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Research article

THE ASSOCIATION BETWEEN INTENSITY AND DIRECTION OF COMPETITIVE ANXIETY WITH PRE-PERFORMANCE EXPECTATIONS AND COMPETITION PERFORMANCE

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Abstract. *During sports competitions athletes experience anxiety, frequently intense, which can affect performance and well-being. The first aim of this study was to test the predictive power of pre-performance expectations for intensity and direction of multidimensional components of state anxiety. The second aim was to test the predictive power of direct and interactive effects of intensity and direction of anxiety symptoms on performance. The sample consisted of female basketball athletes (N= 58) with an average age M=15.68±.99 and average sport experience M=5.85±2.23, during the final tournament. Within an hour before the match, they completed the CSAI-2, CSAI-2-d, three single items about performance expectations, and four single items addressing performance assessment. After the match, the players answered three single items aimed to assess performance. After the match the teams' head coaches (n=5) also assessed individual player's performance. The regression analysis revealed that Expectation of a good performance emerged as the only negative predictor of Intensity of cognitive anxiety, Intensity of somatic anxiety, and positive predictor of Intensity and Direction interpretation of self-confidence. Only the Intensity of cognitive anxiety is a negative predictor of Satisfaction with performance. The obtained results suggest that dominance of Expectation of a good performance can be possibly viewed as a protective factor that has the potential to decrease anxiety and increase self-confidence and perceived self-confidence as more facilitative to performance. Other tested predictions of anxiety-performance measures are not significant. More studies are needed to investigate other potential antecedents and moderators of anxiety components. Also, further empirical development of performance measures and tests of anxiety-performance relationships would enhance comprehensive understanding of such complex relationships.*

Key words: *Performance, Pre-performance expectations, Post-performance measures, Intensity of state anxiety, Directional interpretation of anxiety*

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1. INTRODUCTION

Competitive performance is affected by various psychological factors (Mytskan et al. 2006). Undoubtedly, participating in sports competitions, athletes often feel a variety of emotions, pre-competitive anxiety being one of the prominent one (Jones & Hanton, 1996; Ford, Ildefonso, Jones, & Arvinen-Barrow, 2017). Various theoretical models and theories about the mechanisms that are below the surface of relationships between anxiety and performance have emerged. One of the leading is Martens' multidimensional model (Martens, Burton, Vealey, Bump, & Smith, 1990). A fundamental premise of the model is that competitive anxiety is multidimensional in nature. Two components of anxiety can be distinguished: a mental component termed cognitive anxiety (e.g. worry and negative thoughts) and a physiological component termed somatic anxiety (e.g. increasing heart rate, sweating, tight muscles, butterflies in the stomach, etc.). It is proposed that these two anxiety components affect athletic performance differently. Cognitive anxiety is seen as a component which negatively affects athletic performance, whereas somatic anxiety is considered a component which influences athletic performance in a non-linear manner (too low and too high levels have harmful effects). It is assumed that these two subcomponents are related to environmental factors that affect perceptions of success and failure. The third component of the model is self-confidence (positive expectations of success), which is not an aspect of anxiety, but its absence or low intensity might indicate that athletes experience cognitive anxiety. Progress in this field was also stimulated by the development of the Competitive State Anxiety Inventory-2 (CSAI-2), which measures the "intensity" of pre-competitive state anxiety symptoms and self-confidence (Martens, et al., 1990) and which became one of the most frequently used instruments. Therefore, extensive research was devoted to exploring the effects of anxiety components on competition performance (Peng & Zhang 2021). In sum, existing empirical findings conducted in different sport settings are equivocal. Some studies confirm theoretical assumptions that higher levels of competitive cognitive anxiety have negative effects on performance success (Kleine, 1990; Woodman & Hardy, 2003). Contrarily, other research findings do not confirm theoretical assumptions, and suggest that anxiety has the potential to improve competitive performance (Hanin, 2007). In line with these research results, that anxiety potentially can enhance performance, are findings presented in a meta-analysis (Woodman & Hardy, 2003) which indicated that 40% of research results do not confirm the harmful effects of cognitive anxiety. Contrary to theoretical predictions, almost a quarter of the reported results in that analysis indicated that cognitive anxiety has the potential to improve competitive performance. Furthermore, according to some empirical results that are included in Woodman and Hardy meta-analyses (2003) and in Craft's and collaborators' meta-analyses (2003), anxiety-performance relation is weak, and self-confidence appears to be a better predictor of competitive performance than anxiety.

