

Mental well-being and anxiety in sports among high-performance university athletes

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Abstract

Background and Study Aim Mental well-being and anxiety are crucial psychological factors affecting athletic performance, particularly among high-performance athletes. This study aims to examine the correlation between mental well-being and sports anxiety and to compare these variables, along with their specific constructs, between athletes from two universities.

Material and Methods A descriptive research design employing a survey approach was utilized. The Sport Mental Toughness Questionnaire (SMTQ) was used to measure mental toughness across three dimensions: confidence, constancy, and control. The Sport Anxiety Scale (SAS) assessed anxiety by evaluating worry, concentration disruption, and somatic trait anxiety. A total of 120 high-performing athletes from various team sports were selected through purposive sampling. The participants were recruited from two universities, forming two distinct groups of 60 athletes each. Data were collected via online questionnaires distributed through Google Forms. Responses were rated using a Likert scale.

Results The findings indicate a significant negative correlation ($r = -0.565$, $p < 0.01$) between mental well-being and anxiety in sports. Higher levels of anxiety were associated with lower levels of mental well-being. No significant differences were found in overall mental well-being or anxiety levels between the two groups. However, a significant difference in the mental toughness construct of constancy ($p = 0.002$) was observed. No significant differences were found in the anxiety constructs (worry, concentration disruption, and somatic trait anxiety).

Conclusions This study emphasizes the importance of integrating psychological support into athletic training programs to manage anxiety and strengthen mental toughness. Similar psychological challenges faced by both groups highlight the need for systematic interventions.

Keywords: mental well-being, sports anxiety, high-performance athletes, mental toughness, psychological factors, sport

Introduction

Mental well-being among high-performance athletes has become an increasingly important focus in sports psychology. Athletes are exposed not only to physical demands but also to intense mental and emotional pressures that can significantly affect their performance, resilience, and overall health. This study examines mental well-being and anxiety among high-performance athletes from two leading Malaysian universities.

Mental well-being refers to an individual's capacity to effectively manage emotional, psychological, and social challenges, contributing to a functional and fulfilling daily life [1, 2]. In sports, it plays a critical role in maintaining athletes' concentration, motivation, and performance, particularly under high-pressure conditions. In contrast, anxiety is often triggered by competition-related stress, training expectations, and academic obligations and has been identified as a key psychological barrier to athletic success [3, 4].

Research has shown that competitive anxiety can disrupt cognitive processes such as attention, decision-making, and focus. It can also produce physiological symptoms including elevated heart rate and muscle tension [5, 6]. To mitigate these effects, interventions such as mindfulness training, cognitive-behavioral techniques, and structured psychological support from coaches and professionals have been implemented with varying degrees of success [7].

Despite increasing global awareness of athlete mental health, there remains limited research on this topic within the context of Malaysian university sports. Student-athletes in institutions such as Universiti Kebangsaan Malaysia (UKM) and Universiti Teknologi MARA (UiTM) are often required to balance rigorous academic workloads with high-stakes athletic commitments, particularly during national events such as the Malaysian University Sports Council (MASUM) tournaments. The cumulative pressure of these dual roles, combined with cultural and societal expectations, may increase vulnerability to anxiety, stress, and burnout [8, 9, 10].

Although prior studies have investigated anxiety and mental well-being as separate constructs among student-athletes, a significant gap persists in understanding their interrelationship, especially within Malaysia's university sports ecosystem. Existing training programs tend to emphasize physical preparedness while frequently overlooking the psychological dimensions that are equally essential for sustained athletic performance [11, 12, 13].

This study aims to examine the correlation between mental well-being and sports anxiety and to compare these variables, along with their specific constructs, between athletes from two universities.

