Evaluation of Mental Skills and Temperament of Skilled Petanque Athletes of Iran

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ABSTRACT

Researchers currently use mental characteristics and temperament for talent identification in various sports fields. Therefore, the current research aimed to evaluate the mental skills and temperament of Iranian skilled petanque athletes. The study population included all petanque (male and female) athletes participating in the national championship in 2022. Based on convenience sampling, 99 people completed the Ottawa mental skills assessment tool (OMSAT-3*), and 68 people completed Mujahidin’s ten-item Mizaj (temperament) questionnaire (MMQ). The results showed that cognitive skills are more critical than psychosomatic and basic skills in skilled (male and female) petanque athletes. Most male athletes have a moderate temperament. Therefore, coaches and specialists can consider evaluating petanque athletes’ mental skills and temperament as part of the talent identification process in this sports field.
concentration, and imagery is considered golfers’ most important mental skill. Sotoudeh et al. (2012) also showed that skilled taekwondo athletes are superior to unskilled people in commitment, self-confidence, relaxation, activation, goal setting and competition plan. Shahabi Kaseb et al. (2019) also showed in research that skilled dart players have a high level of self-confidence, commitment and goal-setting skills. Therefore, the research results show that even in individual sports, according to their nature and demands, mental skills are prioritized differently to reach the optimal level of performance.

Gender, as an essential interpersonal factor in competitive sports, differentiates the ranking of mental skills in athletes at different skill levels. In this regard, Katiskas et al. (2009) stated that elite female track and field athletes have less relaxation and emotional control than elite male athletes. Weinberg et al. (2003) also showed that male athletes use mental imagery more than female student-athletes. However, the results of studies by Jana et al. (2015) on elite swimmers and Babtesoo (2015) on elite archery athletes showed no significant difference between women and men regarding mental characteristics.

Temperament is also one of the determinants of psychosomatic characteristics that can be used to identify talents in different sports fields (Safari et al., 2016). According to traditional Iranian medicine, temperament refers to the combination of raw materials with different qualities and ratios in the body, which is divided into four singular temperaments, including simple cold, warm, wet, dry, and moderate temperament (Ibn Sina, 2005). Previous studies show that people with different temperaments have specific characteristics so that warm-tempered people are full of energy, active and extroverted, while cold-tempered people have a lower energy level and are introverted (Mehdizadeh et al., 2013; Dagkas & Stathi, 2007). People with a dry temperment also make more stable decisions than those with a wet temperament (Parviz et al., 2018) and suffer more frequently from muscle cramps and spasms during long and heavy exercise (Mehdizadeh et al., 2013). For this reason, athletes with warm and wet temperaments perform better in martial arts and wrestling, considering the need for physical engagement, activity, and planning for multiple defensive and offensive positions. In contrast, cold and wet temperaments are more common in futsal goalkeeper as the least active members of the team (Khovideki et al., 2020).

Petanque is played as an individual sport that requires a focus on clay or sandy grounds (Santosa & Imron, 2020). The petanque player is placed in a circular area and throws iron balls to get as close as possible to the small wooden ball called the jack and keep the opponent’s balls away from the jack (Plana et al., 2021). Since the successful performance in petanque is to achieve maximum accuracy, in addition to the physical aspects (Fitanza, 2022), it is essential to pay attention to the mental aspects of the petanque player to ensure a good throw (Lubis & Permadi, 2021). Plana (2016) also showed that support (coaches, prizes), biology (nutrition), environment (facilities and infrastructure), and psychology (self-confidence, motivation) all play an essential role in achieving the goals in petanque. Also, Solihin et al. (2022) stated that mental skills significantly impact the success of petanque athletes; that is, poor concentration leads to the loss of good technique and tactics and, consequently, poor performance.

Considering the importance of mental skills on the successful performance of petanque athletes and the use of knowing the temperament of athletes as suggested by Iranian traditional medicine to identify their talents, as well as the possible differences between men and women, the purpose of the current research was to investigate and prioritize the mental skills and temperament of skilled Iranian petanque athletes based on gender.

