

DIFFERENCES IN COGNITIVE AND SOMATIC ANXIETY AMONG KARATE PLAYERS OF DIFFERENT AGES IN THE REPUBLIC OF KOSOVO

DOI:

(Original scientific paper)

Arsim Qiriqi, Lenche Aleksovska Velichkovska

Ss. Cyril and Methodius University, Faculty of Physical Education, Skopje, Macedonia

Abstract

This study examines the differences in cognitive and somatic anxiety among karate players of varying age groups in the Republic of Kosovo. Anxiety, a critical psychological factor in sports, significantly influences athletes' performance, particularly in high-demand disciplines such as karate, which requires both physical and mental preparedness. A total of 180 karate athletes, comprising cadets (12–14 years), juniors (15–18 years), and seniors (19+ years), were analyzed, with an almost equal distribution of males (92) and females (88). Data were collected using the Competitive State Anxiety Inventory-2 (CSAI-2), administered one hour before competitions to assess the intensity of cognitive and somatic anxiety. The study utilized Structural Equation Modeling (SEM) to analyze the relationship between age, gender, and anxiety components, providing detailed insights into the psychological profiles of athletes. The findings reveal that age and specific anxiety dimensions, particularly cognitive and somatic anxiety scores derived from the SCAT components, are statistically significant predictors of gender differences. Interestingly, cognitive and somatic anxiety scores from TAI did not show significant predictive power. These results highlight the complex interplay of psychological factors in karate, suggesting that tailored approaches are needed to manage anxiety effectively. Interventions focusing on cognitive strategies and mindfulness techniques could play a vital role in helping athletes achieve optimal performance under competitive pressure. This research underscores the importance of a comprehensive understanding of anxiety in combat sports and its potential to enhance psychological training programs. By addressing the unique challenges faced by karate athletes, the findings contribute to the broader field of sports psychology and performance enhancement strategies.

Key words: Cognitive Anxiety, Somatic Anxiety, Karate, Sports Psychology, Anxiety Management

Introduction

Nowadays, there is an increased interest on analyzing and dealing with the emotional state of athletes especially before the competitions. Many studies including Hanin (2007), and Jeakuc et al. (2021), point out that based on the fact that athletes all the time develop personal goals with uncertain outcomes, the extreme emotions linked with the psychological effects are always present. In fact Jeakuc et al. (2021), emphasize that the extreme emotional states make sports very fascinating for both athletes and also spectators. One is for sure, emotions cannot be eliminated, but at the same time they need to be controlled in order to succeed and this rule is applicable in almost every situation in life not just in sports. Examining research and trends we can see that anxiety so far has gained more attention than any other emotion and state. There was always an interest on analyzing anxiety, since it is a state that is being developed in several stages and it is the main link between sports, psychology, well-being and performance. The recognition of anxiety as a multifaceted phenomenon, encompassing basic, cognitive, somatic, and experiential dimensions, has led to a more comprehensive approach to sports psychology and this is the main reason why this paper will deal with the anxiety in the dimension of karate players from the perspective of Kosovo.

Karate is known as a sport that demands high physical and as well psychological preparation to succeed. Arriaza (2009), in a book chapter that describes karate since its evolution to the nowadays developments, emphasize the importance of psychological state of players especially before and during the competitions. According to Arriaza (2009), karate competition involves intense and intermittent physical exertion, primarily depending on the immediate (ATP, PCr) and short-term (anaerobic glycolysis) systems to replenish ATP. Furthermore the author mentioned above points out that karate performance is a

combination of higher and lower intensity performance with different stages such as observation, preparation and interaction. These stages make karate, a sport that is not considered just physical, but tactical at large scales, which include planned movements such as “dancing around”, punching, kicking and blocking, therefore a high psychological demand is more than necessary (Arriaza, 2009). Fernandez et al. (2020), point out that anxiety in combat sports like karate also brings philosophical dimensions that help athletes in self-control regarding emotions and behavior. However, like any other discipline, studies in karate also need to be structured and divided into disaggregated groups for proper and trusted analysis.

