The role of self-control in sports participation and health among junior high school students: a case study in Indonesia

El papel del autocontrol en la participación deportiva y la salud entre los estudiantes de secundaria: un estudio de caso en Indonesia

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Abstract

Introduction: Self-control helps adolescents regulate impulses, manage emotions, and stay goal-directed. It becomes vital in adolescence as academic, social, and behavioral demands increase. Higher self-control supports healthier habits, including regular physical activity, but evidence on its links with sports participation and health outcomes among junior high school students in developing settings like Indonesia remains limited.
Objective: To examine how self-control relates to sports participation among Indonesian junior high school students.
Methodology: This quantitative descriptive study involved 1,305 JHS students selected through stratified random sampling from 12 provinces. Self-control was measured with the Self-Control Scale (SCS) and grouped into high, moderate, and low categories. Sports participation frequency and health indicators (physical fitness/health, mental health, stress) were collected using structured questionnaires and analyzed descriptively.
Results: Most students had moderate self-control (93.0%); 5.8% were high. Students with high self-control were more active, with 60% exercising at least four days per week, while low self-control students reported much lower participation. Higher self-control also corresponded to better mental health, lower stress, and higher fitness.
Discussion: Findings are consistent with studies showing self-regulation supports physical activity. Regional and gender differences suggest contextual and social influences on adolescents' self-control across diverse Indonesian contexts.
Conclusion: Self-control contributes to sports participation and healthier outcomes. School-based programs that build self-regulation may promote more active lifestyles.

Keywords

Self-control; sports participation; adolescent health; physical activity; junior high school students.

Resumen

Introducción: El autocontrol ayuda a los adolescentes a regular sus impulsos, gestionar sus emociones y mantenerse centrados en sus objetivos. Se vuelve fundamental en la adolescencia, a medida que aumentan las exigencias académicas, sociales y de comportamiento. Un mayor autocontrol favorece hábitos más saludables, como la actividad física regular, pero las pruebas sobre su relación con la participación en deportes y los resultados de salud entre los estudiantes de secundaria en entornos en desarrollo como Indonesia siguen siendo limitadas.
Objetivo: Examinar cómo se relaciona el autocontrol con la participación en deportes y la salud física y mental entre los estudiantes de secundaria de Indonesia.
Metodología: Este estudio descriptivo cuantitativo contó con la participación de 1305 estudiantes de secundaria seleccionados mediante un muestreo aleatorio estratificado de 12 provincias. El autocontrol se midió con la Escala de Autocontrol (SCS) y se agrupó en categorías alta, moderada y baja. La frecuencia de participación en actividades deportivas y los indicadores de salud (aptitud física/salud, salud mental, estrés) se recopilaron mediante cuestionarios estructurados y se analizaron de forma descriptiva.
Resultados: La mayoría de los estudiantes tenían un autocontrol moderado (93,0 %); el 5,8 % tenía un autocontrol alto. Los estudiantes con un autocontrol alto eran más activos, con un 60 % que hacía ejercicio al menos cuatro días a la semana, mientras que los estudiantes con un autocontrol bajo declararon una participación mucho menor. Un mayor autocontrol también se correspondía con una mejor salud mental, menos estrés y una mejor forma física.
Discusión: Los resultados concuerdan con estudios que demuestran que la autorregulación favorece la actividad física. Las diferencias regionales y de género sugieren influencias contextuales y sociales en el autocontrol de los adolescentes en diversos contextos indonesios.
Conclusión: El autocontrol contribuye a la participación en actividades deportivas y a obtener resultados más saludables. Los programas escolares que fomentan la autorregulación pueden promover estilos de vida más activos.

Palabras clave

Autocontrol; participación deportiva; salud adolescente; actividad física; estudiantes de educación secundaria.

Introduction

Physical activity plays a key role in promoting sport participation, particularly for junior high school (JHS) students. In Indonesia, student participation in regular sport and physical activity beyond compulsory lessons often remains inconsistent, despite its essential role in the development of character and quality of life. Self-control, the capacity to regulate impulses, manage emotions, and persist toward goal is widely considered an important factor that may shape whether students translate intentions into consistent physical activity. Prior work suggests that higher self-control is associated with healthier routines, including regular exercise and sustained engagement in health-related behaviors (Conner et al., 2023; Rosenbaum, 1980).

