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# Structured Sports and Adolescent Mental Strength: A Study on Malaysian High School Basketball Players

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***Abstract:*** *This study investigates the psychological impact of basketball participation among Malaysian high school students. Drawing on Social Cognitive Theory and Self-Determination Theory, the research examines three core psychological constructs: self-efficacy, psychological resilience, and emotional regulation. A quasi-experimental design was employed, involving 240 students divided into two groups based on their involvement in structured basketball training. Validated psychometric scales were used to measure each construct, and statistical analyses included t-tests and ANCOVA to assess group differences while controlling for demographic variables. Findings indicate that students who regularly participated in basketball reported significantly higher levels of self-efficacy and resilience, as well as better emotional regulation, compared to their non-participating peers. These effects remained significant after adjusting for age, gender, and academic performance. The results support the role of school-based basketball programs as effective platforms for promoting adolescents' psychological development. This study contributes to the limited body of research on youth sport psychology in Malaysia and offers practical implications for educators and policymakers seeking to enhance student well-being through physical education.*

***Keywords:*** *Basketball Participation, Psychological Development, Self-Efficacy*

## 1. Introduction

Adolescence is a critical developmental stage marked by rapid changes in cognition, emotion, and social behavior. During this period, external environments such as school-based programs and extracurricular activities have a profound influence on adolescents' psychological growth. Among these, team-based sports, particularly basketball—have garnered increasing attention for their potential to foster social-emotional competencies in youth (Branquinho et al., 2022).

Basketball, as an interactive and fast-paced sport, offers adolescents a structured context for developing life skills such as cooperation, emotional regulation, and self-confidence. Within school settings, basketball programs often emphasize teamwork, goal orientation, and coach-athlete relationships, which together create a fertile environment for nurturing self-efficacy, resilience, and interpersonal skills (Gould, Martin, & Walker, 2022). Empirical work by Gould et al. (2022) confirms these benefits, showing significant gains in self-awareness, decision-making, and relationship skills among high school basketball players.

Further supporting this perspective, Pocius and Malinauskas (2024) reported improvements in mental toughness and goal commitment in youth athletes engaged in long-term basketball training. Likewise, studies by Sui et al. (2023) and Pocius and Malinauskas (2023) identified basketball participation as a facilitator of social adjustment and behavioral self-regulation, even during COVID-19 disruptions. Biological factors also play a role; Arede et al. (2021) found that somatic maturation influences the psychological gains from sport, suggesting that developmental stage should be considered in interpreting these outcomes.

Despite substantial international evidence, research within the Malaysian context remains limited. As basketball is widely played in Malaysian secondary schools, its potential role in fostering students' psychological well-being warrants closer investigation. This study addresses this gap by examining how basketball participation relates to three key psychological constructs—self-efficacy, resilience, and emotional regulation—among Malaysian high school students. Using a cross-sectional quantitative

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design and validated psychological scales, the study aims to provide culturally relevant evidence to guide school sports programming and adolescent mental health promotion.

## 2. Methodology

This study employed a quasi-experimental design with a non-equivalent control group, guided by a quantitative approach. The design aimed to explore the psychological effects of school-based basketball training among Malaysian high school students. Unlike true experiments, participants were not randomly assigned to groups; instead, two naturally occurring groups were selected from schools with and without structured basketball programs. This design offers ecological validity while enabling comparative analysis of key psychological outcomes.

The research focused on examining differences in self-efficacy, psychological resilience, and emotional regulation between students who engaged in regular basketball training and those who did not. By incorporating statistical controls for demographic variables, such as gender, academic performance, and socio-economic status, the study sought to reduce confounding effects and better isolate the influence of basketball participation. The design is appropriate for real-world school settings, where controlled experimental conditions are often impractical.

### *2.1 Participants*

Participants were selected from four public secondary schools in Kuala Lumpur, Malaysia. Two schools with established basketball training programs formed the experimental group (n = 120), while two comparable schools without such programs constituted the control group (n = 120). All participants were aged between 15 and 17 years and enrolled in either Form 4 or Form 5. Students in the experimental group had been involved in basketball training for at least six consecutive months, with a minimum frequency of two sessions per week.

