

Student's Mental Toughness in Sports

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Abstract:

Mental toughness in sports is consistently performing at one's best, regardless of circumstances, by maintaining focus, resilience, and confidence under pressure. This study examined the level of mental toughness among student-athletes enrolled in a private academic institution during the school year 2023–2024. Mental toughness, a critical psychological attribute in sports, was analyzed across four domains: short-term goal setting, visualization, positive self-approach, and stress management. The research involved 211 respondents and employed a descriptive-comparative design, considering demographic variables such as age, sex, year level, and team affiliation. Findings revealed that the overall level of mental toughness among student-athletes was high, indicating that most respondents possess strong psychological traits that enable them to stay focused, handle pressure, and perform effectively in competitive environments. Significant differences were observed across various groupings: older and higher-year-level athletes exhibited stronger goal-setting skills, while younger athletes demonstrated better stress management. Males generally scored higher in visualization and positive self-evaluation than females. The study concludes that while mental toughness is high overall, targeted interventions are needed to enhance confidence, stress regulation, and mental imagery skills to support athletes with lower scores in specific areas. A tailored sports development plan is proposed to reinforce mental resilience and optimize student-athlete performance across all levels.

Keywords: Mental toughness, student athletes, sports psychology

Introduction:

Nature of the Problem

Mental toughness refers to an individual's psychological resilience and confidence—the ability to persevere through difficulties, maintain focus under pressure, and bounce back from setbacks (Lin et al., 2017). Research consistently shows that athletes with greater mental toughness perform better and manage stress more effectively (Crum, 2022). However, most studies emphasize elite athletes, with limited research focused on student-athletes in school-based sports (Akbar et al., 2024). This highlights a significant gap in understanding how mental toughness develops in youth and educational settings.

In the Philippines, the Department of Education recognizes the importance of sports in holistic student development. DepEd Order No. 43, s. 2016 promotes school-based sports programs that cultivate physical fitness, teamwork, and psychological resilience through structured physical education and extracurricular activities. However, while schools comply with physical and tactical training, intentional mental preparation, such as psychological skills training for toughness, is rarely observed.

Moreover, a prime example of mental toughness in Filipino athletics is Carlos Yulo, a two-time Olympic gold medalist and world champion in artistic gymnastics. Despite his physical talent, Yulo has cited psychological challenges during major competitions. Following the 2022 World Championships, where pressure affected his performance, he said, "I need to sharpen my mental toughness," prompting focused mental conditioning with expert support. His open acknowledgement demonstrates that even top athletes benefit from deliberate mental training—a lesson relevant to all levels.

In STI College Las Piñas, student-athletes showcase strong physical skills in practice but frequently underperform in high-pressure events. Observations show anxiety, inconsistent concentration, and performance fluctuations during competitions, suggesting a psychological readiness gap. This pattern indicates that current sports programs may lack structured mental toughness preparation.

Addressing this gap, the proposed study aims to evaluate student-athletes' mental toughness through psychological assessments and identify contextual factors—such as academic demands and competitive stress—in their school setting. Drawing inspiration from Yulo's mental conditioning, the research would inform a Sports Development Plan that integrates psychological skills training alongside physical training.

By focusing on mental toughness, grounded in real athlete experience and supported by DepEd policy, this study would contribute to the limited body of research in Philippine school sports, offering practical insights for developing resilient student-athletes.

Current State of Knowledge

Sumartininggsih et al. (2020) identified key traits of mental toughness—including confidence, emotional regulation, sustained focus, visualization, motivation, and a positive attitude under pressure—that enable athletes to be resilient and perform at their best. Building on this, Gucciardi et al. (2021) emphasized mental toughness as a complex, trainable quality shaped by emotional regulation, problem understanding, and perseverance, underscoring the importance of metacognitive and emotional interventions to manage performance setbacks. Anthony et al. (2022) further supported this view by highlighting the significant role of environmental factors such as coach quality, athlete autonomy, and team culture in fostering mental toughness, showing that supportive and psychologically safe environments cultivate greater resilience over time.

In the context of Filipino athletes, De la Cerna Diego (2022) noted that mental strength is often developed through university sports programs emphasizing tenacity, goal-setting, and positive reinforcement alongside psychological skills like focus and stress management. Similarly, Escoto and Alfarero (2022) found that student-athletes balance pressures in both sports and academics through time management, digital tools, family support, goal setting, and self-discipline. Ortega (2022) reinforced the idea that mental toughness is a unidimensional yet cross-functional psychological resource essential for managing stress and dual responsibilities. Ramirez and Gonzales (2023) added that deliberate school-based practices such as peer mentoring and reflective journaling enhance emotional regulation and competitive composure, suggesting that mental toughness can be actively developed rather than being purely innate.

