



(RESEARCH ARTICLE)



## A study on the relationship between taekwondo athletes' psychological capital and athletic achievement

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### Abstract

The aim of this study is to investigate how psychological capital can predict athletic achievement among Taekwondo athletes. Data was collected using the psychological capital questionnaire and the athletic achievement scale through a survey of Taekwondo athletes. A total of 421 valid responses were collected with a response rate of 81.7%. The data was analyzed using SEM-PLS. The results show that the psychological capital dimensions of self-efficacy, hope, resilience, and optimism have a significant impact on the athletic achievement of Taekwondo athletes. Among these dimensions, self-efficacy has the greatest impact on athletic achievement, while optimism has the least influence. Overall, psychological capital accounts for 79.6% of the variance in athletic achievement. Based on these results, the study suggests several recommendations for future research.

**Keywords:** Taekwondo athletes; Psychological capital; Athletic achievement; SEM-PLS; Self-Efficacy

### 1. Introduction

The process of athletic training is demanding and challenging. Athletes need to undergo extensive training to demonstrate consistent skills and top-notch performance. However, this journey is not without its obstacles. Athletes often encounter various difficulties, including overcoming technical barriers, coping with sports-related injuries, and managing the pressure of competitive outcomes. Therefore, numerous studies have highlighted the importance of psychological resilience for athletes to overcome these challenges. This resilience is especially critical for elite athletes compared to their non-elite counterparts (1).

Martens (2) defined psychological capital as a concept that focuses on individuals' strengths and positive psychological qualities. The concept has been extensively debated and studied. Adel et al. (3) mentioned that some studies view psychological capital as an inherent trait of individuals from a trait perspective. Letcher (4) proposed that psychological capital is similar to personality traits, and Greenwood (5) also argued that it is a personality trait influencing individual behavior and outcomes. In contrast, the state theory suggests that psychological capital is a psychological state, separate from personality traits, encompassing individuals' beliefs, attitudes, and cognitions about themselves, work, ethics, and life (6). Longman (7) described psychological capital as "state-like," encompassing both trait-like and state-like properties. The state-like aspect can be developed through interventions, while the trait-like aspect is relatively stable. Traits and states are viewed as two extremes on the same continuum.

The Psychological Capital Questionnaire (PCQ), developed by Luthans et al. (8), identifies four key components of psychological capital: optimism, self-efficacy, hope, and resilience. Self-efficacy refers to an individual's belief in their ability to successfully execute a specific task within a given context. Hope is a positive motivational state based on an interplay between goal-directed energy (agency) and the planning to achieve those goals (pathways). Optimism involves a positive explanatory style that attributes good events to internal, stable, and pervasive causes, and bad events

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to external, temporary, and situation-specific causes. Resilience, also known as mental toughness, is the capacity to recover quickly from adversity. The PCQ is divided into four sections: self-efficacy, hope, optimism, and resilience. Higher scores on the PCQ indicate greater levels of perceived psychological capital, while lower scores indicate lesser levels of perceived psychological capital.

In recent years, research has started to explore the application of psychological capital to the performance of physical education teachers and athletes. Gautam and Pradhan (9) argue that positive psychological capital not only motivates athletes to be diligent and proactive during training but also helps them perform at their best during competitions. For instance, psychological resilience in competitive sports refers to the ability to not be easily defeated psychologically when facing threats in the sporting context. Athletes with high resilience can maintain focus, endure physical pain, self-regulate positively, persist in pursuing goals, demonstrate high confidence, show a strong will to win, and cope with stress (10).

Weinberg and Gould (11) noted that in intense sports competitions, psychological factors account for 50% of athletic performance determinants. In sports requiring high stability and focus, this influence increases to 80-90%. Kim et al. (12) summarized numerous past studies showing that in high-level competitive sports, 30% of winning factors are attributed to technical and tactical performance, while 70% are attributed to psychological performance. For example, 55% of athletes are affected by competitive pressure, leading to detrimental psychological activities that hinder achieving good results. Psychological capital can enhance athletes' confidence, hope, and optimism, thereby strengthening their resilience. This helps athletes overcome difficulties, convert stress into tremendous motivation, and engage positively in training and competition. Consequently, elite athletes possess more positive psychological capital compared to ordinary athletes.