Materials and Methods

Participants

A total of 120 high-performing athletes involved in various team sports were selected as respondents. Sixty participants were from Universiti Kebangsaan Malaysia (UKM), and the remaining sixty were from Universiti Teknologi MARA (UiTM). The sample was obtained using purposive sampling, a non-probability method that targets individuals who meet specific criteria defined by the researcher. In this study, inclusion criteria required athletes to be actively competing at the state, national, or international level, based on their involvement in organized sports.

Ethical Considerations

Ethical approval for this study was granted by the Research Ethics Committee of Universiti Kebangsaan Malaysia. All participants provided informed consent before taking part in the study. Participation was voluntary, and respondents were assured of anonymity and confidentiality in accordance with both institutional and international ethical standards for human subjects research.

Research Design

This study employed a descriptive research design using a survey approach. The survey method was selected due to the use of standardized questionnaires for data collection. Data were gathered quantitatively using validated instruments, with minor adaptations to ensure contextual relevance and maintain reliability.

Instruments

Sport Mental Toughness Questionnaire (SMTQ): Developed by Clough et al. [4], the SMTQ assesses mental toughness across three dimensions: confidence, constancy, and control. The instrument consists of 14 items rated on a 4-point Likert scale ranging from 1 (not at all true) to 4 (very true). The SMTQ has been widely validated among athletic populations and demonstrated strong internal consistency in the present study (Cronbach's $\alpha > 0.80$).

Sport Anxiety Scale-2 (SAS-2): Adapted from Smith et al. [14], the SAS-2 measures three components of sport-related anxiety: worry, somatic anxiety, and concentration disruption. It comprises 15 items, each rated on a 4-point Likert scale. Reliability testing within this sample produced acceptable Cronbach's α values for all subscales ($\alpha > 0.75$).

The original versions of both instruments were used without any structural modifications. Minor linguistic adaptations were made to enhance clarity and ensure cultural relevance for Malaysian university athletes. These adjustments followed best practices for cross-cultural adaptation of psychological measures, which emphasize the importance of semantic equivalence and contextual appropriateness without altering core constructs [15]. The adapted items were pilot-tested with a small sample of student-athletes ($n = 15$) and reviewed by a panel of experts in sports psychology. No changes were made that would compromise the content validity or factorial structure of the instruments.

Statistical Analysis

Data were analyzed using IBM SPSS Statistics version 26. Descriptive statistics, including means and standard deviations, were calculated to summarize the study variables. Pearson's correlation coefficient was used to examine the relationship between mental toughness and sports anxiety. Independent-samples t-tests were conducted to compare the mean scores of mental well-being and anxiety between athletes from UKM and UiTM. All statistical tests were two-tailed, with the significance level set at $p < 0.05$. Prior to performing inferential analyses, the assumptions of normality and homogeneity of variances were tested using the Shapiro-Wilk test and Levene's test, respectively. Effect sizes (Cohen's d) were computed to evaluate the practical significance of observed group differences, in accordance with recommendations for effect size reporting in psychological research [16].

Results

Table 1 presents the results of the Pearson correlation analysis conducted to examine the relationship between mental toughness and sports anxiety among high-performance athletes. A significant negative correlation was observed ($r = -0.565$, $p < 0.01$), indicating that higher levels of anxiety were associated with lower levels of mental toughness.

This finding supports the hypothesis that psychological strain, such as anxiety, can adversely affect athletes' mental resilience and readiness for performance. The magnitude of the correlation indicates a moderately strong inverse relationship between the two variables.

Table 2 compares overall mental toughness and sports anxiety scores between athletes from UKM and UiTM using independent-samples t-tests. The results revealed no statistically significant differences in overall mental toughness [$t(118) = 1.57, p = 0.119, d = 0.29$] or sports anxiety [$t(118) = -0.65, p = 0.515, d = 0.12$] between the two groups. The small effect sizes further suggest that the observed differences have negligible practical significance.