Extending the discussion on mental toughness development, Guskowska and Wójcik (2021) found that athletes with higher mental toughness consistently achieve success, noting no link between mental toughness and age or experience, implying it is accessible across demographics. Contrasting this, Gerber et al. (2023) demonstrated through a year-long study that mental toughness training reduces stress while enhancing motivation and well-being in young athletes, recommending early psychological skills training. Davis et al. (2024) further supported these findings by showing that structured mental skills programs in Australian school sports—focused on goal setting, stress regulation, and visualization—significantly improve mental toughness, reinforcing the concept that it is a skill to be cultivated and integrated into student-athlete training.

Beyond athletic performance, mental toughness also plays a critical role in academic success. Endozo (2019) highlighted its importance in managing test anxiety, multitasking, and time management. Cruz et al. (2020) identified enjoyment and confidence, supported by parental and peer encouragement, as key drivers of mental toughness and perseverance in sports. Maranan and Lopez (2021) found that table tennis student-athletes exhibit moderate mental toughness and strong athletic identity, with team communication and self-compassion as powerful predictors, advocating for coaches to support emotional wellness alongside technical training. Pagdato et al. (2021) stressed the importance of focusing school sports programs on younger athletes, whose higher mental resilience benefits from exposure to competitive pressure and increased funding. Finally, Villanueva and Samson (2024) revealed that resilience and stress appraisal directly influence performance under pressure, with mental toughness serving as a mediator, and reported that mindfulness exercises implemented by coaches improve student-athletes' focus and competitive confidence, illustrating practical ways to nurture mental toughness in academic and athletic settings.

Theoretical Underpinnings

The study is anchored on Martin Seligman's 1990 Theory of Learned Optimism. This theory mainly looks at how people learn that they have power over their thinking to create a positive mentality and strengthen their resilience by changing their negative thinking about the situation to something short-term and manageable. The notion of learned optimism is closely connected to mental toughness as it deals with how people can teach themselves to be more positive and work creatively in challenging situations.

The theory states that ideally, people with a positive mindset will be more likely to continue in difficult situations because they will think that they can solve the problems. Seligman claims that people can double their mental resilience by changing their thinking from helplessness and negativity to control and capability. The cognitive-behavioral theory is the basis of this theory, in which changing one's internal talk and perceptions facilitates the emotional and behavioral changes in the response to stressors. It highlights that optimism is not a natural characteristic but a learned habit, and it can be worked on and developed through conscious effort and self-reflection.

Also, it is relevant to this present study about mental toughness among sports students as it lays a solid foundation for a better comprehension of how athletes can formulate the resilience and the strength of the mind. By anchoring the study in Seligman's Theory of Learned Optimism, it becomes clear that mental toughness is not merely a static trait but a skill that can be cultivated through positive thinking and psychological training. For student-athletes, learning to adopt an optimistic outlook when faced with challenges—both in sports and academic settings—can enhance their overall performance. The theory justifies the exploration of mental toughness as a dynamic process that contributes to athletic success and personal growth, which is central to this study.

Objectives

This study aimed to determine the level of mental toughness of students in sports at a private school in Luzon for the school year 2023-2024 as the basis for a sports development plan. Specifically, this study sought answers to the following questions: 1) students' mental toughness level in sports according to the area of short-term goal setting, visualization, positive self-approach, and stress management; and 2) the significant difference in the students' mental toughness level in sports when grouped according to the aforementioned variables.

Methodology:

This section presents the discussion of the research methodology used, the subjects and respondents of the study, the research instruments used, the validity and reliability of the instruments, the procedure for data gathering, and the statistical tools and procedure for data analysis.

Research Design

This study used a descriptive research design to examine the levels of mental toughness among student-athletes during the 2023–2024 school year, allowing for systematic observation of their behaviors and characteristics without manipulating variables (Siedlecki, 2020). Focusing on real-world school sports settings, the study assessed how mental toughness varied across demographics like age, sex, year level, and team affiliation. This design was well-suited for capturing patterns of self-perception and natural behaviors, enabling cross-sectional comparisons among subgroups. It provided a detailed, context-based understanding essential for developing a tailored Mental Endurance Skills Program, offering evidence-based recommendations to enhance athletes' sports performance, psychological well-being, and academic resilience.