### **1.1. The Relationship between Self-Efficacy and Athletic Achievement**

The connection between self-efficacy and athletic achievement has long been a topic of interest for athletes, coaches, and sports psychologists (13). Confidence, also referred to as self-efficacy, is a fundamental concept in social cognitive theory. It influences an individual's motivation, thought patterns, and behavior. Self-efficacy shapes a person's willingness to take on challenges, the effort they put in, and how long they persist in the face of obstacles. Sports confidence, as defined by Vealey (14), reflects an individual's belief in their ability to succeed in specific sports situations at any given moment. Additionally, state anxiety, a temporary form of anxiety triggered by specific stressful situations, has been linked to sports performance. Athletes with lower pre-competition state anxiety and higher confidence generally perform better, as noted by Barnes et al. (15). Similarly, Martens (2) found that athletes with high confidence and low anxiety tend to perform at higher levels. Researchers have also observed that athletes with high confidence tend to exhibit positive emotions, better focus, superior game strategies, and an ability to control the pace of the game during competitions, as highlighted by Kim et al. (12). Beyond competitive sports, studies by Hofstette et al. (16) and Schuste et al. (17) have shown a positive correlation between self-efficacy and physical activity and regular exercise behavior, respectively. In summary, the body of research suggests a positive relationship between self-efficacy and athletic performance. Thus, this study aims to further investigate the connection between self-efficacy and athletic performance among taekwondo athletes.

### **1.2. The Relationship between Hope and Athletic Achievement**

Snyder et al. (18) proposed Hope Theory, defining hope as the pathways and agency directed towards achieving set goals. It is a positive motivational state and cognitive process resulting from the interaction between pathways (the routes to achieving goals) and agency (the perceived ability to use those routes effectively). Curry and Snyder (19) highlighted the importance of hope in the realm of sports, noting that athletes, compared to non-athletes, have more defined goals (sporting goals). Hope encompasses athletes' perceived ability to devise various strategies to achieve their desired athletic goals (pathway thinking) and the perceived ability to employ these strategies (agency thinking). Thus, when two athletes may have similar talents, the one with higher hope is likely to perform better, especially during stressful moments in competitions. This is because high-hope athletes can find the best ways to face challenges in adversity and are more motivated. Curry et al. (20) explored the predictive power of hope on academic and athletic performance among student-athletes, finding that athletes exhibit higher levels of hope than non-athletes. High-hope athletes typically adopt more proactive stress-coping mechanisms, such as confronting problems directly or maintaining a positive emotional attitude. Moreover, hope is a better predictor of academic and athletic performance than other psychological variables such as self-esteem or self-efficacy. The trait and state hope of athletes' accounts for 56% of the variance in performance. Therefore, this study aims to explore the relationship between hope and athletic performance among taekwondo athletes.

### 1.3. The Relationship between Optimism and Athletic Achievement

Optimism, as defined by Scheier and Carver (21), is the tendency to expect the best possible outcome in life events. Additionally, Sehwat et al. (22) describe optimism as a positive life attitude and a relatively enduring personality trait, where individuals tend to view changes and future expectations from a positive perspective. According to Scheier and Carver (21), optimism can be seen as the belief that good things will happen to oneself. Seligman (23) suggested that optimism is a habitual explanatory style when facing adversity or misfortune, indicating whether one chooses to avoid challenges passively or never gives up. Scheier and Carver (21) noted that individuals tending toward optimism will expect future events more positively and believe that these anticipated events are attainable. Consequently, they are more willing to invest effort and persist in pursuing their goals. Research by Natali-Aleman (24) found that optimists tend to use more positive coping strategies, resulting in improved physical and mental well-being when facing similar stressors. Gaudreau et al. (25) indicated that an optimistic thinking style helps bring about positive emotions and hope, suggesting that the positive emotions experienced during recreational sports participation foster a hopeful outlook on the future. This positive cycle continually influences individuals' participation motivation, expectations, and preferences. Their research also demonstrated that optimistic individuals are healthier and more proactive in engaging in activities that promote health and self-improvement. Pringle (26) noted that optimism is often considered an indicator of psychological well-being, with optimists being able to bounce back quickly and face challenges anew after setbacks. Therefore, this study aims to explore the relationship between optimism and athletic performance among taekwondo athletes.

