

THE EFFECT OF ECONOMIC STATUS AND MOTOR MATURITY ON THE PERFORMANCE OF FUTSAL ATHLETES AT SMK CINTA KASIH TZU CHI: THE ROLE OF SELF-EFFICACY AS MEDIATION

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ABSTRACT

This study examined the effects of economic status and motor maturity on adolescent futsal performance, with self-efficacy as a mediating variable. A quantitative cross-sectional design was employed involving all 30 male futsal athletes at SMK Cinta Kasih Tzu Chi. Data were analyzed using Hayes PROCESS Macro Model 4 with 5,000 bootstrap resamples to estimate direct and indirect effects. Instrument reliability was satisfactory, as indicated by a Cronbach's Alpha coefficient of 0.89 for the self-efficacy scale and an Intraclass Correlation Coefficient (ICC) of 0.91 for performance assessment. The results showed that economic status did not significantly predict futsal performance directly ($\beta = 0.082$, $p = 0.651$), but exerted a significant indirect effect through self-efficacy (indirect effect = 0.231; 95% CI [0.054, 0.487]), indicating full mediation. Motor maturity significantly influenced performance both directly ($\beta = 0.389$, $p = 0.004$) and indirectly through self-efficacy (indirect effect = 0.175; 95% CI [0.031, 0.389]), suggesting partial mediation. The overall model explained 65.8% of the variance in futsal performance ($R^2 = 0.658$). These findings highlight the importance of self-efficacy as a psychological mechanism linking socio-economic and biological factors with athletic performance among adolescent futsal players.

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INTRODUCTION

Futsal has become one of the most popular sports among adolescents in Indonesia, particularly within secondary education settings. Beyond serving as a recreational and physical activity, futsal has been recognized as an important medium for promoting discipline, teamwork, and character development among students (Setiawan et al., 2020). Consequently, understanding the factors influencing adolescent futsal performance has become increasingly important, both from educational and sports development perspectives.

Previous studies have identified various determinants of athletic performance, including physical, biological, and psychological factors. Research has shown that biological aspects, such as motor maturity, contribute significantly to sports performance because they influence coordination, movement efficiency, and technical execution (Malina et al., 2019). Similarly, psychological variables, particularly self-efficacy, have been consistently associated with

athletes' persistence, confidence, and competitive achievement (Bandura, 1997; Aliyyah et al., 2020). However, most existing studies have tended to examine these factors separately, focusing predominantly on either physical or psychological dimensions. As a result, the complex interactions among social, biological, and psychological determinants of adolescent sports performance remain insufficiently understood.

The role of socio-economic status in adolescent athletic development also warrants further investigation. Previous research suggests that economic resources may influence access to adequate nutrition, training facilities, sports equipment, and competitive experiences, all of which are essential for performance development. Nevertheless, findings regarding the relationship between socio-economic conditions and sports achievement remain inconsistent across contexts. While some studies report a positive association between economic advantage and athletic success, others emphasize the ability of psychosocial factors to buffer resource limitations. These inconsistencies indicate that socio-economic status may not directly determine performance outcomes but rather operate through intermediary mechanisms.

Within the Indonesian futsal context, socio-economic disparities may become particularly salient. Participation in tournaments, club memberships, and access to specialized coaching often require considerable financial investment. Such conditions potentially create unequal opportunities for skill acquisition and competitive exposure among adolescent athletes, particularly at the vocational high school (SMK) level. However, empirical evidence examining how these structural inequalities influence futsal performance is still limited.

In this regard, self-efficacy, defined as an individual's belief in their capability to successfully perform specific tasks (Bandura, 1997), may represent an important explanatory mechanism. According to Social Cognitive Theory (Bandura, 1986), self-efficacy mediates the relationship between environmental conditions and behavioral outcomes by influencing individuals' effort, persistence, and resilience. Several studies have demonstrated that athletes with high self-efficacy tend to exhibit greater persistence and adaptive coping strategies despite adverse conditions. Therefore, self-efficacy may enable athletes facing economic constraints to compensate for limited resources by maximizing their existing skills and training opportunities.