Study Respondents

The study involved 211 senior high school students from STI College Las Piñas, selected through stratified random sampling from a total population of 466 to ensure proportional representation across academic strands. Using the Cochran formula, the sample size was determined, and participants were randomly chosen within each strand using a wheel of names application. In detailed, the Green Huskies group (ABM, BSBA, BSAIS) had the largest representation with 40 respondents (19%), followed by the Yellow Phoenix (STEM, BSCS, BSCPE) with 39 (18.5%) and the Red Lycans (ITMAWD, BSIT) with 38 (18%). The Pink Krakens, Black Ravens, and Blue Dragons contributed 34 (16.1%), 31 (14.7%), and 29 (13.7%) respondents, respectively. This proportional distribution ensured fair representation of each academic strand, providing a reliable basis for analyzing mental toughness across different student groups.

Instruments

This study used a self-constructed questionnaire adapted from the validated Mental Toughness Questionnaire 18 (MTQ18) by Clough et al. (2002) to measure mental toughness in school-based sports, with items rated on a 5-point Likert scale. The questionnaire had two parts: the first gathered demographic data, while the second included 40 items assessing aspects such as goal setting, visualization, positive self-evaluation, and stress management to evaluate student-athletes' mental resilience for the 2023–2024 academic year. The instrument underwent rigorous face and content validation by a panel of three experts in education and sports, achieving a high average rating of 4.89 out of 5, confirming its validity. Reliability was established through a pilot test with 30 student-athletes, resulting in a Cronbach's Alpha of 0.837, indicating good internal consistency and confirming the tool's reliability for assessing mental toughness.

Data Gathering Procedure

The researcher followed a systematic process to collect data, beginning with securing formal permission from the School Administrator and School Head for the 2023–2024 school year. After panel approval, the validated questionnaire was administered with clear instructions in a supervised setting, allowing respondents sufficient time for completion. The collected responses were encoded and securely stored on Google Drive, organized using Microsoft

Excel, and analyzed with SPSS software. Data were presented in tables by variables such as age, sex, year level, and academic strand, then interpreted according to the study's objectives. The findings informed the assessment of mental toughness levels and guided the development of a tailored Sports Development Plan for the student-athletes.

Data Analysis and Statistical Treatment

Objective No.1 used a descriptive-analytical scheme and mean to assess the respondents' overall level of mental toughness in terms of short-term goal setting, visualization, positive self-approach, and stress management.

Objective No.2 used a comparative-analytical scheme and Mann-Whitney U Test and the Kruskal-Wallis H Test to determine the significant difference in the students' mental toughness level in sports when grouped according to the aforementioned variables.

Ethical Consideration

The research follows ethics principles related to voluntary participation, consent, and confidentiality of the data. The participants will get detailed information about the issues that will be addressed, the techniques used, and the possible dangers that might be present in the study. The participation will be entirely voluntary, and the respondents will be entitled to withdraw without infringing their rights. The Data Privacy Act of 2012 (Republic Act No. 10173) will be the basis of the data privacy agreement, and hence, individuals' data will be handled confidentially and kept securely. The researcher ensures that the data are kept confidential by anonymizing them so that no one can recognize the participants' identities during the research or the presentation of the results.

Results and Discussion:

This section deals with the presentation, analysis and interpretation of data gathered to carry out the objectives of this study. All these were made possible by following certain appropriate procedures so as to give the exact data and solution to each specific problem.

Level of Students' Mental Toughness in Sports in Short-Term Goal Setting, Visualization, Positive Self-Approach, and Stress Management

Table 1

Level of Students' Mental Toughness in Sports in Short-Term Goal Setting

Items	Mean	Interpretation
As a student-athlete,		
1. I generally cope well with any problems that occur.	3.92	High Level
2. I am generally able to react quickly when something unexpected happens.	4.05	High Level
3. I am reliable in completing a task.	4.23	High Level
4. I can take charge of situations.	4.03	High Level
5. I generally react quickly to adversity.	3.92	High Level
6. I do not generally criticize myself.	3.23	Moderate Level
7. I am happy telling people what to do.	3.91	High Level
8. I can sustain a long period of focus.	3.87	High Level
9. I tend to back down during debate.	3.06	Moderate Level
10. I can usually control my nerves.	3.72	High Level
Overall Mean	3.79	High Level

The results reveal that the overall mean score for students' mental toughness in short-term goal setting is 3.79, which falls under the high level interpretation. This indicates that, in general, student-athletes demonstrate strong mental discipline, focus, and readiness to set and pursue achievable short-term goals within competitive sports contexts.

The item with the highest mean score is "I am reliable in completing a task," with a mean of 4.23, interpreted as a high level. This suggests that student-athletes possess a dependable and task-oriented mindset, crucial in goal-directed sports performance. Their ability to complete tasks reliably reflects their sense of responsibility and discipline, essential traits in mental toughness.

