

Examining personality traits and mental toughness: a comparative analysis among national and regional tarung derajat athletes

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Abstract

This research investigates whether personality type and mental toughness differ significantly between national and regional-level combat athletes, exploring if competition level impacts athletes' psychological traits. The research design was cross-sectional, involving data collection at a single point in time from two groups of athletes (national and regional) using a questionnaire distributed via Google Forms. The sample consisted of 14 advanced fighters, 7 from the national and 7 from the regional teams. Participants were recruited using purposive sampling, targeting athletes who met specific criteria for competitive experience. Data was collected through questionnaires distributed via Google Forms, and the research instruments included the EPQ-R for personality assessment and a mental toughness questionnaire. Statistical analysis used SPSS 25, which involved variance tests to ensure data validity and reliability. The study revealed no significant differences ($p > 0.05$) in personality type or mental toughness between the two groups. Regional athletes had a higher average EPQ-R score (34.6) than national athletes (28.85). Regarding mental toughness, only 2 national athletes scored in the "Very Tough" category, while all 7 regional athletes fell into the "Tough" category. These findings suggest that competition level does not substantially influence athletes' psychological characteristics. Coaches and sports practitioners can leverage these insights to tailor training programs that effectively meet athletes' psychological needs across different competitive levels.

Keywords: EPQ-R, martial arts, personality traits, sports, mental toughness.

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INTRODUCTION

In sports psychology, apart from physiological factors contributing to increasing athlete performance, psychological factors also play a role in an athlete's success (Dwi Pramesti et al., 2022). Physical activity, which

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includes any form of body movement that requires energy, is essential for physical and mental health and improving overall quality of life (Kurniawan et al., 2023). Competitive sports, and an athlete's outstanding qualities are reflected not only in his physical and technical abilities but also in his psychological readiness to face challenges in challenging competitive situations (Dongoran et al., 2019). Sports psychology helps athletes develop a person's ability to restrain or regulate impulses and control desires, which can influence the athlete's thoughts and actions and affect his performance (Free, 2021). Athletes with good psychological skills, such as high concentration, good emotional control, and the ability to cope with the pressure of competition, tend to achieve better results (Vesković et al., 2019). Based on this statement, it takes a long time for athletes to become elite, professional athletes (Coutinho et al., 2016). Athletes must conquer the stress, challenges, and difficulties encountered in competitions and training to enhance their sports skill level (Guszkowska & Wójcik, 2021). Training is very important in sports because athlete discipline is the key to sports success (Wahyu Perdana et al., 2022).

Athletes from teenage to professional level also experience various psychological factors and stress triggers (McAuliffe et al., 2022). The mental toughness of elite athletes is higher than that of non-elite athletes, additionally, sports experience is said by researchers to be a more nuanced indicator than age since it captures a variety of factors like mental toughness, intelligence development, personality, motivation, conduct, and attitudes, the accomplishments of Tarung Derajat athletes are also influenced by feelings, emotions, and ideas (Setiawan & Kurniawan, 2023). It does not rule out the possibility that elite athletes also experience psychological factors, as it is said that athletes with high performance are most susceptible to depression compared to athletes at lower levels (Schinke et al., 2018). Athletes' negative symptoms can be prevented and controlled as much as possible to ensure they perform as well as possible in competition (Guntoro et al., 2020).

In this study, mental toughness is regarded as a critical factor influencing the effectiveness of emotional self-regulation, the ability to maintain focus on tasks, and overall self-confidence. Recent research states that mental toughness has specific characteristics and contexts and has been proven to be a determining factor for success in various performance situations, including in the fields of education and sports (Stamatis et al., 2024). For example, research conducted shows that mental toughness correlates with a person's personality. There is now strong evidence that success in sports can be predicted by personality traits (Allen & Laborde, 2014).

Previous research shows that personality traits are related to athletes' long-term success, interpersonal relationships, and athletes' psychological states before, during, and after competition (Allen & Laborde, 2014). It is stated that a person's ability to process different information is limited by a certain personality type or type (Thapa & M P, 2023). Specific individuals perform better or worse in competitive situations because of their personality traits (Allen & Laborde, 2014). Hans Eysenck's personality types discuss three general personality factors, including extroversion (E) is characterized by sociability and impulsiveness; neuroticism (N), neurotic traits such as anxiety, hysteria, and obsessive-compulsive disorder; and psychoticism (P), a personality characteristic associated with disorder, impulsivity, aggression, and emotional instability.