The present study argues that integrating socio-economic, biological, and psychological dimensions may provide a more comprehensive understanding of adolescent futsal performance. To date, studies simultaneously examining economic status, motor maturity, and self-efficacy within a single mediation framework remain scarce, particularly in the Indonesian context. This gap constitutes the primary novelty of the present study. SMK Cinta Kasih Tzu Chi was selected as the research setting because its students represent diverse socio-economic backgrounds while participating within the same inclusive sports development system, thereby providing a suitable context for examining the proposed relationships.

Accordingly, this study aims to: (1) analyze the direct effect of economic status on adolescent futsal performance; (2) examine the direct effect of motor maturity on futsal performance; and (3) investigate the mediating role of self-efficacy in the relationships between economic status, motor maturity, and futsal performance.

METHOD

This research uses a quantitative approach with a cross-sectional design. This study uses a census technique on the entire population consisting of 30 active male futsal athletes at SMK Cinta Kasih Tzu Chi. The selection of this single location was done purposively because of the unique demographic characteristics of the students, where there is extreme diversity in economic backgrounds ranging from underprivileged to upper-middle-class families who are within the same inclusive coaching system. The focus on this single school aims to minimize confounding variables such as differences in coach quality, training facilities, and school curricula that usually appear in multischool research, so that the mediation mechanism of self-efficacy can be observed more purely. All participants have provided written informed assent, and parents/guardians have signed informed consent. The research was conducted during the period of April 2026.

Self-Efficacy. Measured using the Sport Self-Efficacy Scale consisting of 15 statement items with a Likert scale of 1–5. The instrument was adapted and validated for the context of Indonesian futsal sports. The internal reliability test yielded a Cronbach's Alpha (α) coefficient of 0.89, which indicates excellent internal consistency.

Futsal Performance. The assessment was conducted by three nationally certified experts through a 2×10 minute match simulation. The aspects assessed include: individual techniques (ball control, passing, shooting), tactics (off-the-ball movement, transitions), and team contribution. Before data collection, a rigorous calibration procedure was carried out in the form of equalizing perceptions among raters and a pilot rating test. The results of the Intraclass Correlation Coefficient (ICC) test produced a value of 0.91 (95% CI [0.84; 0.96]), which confirms excellent objectivity and reliability of inter-rater assessment (Koo & Li, 2016).

Motor Maturity. Measured using a modified version of the Missouri Motor Maturity Test which includes five components: movement coordination, agility, dynamic balance, reaction speed, and leg muscle explosive power.

Economic Status. Measured through a structured questionnaire based on the Central Bureau of Statistics (BPS) indicators which include: monthly family income, asset ownership, and access to sports support facilities. To ensure data accuracy and minimize self-report bias, the researcher conducted a cross-check procedure with school administrative data. Considering that SMK Cinta Kasih Tzu Chi has an economic background monitoring system for providing scholarships and educational assistance, the questionnaire data was synchronized with the students' assistance recipient status. This step ensures that the economic status categories determined in the study reflect the real conditions of the athletes on the field.

Data analysis uses mediation regression based on the Hayes PROCESS Macro Model 4. It is important to emphasize that $n=30$ in this study is not a sample, but rather the entire target population (full census). In census research, statistical power calculations (power analysis) for determining sample size are not required, because there is no inferential generalization from a sample to a larger population; the data collected is the population data itself (Hayes, 2018).

The use of this analysis tool was strategically chosen precisely to overcome the limitation of sample size ($n=30$) which is often an obstacle in traditional mediation techniques such as the Baron and Kenny (1986) method. Hayes PROCESS Macro remains able to provide accurate indirect effect estimates and has high statistical power through a bootstrapping procedure of 5,000 resamples. This method does not depend on strict assumptions of population distribution normality, so it is highly reliable for mediation testing in small samples and is able to minimize the risk of type I errors in drawing conclusions. This method produces a 95% confidence interval (CI) that is more accurate compared to standard asymptotic methods, especially for small samples (Hayes, 2018). The indirect effect is declared significant if the 95% CI does not cross zero.