On the other hand, the item with the lowest mean score is "I tend to back down during debate," with a mean of 3.06, falling under the moderate level. This result implies that some student-athletes may still struggle with assertiveness or confidence in high-pressure interpersonal situations, such as competitive debates or decision-making under scrutiny.

This result indicates a potential gap in mental resilience when faced with direct verbal challenges or confrontation, which may reflect a hesitation to assert oneself in competitive or high-stakes environments. This aligns with the findings of Maranan and Lopez (2021) in Chapter 2, where they emphasized that self-compassion and intra-team communication are crucial to mental toughness. The tendency to back down may reflect a lack of internal affirmation or discomfort in assertive communication, which can be addressed through interventions that build self-confidence, team dialogue, and emotional regulation strategies.

Improving this area may require coaching interventions that simulate high-pressure social situations (e.g., debates, leadership drills) and activities that build self-expression and psychological safety in team environments. Addressing this weakness can help student-athletes develop the assertive mental edge necessary to maintain composure and influence outcomes during competition.

Table 2
Level of Students' Mental Toughness in Sports in Visualization

Items	Mean	Interpretation
As a student-athlete,		
1. I tend to worry about things well before they happen.	4.00	High Level
2. "I do not know where to begin" is a feeling I usually have when presented with several things to do simultaneously.	3.58	High Level
3. I generally look on the brighter side of life.	4.30	High Level
4. I get distracted easily and lose my concentration.	3.02	Moderate Level
5. I interpret potential threats as positive opportunities.	3.72	High Level
6. I have felt that my mind is quick to develop solutions in difficult training situations.	3.98	High Level
7. I struggled to work up the initiative to do things.	3.27	Moderate Level
8. I felt that I had nothing to look forward to.	2.75	Moderate Level
9. I usually speak my mind.	3.81	High Level
10. I struggle to concentrate when I am tired.	3.57	High Level
Overall Mean	3.60	High Level

The data in Table 2 indicate that the overall mean of students' mental toughness in visualization is 3.60, which can be classified as high. Most student-athletes, therefore, appear to have the ability to draw on mental imagery and positive cognition for their emotional management and performance preparation, a core feature of sports psychological readiness.

The statement, "I generally look on the brighter side of life," gives the highest score of 4.30, which indicates a highly positive attitude. It mirrors the student-athletes' exceptional optimism and substantial capacity to keep a positive mood after losing their team, making them more resilient and able to concentrate when facing a stressful situation.

On the other hand, the statement "I felt that I had nothing to look forward to" has the lowest mean score of 2.75, which is considered as low. Hence, some respondents may sometimes feel hopeless or unmotivated, considering this an issue in a sport that relies on forward thinking and goal orientation.

This finding offers some insightful suggestions. The absence of something to anticipate could signify a lessened future orientation, a loss of purpose, or even burnout, which may affect an athlete's performance and overall well-being. It is following the research discussed in Golby and Woord (2016) and Ortega (2022) in Chapter 2, where the psychological wellness issue was raised as a vital part in the continuation of good work performance, and mental toughness was defined as the ability to remain optimistic and get motivated internally, besides coping with exerting pressures. For example, depleting the purpose of the future can lead athletes to stop their training, lose concentration during competition, or have difficulty committing to it for a long time.

Bridging this gap may include workshops on goal setting, exercises for building a vision, and mentoring programs that stimulate students' sports enthusiasm and enable them to create relevant short- and long-term goals. Helping student-athletes discover self-worth and purpose in their involvement will deepen their mental resilience and their sports careers in general.

Table 3
Level of Students' Mental Toughness in Sports in Positive Self-Approach

Items	Mean	Interpretation
As a student-athlete,		
1. I usually remain calm even when under pressure.	3.92	High Level
2. I generally feel that I am a worthwhile person.	3.72	High Level
3. I generally feel in control.	3.82	High Level

4. I can regain my composure if I have momentarily lost it.	3.67	High Level
5. I have an unshakable confidence in my ability in sports.	3.45	Moderate Level
6. I have qualities that set me apart from other competitors.	3.65	High Level
7. I can make decisions with confidence and commitment.	3.96	High Level
8. I use a self-talk strategy to help me keep a positive attitude whilst practicing.	4.18	High Level
9. my attitude greatly influences my performance in training and practice during the day.	4.04	High Level
10. I am quite influential with others.	3.55	High Level
Overall Mean	3.80	High Level

The results from Table 3 show that the overall mean for mental toughness in positive self-approach is 3.80, which is interpreted as a high level. This suggests that most student-athletes maintain a strong sense of self-belief, emotional regulation, and positive thinking, critical components of mental resilience when facing sports-related challenges.