### 1.4. The Relationship between Resilience and Athletic Achievement

Dienstbier (27, 28) pointed out that psychological resilience is a distinct response pattern when dealing with challenges, showing how efficiently individuals cope with situations on psychological, emotional, and physical levels. Numerous sports psychology studies have revealed that psychological resilience positively impacts performance (29). Loehr (30) mentioned that athletes with stronger resilience can maintain higher energy levels, relax, and stay calm, enhancing the flow of positive energy and adopting the right attitude to face problems during crises and adversities. Bryan et al. (31) indicated that in intense competitions, success is not solely a matter of technical skills; the influence of athletes' psychological skills is also crucial. This is because psychological factors directly affect physiological performance. Implementing training related to psychological resilience and psychological skills can significantly benefit athletes' future performance. Gall and Gonzalez (32) noted that sports psychological resilience can be developed through learning processes, suggesting that enhancing athletes' psychological training can improve their athletic performance. Sarka and Fletcher (33) emphasized that psychological resilience is indispensable for athletes to achieve peak performance and persist in reaching their goals. The stronger an athlete's resilience, the better their athletic performance. Therefore, the strength of psychological resilience influences athletic performance. This study aims to explore the relationship between resilience and athletic performance among taekwondo athletes.

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## 2. Material and Method

### 2.1. Respondents

For the research, a purposive sampling method was used to select taekwondo athletes in universities from Zhanjiang City. Before distributing the questionnaires, the school's physical education teachers or coaches were contacted via telephone to explain the study's purpose and objectives. The teachers or coaches were asked to help gauge the students' willingness to participate. Subsequently, the questionnaires were sent to the school, and the teachers or coaches were requested to distribute them to the students for completion. A total of 421 valid questionnaires were collected, resulting in a response rate of 81.7%.

### 2.2. Questionnaire

The questionnaire for the study is divided into three parts: "Demographic Information," "Psychological Capital Scale," and "Athletic Achievement Scale." Here are the details:

- Demographic Information

This section contains data on gender, grade level, frequency of weekly training, daily training sessions, and duration of each session.

- Psychological Capital Scale

The study uses the Psychological Capital Scale for athletes, developed by Luthans et al. (8). The scale consists of four components: self-efficacy, hope, optimism, and resilience. Respondents use a five-point Likert scale, where they rate their responses from 1 to 5 based on "strongly disagree," "disagree," "neutral," "agree," and "strongly agree."

- Athletic Achievement Scale

This study assesses athletic achievement based on the item design related to athletic achievement from the study by Ramzi and Besharat (34). It comprises of four questions. The first question asks about the highest level of athletic achievement attained, categorized into five levels: none, national competitions, international invitational tournaments, Asian-level competitions, and world-level competitions, with responses rated from 1 to 5 accordingly. The second question inquires about the highest level of competition participated in during high school and university, categorized into the same five levels as above, with responses rated from 1 to 5 accordingly. The third question addresses the number of times the athlete has placed in the top eight in national competitions in the past two years, which is continuous scale data. The fourth question pertains to the number of times the athlete has participated in national elite ranking competitions in the past two years, which is also continuous scale data. The total score across these four questions determines the athletic achievement of the respondent; higher scores indicate greater athletic achievement, while lower scores indicate lower athletic achievement.

### 2.3. Data Analysis

The collected data were analyzed using the statistical software packages SPSS 20.0 and SMART-PLS 3.0. Descriptive statistics were used to analyze the basic information of the sample, measurement model analysis was used to assess the reliability and validity of the latent variables, and structural model analysis was conducted to examine the relationships between the latent variables.