Before the mediation analysis was conducted, all OLS regression assumptions were systematically examined. The residual normality test using Shapiro Wilk produced a value of $p=0.142$, indicating a residual distribution that does not differ significantly from a normal distribution. The multicollinearity test showed a Variance Inflation Factor (VIF) value below the critical threshold (economic status $VIF=1.23$; motor maturity $VIF=1.31$; self-efficacy $VIF=1.19$), so there is no multicollinearity problem among predictors. The Breusch Pagan heteroscedasticity test produced an insignificant value ($p=0.218$), confirming the homoscedasticity of residual variances. Thus, all classic regression assumptions are met, and the PROCESS Macro Model 4 bootstrapping procedure can be validly applied to this research data.

RESULTS AND DISCUSSION

Descriptive Statistics

Table 1 presents the descriptive statistics of all research variables. The average value of self-efficacy is in the high category ($M=3.81$; $SD=0.52$), indicating positive self-belief in the majority of athletes. Motor maturity shows a fairly wide variation ($SD=8.34$), reflecting the heterogeneity of biological development typical in adolescent groups. Table 1. Descriptive Statistics of Research Variables ($n=30$)

Variable	Min	Max	M	SD
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Economic Status	1.00	4.00	2.63	0.76
Motor Maturity	52.00	88.00	71.40	8.34
Self-Efficacy	2.67	4.80	3.81	0.52
Futsal Performance	55.00	92.00	74.17	9.12

Note: M = Mean; SD = Standard Deviation

Path Analysis Results

Table 2 presents the complete results of the mediation regression analysis. The overall regression model is significant and has a very high predictive power ($R^2=0.658$; $F(3,26)=16.68$; $p<0.001$), meaning 65.8% of the variation in futsal performance can be explained by the three predictor variables used in this model. The mediation regression analysis using Hayes PROCESS Macro Model 4 reveals that this model has a very strong predictive power, with an R^2 value of 0.658. This means the combination of economic status, motor maturity, and self-efficacy is able to explain 65.8% of the variation in the futsal performance of adolescent athletes at SMK Cinta Kasih Tzu Chi.

Table 2. Mediation Path Analysis Results (PROCESS Macro Model 4)

Path / Variable	B	SE	p	IE (Indirect)	95% CI
Direct Effect on Performance					
Economic Status → Performance	0.082	0.184	0.651	-	-
Motor Maturity → Performance	0.389	0.126	0.004**	-	-
Self-Efficacy → Performance	0.511	0.138	0.001**	-	-
Effect on Self-Efficacy					
Economic Status → Self-Efficacy	0.452	0.157	0.006**	—	—
Motor Maturity → Self-Efficacy	0.343	0.141	0.019*	—	—
Indirect Effect (Bootstrap)					
Economic Status → Self-Efficacy → Performance	—	—	—	0.231	[0.054; 0.487]
Motor Maturity → Self-Efficacy → Performance	—	—	—	0.175	[0.031; 0.389]

Note: * $p<0.05$; $p<0.01$; B = unstandardized coefficient; SE = standard error; IE = indirect effect; CI = confidence interval (bootstrapping 5,000 resamples)

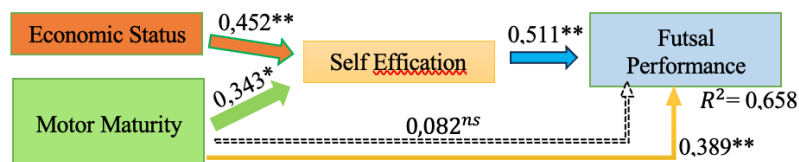


Figure 1. Path Diagram

The data shows a very interesting finding: economic status does not have a significant direct effect on futsal performance ($\beta=0.082$; $p=0.651$). However, economic status has a significant effect on self-efficacy ($\beta=0.452$; $p=0.006$). It is through this self-efficacy that economic status indirectly affects performance with an indirect effect (IE) value of 0.231. This confirms the occurrence of full mediation, where the impact of economic inequality on athlete achievement is fully bridged by the self-belief factor.