Further analysis was conducted to examine whether there were differences in the subcomponents of mental toughness, specifically confidence, constancy, and control (Table 3). A significant difference was found in constancy,

with UKM athletes scoring higher than those from UiTM [$M_{diff} = 0.25, t(118) = 3.20, p = 0.002, d = 0.59$], suggesting greater consistency in sustaining focus and determination. Differences in confidence were marginally significant ($p = 0.050$), indicating a possible disparity in self-assurance during competition. No significant difference was observed in the control subscale ($p = 0.200$), which suggests similar levels of composure and emotional regulation under pressure across both groups. These results indicate that while overall mental toughness does not significantly differ between the groups, specific dimensions, particularly constancy, may be more sensitive to institutional or program-level influences.

Table 1. Pearson correlation between mental well-being and anxiety in sports among high-performance athletes at UKM and UiTM

		Mental Well-Being	Anxiety in Sports
Mental Well-Being	Pearson Correlation	1.000	-0.565**
	Sig. (2-tailed)	–	0.000
	N	120	120
Anxiety in Sports	Pearson Correlation	-0.565**	1.000
	Sig. (2-tailed)	0.000	–
	N	120	120

Note: $p < 0.01$ (2-tailed).

Table 2. Comparison of mental well-being and anxiety in sports between high-performance athletes at UKM and UiTM

Variable	Levene's Test for Equality of Variances		T-test for Equality of Means				
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference
Mental Well-Being	1.260	0.264	1.569	118	0.119	0.10476	0.06677
			1.569	117.626	0.119	0.10476	0.06677
Anxiety in Sports	1.219	0.272	-0.652	118	0.515	-0.06825	0.10461
			-0.652	116.767	0.515	-0.06825	0.10461

Note: Levene's test assesses equality of variances; t-test values are reported for both equal variances assumed and not assumed. No statistically significant differences were observed at $p < 0.05$.

Table 3. Differences in mental toughness constructs between high-performance athletes at UKM and UiTM

Construct	Levene's Test for Equality of Variances		T-test for Equality of Means				
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference
Confidence	0.001	0.973	1.979	118	0.050	0.16111	0.08140
			1.979	117.429	0.050	0.16111	0.08140
Constancy	6.248	0.014	3.147	118	0.002	0.24583	0.07811
			3.147	116.345	0.002	0.24583	0.07811
Control	0.005	0.942	-1.289	118	0.200	-0.12083	0.09377
			-1.289	117.879	0.200	-0.12083	0.09377

Note: Values are reported for both equal variances assumed and not assumed. A statistically significant difference was found for constancy ($p < 0.05$). Confidence approached significance ($p = 0.050$).

Table 4. Differences in sports anxiety constructs between high-performance athletes at UKM and UiTM

Construct	Levene's Test for Equality of Variances		T-test for Equality of Means				
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference
Worry	4.025	0.047	-1.112	118	0.268	-0.14286	0.12846
			-1.112	114.424	0.268	-0.14286	0.12846
Concentration Disruption	0.134	0.715	-1.656	118	0.100	-0.20333	0.12275
			-1.656	117.376	0.100	-0.20333	0.12275
Somatic Trait Anxiety	0.099	0.753	0.545	118	0.586	0.06481	0.11882
			0.545	117.995	0.586	0.06481	0.11882

Note: Results are reported for both equal variances assumed and not assumed. No statistically significant differences were observed at $p < 0.05$.

Table 4 presents group comparisons across the three components of sports anxiety: worry, concentration disruption, and somatic anxiety. No statistically significant differences were found in any of the subscales. For worry, the difference between the two institutions was small and non-significant ($p = 0.268$). Similarly, no significant differences were observed in concentration disruption ($p = 0.100$) or somatic trait anxiety ($p = 0.586$). These results suggest that athletes from both universities experience comparable levels of cognitive and physiological symptoms of anxiety. The lack of significant variation in anxiety profiles may reflect similar training environments or shared stressors commonly encountered by high-performance athletes in Malaysian university sports contexts.