## 3. Results

### 3.1. Demographic Information

Based on the data analysis, 53.7% of the taekwondo athletes were male, and 46.3% were female. In terms of grade distribution, first-year students accounted for 33.7%, second-year students for 24.0%, third-year students for 22.6%, and fourth-year students for 19.7%. When it comes to the number of training days per week, the majority trained 5 days a week (26.1%) or more than 5 days a week (30.6%). As for the daily training sessions, 56.1% of students trained once a day, 30.9% trained twice a day, and 13.1% trained more than three times a day. In regards to training duration per session, 52.0% of students trained for 61-120 minutes, 26.8% trained for 121-180 minutes, 9.5% trained for more than 181 minutes, and only 11.6% trained for less than 60 minutes.

**Table 1** Demographic information

Variable	Group	Frequency	Percentage	Variable	Group	Frequency	Percentage
Gender	Male	226	53.7%	Frequency of daily training	Once	236	56.1
	Female	195	46.3%		Twice	130	30.9
Grade level	Freshman	142	33.7%		Thrice or more	55	13.1
	Sophomore	101	24.0%	Training duration per day	Less than 60 minutes	49	11.6
	Junior	95	22.6%		61-120 minutes	219	52.0
	Senior	83	19.7%		121-180 minutes	113	26.8
Weekly training days	1 day	29	6.9%		More than 181 minutes	40	9.5
	2 days	47	11.2%				

	3 days	62	14.7%				
	4 days	44	10.5%				
	5 days	110	26.1%				
	More than 6 days	129	30.6%				

### 3.2. Reliability and Validity Analysis

In the analysis of the reliability and validity of the scale (Table 2), it was determined that the factor loadings of the observed variables were all above 0.700. This indicates a strong correlation between the observed variables and the latent variables, demonstrating good convergent validity. The Cronbach's  $\alpha$  coefficients for all latent variables were greater than 0.800, indicating strong internal consistency among the latent variables. The construct reliability coefficients were also all above 0.800, indicating a high correlation among the observed variables. The average variance extracted (AVE) values were all above 0.600, which indicates that more than 50% of the variance of the constructs is explained by the observed variables themselves. In the analysis of discriminant validity (Table 3), it was found that the square root of the AVE for all latent variables was higher than the correlation coefficients between any two latent variables. This indicates that the latent variables can be effectively distinguished from one another. Therefore, the model demonstrates good reliability and validity.

**Table 2** Reliability and validity analysis of the scales

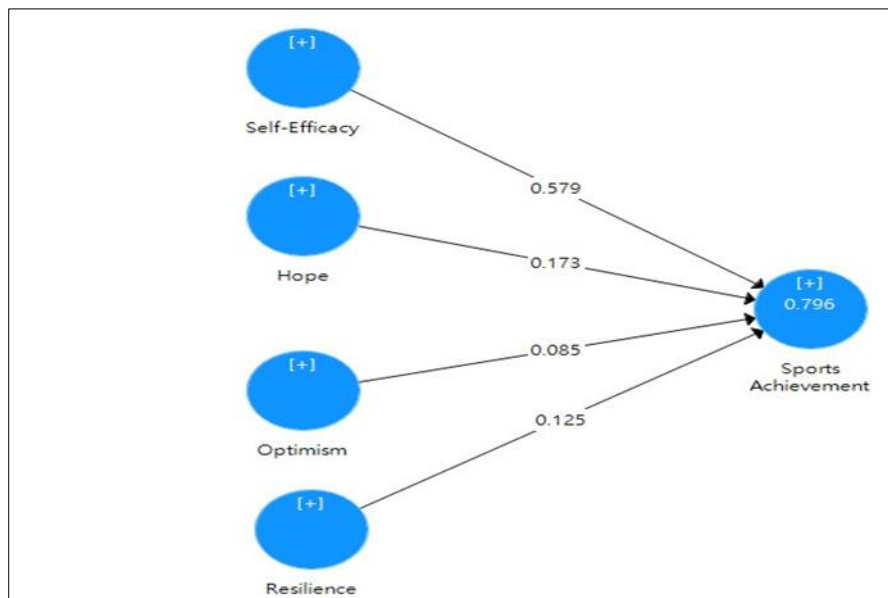
Variable	Item	Factor Loading	Cronbach's $\alpha$	Construct Reliability	Average Variance Extracted (AVE)
Self-Efficacy	SE1	0.963	0.949	0.964	0.869
	SE 2	0.954			
	SE 3	0.925			
	SE 4	0.885			
Hope	H1	0.926	0.867	0.910	0.723
	H2	0.921			
	H3	0.591			
	H4	0.915			
Optimism	O1	0.924	0.909	0.936	0.785
	O2	0.883			
	O3	0.892			
	O4	0.841			
Resilience	S1	0.903	0.929	0.949	0.824
	S2	0.912			
	S3	0.879			
	S4	0.936			
Athletic Achievement	SA1	0.947	0.967	0.975	0.884
	SA2	0.926			
	SA3	0.955			
	SA4	0.902			
	SA5	0.970			