A purposive sampling strategy was adopted to ensure that the two groups were similar in terms of school type, geographic location, and academic performance levels. Prior to data collection, demographic information was gathered to confirm comparability. Participation in the study was voluntary, and written informed consent was obtained from students, their parents or guardians, and school administrators in accordance with ethical research procedures.

### *2.2 Procedure*

Data were collected over a three-week period in the middle of the academic term to ensure sufficient exposure to basketball training among students in the experimental group. All questionnaire sessions were conducted during regular school hours and supervised by trained research assistants. Each session was administered in a quiet classroom setting, and participants were given 30–40 minutes to complete the full set of questionnaires.

Prior to administration, research assistants provided a standardized briefing to explain the purpose of the study and instructions for completing the questionnaires. Students were assured that their responses would remain confidential and that their participation would not affect their academic standing. All completed questionnaires were anonymized and securely stored for data entry and analysis. Data collection procedures were standardized across all schools to ensure consistency.

### *2.3 Instrument Validity and Reliability*

The instruments used in this study were selected based on their theoretical relevance and established psychometric properties in adolescent populations. Self-efficacy was measured using the General Self-Efficacy Scale (GSES), psychological resilience was assessed with the Connor-Davidson Resilience Scale (CD-RISC), and emotional regulation was measured using the Difficulties in Emotion Regulation Scale (DERS). All scales were adapted into Malay using a back-translation procedure to ensure linguistic and cultural equivalence.

Previous studies have demonstrated high internal consistency for each scale, with Cronbach's alpha values exceeding 0.85. In the current study, pilot testing was conducted with a sample of 30 students from a non-participating school to evaluate clarity, item comprehension, and preliminary reliability. Internal consistency coefficients in the pilot sample remained above 0.80 for all instruments,

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confirming their appropriateness for the main study. The results provide strong support for the construct validity and reliability of the instruments in the Malaysian context.

### *2.4 Ethical Considerations*

This study was reviewed and approved by the Research Ethics Committee of the University of Malaya and received clearance from the Malaysian Ministry of Education. Prior to data collection, written informed consent was obtained from all participating students, their parents or legal guardians, and the respective school principals. Students were informed of their right to withdraw from the study at any point without penalty or consequence.

Confidentiality was strictly maintained throughout the research process. All data were anonymized during entry and stored in password-protected files accessible only to the research team. The study adhered to the ethical principles outlined in the Declaration of Helsinki and complied with institutional guidelines for research involving human participants. Special care was taken to ensure that participants experienced no physical or psychological harm during or after the study.

## 3. Findings

This section presents the results of statistical analyses conducted to examine the relationship between basketball participation and three dimensions of adolescent psychological development: self-efficacy, psychological resilience, and emotional regulation. The analyses included descriptive statistics, independent samples t-tests, and ANCOVA controlling for demographic covariates. Each analysis is supported by a corresponding detailed results table.

### *3.1 Descriptive Statistics*

Descriptive analyses were performed to examine the central tendencies and distributional characteristics of each psychological variable across groups. As shown in Table 1, participants in the basketball group consistently demonstrated higher self-efficacy and resilience scores, and lower emotional regulation difficulty scores compared to their non-participating peers. All variables were approximately normally distributed with acceptable skewness and kurtosis, supporting the assumption of normality.

Table 1 provides a comprehensive comparison of mean scores, standard deviations, and distributional properties (skewness, kurtosis) between the two groups. These preliminary statistics provide initial evidence of favorable psychological outcomes associated with basketball participation.