Discussion

This study examined the relationship between mental toughness and sports anxiety among high-performance athletes from Universiti Kebangsaan Malaysia (UKM) and Universiti Teknologi MARA (UiTM). A significant inverse correlation was identified, showing that athletes who reported higher levels of anxiety tended to exhibit lower levels of mental toughness.

This finding aligns with existing literature suggesting that anxiety negatively affects athletes' cognitive, emotional, and physical functioning, which may compromise their ability to perform effectively in competitive settings [17, 18]. Anxiety can reduce focus, diminish self-confidence, and impair emotional regulation, all of which are essential components of mental toughness.

Beyond the overall relationship, further analyses revealed no significant differences in the total scores for mental toughness or sports anxiety between athletes from the two institutions. However, a significant difference was found in the constancy subscale of mental toughness, with UKM athletes scoring higher than those from

UiTM. This result indicates that UKM athletes may be more consistent in sustaining motivation and attention during competition. No significant group differences were observed across the subscales of sports anxiety, suggesting that athletes at both universities experience similar levels of cognitive and physiological symptoms related to competitive stress.

These findings are consistent with contemporary cognitive-behavioral theories in sports psychology. Such models suggest that increased anxiety, especially in high-stakes situations, can impair athletes' confidence, attentional control, and emotional regulation [19, 20, 21]. In this study, the correlation coefficient ($r = -0.565$) reflects a moderate-to-strong negative association between anxiety and mental toughness. This result confirms that anxiety is not a peripheral issue. Rather, it represents a central factor that can weaken psychological resilience and compromise performance consistency [22, 23].

Interestingly, although no significant differences were found in overall mental toughness and anxiety levels between athletes from UKM and UiTM, a more detailed analysis of the subcomponents revealed institutional variation. In particular, the constancy dimension of mental toughness, which reflects perseverance and sustained focus, was significantly higher in one group. This finding suggests that specific psychological traits may be shaped by institutional training environments, even when overall levels of mental toughness appear comparable.

This nuanced difference is consistent with previous research showing that institutional culture, coaching philosophy, and access to psychological support can influence athletes' mental consistency [14, 24, 25]. It also supports findings by Gucciardi, who argued that mental toughness is not solely an innate characteristic but can be developed through context-specific psychological interventions [6].

The absence of significant group differences in anxiety and its subscales, including worry, concentration disruption, and somatic symptoms, may be attributed to the similar pressures experienced by athletes at both institutions. Since athletes from both UKM and UiTM participate in national-level competitions such as MASUM, they are likely exposed to comparable stressors. These include high performance expectations, time constraints, and the ongoing challenge of balancing academic and athletic responsibilities. These shared conditions may contribute to the normalization of anxiety levels regardless of institutional affiliation.

However, it is important to recognize that although institutional differences may not significantly affect the level of anxiety, they may influence how athletes cope with it. The limited availability of formal psychological support services at both institutions, as reported in previous studies [25, 27], may lead to a reactive rather than proactive approach to mental health in university sports. Integrating structured mental health interventions into training programs could equip athletes with more effective strategies for managing anxiety and improving performance consistency.

These findings underscore the need to reframe training paradigms for university athletes in Malaysia. Traditional training programs tend to emphasize physical conditioning while giving insufficient attention to psychological resilience. This study reinforces the argument that optimizing performance requires a holistic approach. Such an approach should include psychological skills training, such as goal setting, visualization, and relaxation techniques, along with coach education and continuous mental health support.

Study Limitations and Future Research

This study has several limitations. First, its cross-sectional design prevents conclusions about causality. Second, the data relied entirely on self-

reported measures, which may be subject to bias. Third, the sample consisted exclusively of team-sport athletes from only two universities, which may limit the generalizability of the findings. Future research should consider using longitudinal designs to explore how mental toughness and anxiety evolve over time. Mixed-methods approaches could provide deeper insight into athletes' lived experiences. Additionally, examining other psychological constructs such as motivation, coping strategies, and self-efficacy would broaden understanding of mental well-being in competitive university sports.