**Table 3** Discriminant validity analysis

	Hope	Optimism	Resilience	Self-Efficacy	Athletic achievement
Hope	0.850				
Optimism	0.737	0.886			
Resilience	0.708	0.623	0.908		
Self-Efficacy	0.799	0.703	0.779	0.932	
Athletic achievement	0.787	0.698	0.752	0.875	0.940

**3.3. Structural Model Analysis**

Based on the analysis using structural equation modeling, the impact of self-efficacy, hope, optimism, and resilience on athletic achievement among taekwondo athletes varies. Self-efficacy has the greatest influence on athletic achievement ( $\beta=0.579^*$ ;  $*p<0.05$ ), suggesting that confidence in one's abilities and self-assessment significantly enhances athletic performance. Hope also has a positive impact on athletic achievement with a  $\beta$  coefficient of  $0.173^*$  ( $*p<0.05$ ), indicating that students' expectations for future success and persistence contribute to their athletic achievements. Resilience has a moderately low impact on athletic achievement with a  $\beta$  coefficient of  $0.125^*$  ( $*p<0.05$ ), suggesting that students' perseverance and recovery ability in the face of challenges promote their athletic achievements to some extent. Finally, the impact of optimism on athletic achievement is the least significant with a  $\beta$  coefficient of  $0.085^*$  ( $*p<0.05$ ). While students' positive attitudes and optimistic views contribute to their sports achievements, the influence is not as strong (Figure 1).



**Figure 1** Structural model results of psychological capital on athletic achievement

The combined influence of self-efficacy, hope, optimism, and resilience accounts for 79.6% of the variability in athletic achievement, highlighting their significance in sports performance. Improving the self-efficacy, hope, and resilience of taekwondo athletes can effectively enhance their athletic success. While optimism plays a smaller role, it should still be considered. These findings have important implications for coaches when creating training and support programs. By implementing targeted strategies to enhance self-efficacy, hope, and resilience, coaches can effectively improve the athletic performance of taekwondo athletes.

**4. Discussion**

This study discovered that self-efficacy has the most significant impact on athletic achievement among taekwondo athletes, emphasizing that self-efficacy is the most crucial factor in improving athletic performance. This result is consistent with Locke 's (35) self-efficacy theory, which suggests that self-efficacy plays a key role in motivation and

behavioral performance. Additionally, hope has a positive impact on athletic achievement, aligning with research by Snyder et al. (36), indicating a significant connection between hope and goal-directed behavior and achievement. Moreover, resilience has a moderately low impact on athletic achievement, consistent with the resilience theory proposed by Luthar et al. (37), which focuses on the adaptive capacity of individuals when facing stress and challenges. Finally, the impact of optimism on athletic achievement is in line with Scheier and Carver's (21) research on the relationship between optimism, psychological health, and achievement. While optimism is important, its direct impact on specific achievements may be relatively minor. These findings highlight the importance of self-efficacy, hope, and resilience in athletic performance, offering valuable insights for coaches in developing targeted training and support programs to enhance the performance of taekwondo athletes.

