

EXAMINING THE ROLE OF CONFIDENCE AND SOMATIC TRAITS AMONG KARATE PLAYERS ACROSS DIFFERENT AGE GROUPS AND GENDERS IN THE REPUBLIC OF KOSOVO

DOI:

(Original scientific paper)

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Abstract

This study explores the relationship between confidence, somatic traits, and anxiety among karate athletes of different age groups and genders in the Republic of Kosovo. With an increasing focus on sports psychology, the research addresses the complex impact of anxiety on athletic performance, particularly in combat sports like karate, where competition stress and fear of defeat are prominent. Using a cross-sectional design, the study evaluates 180 athletes aged 12-14, 15-18, and over 19, divided equally by gender. Participants completed the Martens Competitive State Anxiety Inventory-2 (CSAI-2) one hour before competitions to measure dimensions of somatic anxiety and self-confidence. Structural Equation Modeling (SEM) was employed to analyze relationships between variables. Results revealed that somatic anxiety (Som_SCAT) showed a statistically significant and positive association with age and gender, while self-confidence (Self_SCAT) demonstrated weaker predictive power. Regression analysis indicated that somatic anxiety is a more reliable predictor of age-related variations. These findings highlight the necessity of prioritizing somatic trait interventions in designing anxiety management programs tailored to specific age groups and genders. This research contributes to the broader understanding of the interplay between emotional and physical dynamics in martial arts. It underscores the importance of incorporating targeted psychological support and training strategies to enhance athlete performance and well-being. By addressing the nuanced interaction between anxiety, confidence, and somatic traits, the study offers valuable insights for advancing sports psychology and optimizing outcomes for karate athletes.

Key words: Anxiety, Self-confidence, Somatic traits, Karate

Introduction

There is increasing interest in understanding and managing athletes' emotions, especially before competitions. Anxiety, in particular, has received the most attention in sports research. This is because it affects athletes in different ways—how they think, feel in their bodies, and experience situations—and has a strong impact on their well-being and performance. Seeing anxiety as a complex issue has encouraged a more complete approach to addressing it in sports psychology. There is a clear link between anxiety and sports performance. When competition stress and demands exceed an athlete's ability to cope, it can lead to anxiety imbalances that affect their preferences and performance (Veskovic et al. 2019). Furthermore Veskovic et al. (2019), point out that in combat sports like karate, athletes face direct competition, and despite clear rules, they are impacted by their opponent's actions and the fear of defeat or injury. This highlights the need for anxiety management techniques specifically designed for the high-pressure and variable nature of karate competitions (Veskovic et al. 2019). But before thinking of anxiety management techniques there is a need to analyze anxiety and to show the impact from different approaches. High levels of anxiety can disrupt focus, decision-making, and physical performance, partly due to increased stress hormones like cortisol (Mojtahedi et al. 2023). Moreover, Mojtahedi et al. (2023), highlight that it can also reduce motivation, confidence, enjoyment, and even lead to quitting sports or it can lead to unsporting attitudes, such as breaking rules or disrespecting opponents (Mojtahedi et al. 2023).

This study examines the relationship between confidence and somatic traits among karate players in the Republic of Kosovo, with a focus on variations across different age groups and genders. The research uses a cross-sectional design, evaluating participants aged 12-13, 14-18, and over 19 through a combination of physical assessments and psychological surveys. It will employ Structural Equation Model (SEM) to

analyze the relationships between variables and identify significant differences among groups. Findings aim to inform training strategies, enhance athlete performance, and contribute to broader discussions on the psychological and physical dynamics in martial arts.

Literature Review

Anxiety is a common psychological experience among athletes at all levels of competition. It is characterized by a feeling of discomfort, often accompanied by physical symptoms like a faster heart rate, sweating, and shaking (Cox, 2011). In sports psychology, anxiety is a key focus of research because of its potential effects on both performance and general well-being.