The highest mean score is attributed to the statement, "I use self-talk strategy to help me keep a positive attitude whilst practicing," with a mean of 4.18, also a high level. This indicates that many student-athletes employ cognitive strategies such as positive self-talk to maintain their motivation and performance, a sign of mental discipline and focus. This finding aligns with the literature emphasizing self-regulation and internal motivational tools as central to mental toughness (e.g., Clough & Strycharczyk, 2012, as cited in Chapter 2).

On the other hand, the lowest mean score is in the statement, "I have an unshakable confidence in my ability in sports," with a mean of 3.45, which falls under the moderate level. This finding is critical because confidence is a foundational element of mental toughness. A moderate rating suggests several student-athletes may experience doubt, fear of underperformance, or low self-esteem in competitive situations.

The implication is that while students are generally equipped with positivity and motivational tools (e.g., self-talk), their core belief in their athletic ability still needs development. As identified in Sumartininggih et al. (2020) and Cruz et al. (2020) from Chapter 2, self-confidence is one of the key attributes of mentally tough athletes. Without a strong belief in one's capabilities, performance may falter under pressure, and opportunities for growth or achievement may be missed due to hesitation or self-doubt.

This finding suggests a need for targeted confidence-building interventions, such as strengths-based coaching, feedback reinforcement, and confidence-specific visualization techniques. Coaches and educators can help bridge this gap by creating a supportive and affirming environment where student-athletes feel seen, valued, and capable, ultimately nurturing a more robust, positive self-approach in their athletic development.

Table 4
Level of Students' Mental Toughness in Sports in Stress Management

Items	Mean	Interpretation
As a student-athlete,		
1. I tend to ruminate on my mistakes for days.	3.52	High Level
2. I usually find it hard to summon enthusiasm for the tasks I have to do.	3.15	Moderate Level
3. I am overcome by self-doubt.	3.32	Moderate Level
4. I get angry and frustrated when things do not go my way.	2.79	Moderate Level
5. I give up in difficult situations.	2.21	Low Level
6. I found a lack of confidence during training.	2.45	Low Level
7. I tend to overreact to situations.	2.70	Moderate Level
8. I experienced trembling (e.g., in the hands) when I feel anxious or nervous.	2.73	Moderate Level
9. I was worried about situations where I might panic and make a fool of myself.	2.85	Moderate Level
10. I found myself getting agitated or irritated.	2.69	Moderate Level
Overall Mean	2.84	Moderate Level

Table 4 indicates that student-athletes generally manage stress with a moderate level of 2.84 mean in the stress management domain. Such performance implies that student-athletes are capable of some stress-handling but have only partially developed their skills in emotional regulation and maintaining calm when under pressure through the stages, and thus, they may need some additional support.

The item with the highest mean was "I tend to ruminate on my mistakes for days," with a mean of 3.52, corresponding to the high level. This indicates a regular pattern of psychological reflection; however, it can also mean that negativity

may accompany the mood, affecting performance and concentration in the next games or training sessions. This point is still worth consideration after having the "high" tag, since overthinking will harm the athlete.

The item "I give up in difficult situations" has the lowest mean of 2.21, regarded as low. This reply can be interpreted as a lack of a crucial character ingredient - vulnerability in the face of adversity. Where student-athletes claim their lack of persistence in challenging circumstances, it can be inferred that they have weak resilience and insufficient mental strength, and these are some of the most important deficiencies in the sports environment, as sports often require the ability to go on under stressful conditions.

This finding follows concerns voiced in Broa and Abellanosa (2023) and Ortega (2022), who focus on how psychological factors like anxiety and poor coping abilities limit one's athletic performance. As explained in Chapter 2, ineffective stress management can lead to a loss of motivation, confidence erosion, and eventually a performance deficit along with engagement. The act of giving up when facing tough times is a sign of the absence of key traits in mental toughness, e.g., grit, emotional regulation, and coping strategies based on problem-solving.

The first logical step is that schools and coaches are advised to organize various psychological interventions, such as resilience training, emotional regulation workshops, and structured psychological skills programs for student-athletes to cope with stress. The primary focus must be on helping athletes identify and change the perception of setbacks as the possibilities of learning, providing them with the necessary techniques to continue, not withdraw, when meeting difficulties.