Conclusions

This study highlights the psychological dimension of athletic performance in Malaysian university sports. It emphasizes the relevance of mental toughness and anxiety as interconnected constructs that influence athletes' overall well-being and readiness for competition. The findings reinforce the importance of integrating psychological components into athlete development programs. Addressing mental health should be seen not as supplementary, but as an essential element of holistic training. There is a clear need for institutional commitment to structured psychological support in university athletics. By promoting awareness, accessibility, and normalization of mental health resources, universities can create environments that support both athletic excellence and psychological resilience.

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Conflict of interests

The authors declare that there is no conflict of interest.

References

1. Jaafar NM, Mahmud TAM. Competition anxiety levels among rugby athletes in higher education institutions in the state of Johor. *Asian Scholars Network*. 2021;3(1):310–8.
2. Parnabas VA, Mahamood Y, Parnabas J. The Relationship between Cognitive and Somatic Anxiety on Performance of Student-Athletes of Universiti Malaysia Perlis (UNIMAP). *International Journal of Human Movement and Sports Sciences*, 2013;1(3): 61–66. <https://doi.org/10.13189/saj.2013.010301>
3. Liew GC, Kuan G, Chin NS, Hashim HA. Mental toughness in sport: Systematic review and future. *German Journal of Exercise and Sport Research*, 2019;49(4): 381–394. <https://doi.org/10.1007/s12662-019-00603-3>
4. Clough PJ, Earle K, Sewell D. Mental toughness: The 4Cs model of mental toughness. *J Appl Sport Psychol*. 2002;14(3):319–27.
5. Daud NM, Idris AS, Ashikin N, Manaf A, Mudzaffar FA. Relationship between sports involvement and students' performance in Malaysian university. *Int J Undergrad Stud*. 2013;2(3):32–9.
6. Gucciardi DF. Mental Toughness: Taking Stock and Considering New Horizons. In: Tenenbaum G, Eklund RC (eds.) *Handbook of Sport Psychology*, 1st ed. Wiley; 2020. P. 101–120. <https://doi.org/10.1002/9781119568124.ch6>
7. Chia L. Mental well-being among university sports athletes: Challenges and solutions. *J Sports Health*. 2021;12(3):45–60.
8. Dugas MJ, Gosselin P, Ladouceur R. Intolerance of uncertainty and worry: Investigating specificity in a non-clinical sample. *Cognit Ther Res*.