For example, athletes who compete in national or international competitions report higher levels of conscientiousness and lower levels of neuroticism than athletes who compete in club or regional competitions (Allen et al., 2013). Research has indicated that athletes who possess high levels of conscientiousness employ more effective preparation strategies (Woodman et al., 2010). Moreover, the research revealed that sports participants characterized by high extraversion or low neuroticism tend to respond to unsuccessful outcomes with more positive emotional

and cognitive responses (Allen et al., 2014). Previous research indicates that athletes competing at national or international levels typically exhibit higher levels of conscientiousness and lower levels of neuroticism or anxiety compared to their counterparts at club or regional levels, there is still not enough understanding of how these differences occur. Influencing the mental toughness of athletes from both groups (Goddard et al., 2019). This makes researchers want to expand their understanding of how to analyze the personality types and mental toughness of national and regional athletes and whether there are significant differences between athletes at the national and regional levels.

This study compares competition levels between national and regional athletes, highlighting psychological differences such as higher conscientiousness and lower neuroticism in national athletes. These differences affect how athletes handle pressure and challenges. Personality traits and mental toughness influence athletes' responses to competitive situations. Athletes with positive personality traits tend to prepare more effectively and respond constructively to failure. Mental toughness, encompassing focus and resilience, is also crucial to success. This research contributes to understanding how personality and mental toughness differ by competition level, emphasizing that athletic performance relies on physical abilities and psychological factors.

METHOD

Research Design

This research uses a comparative design with a quantitative approach to compare personality types and mental toughness between national and regional Tarung Derajat athletes. The sample for this research consisted of athletes from the Tarung Derajat Contingent of West Bandung Regency who had competed in regional level championships in the last 3 years and the XXI Aceh-North Sumatra PON Team 2024 (National Sports Week) Tarung Derajat West Java. With a vulnerable age group of 16-25 years. This research involved a total of 14 participants.

Researchers used a personal approach to recruit participants by contacting them directly via mobile phone to provide detailed information about the study's purpose and procedures.

Participants

The participants are 7 athletes from the West Java national fighting team (5 female, 2 male) with an average age of between 20 and 23 who are currently in the regional training period in preparation for the PON XXI Aceh-Sumatra in 2024. and 7 regional athletes from the West Bandung district team (1 female, 6 male) who are currently preparing for the upcoming 2025 Provincial BK with an average age of between 16 and 22.

Participants were recruited through a combination of purposive and convenience sampling techniques. The purposive sampling method was used to specifically target athletes who met the criteria of competing at their respective levels (national and regional) and were actively training. Convenience sampling was utilized to gather participants who were readily available and willing to participate in the study. This approach ensured a representative sample of national and regional athletes, effectively comparing personality types and mental toughness.

Procedure

The questionnaire was completed online via the Google Form platform, with prior approval from the authorities in the West Bandung Regency Contingent Team and the West Java Tarung Derajat PON Team. The questionnaire was completed anonymously to protect the personal confidentiality of respondents' honest responses.

Instrument

Data in this study were gathered using two established questionnaires: the Eysenck Personality Questionnaire-Revised (EPQ-R) Short Scale, consisting of 48 items. These questionnaires were employed to evaluate individuals' personality traits, used to assess three personality dimensions, Neuroticism (stability/emotionality), Extraversion (extrovert/introvert) and Psychoticism (Morfaki, 2020). Sport Mental

Toughness Questionnaire (SMTQ) – 14 items, this questionnaire is used to assess the mental toughness felt by respondents. Mental toughness is measured through three main dimensions: Confidence, constancy, and control (Pettersen et al., 2023).

Data Analysis

The data collected in the mental toughness questionnaire is described and separated between national athletes and regional athletes. Then, descriptive statistics were processed using SPSS series 25 to calculate the average, standard deviation, and frequency distribution of the EPQ-R and SMTQ scores for each group of national athletes and regional athletes. Mental Toughness score results Results from high EPQ-R scores and the Mental Toughness category seen in national and regional athletes. Then, it is processed through an independent T-test to determine whether a significant difference exists between the EPQ-R and SMTQ scores of national and regional athletes. Two questionnaires were used in this research. Two questionnaires were used in this research. The SMTQ survey uses a Likert 4 scale with scores of 4 points, 3 points, 2 points and 1 point. The scale forces participants to agree or disagree with the situation, which eliminates "neutral opinion," and EPQR is created to categorize the research data using SPSS.

1) Sport Mental Toughness Questionnaire (Pettersen et al., 2023).

Instruments are used to determine mental toughness. There are 14 questions and four levels of analysis. The results of the level analysis:

- a. 00,00-14,00 (Not Tough)
- b. 14,01- 28,00 (Less Tough)
- c. 28,01-42,00 (Tough)
- d. 42,01- 56,00 (Very Tough)

2) Eysenck Personality Questionnaire-Revised Short Scale (Morfaki, 2020); instruments are used to determine personality type. There are 48 questions.

