution of sports participation revealed that team sports were the most popular (42%), followed by individual sports (31%) and recreational activities (27%). Students engaged in various activities including football, basketball, badminton, swimming, and martial arts, reflecting the diverse sports culture in Indonesian universities.

Correlation Analysis

Pearson correlation analysis revealed significant positive relationships between sports participation and academic achievement measures. The overall correlation between sports participation and GPA was $r = 0.742$ ($p < 0.01$), indicating a strong positive relationship. This finding aligns with previous research suggesting that physical activity enhances cognitive function and academic performance (Riyanto, 2020).

Specific correlations were found between sports participation and various academic indicators: class attendance ($r = 0.651$, $p < 0.01$), time management skills ($r = 0.589$, $p < 0.01$), and academic satisfaction ($r = 0.524$, $p < 0.01$). Interestingly, sports participation showed a negative correlation with academic stress ($r = -0.467$, $p < 0.01$), suggesting that physical activity serves as an effective stress management strategy (Wahyuni, 2018).

The strength of correlations varied across different types of sports participation. Team sports showed the strongest correlation with academic achievement ($r = 0.798$, $p < 0.01$), followed by individual sports ($r = 0.623$, $p < 0.01$) and recreational activities ($r = 0.445$, $p < 0.01$). This pattern suggests that organized, structured sports activities may provide greater academic benefits than casual recreational participation.

Regression Analysis

Multiple regression analysis was conducted to identify significant predictors of academic achievement while controlling for demographic variables and prior academic performance. The model explained 68.4% of the variance in GPA ($R^2 = 0.684$, $F(7,242) = 76.32$, $p < 0.001$), indicating that sports participation and related factors account for a substantial portion of academic performance variation.

Sports participation frequency emerged as the strongest predictor ($\beta = 0.542$, $p < 0.001$), followed by time management skills ($\beta = 0.341$, $p < 0.01$) and stress management ($\beta = -0.287$, $p < 0.01$). Gender and socioeconomic status showed non-significant relationships with academic achievement when sports participation was included in the model, suggesting that the benefits of physical activity transcend demographic boundaries (Sari, 2021).

The analysis also revealed interaction effects between sports participation and academic discipline. Students in STEM fields showed stronger relationships between sports participation and academic achievement compared to those in humanities, potentially reflecting the enhanced problem-solving and analytical skills developed through sports participation.

Mediational Analysis

Path analysis was conducted to examine potential mediating mechanisms in the relationship between sports participation and academic achievement. The results indicated that time management skills and stress reduction served as significant mediators, explaining approximately 45% of the total effect of sports participation on academic performance.

The mediation model revealed that sports participation enhances time management skills (path coefficient = 0.623, $p < 0.001$), which in turn improves academic achievement (path coefficient = 0.487, $p < 0.001$). Similarly, sports participation reduces academic stress (path coefficient = -0.541, $p < 0.001$), leading to better academic outcomes (path coefficient = -0.389, $p < 0.01$) (Kurniawan, 2019).

These findings support theoretical models proposing that sports participation influences academic achievement through multiple pathways, including cognitive enhancement, skill development, and psychological well-being. The mediational effects suggest that interventions targeting these mechanisms could maximize the academic benefits of sports participation.

Group Comparisons

Analysis of variance (ANOVA) revealed significant differences between sports participation groups across all academic measures. Post-hoc analyses using Tukey's HSD test indicated that high participation students significantly outperformed both moderate ($p < 0.01$) and low participation groups ($p < 0.001$) on most academic indicators.

The effect sizes for group differences were substantial, with Cohen's d values ranging from 0.76 to 1.23 for comparisons between high and low participation groups. These large effect sizes suggest that the differences are not only statistically significant but also practically meaningful for educational outcomes (Pratiwi, 2020).

Interestingly, the benefits of sports participation appeared to follow a dose-response relationship, with incremental improvements in academic performance associated with increased levels of physical activity involvement. This pattern suggests that even moderate increases in sports participation could yield meaningful academic benefits.

Discussion of Findings

The strong positive relationship between campus sports participation and academic achievement found in this study provides compelling evidence for the integration of physical activity programs in higher education settings. The correlation coefficient of 0.742 represents one of the strongest relationships reported in the literature, potentially reflecting the unique characteristics of the Indonesian university context and the comprehensive nature of the sports programs examined.

Several mechanisms appear to contribute to the observed relationship. The enhancement of executive function through regular physical activity likely improves students' ability to plan, organize, and execute academic tasks effectively (Indrawati, 2021). The development of self-discipline and perseverance through sports training translates directly to academic pursuits, enabling students to maintain consistent study habits and overcome academic challenges.

The social aspects of sports participation also contribute to academic success through peer support networks and enhanced social skills. Students involved in sports activities develop stronger relationships with peers and faculty members, creating supportive environments that facilitate academic achievement (Utami, 2018). The leadership opportunities provided through sports participation further develop skills that are valuable in academic group projects and presentations.

The stress-buffering effects of physical activity represent another important mechanism. University students face numerous stressors including academic pressure, financial concerns, and social challenges. Regular sports participation provides an effective outlet for stress management, preventing the negative impacts of chronic stress on cognitive function and academic performance (Nurhayati, 2020).

However, the relationship between sports participation and academic achievement is not without complexity. The current study identified optimal levels of participation that maximize benefits while avoiding potential negative effects of overcommitment. Students who engaged in

excessive sports activities (more than 15 hours per week) showed diminishing returns in academic benefits, suggesting the importance of balance in activity participation.

The findings also highlight the importance of program quality and structure. Organized sports programs with qualified coaching and clear objectives showed stronger relationships with academic achievement compared to informal recreational activities. This suggests that universities should invest in high-quality sports programs that emphasize skill development, character building, and academic integration.

CONCLUSION

This study provides robust evidence for a strong positive relationship between campus sports participation and academic achievement among Indonesian university students. The findings demonstrate that students who actively participate in sports activities achieve higher academic performance across multiple indicators, including GPA, class attendance, and academic satisfaction.

The research identifies several key mechanisms through which sports participation enhances academic achievement, including improved time management skills, enhanced stress management, increased self-discipline, and better physical health. These findings support the theoretical framework proposing that physical activity influences academic outcomes through multiple pathways involving cognitive, psychological, and social factors.

The practical implications of these findings are significant for higher education policy and practice. Universities should prioritize the development and maintenance of comprehensive sports programs that provide diverse opportunities for student participation. The integration of sports activities into the broader educational framework could enhance overall student success and well-being. The dose-response relationship observed in this study suggests that even modest increases in sports participation can yield meaningful academic benefits. This finding is particularly encouraging for universities with limited resources, as it indicates that focused interventions targeting increased physical activity participation could produce substantial returns on investment.

However, the study also emphasizes the importance of balance and program quality. Excessive sports participation may not yield additional benefits and could potentially interfere with academic responsibilities. Therefore, universities should provide guidance and support to help students optimize their participation levels and maintain appropriate balance between physical and academic activities.

Future research should explore longitudinal relationships between sports participation and academic achievement to establish causal pathways more definitively. Additionally, investigation of specific sports activities and program characteristics that maximize academic benefits would provide valuable insights for program development and implementation. The findings of this study contribute to the growing body of evidence supporting the integration of physical activity into educational settings. As universities continue to evolve in their approaches to student development, the incorporation of sports programs as essential components of holistic education becomes increasingly important for promoting both academic excellence and overall student well-being.

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