Research Methodologies

In this paper will be interviewed about 180 karate players including cadet, junior and senior of both genders. The survey will be conducted 1 hour before the karate competitions that will be held in the Republic of Kosovo. In the research, two variables will be used to assess anxiety: cognitive anxiety and somatic anxiety.

Assessment of sports anxiety trait before the competition is done using Martens Competitive State Anxiety Inventory-2 (CSAI-2) questionnaire (Martens et al.1983, 1990) which measures exactly three dimensions of cognitive anxiety and somatic (physiological) anxiety. Martens et al. (1990) develop the CSAI-2 to be a sport-specific measure of the subcomponents of somatic and cognitive anxiety. Thus CSAI-2 measures the separate components of state somatic anxiety and cognitive anxiety (Gant & Cox, 2004). Athletes will be asked to indicate "how you feel right now" for each item on a 4-point scale ranging from "not at all" to "very much". Each of the three subscales has 9 items, which are summed to get a score representing the level of intensity the athlete is feeling for each component of anxiety, and for the self-confidence about performing. The variables will be tested for each gender and each group age divided in TAI Cognitive (cog_tai) and SCAT Cognitive (cog_scat) and also in TAI Somatic (som_tai) and SCAT Somatic (som_scat). Since the analysis include the gender and age as two groups, the results will be interpreted through Structural Equation Model (SEM). SEM includes frequency tables and the regression analysis. The following equation shows the form of SEM:

$$\eta = \beta_{ij}\eta + \beta \dots + \zeta_1$$

Where:

η : represent latent variables;

β_{ij} : represents the direction of the relationship between latent variables η_i and η_j

ζ_1 : represents the residual or error term.

Results and discussion

The sample for the analysis is consisted by 180 karate players divided into three group of ages (12y-14y), (15y-18y) and (over 19y), with 92 males and 88 females. The next table shows a summary of the characteristics of the sample respondents.

Table 1. Summary of the characteristics of the respondents

Gender	Number of players	12y-14y	15y-18y	over 19y
Male	92	26	34	32
Female	88	39	27	22

Descriptive statistics are shown in the next table:

Table 2. Descriptive Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
gender	180	1.488889	0.5012709	1	2
Age	180	1.938889	0.8130492	1	3
cog_tai	180	7.327778	2.627382	3	12
cog_scat	180	20.111111	6.773996	8	32
som_tai	180	5.288889	1.424012	2	8
som_scat	180	18.4	5.724201	7	28

Frequency tables as are required by the SEM are presented below:

Table 3. Frequency Tables for Gender and Age

Gender	Freq.	Percent	Cum.		Age	Freq.	Percent	Cum.
Male	92	51.11	51.11		12y-14y	65	36.11	36.11
Female	88	48.89	100		15y-18y	61	33.89	70
Total	180	100			over 19y	54	30	100
					Total	180	100	

Table 4. Frequency Tables for Cog_TAI

Cog_TAI	Freq.	Percent	Cum.
3	15	8.33	8.33
4	15	8.33	16.67
5	23	12.78	29.44
6	18	10	39.44
7	18	10	49.44
8	30	16.67	66.11
9	27	15	81.11
10	8	4.44	85.56
11	10	5.56	91.11
12	16	8.89	100
Total	180	100	

Table 5. Frequency Tables for Cog_SCAT

Cog_SCAT	Freq.	Percent	Cum.
8	7	3.89	3.89
9	10	5.56	9.44
10	6	3.33	12.78
11	3	1.67	14.44
12	4	2.22	16.67
13	5	2.78	19.44
14	5	2.78	22.22
15	7	3.89	26.11
16	7	3.89	30
17	11	6.11	36.11
18	12	6.67	42.78
19	8	4.44	47.22
20	6	3.33	50.56
21	11	6.11	56.67
22	6	3.33	60
23	9	5	65
24	5	2.78	67.78
25	11	6.11	73.89
26	5	2.78	76.67
27	7	3.89	80.56
28	17	9.44	90
29	7	3.89	93.89