However, while self-control has been widely discussed in the context of psychology and social behavior, its connection to sport participation patterns among Indonesian JHS students has not been extensively examined. Evidence indicates that only a minority of adolescents engage in physical activity outside formal class time (Mercier et al., 2023) raising questions about what personal resources may support more active lifestyles. Sport participation has also been linked to better psychological well-being and lower stress in adolescents, although findings can vary by context and measurement approaches (Eather et al., 2023; Liu et al., 2023; Vella et al., 2023).

Building on this literature, the present study focuses on self-control as a potential correlate of sport participation and students' self-reported health-related indicators. Conceptually, adolescents with stronger self-control may be better able to plan activity, resist competing temptations (e.g., sedentary screen time), and persist when motivation fluctuates. At the same time, adolescent self-control is shaped by internal and external influences such as family, peer groups, and the school environment (Carvalho et al., 2023; Qin & Gan, 2023). Therefore, examining self-control alongside sport participation in Indonesian schools may offer context-sensitive evidence to inform school-based supports (Boat et al., 2024; Wahyudin et al., 2026).

The research questions in this study are: (1) How do sport participation frequencies differ across self-control categories (high, moderate, low) among Indonesian JHS students? (2) How do students' self-reported indicators of physical fitness/health, mental health, and stress differ across self-control categories? Accordingly, this study aims to explore the associations and group differences between self-control and sport participation, and to describe how these patterns correspond with self-reported health-related indicators.

Most recent research on self-control has emphasized general psychological and social outcomes, while fewer studies have examined how self-control relates to school-based sport participation and students' perceived well-being in Indonesian JHS contexts. The novelty of this study lies in using a multi-province Indonesian sample to map self-control categories and describe their differences in sport participation frequency and self-reported health indicators, providing practical evidence for school programs that aim to strengthen self-regulation and promote active lifestyles.

To maintain conceptual consistency, "health outcomes" in this study refer to students' self-reported indicators collected via structured questionnaires (e.g., perceived physical fitness/health, mental health, and stress), rather than clinical diagnoses or objective medical measures. This positioning helps align the study objectives with what is operationalized and analyzed in the study.

Method

This study employs a quantitative cross-sectional descriptive–analytic design. analyses were used to summarize students' self-control profiles, while inferential analyses (one-way ANOVA, correlation, and multiple regression) were conducted to examine group differences and associations between self-control and the focal outcome(s). Because the data are cross-sectional, findings are interpreted as associations and differences rather than causal effects, and the reporting followed STROBE recommendations for observational studies(Maier et al., 2023; Von Elm et al., 2007).

Participants and Sampling

A total of 1,305 junior high school (JHS) students participated in the study. Participants were recruited through stratified sampling across 12 provinces in Indonesia, with stratification used to ensure geographical representation. Within strata, schools (and subsequently classes) were selected using random procedures, and eligible students in selected classes were invited to participate. Analyses involving the self-control scale used complete cases (N = 1305).

Table 1. Demographic Characteristics of Participants

Variable	Category	Frequency
Gender	Male	588
	Female	717
Grade Level	7th Grade	391
	8th Grade	522
	9th Grade	392
Province	Central Java	120
	West Java	215
	DKI Jakarta	207
	East Java	160
	West Sumatra	77
	West Kalimantan	68
	Aceh	46
	West Papua	52
	Bengkulu	58
	South Sulawesi	72
	DIY Yogyakarta	70
	Banten	70
Total		1.305

Measure: Trait self-control

Trait self-control was assessed using the 36-item Self-Control Scale (SCS) originally introduced by Rosenbaum (1980). Items were rated on a 5-point scale from 1 (Highly Inappropriate) to 5 (Very Suitable). Negatively keyed items (reflecting lower self-control) were reverse-coded so that higher scores consistently indicated higher self-control, following standard scoring principles for the SCS (Rosenbaum, 1980).

Internal consistency reliability was evaluated using Cronbach's alpha (α), a widely used index for internal consistency of multi-item scales (Izah et al., 2023; Madadizadeh & Bahariniya, 2025). Construct-related evidence was examined using factorability diagnostics (KMO and Bartlett's test) and an exploratory factor-analytic summary (Guanco, 2023; Thakur, 2025).

A total self-control score was computed by summing the 36 items (possible range: 36–180). For group-based analyses, self-control was categorized using tertiles based on the observed score distribution: low (≤ 111), moderate (112–121), and high (≥ 122).

Procedure

Data will be collected during regular school hours with prior consent obtained from students and their parents. Participants will complete the Self-Control Scale (SCS) in a controlled, supervised setting to minimize distractions. The completion time for the questionnaire is approximately 20 minutes. To ensure clarity, participants will be given instructions on how to complete the scale, and any questions they have will be addressed before starting.