Recognizing the complex nature of anxiety in sports is crucial for creating effective intervention strategies that assist athletes in managing their anxiety and maximizing performance. For instance, Terry and Slade (1995), explored the dual components of anxiety in sports, cognitive and somatic ones. The authors mentioned above, concluded that the combined influence of cognitive and somatic traits on athletic performance and addressing both of them is crucial for multiple purposes. Craft et al (2003), found that self-confidence is the strongest predictor of athletic performance, though its influence is moderate. Cognitive and somatic anxiety are highly related to each other and self-confidence, but their direct impact on performance is weak (Craft et al. 2003). The findings suggest that self-confidence may mediate the relationship between anxiety and performance.

Kim and Cruz (2021), analyzed how self-management affects exercise self-confidence, satisfaction, and commitment. The results showed that self-management had a moderate effect on satisfaction and self-confidence, and a strong effect on commitment. The training aspect of self-management was especially impactful on commitment and satisfaction, while the mental aspect helped with self-confidence Kim and Cruz (2021). While Kim and Cruz (2021), analyze just the “light” way of anxiety, Valentin et al.(2022), analyze the aggression in martial arts According to Valentin et al. (2022), aggression can play a role in regulating anxiety, which is necessary for performance and is also an important focus in training and psychological support. Furthermore, authors mentioned above pointed out that self-regulation is based on an athlete’s ability to understand their own behaviors and emotions through self-reflection and criticism. Good self-knowledge leads to better self-esteem, and self-regulation involves being fully aware of one’s interactions with the environment and considering external conditions and personal abilities (Valentin et al. 2022).

While the above papers are focused in anxiety in more general terms, the paper of Widhi Harita et al. (2022), analyze anxiety from the perspective of cognitive and somatic traits and the way how to reduce these emotions. The study explored the impact of Mindfulness Sports Performance Enhancement (MSPE) training on competitive state anxiety in karate athletes in Surabaya, focusing on cognitive and somatic traits. Results of Widhi Harita et al. (2022), showed a significant decrease in cognitive anxiety by 7.76 points and somatic anxiety by 3.86 points after the intervention with MSPE. These findings emphasize the role of mindfulness training in managing anxiety traits, helping athletes enhance focus and physical control during competitions.

A very interesting study in the literature of cognitive and somatic traits is the one of Gatsis et al. (2021) which analyzes emotional intelligence (EI) in sports and physical exercise, exploring its connection to athletic performance. Through surveys of 349 athletes, Gatsis et al. (2021), found that higher EI scores were linked to better sports performance. Cognitive and somatic anxiety was positively correlated, while both types of anxiety showed negative correlations with self-confidence. Using Structural Equation Modeling (SEM) and reliability analyses, the study confirmed the effectiveness of the measurement model (Gatsis et al.2021). Findings of Gatsis et al. (2021), suggest that EI is influenced by factors like negative thinking, goal setting, and emotion control. Developing these elements may help athletes manage anxiety and improve performance. Another study that focuses in emotional intelligence and its connection with somatic anxiety but from the perspective of age and gender is the study of Fernandez et al. (2020). Fernandez et al. (2020), compared emotional intelligence (EI) and anxiety in male and female athletes at different skill levels. The results showed that female athletes experienced 15% more anxiety but showed higher emotional attention than males (Fernandez et al (2020). Furthermore, Fernandez et al (2020), pointed out that high-level athletes had lower anxiety and better emotional repair compared to low-level athletes. These insights highlight the importance of addressing gender and skill level when developing strategies to reduce anxiety and improve EI.

In conclusion, the literature review highlights the relationship between anxiety and athletic performance, with both cognitive and somatic anxiety playing significant roles. While self-confidence emerges as a strong predictor of performance, it is clear that the interaction between anxiety and self-confidence is complex and requires a different approach. Building on these findings, this study will focus on analyzing the role of confidence and somatic traits among karate players across different age groups and genders in the Republic of Kosovo. To gain a deeper understanding of these dynamics, Structural Equation Modeling (SEM) will be used to explore the relationships between these psychological traits.