This finding is in line with Bandura's (1997) argument that self-perception, not objective conditions, is the determinant of behavior. In the context of SMK Cinta Kasih Tzu Chi, the scholarship system and sports facilities provided by the school appear to be successful in eliminating the direct impact of economic inequality on performance, but not fully on the athletes' self-efficacy.

The absence of a direct effect of economic status on performance in this study indicates a crucial phenomenon: material barriers are no longer the main determinant factor of achievement in a school environment that has a strong support system. Adequate sports facilities and inclusivity policies at SMK Cinta Kasih Tzu Chi function as a compensation or balancing mechanism (leveling the playing field), so that athletes from low economic backgrounds still have equal physical access to train and compete.

However, the finding of full mediation reveals that economic inequality still leaves a psychological residue in the form of mental barriers manifested in low self-efficacy. This indicates that although the school is able to compensate for the lack of equipment or nutrition, the school has not been fully able to neutralize the perception of relative deprivation where athletes feel socially less competent compared to their more established peers.

This analysis is in line with the findings of Setiawan et al. (2020), which emphasize that psychological factors are often the differentiator between athletes who merely have physical potential and those who are able to convert it into actual performance. Similarly, the study by Aliyyah et al. (2020) highlights how crucial self-efficacy is in managing competitive anxiety.

Thus, these findings strengthen the academic dialogue in Indonesia regarding the importance of a shift in coaching focus; from merely providing physical infrastructure to structured cognitive interventions. If mental barriers (low self-efficacy) due to economic status are not addressed through methods such as verbal persuasion or mastery experience, then even luxurious facilities will not be able to fully optimize the performance of athletes from underprivileged families.

Motor maturity is proven to be a vital physical foundation with a significant direct effect on performance ($\beta=0.389$; $p=0.004$). In addition, there is a significant indirect effect through self-efficacy ($IE=0.175$). This phenomenon is referred to as partial mediation, which indicates that self-efficacy functions as an "amplifier" for the biological capacity of athletes in achieving maximum performance. This is in line with the bio-banding theory developed by Malina et al. (2019), which emphasizes the importance of considering the level of biological maturity, not just chronological age, in the classification and selection of young athletes.

However, the finding of partial mediation reveals a more complex dimension: self-efficacy does not replace physical maturity, but acts as an amplifier that strengthens the conversion of motor capacity into actual performance. Athletes who are biologically mature, but lack self-confidence, will not optimize their physical potential.

These findings enrich the discussion about the ratio of cognitive-physical training in adolescent athlete coaching programs (Vealey, 2001). This study recommends that coaches integrate self-efficacy enhancement techniques including mastery experience, vicarious learning, verbal persuasion, and anxiety management (Bandura, 1997) as routine components in training sessions. This approach is highly crucial for two vulnerable groups: athletes from underprivileged families who are prone to relative deprivation, and athletes who experience biological late maturation. The formation of a positive mentality must be treated equally with the development of physical techniques.

This study has several limitations that need to be acknowledged. First, the limited sample size ($n=30$) at one school limits the generalization of the findings. Second, the cross-sectional design does not allow for long-term causality inference. Third, the measurement of economic status based on self-reports potentially contains social desirability bias. Future research is suggested to use a longitudinal design with multischool samples and incorporate moderator variables such as the quality of coach support and team motivational climate.

CONCLUSION

This study concludes that self-efficacy is a central cognitive mechanism that fully mediates the relationship between economic status and futsal performance (full mediation), and partially mediates the relationship between motor maturity and performance (partial mediation). This three-variable integration model is capable of explaining 65.8% of the performance variance, confirming the validity of the bio-psycho-social approach in youth sports research.

Practically, these findings underline the urgency of structured self-efficacy development programs in the school futsal coaching system. Coaches, sports psychologists, and physical education policymakers need to collaborate in designing psychological interventions that are integrated with physical-technical training programs. Thus, the full

potential of athletes—especially those from economically and biologically disadvantaged backgrounds—can be maximized optimally and fairly.

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