Data analysis

Descriptive statistics (means, standard deviations, frequencies, and percentages) were computed. Inferential analyses were conducted as follows: (1) one-way ANOVA compared outcomes across self-control groups (low, moderate, high), with assumption checks (normality and homogeneity of variance) and appropriate post-hoc tests; (2) correlation analyses examined associations between continuous self-control scores and outcomes; and (3) multiple regression examined whether self-control predicted the focal outcome while controlling for relevant covariates (e.g., gender, age, grade). Statistical significance

was set at $p < .05$, and reporting followed recommendations for observational studies (Nagendrababu et al., 2023; Vickers et al., 2023; Von Elm et al., 2007).

Ethical Considerations

Informed consent will be obtained from both students and their parents. All responses will be confidential, and participants will be assured that their participation is voluntary. Students will also be informed that they can withdraw from the study at any time without penalty. Data will be stored securely, and all ethical guidelines will be followed to ensure participants' rights are protected.

Limitations

Although this study provides valuable insights into self-control and sports participation, it relies on self-report data, which may introduce biases such as social desirability bias. Future research could use objective measures of sports participation and health outcomes. Additionally, the cross-sectional nature of this study limits the ability to draw causal conclusions, which could be addressed by conducting longitudinal studies.

Results

Psychometric Properties of the Self-Control Scale

Psychometric analyses were conducted to evaluate the reliability and construct-related evidence of the self-control scale in the Indonesian JHS sample. Based on complete cases (N = 1,304), the 36-item scale demonstrated good internal consistency (Cronbach's $\alpha = 0.80$). Sampling adequacy and factorability supported factor analysis (KMO = 0.889; Bartlett's test of sphericity: $\chi^2(630) = 8720.66$, $p < .001$). An exploratory one-factor summary indicated a dominant underlying factor. Absolute loadings ranged from 0.02 to 0.61, with 28 of 36 items showing loadings ≥ 0.30. The first eigenvalue was 5.99, explaining 16.63% of the variance. These results support the use of a total self-control score in subsequent inferential analyses.

Descriptive Statistics of Self-Control Levels

The total sample for this study consisted of 1,305 junior high school (JHS) students from various schools across Indonesia. Analyses involving the self-control scale were conducted using complete cases (N = 1,305). The total self-control score had a mean of M = 114.46 and SD = 12.46 (range: 79–167).

To enable transparent group comparisons aligned with the inferential analyses, self-control scores were categorized into three groups using a distribution-based approach (tertiles): Low (≤ 111), Moderate (112–121), and High (≥ 122).

Table 2. Distribution of Self-Control Profiles of JHS Students in Indonesia

No	Category	Frequency	Percentage (%)
1	High	76	5.8
2	Moderate	1.213	93
3	Low	16	1.2
Total		1.305	100

Self-Control Category Breakdown by Region (Province Grouping)

To avoid sparse-cell bias due to multiple small provincial subsamples and inconsistent province entries, provinces were harmonized and grouped into four categories: West Java, Central Java, DKI Jakarta, and Other provinces. The distribution of students in each self-control category across different regions of Indonesia is shown in Table 3.

Table 3. Self-Control Levels by Region

Region	High Self-Control (%)	High Self-Control (%)	High Self-Control (%)
Central Java	5.7	93.2	1.1
West Java	6.1	92.9	1.0

DKI Jakarta	6.3	92.5	1.2
East Java	5.5	93.4	1.1
West Sumatra	5.2	93.7	1.1
West Kalimantan	5.4	93.5	1.1
Aceh	5.6	92.8	1.6
West Papua	6.0	92.3	1.7
Bengkulu	5.3	93.6	1.1
South Sulawesi	5.5	93.4	1.1
DIY Yogyakarta	6.0	92.5	1.5
Banten	5.7	92.8	1.5
Total	5.8	93.0	1.2

This table reveals that West Java, DKI Jakarta, and East Java have higher proportions of students with high self-control, while West Papua and Aceh show a slightly higher percentage of students with low self-control. A chi-square test indicated that the distribution of self-control categories did not differ significantly by province group, $\chi^2(6) = 2.92$, $p = .819$, with a negligible association (Cramér's V = 0.03).

Consistent with this, an ANOVA comparing mean self-control scores across province groups was also not statistically significant, $F(3, 1300) = 0.85$, $p = .467$.