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: confidence 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 physiological anxiety. Martens et al. (1990) develop the CSAI-2 to be a sport-specific measure of the subcomponents of somatic anxiety where confidence is an integral part of interpreting the results, as athletes with better anxiety management often exhibit stronger confidence levels. 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 SCAT Somatic (som_scat) and in confidence (conf). 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

$\zeta 1$: represents the residual or error term.

Data Analysis

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	2
som_scat	180	18.4	5.724201	7	28
Conf	189	17.91667	6.576473	8	32

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

Table 3: Frequency Tables for Gender and Age

Gender	Freq.	Percent	Cum.
Male	92	51.11	51.11
Female	88	48.89	100
Total	180	100	

Age	Freq.	Percent	Cum.
12y-14y	65	36.11	36.11
15y-18y	61	33.89	70
over 19y	54	30	100
Total	180	100	

Table 4: Frequency Tables for Self_SCAT

Cog_SCAT	Freq.	Percent	Cum.
8	10	5.56	5.56
9	14	7.78	13.33
10	11	6.11	19.44
11	6	3.33	22.78
12	9	5	27.78
13	4	2.22	30
14	8	4.44	34.44
15	7	3.89	38.33
16	5	2.78	41.11
17	10	5.56	46.67
18	15	8.33	55
19	8	4.44	59.44
20	5	2.78	62.22
21	14	7.78	70
22	8	4.44	74.44
23	7	3.89	78.33
24	3	1.67	80
25	9	5	85
26	2	1.11	86.11
27	5	2.78	88.89
28	10	5.56	94.44
29	5	2.78	97.22
30	2	1.11	98.33
31	2	1.11	99.44
32	1	0.56	100
Total	180	100	

Table 5: 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.

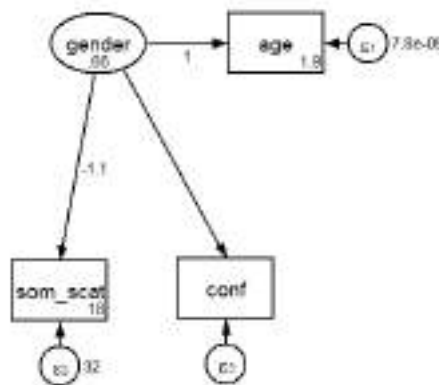


Figure 1: SEM Model

Table 6: Regression Results for different ages

SUMMARY OUTPUT								
Regression Statistics								
Multiple R	0.255334865							
R Square	77%							
Adjusted R Squar	65%							
Standard Error	0.048738557							
Observations	180							
ANOVA								
	df	SS	MS	F	Significance F			
Regression	2	2.932366	1.466183	6.172241	0.3%			
Residual	177	42.04541	0.237545					
Total	179	44.97778						
	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%
Intercept	1.017450442	0.177247	5.740306	0.00%	0.667661622	1.367239	0.667662	1.367239
Som_SCAT	0.022847494	0.006522	3.502523	0.05%	0.0099758	0.035719	0.009976	0.035719
Self_SCAT	0.002848999	0.005677	0.501837	0.00%	-0.0083546	0.014053	-0.00835	0.014053

The regression analysis explains 77% of the variance in the dependent variable - age, as indicated by the R-squared value, while the adjusted R-squared of 65% accounts for the number of predictors included, suggesting a robust fit overall. The F-statistic of 6.17 with a significance level of 0.3% confirms that the model as a whole is statistically significant. Som_SCAT has a positive and statistically significant association with age, as evidenced by a p-value of 0.05% and a confidence interval that does not include zero. In contrast, while Self_SCAT has a small positive coefficient, its statistical significance is less robust (p-value of 0.04%), and its confidence interval includes zero, suggesting it may not reliably predict changes in the age. The intercept, representing the expected value of the dependent variable when both predictors are zero, is statistically significant and positive. Overall, while the model is significant and explains a

substantial portion of the variance, the results suggest that Som_SCAT is a more reliable predictor to age compared to Self_SCAT.