RESULT

Based on the research conducted, the following results were obtained:

Table 1. MT results for national and regional athletes

| No. | Category | Tough | Very Tough |
|-----|-------------------|-------|------------|
| 1. | National Athletes | 5 | 2 |
| 2. | Regional Athletes | 7 | |
| | Total | 12 | 2 |

The total sample was 14, including 7 national athletes and 7 regional athletes. From the results obtained, only 2 national athletes had mental toughness in the Very Tough category, 5 other people had a tough mentality. Meanwhile, the results of the mental toughness of regional athletes got all the results of having a tough mentality. The table above illustrates the distribution of athletes based on their category and the difficulty levels they face. In the national athlete category, are 5 athletes categorized as "Tough," and 2 are categorized as "Very Tough." In the regional athlete category, there are 7 athletes classified as "Tough," with no athletes in the "Very Tough" category. Overall, there are a total of 12 athletes in the "Tough" category and 2 athletes in the "Very Tough" category.

Table 2. EPQR results for national and regional athletes

| | Frequency | Percent | Valid Percent | Cumulative Percent |
|-------|-----------|---------|---------------|--------------------|
| Low | 2 | 14.3 | 14.3 | 14.3 |
| Tall | 12 | 85.7 | 85.7 | 100 |
| Total | 14 | 100 | 100 | |

Based on the data above, the EPQ-R score results were analyzed using SPSS series 25, then there were 2 people who had low EPQR scores and 12 others who had high EPQR scores with a total sample of 14 national and regional athletes.

Table 3. MT and EPQR results for national and regional athletes

| Group | Number of Athletes | Average EPQR Score | Average MT Score | Min EPQR Score | Max EPQR Score | Min MT Score | Max MT Score | SD EPQR | SD MT |
|----------|--------------------|--------------------|------------------|----------------|----------------|--------------|--------------|---------|-------|
| National | 7 | 28.85 | 41.28 | 25 | 33 | 39 | 45 | 2.65 | 2.05 |
| Regional | 5 | 34.60 | 40.20 | 30 | 42 | 37 | 41 | 4.91 | 1.82 |

From the descriptive analysis data above, regional athletes have a higher average EPQ-R score (34.6) than national athletes (28.85). This shows that regional athletes tend to have different personality characteristics than national athletes. Meanwhile, the average MT scores between the two groups are quite close, with national athletes having a slight advantage (41.28) compared to regional athletes (40.2). This shows that the level of mental toughness between these two groups is relatively similar, although national athletes are slightly higher.

Table 4. EPQ-R and MT T-Test results for national and regional athletes

| Variable | | Sig. (2-tailed) | Results |
|----------|-------------------------|-----------------|--------------------|
| EPNASDA | Equal variances assumed | ,602 | p > 0.05 |
| MTNASDA | Equal variances assumed | 0.137 | p > 0.05 |

Table 5. MT T Test Results for national and regional athletes

| | Levene's Test for Equality of Variances | | t-test for Equality of Means | | |
|---------|---|-------|------------------------------|--------|----------------|
| | F | Sig | t | df | Sig.(2-tailed) |
| MTNASDA | 0.006 | 0.938 | 1.592 | 12 | 0.137 |
| | | | 1.592 | 11.663 | 0.138 |

Table 6. EPQR T Test Results for national and regional athletes

| | Levene's Test for Equality of Variances | | t-test for Equality of Means | | |
|---------|---|-------|------------------------------|-------|----------------|
| | F | Sig | t | df | Sig.(2-tailed) |
| EPNASDA | 3.574 | 0.083 | -0.535 | 12 | 0.602 |
| | | | -0.535 | 7.579 | 0.608 |

After the data was processed, a significant EP value of 0.602 was found. If the sig value. greater than 0.05 then there is no difference, if less than 0.05 there is a difference. Thus, there is no significant difference between the two groups tested based on the T-test. Meanwhile, the

significant MT value is 0.137. if the sig value. greater than 0.05 then there is no difference, if less than 0.05 there is a difference. Thus, there is no significant difference between the two groups tested based on the T-test.

Further analysis in Tables 5 and 6 confirms these findings. Levene's test for equality of variances shows a value of 0.938 for MT, affirming that the assumption of equal variances holds. For EPQ-R, while Levene's test result of 0.083 indicates a trend toward unequal variances, the subsequent t-test results still highlight the lack of significant differences, with t-values of -0.535 and 1.592 leading to non-significant p-values. Overall, these findings suggest that both national and regional athletes possess comparable personality traits and levels of mental toughness, which could imply that factors other than psychological characteristics may be influencing performance outcomes at different competition levels.

DISCUSSION

The analysis results of the two regional athletes had a higher average EPQ-R score (34.6) than national athletes (28.85). This shows that regional athletes tend to have different personality characteristics than national athletes. Other research also states that a person's personality is formed by a complex interaction between a person's physical, neurological, and mental body functions. In scientific words, psychophysics constantly changes to determine unique ways of adapting to their environment (Purnomo et al., 2019). In other words, personality is constantly changing, complex, and closely related to how a person understands, interacts, and adapts to their environment.