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## 5. Conclusion and Suggestions

The study revealed that the psychological traits of self-efficacy, hope, optimism, and resilience are significant factors in the athletic success of taekwondo athletes. Self-efficacy was found to have the greatest impact on athletic achievement, indicating that athletes' confidence in their abilities is crucial for enhancing their performance. Additionally, hope and resilience also have positive effects on athletic achievement, suggesting that athletes' expectations for success and their ability to overcome challenges can lead to improved athletic performance. While optimism has a smaller impact on athletic achievement, it still has a positive influence. Altogether, these four factors explain a large portion of the variance in athletic achievement, underscoring the importance of nurturing athletes' psychological attributes. The findings offer practical insights for coaches to develop training strategies that can contribute to overall improvements in athletes' performance. The suggestions based on the findings of this study as followed:

### 5.1. Focus on Building Athletes' Confidence in Their Abilities During Training:

Enhance athletes' self-efficacy by setting achievable goals, gradually increasing the difficulty of challenges, and providing positive feedback.

### 5.2. Include Clear Goal Setting and Achievement Strategies in Training Plans:

Help athletes maintain a positive outlook on future success by regularly discussing their long-term and short-term goals and developing specific action plans to achieve these goals.

### 5.3. Incorporate Exercises to Face Difficulties and Adversity in Training:

Encourage athletes to persist and endure challenges by designing simulated competition scenarios. This will teach them how to adjust and recover under pressure, thereby developing their resilience.

### 5.4. Acknowledge the Positive Role of Optimism Despite Its Relatively Smaller Impact on Athletic Achievement:

Coaches should encourage athletes to maintain a positive attitude by using positive thinking and emotional management to cope with setbacks and difficulties.

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## Compliance with ethical standards

### *Statement of informed consent*

Informed consent was obtained from all individual participants included in the study.

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## References

- [1] Gucciardi DF, Gordon S, Dimmock JA. Towards an understanding of mental toughness in Australian football. *Journal of applied sport psychology*. 2008;20(3):261-81.
- [2] Martens R. *Coaches guide to sport psychology*. Champaign, IL: Human Kinetics; 1987.

- [3] Adel H, Taheri F, Jamali Gharakhanlou Y, Sattarpour Iranaghi F. Role of predictability of achievement motivation, psychological capital, and physical activity on the quality of work life in teachers of exceptional schools in Markazi province in 2018. *The Scientific Journal of Rehabilitation Medicine*. 2020;9(1):25-36.
- [4] Letcher L. *Psychological capital and wages: A behavioral economic approach*. Manhattan, KS: Kansas State University; 2003.
- [5] Greenwood JD. From Volkerpsychologie to cultural psychology: The once and future discipline? *Philosophical Psychology*. 1999;12(4):503-14.
- [6] Goldsmith AH, Veum JR, Darity Jr W. Unemployment, joblessness, psychological well-being and self-esteem: Theory and evidence. *The Journal of Socio-Economics*. 1997;26(2):133-58.
- [7] Longman KA. The high impact leader: Moments matter in accelerating authentic leadership development. *The Review of Higher Education*. 2009;32(2):282-4.
- [8] Luthans F, Luthans KW, Luthans BC. Positive psychological capital: Beyond human and social capital. 2004;47(1):45–50.
- [9] Gautam P, Pradhan M. Psychological capital as moderator of stress and achievement. *Indian Journal of Positive Psychology*. 2018;9(1).
- [10] Lai C-P, Hsieh H-H, Chang C-M, Ni F-T. The role of psychological capital in athletic performance and career development of adolescent baseball players in Taiwan. *Sustainability*. 2020;12(18):7652.
- [11] Weinberg RS, Gould D. *Foundations of sport and exercise psychology*. Champaign, IL: Human Kinetics; 1999.
- [12] Kim M, Perrewé PL, Kim YK, Kim ACH. Psychological capital in sport organizations: Hope, efficacy, resilience, and optimism among employees in sport (HEROES). *European Sport Management Quarterly*. 2017;17(5):659-80.
- [13] Gucciardi D, Gordon S, Dimmock J, editors. Multisource ratings of mental toughness among youth-aged Australian footballers: A preliminary examination. Poster session presentation at the 12th European congress of sport psychology, sport and exercise psychology: Bridges between disciplines and cultures; 2007.
- [14] Vealey RS. Conceptualization of sport-confidence and competitive orientation: Preliminary investigation and instrument development. *Journal of Sport and Exercise Psychology*. 1986;8(3):221-46.
- [15] Barnes MW, Sime W, Dienstbier RA, Plake B. A test of construct validity of the CSAI-2 questionnaire on male elite college swimmers. *International Journal of Sport Psychology*. 1986;17:364-74.
- [16] Hofstetter CR, Hovell MF, Sallis JF. Social learning correlates of exercise self-efficacy: Early experiences with physical activity. *Social Science & Medicine*. 1990;31(10):1169-76.
- [17] Schuster C, Petosa R, Petosa S. Using social cognitive theory to predict intentional exercise in post-retirement adults. *Journal of Health Education*. 1995;26(1):14-24.
- [18] Snyder CR, Harris C, Anderson JR, Holleran SA, Irving LM, Sigmon ST, et al. The will and the ways: development and validation of an individual-differences measure of hope. *Journal of personality and social psychology*. 1991;60(4):570.
- [19] Curry LA, Snyder CR. Hope takes the field: Mind matters in athletic performances. In: Snyder CR, editor. *Handbook of hope: Theory, measures, and applications*. San Diego, CA: Academic Press; 2000. p. 243-60.
- [20] Curry LA, Snyder C, Cook DL, Ruby BC, Rehm M. Role of hope in academic and sport achievement. *Journal of personality and social psychology*. 1997;73(6):1257.
- [21] Scheier MF, Carver CS. Optimism, coping, and health: assessment and implications of generalized outcome expectancies. *Health psychology*. 1985;4(3):219.
- [22] Sehwat V, Kumari B, Nara K. Role of Optimism and Resilience in Determining Sports Performance. *Sports Science & Health Advances*. 2024;2(1):240-6.
- [23] Seligman ME. *Authentic happiness: Using the new positive psychology to realize your potential for lasting fulfillment*. New York: Simon and Schuster; 2002.
- [24] Natali-Aleman R. *Mood, coping and perception of daily life events: Are these factors related to optimism and pessimism*. Cincinnati, OH: University of Cincinnati; 1991.
- [25] Gaudreau P, Gunnell KE, Hoar SD, Thompson A, Lelièvre J. Optimism, pessimism, and coping in a dual-domain model of sport and school satisfaction. *Sport, Exercise, and Performance Psychology*. 2015;4(2):140.



