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ABSTRACT

# The Impact of Mental Toughness on Athletes' Achievement Among High School Students in SMK Agama Igan

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## I. INTRODUCTION

Mental toughness is essential in determining student-athletes' performance, yet its significance is under-examined, especially among Malaysian adolescents. Research shows that mental toughness significantly impacts sports performance perceptions among secondary school athletes in Malaysia, but this area remains underexplored [2]. Additional studies on Malaysian junior athletes affirm that mental toughness is a key factor in distinguishing elite performers from their peers [3]. Mental health issues affect over 16.5% of youth [5], highlighting a need to explore psychological resilience. This study investigates the influence of mental toughness on athletic achievement in high school students and examines gender-based differences, addressing a critical research gap in adolescent mental strength and sports psychology.

## II. METHODS

A non-experimental quantitative design was used involving all 214 high school athletes, selected through total population sampling. This method aligns with Krejcie and Morgan's (1970) [1] sampling recommendations, which offer a widely accepted guideline for determining sample size based on population to ensure accuracy in quantitative studies. Data were collected using two validated instruments: the Mental Toughness Questionnaire (MTQ48) and the Achievement Goal Questionnaire (AGQ). The MTQ48 has been widely used to assess mental toughness among student-athletes and has demonstrated predictive validity for academic and athletic success [4]. Each item on the instruments was measured using a 5-point Likert scale. Descriptive statistics were utilized to calculate mean scores and rankings. Additionally, linear regression analysis was applied to determine the relationship between athletes' mental toughness and their athletic achievement, with significance assessed at the  $p < 0.05$  level.

## III. RESULTS AND DISCUSSION

### A. Mental Toughness

The findings showed a high level of mental toughness among student-athletes at SMK Agama Igan. Confidence had the highest mean (4.54), followed by Commitment (4.52) and Challenges (4.51), indicating strong self-belief, goal focus, and resilience. Control had the lowest mean (4.44), suggesting some students may struggle with emotional regulation.

TABLE I  
DESCRIPTIVE RESULTS OF MENTAL TOUGHNESS AMONG HIGH SCHOOL STUDENTS

Factors	Mean	SD	Ranking
Confidence	4.54	0.521	1
Commitment	4.52	0.524	2
Challenges	4.51	0.447	3
Control	4.44	0.603	4

### B. Athletes' Achievement

The results showed that the level of athletes' achievement among students was high, with the highest mean scores in Task-Approach and Other-Approach goals (both 4.56), followed closely by Self-Approach (4.55). This indicates that students are motivated by personal improvement and competition with others. For avoidance goals, Task-Avoidance scored the highest (4.61), showing some students are also driven to avoid failure. However, Self-Avoidance (4.51) had the lowest mean and highest variation, indicating mixed personal motivations. Overall, students showed strong achievement motivation, especially through positive, approach-based goals.

TABLE II  
DESCRIPTIVE RESULT OF ATHLETES' ACHIEVEMENT AMONG HIGH SCHOOL STUDENTS

Level Athletes' Achievement	Mean	SD	Ranking
Task – Avoidance Goal Item	4.61	0.534	1
Task - Approach Goal Item	4.56	0.478	2
Other - Approach Goal Item	4.56	0.556	3
Self - Approach Goal Item	4.55	0.481	4
Other - Avoidance Goal Items	4.53	0.575	5
Self - Avoidance Goal Items	4.51	0.600	6

### C. Impact of Mental Toughness on Athletes' Achievement

The regression analysis showed a strong positive impact of mental toughness on athletes' achievement, with an  $R$ -value of 0.867 and  $R^2$  of 0.752. This means that 75.2% of the variation in athletes' achievement is explained by mental toughness. Among the four factors, Confidence had the strongest and most significant influence ( $\beta = 0.385$ ,  $p < 0.001$ ), followed by

Commitment and Challenges, both with significant contributions ( $p < 0.05$ ). Control had no significant impact ( $p = 0.920$ ). In short, Confidence is the key mental toughness factor that drives better performance among student-athletes.

TABLE III  
LINEAR REGRESSION

Model Fit Measures		
Model	R	R <sup>2</sup>
1	0.867	0.752

Note. Models estimated using sample size of  $N=136$

Predictor	Estimate	SE	t	p
Intercept	0.67308	0.2255	2.985	0.003
Challenges	0.22684	0.0810	2.799	0.006
Control	0.00837	0.0827	0.101	0.920
Commitment	0.23724	0.1069	2.220	0.028
Confidence	0.38501	0.1093	3.523	<0.001

#### D. Differences Between Genders

Males showed higher mental toughness ( $M = 4.62$ ) and achievement ( $M = 4.64$ ) than females, with more consistent responses. This suggests gender differences in athletic mindset, possibly due to training intensity or socialized resilience. These disparities highlight the need for gender-sensitive coaching strategies to support female athletes' psychological and performance development.

TABLE IV  
GROUP DESCRIPTIVE

	Group	N	Mean	Median	SD
Mental Toughness	Female	60	4.35	4.51	0.521
	Male	76	4.62	4.65	0.431
Athletes Achievement	Female	60	4.44	4.50	0.504
	Male	76	4.64	4.78	0.421

#### IV. CONCLUSIONS

This study highlights the strong impact of mental toughness on high school athletes' achievement, with confidence being the most influential factor. Male athletes showed greater resilience and performance, but emotional control remained a challenge for many, regardless of gender. These findings emphasize the need for targeted psychological support that focuses on emotional regulation, confidence-

building, and adaptive coping strategies for all athletes. By developing mental skills across all core components—confidence, commitment, control, and challenge—educators and coaches can help shape not only high-performing athletes but also balanced individuals. Such interventions should be introduced early to cultivate long-term mental strength and competitive readiness. Ultimately, this can reduce gender disparities, enhance psychological well-being, and promote a more supportive and effective school sports environment.

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