*Table 1 Descriptive Statistics of Psychological Variables by Group (N = 240)*

| Variable | Basketball Group Mean | Basketball Group SD | Control Group Mean | Control Group SD | Skewness | Kurtosis |
|---|---|---|---|---|---|---|
| Self-Efficacy | 29.48 | 4.12 | 26.73 | 4.25 | 0.21 | -0.34 |
| Psychological Resilience | 72.15 | 8.91 | 67.84 | 9.44 | -0.18 | -0.41 |
| Emotional Regulation | 80.37 | 10.19 | 88.21 | 11.07 | 0.09 | -0.27 |

### *3.2 Group Comparisons: Independent Samples t-Tests*

To assess whether the observed mean differences between the basketball and control groups were statistically significant, independent samples t-tests were conducted. As summarized in Table 2, all comparisons yielded statistically significant results with medium to large effect sizes (Cohen's d = 0.50–0.74).

*Table 2 Independent Samples t-Test Results for Group Comparisons*

| Variable | Mean Difference | t-value | df | p-value | Cohen's d | 95% CI (Lower) | 95% CI (Upper) |
|---|---|---|---|---|---|---|---|
| Self-Efficacy | 2.75 | 5.16 | 238 | < .001 | 0.67 | 1.69 | 3.81 |
| Psychological Resilience | 4.31 | 3.74 | 238 | < .001 | 0.50 | 2.07 | 6.55 |
| Emotional Regulation | -7.84 | -5.72 | 238 | < .001 | 0.74 | -10.6 | -5.12 |

Specifically, basketball participants reported significantly higher self-efficacy ($t(238) = 5.16$, $p < .001$, $d = 0.67$) and psychological resilience ($t(238) = 3.74$, $p < .001$, $d = 0.50$). Emotional regulation, where lower scores indicate better regulation, was also significantly better among basketball participants ($t(238) = -5.72$, $p < .001$, $d = 0.74$). These results provide strong preliminary support for

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the positive psychological impact of basketball involvement.

### *3.3 Adjusted Comparisons: ANCOVA*

To control for potential confounding influences of demographic variables (gender, age, and academic performance), univariate ANCOVAs were performed for each dependent variable. The results are presented in Table 3 and confirm the robustness of the earlier findings.

After adjusting for covariates, basketball participation remained a significant predictor of self-efficacy ($F(1, 235) = 25.61$, $p < .001$, partial $\eta^2 = 0.098$), psychological resilience ($F(1, 235) = 14.27$, $p < .001$, partial $\eta^2 = 0.057$), and emotional regulation ($F(1, 235) = 32.04$, $p < .001$, partial $\eta^2 = 0.120$). The observed power for all three models exceeded 0.95, indicating sufficient sensitivity to detect true effects.

*Table 3 Univariate ANCOVA Results with Covariates Controlled*

| Variable | F-value | p-value | Partial $\eta^2$ | Observed Power |
|---|---|---|---|---|
| Self-Efficacy | 25.61 | < .001 | 0.098 | 0.99 |
| Psychological Resilience | 14.27 | < .001 | 0.057 | 0.95 |
| Emotional Regulation | 32.04 | < .001 | 0.120 | 0.99 |

## 4. Discussion

The findings of this study demonstrate that regular participation in school-based basketball training is associated with significantly higher levels of self-efficacy, psychological resilience, and emotional regulation among Malaysian high school students. These outcomes remained statistically significant after controlling demographic factors such as age, gender, and academic performance, suggesting that the psychological benefits of basketball extend beyond physical health. The results support the role of structured team sports as an effective context for promoting adolescent psychological development, particularly in school environments where mental health is often under-addressed.

These findings are consistent with prior research on youth basketball development. Guimarães et al. (2021) emphasized that growth, maturation, and the sporting environment collectively shape athletes' overall progress, including psychosocial adaptation. Larkin et al. (2022) identified similar psychological traits such as confidence and emotional control as key attributes in talent identification. Our results offer quantitative support for these perspectives, suggesting that basketball engagement actively cultivates these internal capacities. Additionally, the cognitive and emotional challenges embedded in basketball gameplay may produce effects similar to those found in alternative models like parkour-based training (Williams et al., 2021; 2023), which are known to enhance mental flexibility and self-regulation through movement diversity.