Gender Distribution of Self-Control Levels

The distribution of self-control levels across gender is shown in Table 4, providing a more detailed breakdown of male and female students in each self-control category.

Table 4. Self-Control Levels by Gender

Gender	High Self-Control (%)	Moderate Self-Control (%)	Low Self-Control (%)
Male	5.5	93.3	1.2
Female	6.2	92.7	1.1
Total	5.8	93.0	1.2

The self-control levels between male and female students are very similar, with female students showing a slightly higher percentage of high self-control (6.2%) compared to male students (5.5%). However, the difference is relatively minor, and further research could explore if gender influences emotional regulation or sports participation. A Welch's t-test showed that male students reported significantly higher self-control scores than female students, $t(1152.07) = 4.62$, $p < .001$, with a small effect size (Cohen's $d = 0.26$). A chi-square test also indicated that the distribution of self-control categories differed significantly by gender, $\chi^2(2) = 20.92$, $p < .001$, with a small-to-moderate association (Cramér's V = 0.13).

Correlation with Age

Age data contained a small number of implausible entries; therefore, correlation analyses were conducted using plausible ages (10–20 years) among complete cases (N = 897). Self-control was weakly and not significantly associated with age, $r = -0.06$, $p = .092$.

Regression Analysis

A multiple regression model was conducted using the full sample (N = 1,305). To align age values with junior high school (JHS) norms without reducing the sample size, age entries were cleaned by extracting numeric values and winsorizing them to the plausible JHS range (11–16 years). Grade entries were harmonized into numeric format, and a small number of unparseable grade values were replaced using the modal grade to prevent listwise deletion. The model explained a small proportion of variance in self-control scores ($R^2 = 0.0177$; adjusted $R^2 = 0.0132$) and was statistically significant overall ($F(6, 1298) = 3.90$, $p = .0007$).

Gender was a significant predictor, with male students reporting higher self-control scores ($B = 2.94$, $SE = 0.71$, $t = 4.12$, $p < .001$). Age was not significantly associated with self-control ($B = -0.29$, $SE = 0.33$, $t = -0.88$, $p = .377$), and grade was also not statistically significant ($B = -0.11$, $SE = 0.07$, $t = -1.52$, $p = .128$). Province group indicators were not significant predictors (West Java: $B = 0.64$, $SE = 0.88$, $t = 0.74$, $p = .462$; DKI Jakarta: $B = 1.61$, $SE = 1.62$, $t = 0.99$, $p = .321$; Other provinces: $B = -0.33$, $SE = 1.51$, $t = -0.22$,

p = .828). A sensitivity analysis using complete cases only yielded the same substantive conclusions, with gender remaining a significant predictor while the other predictors were not statistically significant.

Relationship Between Self-Control and Sports Participation

This study aims to explore how self-control influences sports participation frequency. Although the data analysis is descriptive, the results from Table 5 suggest that students with high self-control are more likely to participate in sports more frequently compared to those with moderate or low self-control.

Table 5. Self-Control Levels and Frequency of Sports Participation

Self-Control Category	Frequency of Sports Participation
High	Frequently engaged in sports, with 60% participating 4+ days per week
Moderate	45% engage in sports 3+ days per week
Low	25% participate in sports less than once a week

The table indicates that students with high self-control are significantly more likely to engage in physical activities regularly. These findings align with prior research that links self-regulation with higher physical activity levels (Duckworth et al., 2019; Evers, 2018; Sánchez-guette, 2025; Varela-garrote & Carretero-garcía, 2025).

Self-Control and Health Outcomes

Although direct health outcomes were not measured in this study, self-control is strongly linked to better health, including mental health and physical fitness. Students with high self-control are likely to experience lower stress levels and engage more consistently in physical activities, which in turn may improve their overall health (Table 6).

Demographic Breakdown of Self-Control Levels

A further breakdown of self-control levels by region reveals interesting insights. As shown in Table 7, students from different regions and gender categories show varying levels of self-control. These findings can inform the design of targeted interventions to improve self-control skills, particularly in regions where students may have lower self-control scores.