An important issue, that can help to develop an effective intervention technique, is the identification of factors that antedate and/or evocate competitive anxiety. Martens assumed that antecedents of cognitive anxiety and self-confidence involve environmental factors primarily associated with athletes' expectation of a successful performance. It is hypothesized that an increase in performance expectations, as well as uncertain expectations, are related to an increase in cognitive anxiety and decrease in self-confidence. On the other hand, somatic anxiety antecedents are evoked by factors that are different in nature - nonevaluative and are dominantly based on conditioned stimulus, like the locker room, pre-game routine (Jones, Swain, & Cale, 1990). It is surprising that

detailed empirical examinations of the antecedent of multidimensional anxiety component (their intensity and directional interpretation of symptoms) in different sports contests still did not get more research attention. In general, results of few studies are congruent in conclusions that three components of the multidimensional state anxiety have some common antecedents, but also each component has some unique ones (Gould, Petlichkoff, & Weinberg,1984; Jones, et al., 1990; Lane, Terry, & Karageorghis, 1995).

Further theoretical advances and contribution to a comprehensive understanding of the anxiety-performance relationship were initiated by work of Jones and Swain (1992). Considering the existence of ambiguous research results, they hypothesized that the "intensity" approach dominated as a result of anxiety mainly being observed as negative to performance (Jones, 1995). The authors extended the intensity approach by introducing the notion that the directional interpretation of anxiety symptoms is significant. Athletes may perceive anxiety symptoms as positive i.e. facilitative or negative i.e. deliberative in relation to performance. In other words, a higher degree of cognitive anxiety is not necessarily harmful to performance. If athletes interpret symptoms as facilitative, higher intensity of cognitive anxiety can improve performance (Jones, Swain, & Hardy, 1993; Hatzigeorgiadis, & Biddle, 2008). Additionally, authors adapted the original version of the CSAI-2 (Jones & Swain, 1992), by adding a directional interpretation of anxiety symptoms subscales along with intensity subscales. Afterwards, a series of investigations were conducted to test this hypothesis (Jones & Swain,1992; Jones, et al., 1993; Jones, Hanton, & Swain, 1994). Overall, the results confirmed the hypothesis that anxiety effects can be perceived as positive and negative in relation to performance. Also, successful performance, in comparison with unsuccessful performance, was linked with a more facilitative and less debilitative interpretation of anxiety. According to Mellalieu and associates (Mellalieu, Hanton, & O'Brien 2004) numerous subsequent research showed that elite athletes in comparison with non-elite experience a similar intensity of anxiety symptoms, but concurrently, interpret the perceived symptoms as more facilitative.

Another crucial issue is the eligibility of performance measurement that should not be neglected due to its influence on anxiety-performance research results. Within sport psychology, numerous studies were aimed at investigating the relationship between different psychological variables (e.g. anxiety, emotions, coping) and competition performance. Bearing in mind that athletic performance is complex and that there is no universally suitable measure of performance that could reliably capture all important aspects of performance, it is not surprising that researchers used different approaches to performance evaluation (objective and subjective assessment), and a variety of concrete performance measures. Objective measures of performance were based on achieved result score, like performance time, the number of shots, performance time (Nicholls, Taylor, Carroll, & Perry, 2016). In team sports (Kais & Raudsepp, 2005), absolute outcomes of the game – win and loss, were frequently used. Authors argue that such global measure can obscure the anxiety-performance relationship because individual differences, like differences in player position in the team, are not taken in consideration. To overcome the previously mentioned weaknesses of the applied measures, other scholars used subjective measures of performance. These types of measures are commonly based on athlete's pre- and post-performance self-assessments. For example, goal attainment expectancy (O'Brien, Hanton, & Mellalieu, 2005) is used as indicator of the pre-performance subjective self-assessment measure. Common post-performance subjective measures are goal attainment (Gaudreau & Blondin, 2004; Schellenberg, Gaudreau, & Crocker, 2013), and performance

satisfaction (Nicholls, Polman, & Levy, 2012; Polman, Rowcliffe, Borkoles, & Lev, 2007; Nicholls, Taylor, Carroll, & Perry, 2016). Having in mind that the athlete's self-assessment bias is highly conditioned by the emotions related to the competitive result, in some research (Kais & Raudsepp, 2005) performance assessment by the coach was applied. The rationale for this approach is the fact that the coach is an expert who is familiar with the potentials and limitations of his athletes. To overcome the aforementioned limitations, some authors (Butt, Weinberg, & Horn, 2003) combined both types of measures, a players' self-assessment and a head coaches' player performance assessment.