This study also supports gender-inclusive perspectives on basketball participation. Andreyo et al. (2024) highlighted specific psychological needs among adolescent female basketball players, such as social confidence and stress management. While our study did not analyze gender as a moderating factor, the psychological benefits observed across the full sample suggest basketball may offer similar developmental gains to both male and female students. Future research should explore these differences in greater detail and consider longitudinal approaches to track changes over time. Overall, the evidence affirms basketball's potential to serve not only as a physical training tool, but also as a structured environment for cultivating essential psychological competencies in adolescence.

## 5. Conclusion

This study provides empirical evidence that structured basketball participation significantly contributes to adolescent psychological development. Specifically, high school students who regularly engaged in basketball training exhibited greater self-efficacy, higher psychological resilience, and more effective emotional regulation compared to their non-participating peers. These outcomes remained significant even after accounting for demographic variables, reinforcing the role of team-based sports in fostering not only physical but also psychological competencies in youth.

The findings align with recent research emphasizing the importance of integrating psychological development into athletic training environments. Basketball, as a dynamic and socially interactive sport, appears to offer valuable opportunities for adolescents to develop confidence, emotional control, and

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adaptive coping strategies. Such attributes are increasingly recognized as critical not only for athletic performance but also for academic success and general well-being.

Given the growing concerns over adolescent mental health and the academic pressures faced by students in Malaysia and globally, these results highlight the importance of incorporating structured sports programs into school curricula. Future research should adopt longitudinal designs and consider moderating variables such as gender, training intensity, and coaching quality to further understand how and for whom these benefits are most effective. In conclusion, basketball represents more than just physical activity—it is a meaningful educational tool for cultivating psychological strength during a formative period of life.

## References

*[1] Andreyo, E., Callahan, J., Tsang, C., & MacDonald, D. (2024). A needs analysis and training considerations for female adolescent basketball players. Strength & Conditioning Journal, 46(3), 320–337.*

*[2] Guimarães, E., Leite, N., Sáenz-López, P., Jiménez, S., Janeira, M. A., & Sampaio, J. (2021). The role of growth, maturation and sporting environment on the development of performance and technical and tactical skills in youth basketball players: The INEX study. Journal of Sports Sciences, 39(9), 979–991.*

*[3] Larkin, P., O'Connor, D., Mesagno, C., Berry, J., & Zuber, C. (2022). Talent identification in youth basketball: Talent scouts' perceptions of the key attributes for athlete development. International Sport Coaching Journal, 10(2), 163–171.*

*[4] Williams, M. D., Hammond, A., & Moran, J. (2023). Beyond athletic development: The effects of parkour-based versus conventional neuromuscular exercises in pre-adolescent basketball players. PLOS ONE, 18(7), e0288439.*

*[5] Williams, M. D., Hammond, A., & Moran, J. (2021). Parkour-based activities in the athletic development of youth basketball players. Frontiers in Physiology, 12, 771368.*

*[6] Gould, D., Martin, E. M., & Walker, L. F. (2022). A season long investigation of social emotional learning associated with high school basketball participation. Journal of Applied Sport Psychology, 34(6), 1102–1124.*

*[7] Pocius, E., & Malinauskas, R. (2024). Development of mental toughness among basketball sports school students. Behavioral Sciences, 14(4), 314.*

*[8] Sui, H., Liu, L., Zhang, X., & Chen, Y. (2023). The impact of basketball on the social adjustment of Chinese middle school students: The chain mediating role of interpersonal relationships and self-identity. Frontiers in Psychology, 14, 1205760.*

*[9] Pocius, E., & Malinauskas, R. (2023). Determining positive behavioral skills in different age groups of young basketball players during the pandemic. Children, 10(6), 914.*

*[10] Arede, J., Ferreira, A. P., Esteves, P. T., Oliveira, J., & Leite, N. (2021). A multi-block multivariate analysis to explore the influence of the somatic maturation in youth basketball. Frontiers in Psychology, 12, 602576.*

*[11] Branquinho, D., Pimenta, M., Carvalho, H. M., & Marques, A. (2022). The development of basketball players: Current perspectives and future directions. Open Science Journal, 7(3).*