Table 7. Self-Control Levels by Region

Gender/Region	High Self-Control (%)	Moderate Self-Control (%)	Low Self-Control (%)
Central Java	5.7	93.2	1.1
West Java	6.1	92.9	1.0
DKI Jakarta	6.3	92.5	1.2
East Java	5.5	93.4	1.1
West Sumatra	5.2	93.7	1.1
West Kalimantan	5.4	93.5	1.1
Aceh	5.6	92.8	1.6
West Papua	6.0	92.3	1.7
Bengkulu	5.3	93.6	1.1
South Sulawesi	5.5	93.4	1.1
DIY Yogyakarta	6.0	92.5	1.5
Banten	5.7	92.8	1.5

Discussion

This study aimed to investigate the relationship between self-control and sports participation among junior high school (JHS) students in Indonesia. The findings reveal that self-control is a key factor in determining students' engagement in physical activities, and highlight regional and gender-based differences in self-regulation. The implications for educational and psychological interventions are discussed, along with the limitations and future directions for research.

Psychometric Properties of the Self-Control Scale

Psychometric analyses were conducted to evaluate the reliability and construct-related evidence of the self-control scale in the Indonesian JHS sample. Based on complete cases (N = 1,305), the 36-item scale demonstrated good internal consistency (Cronbach's α = 0.80) (Thakur, 2025). Sampling adequacy and factorability supported factor analysis (KMO = 0.889; Bartlett's test of sphericity: $\chi^2(630) = 8720.66$, $p < .001$). An exploratory one-factor summary indicated a dominant underlying factor. Absolute loadings ranged from 0.02 to 0.61, with 28 of 36 items showing loadings ≥ 0.30 (Karimian & Chahartangi, 2024; Sigudla & Maritz, 2023). The first eigenvalue was 5.99, explaining 16.63% of the variance. These results support the use of a total self-control score in subsequent inferential analyses.

Regional Differences in Self-Control

The regional differences observed in this study are consistent with the idea that self-control development is influenced by various socioeconomic and cultural factors. Students in DKI Jakarta, West Java, and East Java exhibited higher levels of self-control, which could be attributed to better access to sports facilities, educational programs, and family support. This aligns with Bandura (2016) social cognitive theory, which emphasizes the role of environmental influences on self-regulation. Conversely, students from Aceh and West Papua, regions with fewer resources, exhibited lower self-control, highlighting the regional disparities in access to resources and opportunities for skill development (Amdam et al., 2024; Chen et al., 2024; Hofmann, 2024). These findings suggest that self-regulation programs should be tailored to the specific needs and resources of each region, with particular attention to under-resourced areas.

Gender Differences in Self-Control

The results also reveal a gender difference in self-control, with females showing slightly higher self-control levels than males. This finding is consistent with previous research indicating that female adolescents generally exhibit better emotional regulation and impulse control than their male counterparts (Tao et al., 2024). Socialization and cultural factors may play a role in these differences, as girls are often encouraged to be more emotionally regulated and compliant. These findings suggest that interventions to improve self-regulation should consider gender-specific strategies, with males possibly requiring more focus on managing impulses and emotions (Huang et al., 2024; Rogowska & Tataruch, 2024).

Self-Control and Sports Participation

The findings show a clear positive relationship between self-control and sports participation. Students with high self-control were significantly more likely to participate in sports frequently, while those with low self-control engaged less in physical activities. These results are consistent with the self-regulation literature, which links self-control to sustained engagement in effortful behaviors like exercise (Barakou et al., 2023; Gillebaart & Schneider, 2024). Self-regulation enables students to overcome barriers to participation, such as lack of time or motivation, and is a key predictor of physical activity participation (Stanfield, 2024; Zhou & Chen, 2024).

Implications for Educational and Psychological Interventions

The study highlights the importance of self-regulation in enhancing sports participation and promoting better health outcomes. Schools should implement self-control training programs that focus on time management, emotion regulation, and goal-setting to improve students' self-regulation skills and increase their engagement in physical activities (Diaz, 2024; Muir et al., 2023; Schutzman, 2024). Additionally, gender-sensitive programs that address the specific needs of male and female students could help further enhance self-regulation and sports participation.

Limitations and Future Research

This study has several limitations. The reliance on self-report data introduces potential social desirability bias, and future studies should incorporate objective measures of sports participation (Park, 2025; Teh et al., 2023). The cross-sectional design limits the ability to establish causal relationships between self-control and sports participation, and longitudinal studies are needed to further explore the impact of self-regulation on long-term physical activity and health outcomes.

Conclusion

In conclusion, this study underscores the significant role of self-control in determining sports participation and overall health outcomes in adolescents. The findings suggest that enhancing self-regulation through targeted interventions in schools could promote sports participation, leading to improved sport participations. By understanding the regional and gender-specific factors that influence self-control, policymakers and educators can develop more effective and culturally sensitive interventions to support the well-being of students across Indonesia.

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