- [26] Pringle R. Physical education, positivism, and optimistic claims from achievement goal theorists. *Quest*. 2000;52(1):18-31.
- [27] Dienstbier RA. Arousal and physiological toughness: implications for mental and physical health. *Psychological review*. 1989;96(1):84.
- [28] Dienstbier RA. Behavioral correlates of sympathoadrenal reactivity: the toughness model. *Medicine and Science in Sports and Exercise*. 1991;23(7):846-52.
- [29] Gould D, Hodge K, Peterson K, Petlichkoff L. Psychological foundations of coaching: Similarities and differences among intercollegiate wrestling coaches. *The Sport Psychologist*. 1987;1(4):293-308.
- [30] Loehr LE. *Athletic excellence mental toughness for sports*. New York: Plome; 1982.
- [31] Bryan C, O'Shea D, MacIntyre T. Stressing the relevance of resilience: A systematic review of resilience across the domains of sport and work. *International Review of Sport and Exercise Psychology*. 2019;12(1):70-111.
- [32] Galli N, Gonzalez SP. Psychological resilience in sport: A review of the literature and implications for research and practice. *International Journal of Sport and Exercise Psychology*. 2015;13(3):243-57.
- [33] Sarkar M, Fletcher D. Psychological resilience in sport performers: a review of stressors and protective factors. *Journal of sports sciences*. 2014;32(15):1419-34.
- [34] Ramzi S, Besharat MA. The impact of hardiness on sport achievement and mental health. *Procedia-Social and Behavioral Sciences*. 2010;5:823-6.
- [35] Locke EA. Self-efficacy: The exercise of control. *Personnel psychology*. 1997;50(3):801.
- [36] Snyder CR, Lopez SJ, Shorey HS, Rand KL, Feldman DB. Hope theory, measurements, and applications to school psychology. *School Psychology Quarterly*. 2003;18(2):182-205.
- [37] Luthar SS, Cicchetti D, Becker B. The construct of resilience: A critical evaluation and guidelines for future work. *Child Development*. 2000;71(3):543-62.