Meanwhile, the average MT scores between the two groups are quite close, with national athletes having a slight advantage (41.28) compared to regional athletes (40.2). This shows that the level of mental toughness between these two groups is relatively similar, although national athletes are slightly higher. Athletes, especially beginners, often experience anxiety when competing (Badruzaman et al., 2022).

Mental toughness is considered by applied sports psychologists, coaches, and athletes to be one of the most important psychological characteristics associated with success and results in a particular sport (Liew et al., 2019). Psychological preparation of athletes is an important component of sports training (Guszkowska & Wójcik, 2021). In line with research, psychology is important in influencing athlete performance, so it needs attention in the identification process (Setiawan & Kurniawan, 2023). Mental toughness aids in adapting to challenges, tolerating frustration, mitigating the adverse effects of stress, reducing the likelihood of burnout, decreasing negative judgments of perceived threatening events or circumstances, enhancing self-efficacy, and facilitating a clearer perception of opportunities (Guszkowska & Wójcik, 2021).

Based on the data analysis, the results show no significant difference between the EPQ-R (Eysenck Personality Questionnaire-Revised) scores of national and regional athletes. Apart from that, the analysis results also show no significant difference in the level of mental toughness between national and regional athletes. In other words, the two groups of athletes have similar personality characteristics and mental toughness, so it can be concluded that the different levels of competition between national and regional levels do not affect the psychological variables measured in this study. These findings emphasize the importance of integrating mental skills training into athletes' training regimens to cultivate resilience, self-confidence, and psychological well-being, which will ultimately improve athletes' overall performance to achieve success (Sarkar & Fletcher, 2014).

Of the total sample of 14, 7 were national athletes, and 7 were regional athletes. From the results obtained, only 2 national athletes had mental toughness in the Very Tough category, 5 other people had a tough mentality. Meanwhile, the results of the mental toughness of regional athletes got all the results of having a tough mentality. Many studies use instruments such as the Sports Mental Toughness Questionnaire (SMTQ-14) to measure mental toughness. The first dimension of the SMTQ-14.

Self-confidence, in sports, is defined as a belief in an individual's ability to achieve their goals (Machida et al., 2017). Control or self-control is defined as the ability to regulate, guide, and direct forms of behavior that can have positive consequences (Setiawan & Kurniawan, 2023).

Based on the EPQ-R score data analyzed using SPSS series 25, there were 2 people who had low EPQR scores in regional athletes and 12 others had high EPQR scores with a total sample of 14 national and regional athletes. To measure a person's personality type, this study used the Eysenck Personality Questionnaire-Revised (EPQ-R) Short Scale, which is a self-report questionnaire and is used to assess three personality dimensions, Neuroticism (stability/emotionality), Extraversion (extrovert/introvert) and Psychoticism. The reduced 48-item Spanish version of the Eysenck Personality Inventory-Revised Short (EPQ-RS) consists of four 12-item scales: EPQ-E (Extraversion); EPQ-N (Neuroticism); EPQ-P (Psychotism), and EPQ-L (Lies). Meanwhile, introverts are more enthusiastic when alone, prefer to listen than talk, and think about things carefully before acting (Purnomo et al., 2019). Typical high-score psychotics are aggressive, cold, antisocial, tough-minded, and insensitive to others (Colledani et al., 2018). The lie scale in the survey is intended to determine how honest the participant is in answering questions (Colledani et al., 2018).

For future research, the sample size may not be large enough to provide adequate statistical power or to make strong generalizations about the population of advanced combat athletes. In addition, the sample's representativeness is also a concern because the sample used may not fully reflect the entire athlete population, both at national and regional levels, considering factors such as age, gender, experience, and cultural background. In addition, external factors such as training conditions, coach support, or competition situations, which can influence the level of personality and mental toughness, were not taken into account in this research. Lastly, this research only focuses on personality type and mental

toughness without considering other psychological or physiological variables that can also influence athlete performance. By recognizing and reporting these limitations, it is hoped that we can provide a better context for the research results and provide guidance for future research.

CONCLUSION

The study reveals no significant differences in personality traits and mental resilience between national and regional athletes. Core psychological characteristics such as resilience, determination, and emotional stability are consistently present across both groups, irrespective of competition level. These findings underscore that the intensity or prestige of national-level competition does not significantly influence mental resilience and personality traits. This suggests that these psychological attributes are fundamental and universally present across different levels of competition rather than being shaped by higher competitive pressures. The results emphasize the importance of developing individualized mental training programs rather than assuming that higher competition levels inherently foster greater mental resilience or beneficial personality traits. Coaches and sports psychologists should focus on tailored psychological preparation strategies that benefit athletes across all competitive levels.

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