- 1998;22(2):203–18.
9. Chigwedere C, Moran J. Further development of the intolerance of uncertainty model of GAD: a case series. *The Cognitive Behaviour Therapist*, 2022;15: e2. <https://doi.org/10.1017/S1754470X21000374>
10. Bukhari FK, Fahd S, Tahira R, Yaseen M. Impact of Sports Anxiety on Sports Performance of Players. *Pakistan Journal of Humanities and Social Sciences*, 2021;9(3). <https://doi.org/10.52131/pjhss.2021.0903.0163>
11. Soundara Pandian PR, Balaji Kumar V, Kannan M, Gurusamy G, Lakshmi B. Impact of mental toughness on athlete's performance and interventions to improve. *Journal of Basic and Clinical Physiology and Pharmacology*, 2023;34(4): 409–418. <https://doi.org/10.1515/jbcpp-2022-0129>
12. Akbar A, Karim ZA, Zakaria J, Kurniawan R, Cahyani FI, Dwatra FD, et al. The Role of Mental Toughness in Improving Achievement: The Perspective of Sport Psychology on Student-Athletes. *International Journal of Human Movement and Sports Sciences*, 2023;11(6): 1376–1382. <https://doi.org/10.13189/saj.2023.110623>
13. Rice SM, Purcell R, De Silva S, Mawren D, McGorry PD, Parker AG. The Mental Health of Elite Athletes: A Narrative Systematic Review. *Sports Medicine*, 2016;46(9): 1333–1353. <https://doi.org/10.1007/s40279-016-0492-2>
14. Smith RE, Smoll FL, Cumming SP, Grossbard JR. Measurement of Multidimensional Sport Performance Anxiety in Children and Adults: The Sport Anxiety Scale-2. *Journal of Sport and Exercise Psychology*, 2006;28(4): 479–501. <https://doi.org/10.1123/jsep.28.4.479>
15. Beaton DE, Bombardier C, Guillemin F, Ferraz MB. Guidelines for the Process of Cross-Cultural Adaptation of Self-Report Measures: *Spine*, 2000;25(24): 3186–3191. <https://doi.org/10.1097/00007632-200012150-00014>
16. Lakens D. Calculating and reporting effect sizes to facilitate cumulative science: a practical primer for t-tests and ANOVAs. *Frontiers in Psychology*, 2013;4. <https://doi.org/10.3389/fpsyg.2013.00863>
17. Marsters C, Tiatia-Seath J. Young Pacific Male Rugby Players' Perceptions and Experiences of Mental Wellbeing. *Sports*, 2019;7(4): 83. <https://doi.org/10.3390/sports7040083>
18. Smith RE, Smoll FL, Schutz RW. *Sport Anxiety Scale*. 2014. <https://doi.org/10.1037/t27558-000>
19. Rice SM, Purcell R, De Silva S, Mawren D, McGorry PD, Parker AG. The Mental Health of Elite Athletes: A Narrative Systematic Review. *Sports Medicine*, 2016;46(9): 1333–1353. <https://doi.org/10.1007/s40279-016-0492-2>
20. Gucciardi DF, Hanton S, Gordon S, Mallett CJ, Temby P. The Concept of Mental Toughness: Tests of Dimensionality, Nomological Network, and Traitness. *Journal of Personality*, 2015;83(1): 26–44. <https://doi.org/10.1111/jopy.12079>
21. Birrer D, Morgan G. Psychological skills training as a way to enhance an athlete's performance in high-intensity sports. *Scandinavian Journal of Medicine & Science in Sports*, 2010;20(s2): 78–87. <https://doi.org/10.1111/j.1600-0838.2010.01188.x>
22. Gross M, Moore ZE, Gardner FL, Wolanin AT, Pess R, Marks DR. An empirical examination comparing the Mindfulness-Acceptance-Commitment approach and Psychological Skills Training for the mental health and sport performance of female student athletes. *International Journal of Sport and Exercise Psychology*, 2018;16(4): 431–451. <https://doi.org/10.1080/1612197X.2016.1250802>
23. Purcell R, Gwyther K, Rice SM. Mental Health In Elite Athletes: Increased Awareness Requires An Early Intervention Framework to Respond to Athlete Needs. *Sports Medicine - Open*, 2019;5(1): 46. <https://doi.org/10.1186/s40798-019-0220-1>
24. Malek AM, Mohamed Kamil IS. Psychological well-being among sports athletes in higher education institutions. *J Psychol Soc Health*. 2020;4:26–32.
25. Strycharczyk D, Clough PJ, Perry J. *Developing mental toughness: Strategies to improve performance, resilience, and wellbeing in individuals and organizations*. 3rd ed. London: Kogan Page; 2021.
26. Janelle CM, Fawver B, Beatty GF. Emotions and sport performance. In: Tenenbaum G, Eklund RC, editors. *Handbook of Sport Psychology*. 4th ed. New York: Wiley; 2018. P. 639–58.
27. Zainal Abidin IA, Wan Pa WAM. A comparison of anxiety levels among volleyball players in competitions between Universiti Teknologi MARA (UiTM) and Universiti Kebangsaan Malaysia (UKM). *J Soc Sci Res*. 2023;6(20):41–51.

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