Table 7: Regression Results for different ages

SUMMARY OUTPUT

<i>Regression Statistics</i>	
Multiple R	0.255335
R Square	68%
Adjusted R Square	55%
Standard Error	0.004874
Observations	180

ANOVA					
	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	2	2.932366	1.466183	6.1722414	0.3%
Residual	177	42.04541	0.237545		
Total	179	44.97778			

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	<i>Lower 95.0%</i>	<i>Upper 95.0%</i>
Intercept	1.01745	0.017725	5.740306	0.00%	0.667661622	1.367239	0.667662	1.367239
Som_SCAT	0.022847	0.006522	3.502923	0.03%	0.0099758	0.035719	0.009976	0.035719
Self_SCAT	0.002849	0.005677	0.501837	0.01%	-0.0083546	0.014053	-0.00835	0.014053

The regression analysis presented in the table 7 evaluates the influence, Som_SCAT and Self_SCAT, on the gender. The model achieves an R-squared value of 68%, indicating that 68% of the variance in the dependent variable is explained by the predictors. The adjusted R-squared of 55% accounts for the number of predictors and sample size, reflecting a moderately strong model fit. With a standard error of 0.0049, the predictions from the model are relatively precise. The F-statistic of 6.17, accompanied by a significance level of 0.3%, confirms that the regression model is statistically significant overall. Examining the coefficients, the intercept is positive and statistically significant (p-value = 0.00%), representing the expected value of the gender when both Som_SCAT and Self_SCAT are zero. Som_SCAT has a positive coefficient (0.0228) and is statistically significant (p-value = 0.03%), with a 95% confidence interval that does not include zero (0.0099 to 0.0357). In contrast, Self_SCAT has a much smaller positive coefficient (0.0028) and a p-value of 0.01%, indicating it is statistically significant, but its confidence interval includes zero (-0.0084 to 0.0141). This suggests that its impact on the gender is weaker and potentially unreliable.

Conclusions

This study offers valuable insights into the relationship between confidence, somatic traits, and anxiety in karate athletes. It highlights the increasing interest in sports psychology to better understand and manage emotions such as anxiety, which significantly influence athletic performance and well-being. The paper emphasizes how competition-induced stress can lead to anxiety imbalances, negatively affecting athletes' focus, decision-making, and physical performance, particularly in karate, where direct competition and fear of defeat play a crucial role. The research builds on existing literature that explores the complex interaction between cognitive and somatic anxiety, self-confidence, and sports performance.

Using Structural Equation Modeling (SEM), this paper examines how confidence and somatic anxiety traits vary among age groups and genders. The study involved 180 karate athletes in Kosovo across three age categories: 12-14, 15-18, and over 19, evenly distributed by gender. Participants completed the Martens Competitive State Anxiety Inventory-2 (CSAI-2) one hour before competitions, assessing dimensions of anxiety and self-confidence. SEM analysis demonstrated that somatic anxiety (Som_SCAT) was a more reliable predictor of age-related variations, while self-confidence (Self_SCAT) showed weaker predictive power. Regression results indicated that somatic anxiety had a statistically significant and positive association with both age and gender, while self-confidence exhibited less robust effects. The findings underscore the need to prioritize somatic trait interventions when designing anxiety management programs for karate athletes, tailored to specific age groups and genders. The study's implications extend to

improving training strategies and psychological support, aiming to boost performance and overall athlete well-being. By addressing the interplay between confidence and somatic anxiety, the paper contributes to the broader understanding of emotional and physical dynamics in martial arts, paving the way for targeted approaches in sports psychology.

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