Comparative Analysis in the Level of Students' Mental Toughness in Sports in Short-Term Goal Setting, Visualization, Positive Self-Approach, and Stress Management when grouped and compared according to Age, Sex, Year Level, and Team

Table 5

Difference in the Level of Students' Mental Toughness in Sports in Short-Term Goal Setting when grouped and compared according to Variables

Variable	Category	N	Mean Rank	Mann-Whitney U	Kruskal Wallis H	p-value	Sig. level	Interpretation
Age	Younger	79	91.24	4048.000		0.006		Significant
	Older	132	114.83					
Sex	Male	123	112.78	4578.500		0.056		Not Significant
	Female	88	96.53					
Year Level	Lower	57	91.37	3555.000		0.034	0.05	Significant
	Higher	154	111.42					
	Black	31	117.24					
	Blue	29	107.28					
Team	Green	40	108.20		2.436	0.786		Not Significant
	Pink	34	94.29					
	Red	38	103.58					
	Yellow	39	106.42					

The findings revealed that age and year level showed significant differences in mental toughness related to short-term goal setting, while sex and team affiliation did not show significant differences. The highest mean rank was observed in the older age group (114.83), while the lowest mean rank was found in the younger age group (91.24). This suggests that older student-athletes exhibited stronger mental toughness in short-term goal setting than their younger counterparts. Similarly, for year level, higher-year students had a higher mean rank (111.42) than lower-year students (91.37), indicating that students in advanced academic levels demonstrated greater mental resilience in goal setting. Among teams, the Black team had the highest mean rank (117.24), while the Pink team had the lowest (94.29); however, the differences among teams were not statistically significant ($p = 0.786$).

The significant differences in age and academic year suggest that student-athletes with a longer academic and athletic journey can develop stronger mental toughness in short-term goal setting. This is consistent with the research of Sumartininggsih et al. (2020), which indicated that mental toughness is mainly developed through experience, competition exposure, and regular practice in organized sports environments. The higher mean rank for older and higher-year student-athletes is possibly caused by more exposure to pressure, better coping skills, and a more sophisticated way of short-term athletic goal-setting and achieving. Furthermore, the lack of data on significant differences between males and females ($p = 0.056$) means that the two genders have very similar levels of mental

toughness in short-term goal-setting, confirming that mental toughness in goal-setting is more affected by experience and training than gender differences.

Nevertheless, the lowest mean rank was identified in the group of younger student-athletes (91.24), which implies that they probably find it challenging to adopt goal-setting strategies and be resilient in solving short-term objectives. Ortega (2022) provides evidence that younger athletes have fewer cognitive and emotional regulation skills that are less developed. This negatively affects the skills of setting and achieving short-term goals under pressure. The example shows that a young athlete can get the most out of a training program if it is well-structured and contains goal-setting strategies, motivation-building techniques, and resilience training to improve mental toughness over time.

Generally, the outcomes elucidate that mental toughness in short-term goal setting is mainly influenced by experience and academic level, as confirmed by the correspondence of older and higher-year student-athletes to higher ranks. Nevertheless, the impact of the team affiliation and gender on these variables is insignificant; the youngest athletes have the lowest mean rank, suggesting the need for targeted training interventions to improve their goal-setting resilience and adaptability in sports performance. Younger student-athletes can thus develop their mental toughness in this field through participating in goal-setting workshops, solving psychological skills training, and mentorship programs.

Table 6

Difference in the Level of Students' Mental Toughness in Sports in Visualization when grouped and compared according to Variables

Variable	Category	N	Mean Rank	Mann-Whitney U	Kruskal Wallis H	p-value	Sig. level	Interpretation
Age	Younger	79	103.85	5044.000		0.691		Not Significant
	Older	132	107.29					
Sex	Male	123	113.00	4551.000		0.048		Significant
	Female	88	96.22					
Year Level	Lower	57	107.04	4329.500		0.880	0.05	Not Significant
	Higher	154	105.61					
	Black	31	82.94					
Team	Blue	29	112.41		16.948	0.005		Significant
	Green	40	83.31					
	Pink	34	107.87					
	Red	38	123.33					
	Yellow	39	124.32					

The findings revealed that sex and team affiliation showed significant differences in mental toughness related to visualization, while age and year level did not show significant differences. The highest mean rank was observed in the Yellow team (124.32), while the lowest mean rank was found in the Black team (82.94). This suggests that student-athletes from the Yellow team exhibited the highest mental toughness in visualization, while those from the Black team demonstrated the lowest. Among the demographic variables, males had a significantly higher mean rank (113.00) than females (96.22), with a p-value of 0.048, indicating that male student-athletes demonstrated greater mental toughness in visualization than female student-athletes. However, age differences ($p = 0.691$) and year level ($p = 0.880$) were not statistically significant, suggesting that these factors did not significantly influence the athletes' visualization skills.