Methods

This was an applied and cross-sectional research. The study population included 120 (male and female) petanque athletes who participated in the national championship of Iran in 2022. Based on convenience sampling, 99 people (64 men, 35 women) completed the Ottawa mental skills assessment tool (OMSAT-3), and 68 people (40 men, 28 women) completed the Mojahedi’s ten-item Mizaj questionnaire. The data collection tool included the 48-item OMSAT-3, which assesses 12 mental skills in three categories: basic mental skills (goal setting, self-confidence, and commitment), psychosomatic skills (reaction to stress, fear control, relaxation and activation) and cognitive skills (concentration, refocus, imagery, mental practice, and competition plan). The internal consistency is 0.81 for the whole questionnaire and 0.65-0.76 range for its subscales. The temporal reliability is also 0.76 for the whole questionnaire and 0.72-0.84 range for its subscales (Zeidabadi et al., 2014). The Mojahedi’s ten-item Mizaj questionnaire (MMQ) was also used to evaluate athletes’ temperament (warm, cold, wet, dry and moderate) with an internal consistency of 71%.
Descriptive statistics included the centrality and dispersion indices, and inferential statistics included Friedman’s test and Chi-square. Data analysis was also carried out using SPSS ver. 21, and a p-value<0.05 was considered the significance level.

Results

Descriptive results related to Ottawa’s mental skills and its three sub-components (basic mental, psychosomatic and cognitive skills) are reported based on gender in Table 1.

Table 1
Mean and standard deviation of Ottawa mental skills and its subscales for skilled petanque athletes by gender

<table>
<thead>
<tr>
<th>Gender</th>
<th>Cognitive skills</th>
<th>Psychosomatic skills</th>
<th>Basic mental skills</th>
<th>Ottawa Mental Skills</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean ± SD</td>
<td>Mean ± SD</td>
<td>Mean ± SD</td>
<td>Mean ± SD</td>
</tr>
<tr>
<td>Female</td>
<td>130.97±19.39</td>
<td>31.34±6.01</td>
<td>41.43±10.47</td>
<td>57.94±6.52</td>
</tr>
<tr>
<td>Male</td>
<td>130.72±17.98</td>
<td>33.44±4.89</td>
<td>38.83 ± 9.32</td>
<td>58.41±7.55</td>
</tr>
</tbody>
</table>

The results of the Friedman test showed a statistically significant difference between the OMSAT-3 subscales (basic mental skills, psychosomatic skills and cognitive skills) among skilled petanque athletes by gender (Table 2).

Table 2
The results of the Friedman test to compare OMSAT-3 subscales among skilled petanque athletes by gender

<table>
<thead>
<tr>
<th>Gender</th>
<th>OMSAT-3 Subscales</th>
<th>Median</th>
<th>df</th>
<th>Chi-square value</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female</td>
<td>Basic mental skills</td>
<td>30</td>
<td>2</td>
<td>57.27</td>
<td>*0.0001</td>
</tr>
<tr>
<td></td>
<td>psychosomatic skills</td>
<td>41</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Cognitive skills</td>
<td>56</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>Basic mental skills</td>
<td>32.5</td>
<td>2</td>
<td>102.09</td>
<td>*0.0001</td>
</tr>
<tr>
<td></td>
<td>psychosomatic skills</td>
<td>39</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Cognitive skills</td>
<td>58.5</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Evaluating the median values of OMSAT-3 subscales by gender showed that male and female petanque athletes have the highest to lowest scores in cognitive, psychosomatic and basic mental skills, respectively. (Table 2). The frequency of singular and moderate temperaments of 68 skilled petanque players by gender is also reported in Table 3.
Table 3
Percentage frequency and residuals of singular and moderate temperaments of skilled petanque athletes by gender

<table>
<thead>
<tr>
<th>Gender</th>
<th>Number</th>
<th>Warm temperament</th>
<th>Moderate temperament</th>
<th>Cold temperament</th>
<th>Wet temperament</th>
<th>Moderate temperament</th>
<th>Dry temperament</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female</td>
<td>28</td>
<td>34.3</td>
<td>25.7</td>
<td>20%</td>
<td>20%</td>
<td>25.7</td>
<td>34.3</td>
</tr>
<tr>
<td>Residuals</td>
<td>28</td>
<td>2.7</td>
<td>-0.3</td>
<td>-2.3</td>
<td>-2.3</td>
<td>-0.3</td>
<td>2.7</td>
</tr>
<tr>
<td>Male</td>
<td>40</td>
<td>3.20</td>
<td>34.4</td>
<td>7.8</td>
<td>17.2</td>
<td>21.9</td>
<td>23.4</td>
</tr>
<tr>
<td>Residuals</td>
<td>40</td>
<td>-0.3</td>
<td>8.7</td>
<td>-8.3</td>
<td>-2.3</td>
<td>0.7</td>
<td>1.7</td>
</tr>
</tbody>
</table>

The chi-square test results also showed a statistically significant difference only between singular (warm and cold) and temperate temperaments in men (Table 4). The analysis of the residuals showed that most male skilled petanque athletes have a moderate temperament (8.7%).