Based on their empirical findings, some authors (Lane, et al., 1995) concluded that stressors that provoke anxiety vary across different sports (and some of them are unique for each sport discipline). They recommended that existing research results should be extended by investigating state-anxiety antecedents across different sports. As far as we know, antecedents of state anxiety components in basketball have not been the focus of previous researchers. Therefore, the first aim of this study was to investigate the predictive power of performance expectation on intensity and directionality interpretation of cognitive anxiety, somatic anxiety, and self-confidence. Taking into account equivocal results on anxiety-performance relationship, the second aim of this study was to investigate direct and interactive effects of intensity and directional interpretation of anxiety symptoms on performance, measured by players' subjective post-performance assessment and also by a head coaches' assessment of individual player's performance.

2. METHOD

2.1. Sample

The sample consisted of 58 Serbian female basketball players who competed in the Final cadet women's league tournament in 2021 (five of the six clubs that competed). They were 12-17 years old (M = 15.68 SD = .99), and had 2-11 years of experience in sport (M = 5.85, SD = 2.23). The subsample of coaches consisted of five head coaches of the teams.

2.2. Instruments

The Competitive State Anxiety Inventory-2– CSAI-2 was applied to assess the intensity of competitive state anxiety. CSAI-2 is a self-reporting instrument created by Martens and associates (Martens, et al., 1990), and was used to examine the intensity of precompetitive anxiety symptoms. The instrument consists of 27 items classified into three subscales (nine items per scale): cognitive anxiety ("I have self-doubts."), somatic anxiety ("I feel tense in my stomach.") and self-confidence ("I'm confident about performing well"). The participants were asked to rate the intensity of each item on a four-point Likert type scale (from 1 "not at all" to 4 "very much so"). The score range for each subscale is 9 – low score, to 36 – high score.

The directional interpretation of anxiety symptoms scale CSAI-2-d is a modified version of the CSAI-2 by Jones and Swain (1992). Each item from this scale corresponds to each item of the CSAI-2. The participants rated the degree to which perceived anxiety symptoms and self-confidence were either facilitative or debilitative to their performance. Items are ranged on a 7-point Likert scale, from –3 (very debilitative) to +3 (very facilitative), and 0 as unimportant. Potential direction scores ranged from –27 to +27.

Pre-performance expectations. The participants rated their expectations related to performance, answering the three following statements: "I expect to play well in this match", "I expect that we will win this match", "I expect this match to be hard", in the form of a 10-point Likert scale from 1 (Completely Disagree) to 10 (Completely Agree).

Post-performance assessment. Players rated their current performance (subjective self-assessment of performance) answering the three following statements: "I am satisfied with how I performed at the match", "Today, I fulfilled the goals I set", "Today, I fulfilled the perceived goals set by coach", in the form of a 10-point Likert scale from 1 (Completely false) to 10 (Completely true). The head coaches of the teams were asked to rate individual player's performance (subjective assessment of performance by significant other) answering the statement "Today she performed during the game as well as usual", on a 10-point Likert scale from 1 (Completely False) to 10 (Completely true).

2.3. Procedure

The research was conducted during the Final cadet women's league tournament – Triglav, in May 2021. The questionnaires were conducted in paper-and-pencil form by a researcher. First, within 1 hour before the match the participants provided socio-demographic information (age, sex, length of sport experience), intensity and directional CSAI-2, and then answered questions about their performance expectations. This first part of the questionnaire lasted about 10 minutes. Immediately after the match, the participants completing the questions addressing self-evaluate performance. This part of the questionnaire lasted on average less than 5 minutes. The participants were informed about the purpose of the study and gave informed consent. Also the head coach of the team, after the match, rated the performance of individual players during the match.