The drastic variation in characteristics of student-athletes of different genders implies that male athletes might be more potent in mental imagery and visualization skills, which are crucial for predicting, solving, and maintaining confidence in a competitive environment. It follows the research by Sumartininggih et al. (2020), who mentioned that mental toughness in visualization is frequently related to the athlete's capability to control positive mental rehearsal and make plans for different situations before competitions. The top scores of the Yellow and Red teams may indicate that they are using more efficient ways of training, which incorporate visualization exercises, for example, mental imagery drills, mindfulness techniques, or psychological coaching, that in turn, could empower their cognitive ability to adapt to various game situations.

On the other hand, the Black team (82.94) has the lowest mean rank. This means that student-athletes on this team might be deficient in visualization skills, negatively affecting their ability to predict and mentally prepare for competitive challenges. As Ortega (2022) states, visualization is the most important element of sports performance, while mentally tough athletes use imagery to gain confidence, sharpen their focus, and reduce anxiety caused by performance. The cause of the low results of the Black team may be a lack of structured mental training programs

or fewer opportunities for guided visualization practice, which would limit their ability to rehearse game scenarios and develop confidence in their skills. This immunologically points out that the athletes in such a situation would get fruitful psychological skills training, including guided imagery exercises and cognitive visualization techniques, thus becoming proficient in this field.

While sex and team affiliation significantly impacted visualization skills, age and year level did not show notable differences. The results suggest that male athletes and members of the Yellow and Red teams demonstrated the highest levels of visualization-related mental toughness, whereas the Black team exhibited the lowest. These findings highlight the importance of team-based psychological training programs, particularly for teams with lower visualization scores, ensuring that all athletes develop strong mental imagery skills that can enhance their competitive performance.

Table 7

Difference in the Level of Students' Mental Toughness in Sports in Positive Self Approach when grouped and compared according to Variables

Variable	Category	N	Mean Rank	Mann-Whitney U	Kruskal Wallis H	p-value	Sig. level	Interpretation
Age	Younger	79	99.27	4682.500		0.215		Not Significant
	Older	132	110.03					
Sex	Male	123	115.01	4304.000		0.011		Significant
	Female	88	93.41					
Year Level	Lower	57	101.11	4110.500		0.479	0.05	Not Significant
	Higher	154	107.81					
	Black	31	109.05					
	Blue	29	93.10					
Team	Green	40	95.24		4.324	0.504		Not Significant
	Pink	34	118.21					
	Red	38	108.50					
	Yellow	39	111.13					

The findings revealed that sex showed a significant difference in mental toughness related to positive self-approach, while age, year level, and team affiliation did not show significant differences. The highest mean rank was observed in the Pink team (118.2), while the lowest mean rank was found in the Blue team (93.10). This suggests that student-athletes from the Pink team exhibited the highest mental toughness in positive self-approach, while those from the Blue team demonstrated the lowest. Among the demographic variables, males had a significantly higher mean rank (115.00) than females (93.41), with a p-value of 0.011, indicating that male student-athletes demonstrated greater mental toughness in positive self-approach than female student-athletes. However, differences in age ($p = 0.215$), year level ($p = 0.479$), and team affiliation ($p = 0.504$) were not statistically significant, suggesting that these factors did not have a major influence on the athletes' self-confidence and mental resilience.

The significant variance between male and female student-athletes indicates that male athletes could have been influenced to become more self-confident, better decision-makers, and more resilient in sports activities. It is consistent with the study by Sumartininggsih et al. (2020), who concluded that mental toughness in the positive self-approach is an athlete's capacity to keep confidence, control emotions, and stay focused under pressure. The higher results in the Pink and Yellow teams imply that these teams might have more appropriate support systems, training strategies, or leadership that gives them the strength to improve their self-confidence and positive mindset.

Nevertheless, the lowest mean rank was obtained from the Blue team (93.10), which means the student-athletes in this group might have trouble with their self-confidence, emotional regulation, and a positive mindset in sports situations. According to Ortega (2022), self-efficacy in mental toughness is a critical factor in sustaining an athlete's motivation and performance, as those with lower self-confidence are more likely to experience hesitation, anxiety, and self-doubt in competitive environments. The lower scores in the Blue team may indicate a need for targeted confidence-building programs, mentorship, and psychological skills training to enhance their ability to maintain composure, self-belief, and resilience in sports challenges.