30	3	1.67	95.56
31	3	1.67	97.22
32	5	2.78	100
Total	180	100	

Table 6: Frequency Tables for Som_TAI

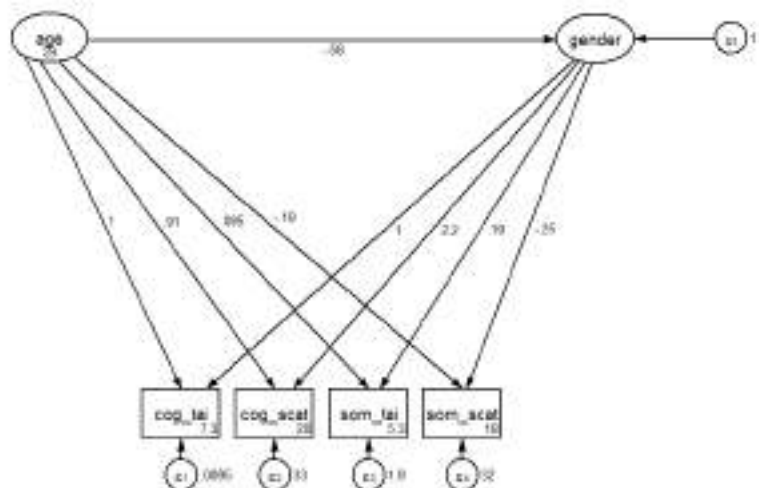
Som_TAI	Freq.	Percent	Cum.
2	3	1.67	1.67
3	18	10	11.67
4	32	17.78	29.44
5	46	25.56	55
6	44	24.44	79.44
7	26	14.44	93.89
8	11	6.11	100
Total	180	100	

Table 7. Frequency Tables for Som_SCAT

Som_SCAT	Freq.	Percent	Cum.
7	5	2.78	2.78
8	4	2.22	5
9	5	2.78	7.78
10	1	0.56	8.33
11	5	2.78	11.11
12	7	3.89	15
13	7	3.89	18.89
14	15	8.33	27.22
15	15	8.33	35.56
16	9	5	40.56
17	13	7.22	47.78
18	11	6.11	53.89
19	5	2.78	56.67
20	7	3.89	60.56
21	16	8.89	69.44
22	5	2.78	72.22
23	8	4.44	76.67
24	8	4.44	81.11
25	11	6.11	87.22
26	3	1.67	88.89
27	8	4.44	93.33
28	12	6.67	100
Total	180	100	

SEM model was built in four parts in order to get more accurate results. In the first part are analysed Males in different Male 1

Table 8: SEM and Regression Results



Multiple R	0,394
R Square	0,156
Adjusted R Square	0,131
Standard Error	0,467
Observations	180

	df	SS	MS	F	Significance F
Regression	5	7,00	1,40	6,41	0%
Residual	174	37,98	0,22		
Total	179	44,98			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95,0%	Upper 95,0%
Intercept	1,170	0,243	4,824	0,000	0,691	1,648	0,691	1,648
Age	-0,096	0,044	-2,187	0,030	-0,183	-0,009	-0,183	-0,009
Cog_TAI	-0,025	0,013	-1,907	0,060	-0,052	0,001	-0,052	0,001
Cog_SCAT	0,018	0,005	3,481	0,000	0,008	0,029	0,008	0,029
Som_TAI	-0,006	0,025	-0,230	0,080	-0,054	0,043	-0,054	0,043
Som_SCAT	0,019	0,006	3,119	0,000	0,007	0,032	0,007	0,032

Conclusion

The regression model appears to be statistically significant (Significance F = 0%), since four out of five the independent variables have a significant effect on the gender as dependent variable.

Age, cognitive anxiety scores from SCAT, and somatic anxiety scores from SCAT appear to be statistically significant predictors, as their p-values are below the conventional threshold of 0.05.

Cognitive anxiety scores from TAI and somatic anxiety scores from TAI do not appear to be statistically significant predictors, as their p-values are above 0.05.

Overall, these results suggest that age, cognitive anxiety scores from SCAT, and somatic anxiety scores from SCAT are important factors in gender, while cognitive anxiety scores from TAI and somatic anxiety scores from TAI may not have a significant impact in this particular model.