Table 4
Chi-square test results to compare the frequency of singular and moderate temperaments

<table>
<thead>
<tr>
<th></th>
<th>Warm, cold, moderate</th>
<th>Wet, dry, moderate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Women</td>
<td>2</td>
<td>1.35</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>1.37</td>
</tr>
<tr>
<td></td>
<td>0.50</td>
<td>0.52</td>
</tr>
<tr>
<td>Men</td>
<td>2</td>
<td>10.85</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>0.65</td>
</tr>
<tr>
<td></td>
<td>0.004*</td>
<td>0.72</td>
</tr>
</tbody>
</table>

Discussion
One of the goals of the current research was to evaluate the mental skills of skilled Iranian male and female petanque athletes. The current research showed that cognitive skills (concentration, refocus, mental imagery, mental practice and competition plan) are more critical than psychosomatic and basic mental skills in petanque (both genders).

Before each throw, the petanque player analyzes the situation and location of the opponent’s balls about the jack and his/her balls, the landing point of the ball (s)he is going to throw, and the distance from the landing point of the ball to the ring (perception and problem-solving). (S) He or she determines his/her goal of throwing: to gain points or shoot balls or jacks and decides the type of throw (short, moderate, and long) he or she plans to reach the goal (competition plan). Afterwards, the player is placed inside the ring and calms down before throwing and reviews how to throw to reach the goal in his/her mind (mental imagery) and then throws the ball with great precision and concentration and refocus if his/her concentration is disturbed. In this regard, Solihin et al. (2022), Augustina & Priambodo (2017), and Maleki et al. (2022) stated that the successful performance of petanque athletes requires concentration. Also, the study’s results by Bois et al. (2009) showed the importance of concentration and mental imagery in golf, which is similar to petanque in terms of movement pattern and strategy. However, Shahabi Kaseb et al. (2019) stated that in darts, one of the sports fields that need concentration, basic mental skills (self-confidence, commitment and goal setting) are of particular importance, which is inconsistent with the present research results. It seems that this inconsistency in the results is due to the difference in the way the sport is played (in darts, after each throwing round, the player removes his darts from the board for the opponent to throw his darts, while this is not the case for the balls of the opponent and the thrower, as well as the jack and the position of the balls and the jack, may change with each throw) in petanque, the difference in the distance of the throw (the fixed distance between the player and the target in dart is 273 cm, but the distance between the target and the ring is 6 meters and more in petanque) and also a difference in the number of throws.
The results of the present study also showed that most Iranian male petanque athletes had a moderate temperament about singular temperaments (warm and cold). A moderate temperament is one in which the opposite qualities are the same (Afsharipour et al., 2010). Meanwhile, according to traditional Iranian medicine, warm temperament is a stimulating factor that increases strength, speed, and power (Safari et al., 2019). Also, superficial blood circulation is higher in people with a warm temperament, which leads to the recruitment of more fast-twitch muscle fibres. Having more muscle mass, big hands and feet, being agile, having higher energy, and being hasty are also characteristics of people with warm temperaments (Ibn Sina, 2005). However, cold-tempered people are inactive and slow, with small arms, legs, and thin bodies (Sardar et al., 2016; Vahedi et al., 2016). Also, characteristics such as laziness, inactivity, lack of energy and cautiousness are seen more commonly in cold-tempered people. Since petanque players do not need much strength, speed, power, high energy, and laziness, inactivity and cautiousness negatively affect their performance; moderate temperament in the singular warm and cold temperaments have provided optimal conditions for male petanque players. The lack of statistically significant differences between female petanque athletes in terms of the type of temperament is probably due to the small female sample size in the present study.

Conclusion

Therefore, based on the findings of the present research, it is recommended that petanque coaches and experts pay special attention to the training and development of the cognitive skills of the players in addition to the technical and specialized exercises. Also, coaches can comment on their successful performance by evaluating the temperament of male petanque players; however, further research should be conducted to clarify this issue.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

References