Overall, while sex had a significant impact on positive self-approach, age, year level, and team affiliation did not show notable differences. The results suggest that male athletes and members of the Pink and Yellow teams demonstrated the highest levels of positive self-approach, whereas the Blue team exhibited the lowest. These findings highlight the importance of team-based psychological training programs, leadership development, and confidence-building strategies, particularly for teams and individuals with lower self-efficacy scores, ensuring that all athletes develop strong self-belief, emotional resilience, and a positive mindset in sports.

Table 8

Difference in the Level of Students' Mental Toughness in Sports in Stress Management when grouped and compared according to Variables

Variable	Category	N	Mean Rank	Mann-Whitney U	Kruskal Wallis H	p-value	Sig. level	Interpretation
Age	Younger	79	116.94	4350.000		0.044		Significant
	Older	132	99.45					
Sex	Male	123	104.76	5259.500		0.727		Not Significant
	Female	88	107.73					
Year Level	Lower	57	124.01	3362.500		0.009	0.05	Significant
	Higher	154	99.33					
	Black	31	76.77					
	Blue	29	75.86					
Team	Green	40	95.79		27.902	0.000		Significant
	Pink	34	117.10					
	Red	38	130.63					
	Yellow	39	128.44					

The findings revealed that age, year level, and team affiliation showed significant differences in mental toughness related to stress management, while sex did not show a significant difference. The highest mean rank was observed in the Yellow team (128.44), while the lowest mean rank was found in the Blue team (75.86). This suggests that student-athletes from the Yellow team exhibited the highest mental toughness in stress management, while those from the Blue team demonstrated the lowest. Among demographic variables, younger student-athletes had a significantly higher mean rank (116.94) than older student-athletes (99.45), with a p-value of 0.044, indicating that younger student-athletes exhibited stronger mental toughness in stress management than older athletes. Similarly, lower-year student-athletes had a significantly higher mean rank (117.1) than higher-year students (99.33), with a p-value of 0.009, showing that lower-year student-athletes had greater mental resilience when handling stress. However, sex differences ($p = 0.727$) were not statistically significant, suggesting that gender did not play a major role in stress management levels among student-athletes.

The significant difference in age and year level indicates that student-athletes who are younger and in lower years have exhibited more effective stress management skills than those who are older and in higher years. This result is consistent with the findings of Sumartininggih et al. (2020), who stated that younger athletes generally reveal more adaptability and emotional resilience, as they may have less experience with pressure and performance-related stress than older athletes. Moreover, lower-year student-athletes' higher mean rank signifies that they could be more optimistic or have less academic and athletic stress, which has not yet accumulated. On the other hand, higher-year athletes may be driven by high competition, educational duties, and expectations, which will probably lessen their mental toughness in handling stress.

Nevertheless, the Blue team had the lowest mean rank (75.86), which implies that their student-athletes are likely to be those who do not have coping strategies, emotional regulation, and skills for handling pressure in high-stress situations. In treadmill experiments with young athletes, Ortega (2022) has shown that a stress management mental toughness factor is crucial for a sportsperson who can keep calm and focused under pressure; those without this ability will experience anxiety, burnout, and performance decline. The need for focused stress management interventions in the Blue team that will cover aspects such as relaxation, mindfulness, and resilience-building exercises to lead athletes to develop more efficient coping mechanisms and better emotional regulation skills in competitive environments is undoubtedly outlined by the lower scores in this team.

Age, year level, and team affiliation had significant effects on stress management, and sex did not show any notable difference. The data indicate that younger athletes, lower-year athletes, and those of the Yellow and Red teams displayed the highest stress management levels, while older athletes, higher-year athletes, and the Blue team had the lowest. These findings highlight the importance of structured psychological support programs, including stress resilience training, guided relaxation techniques, and mental conditioning workshops, particularly for older student-athletes, higher-year students, and teams with lower stress management levels to help them maintain mental toughness and emotional stability under pressure.

Conclusions:

The study assessed the mental toughness of student-athletes in four areas—short-term goal setting, visualization, positive self-approach, and stress management—while considering age, sex, year level, and team affiliation. Overall,

students showed high mental toughness, particularly in goal setting, visualization, and self-approach, but only moderate levels in stress management. Older students and those in higher year levels excelled in goal setting and stress management, while male athletes scored higher in visualization and self-approach. Team affiliation also influenced results, highlighting the impact of peer dynamics. Based on these findings, the study recommends implementing targeted mental toughness programs, especially for older students struggling with stress, female athletes needing visualization support, and individuals with low confidence or resilience. Regular evaluations, mental health support, and customized interventions are essential to strengthen student-athletes' psychological readiness and overall well-being in competitive sports.

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