Literature

Arriaza, R. (2009). Karate. *Combat sports medicine*, 287-297.
 Barić, R. i Čerenšek, I. (2011). Competitive anxiety and goal orientation in Croatian athletes. Zagreb: Kineziološki fakultet. *Proceedings Book*, 375.
 Barić, R. i Čerenšek, I. (2011). Competitive anxiety and goal orientation in Croatian athletes. Zagreb: Kineziološki fakultet. *Proceedings Book*, 375.

- Behzadi, F., Hamzei, M., Nori, S., & Salehian, M. H. (2011) The Relationship between goal orientation and competitive anxiety in individual and team athletes fields. *Scholars Research Library*, 2, 261–268.
- Bosnar, K. i Balent, B. (2009). *Uvod u psihologiju sporta – Priručnik za sportske trenere*. Zagreb: Kineziološki fakultet.
- Bowlby, J. (1988). *A Secure Base: Parent-Child Attachment and Healthy Human Development*. New York: Basic Books.
- Burns, L. R., & Fedewa, B. A. (2005). Cognitive styles: Links with perfectionistic thinking. *Personality and Individual Differences*, 38(1), 103-113.
- Cox, R. H. (1998). *Sport psychology: concepts and applications* (No. Ed. 4). McGraw-hill.
- Craft, L. L., Magyar, T. M., Becker, B. J., & Feltz, D. L. (2003). The relation between the competitive state anxiety inventory-II and sport performance: A meta-analysis. *Journal of Sport and Exercise Psychology*, 25, 44–65.
- Elgin, S. L. (2000). State anxiety of woman basketball player's prior to competition. *Perceptual and Motor Skills*, 83 (2). 375- 383.
- Fernández, M. M., Brito, C. J., Miarka, B., & Díaz-de-Durana, A. L. (2020). Anxiety and Emotional Intelligence: Comparisons Between Combat Sports, Gender and Levels Using the Trait Meta-Mood Scale and the Inventory of Situations and Anxiety Response. *Frontiers in psychology*, 11, 130
- Findak, V. i Prskalo, I. (2004.) *Kineziološki leksikon za učitelje*. Petrinja: *Visoka učiteljska škola*.
- Finkenbergl, M., Dinucci, J., McCune, E. i McCune, S. (1992). Cognitive and Somatic State Anxiety and Self-Confidence in Cheerleading Competition. *Perceptual And Motor Skills*, 75(3), 835-839.
- Gallucci, T. N. (2013). *Sport Psychology: Performance Enhancement, Performance Inhibition, Individuals, and Teams*. Hove: Psychology Press.
- Gant DW Cox RH (2004). The Sport Grid-Revised as A Measure of Felt Arousal and Cognitive Anxiety. *Journal of Sport Behaviour*, 27, 93–113.
- Gardner, F. L., & Moore, Z. E. (2004). *The Psychology of Enhancing Human Performance: The Mindfulness-Acceptance-Commitment (MAC) Approach*. New York: Springer.
- Hanton, S., Fletcher, D., & Coughlan, G. (2004). Stress in Elite Sport Performers: A Comparative Study of Competitive and Organizational Stressors. *Journal of Sports Sciences*, 22(9), 911–928.
- Hanton, S., Mellalieu, S. D., Hall, R. (2004). Self-confidence and anxiety interpretation: A qualitative investigation. *Psychology of Sport & Exercise*, 5, 477-495.
- Hanton, S., Mellalieu, S. D., Hall, R. (2004). Self-confidence and anxiety interpretation: A qualitative investigation. *Psychology of Sport & Exercise*, 5, 477-495.
- Hardy, L., Jones, G., & Gould, D. (1996). *Understanding Psychological Preparation for Sport: Theory and Practice of Elite Performers*. Chichester: Wiley.
- Harita, A. N. W., Suryanto, S., & Ardi, R. (2022). Effect of Mindfulness Sport Performance Enhancement (MSPE) to Reduce competitive state anxiety on Karate Athletes. *Jurnal SPORTIF: Jurnal Penelitian Pembelajaran*, 8(2), 169-188.