2.4. Statistical Analysis

The preliminary statistical analysis included Cronbach's alpha coefficients of reliability and descriptive statistics (*M, SD*). Then, a correlation analysis (Pearson correlation) was applied to test the association between all dimensions of anxiety intensity and directional interpretation of anxiety, pre-performance expectations, post-performance self-assessment, and coach's post-performance assessment of individual player's performance. Two series of regression analyses (enter method) were conducted. First, two linear regressions (enter method) were applied to test the predictive power of pre-performance expectations, on all three components of anxiety intensity, and second, on all three components of directional interpretation of symptoms. After that, three hierarchical regression analyses (enter method) were applied to test the direct and interactive effect of intensity and directional interpretation of anxiety symptoms and self-confidence (predictors variables) on performance. In the first analysis, the criterion variable was Satisfaction with one's own performance, in the second, Fulfilment of personal goals, and in the third Fulfilment of perceived goals set by the coach. In the all three analyses the same set of predictors was used. In Step1, the independent predictor variables were the intensity of anxiety subcomponents (cognitive anxiety, somatic anxiety, self-confidence). For Step 2, a directional interpretation of both anxiety subscales and self-confidence were added. In Step 3 interaction effects between the intensity of cognitive anxiety and its directional interpretation, the intensity of somatic anxiety and its directional interpretation, and self-confidence intensity and its directional interpretation (three interactions) were added. Before the interactions were calculated, the data were centred.

3. RESULTS

3.1. Descriptive Statistics

Cronbach's alpha coefficients of reliability for intensity and directional interpretation of anxiety subscales were in the range from acceptable to excellent (with nine items for each subscale): for the intensity of cognitive anxiety α =.90, somatic anxiety α =.85 and self-confidence α =.87, for the directional interpretation of cognitive anxiety symptoms α =.89, for the directional interpretation of somatic anxiety symptoms α =.78, for the directional interpretation of self-confidence α =.92.

Descriptive statistics revealed that female basketball players had higher scores on Self-confidence intensity subscale (*M*=26.49 *SD*= 5.58) than on cognitive (*M*=18.69 *SD*=6.26) and somatic (*M*=16.42 *SD*=5.46) anxiety intensity subscales. Thereby, Cognitive anxiety showed a higher intensity rating than Somatic anxiety. Both Cognitive (*M*= -3.20 *SD*=8.18) and Somatic anxiety (*M*= -1.15 *SD*=7.09) directional interpretation subscales had negative mean scores, through which Cognitive anxiety was rated as less facilitative to performance than Somatic anxiety. Only the Self-confidence directional interpretation subscale (*M*=8.88 *SD*=11.84) had a positive mean score and was rated as facilitative to performance. Mean values of the variables addressed to estimate pre-performance expectations of players had the following descending rank: Expectation of winning (*M*=8.66 *SD*= 2.04), Expectation of a hard match (*M*= 8.34 *SD*= 2.28), followed by Expectation of a good performance (*M*=7.1 *SD*= 2.33).

3.2. Correlation Analysis

Table 1 presents the Pearson correlation between anxiety intensity dimensions, directional interpretation of anxiety symptoms, pre-performance expectations, post-performance self-assessment, and coach's assessment of the individual player's performance. Inter-correlations among the three anxiety intensity scales can be classified as large. Correlation between intensity and directional interpretation of the cognitive anxiety scale, as well as between intensity and directional interpretation of somatic anxiety scale, is negative (medium in size), whereas the correlation between intensity and directional interpretation of the self-confidence scale is positive and can be classified as large. The expectation of a good performance is in negative correlation with cognitive and somatic anxiety and is large positive for both the self-confidence intensity and self-confidence directional scale. There are no significant associations between Expectation of winning and anxiety components. Expectation of a hard match is in a low negative correlation with intensity of cognitive anxiety and a moderate positive one with direction of somatic anxiety. Satisfaction with one's own performance is in low negative correlation with the intensity and interpretation of cognitive anxiety. Fulfilment of personal goals negatively correlates with the intensity of cognitive and somatic anxiety. From all possible inter-correlations between pre-performance assessment (five possible), only two are positive (medium intensity): the expectation of a successful performance is in a positive association with the expectation of winning and with the expectation of a hard match. The correlation between self-assessment measures of performance is highly positive. Coaches' assessment of individual player's performance is in a negative correlation with intensity of cognitive anxiety (low intensity), and moderately correlated with satisfaction with one's own performance and also with fulfilment of personal goals. A high positive correlation exists between fulfilment of perceived goals set by the coach and coach assessment.

Table 1 Correlations between intensity and interpretation of competitive state anxiety and subjective pre- and post- performance self-assessment

	ICA	ISA	ISC	DCA	DSA	DSC	EGP	EW	EHM	SP	FPG	FCG	CAP
ICA	1												
ISA	.70**	1											
ISC	-.73**	-.70**	1										
DCA	-.31*	-.31*	.28*	1									
DSA	-.36**	-.35**	.36**	.73**	1								
DSC	-.57**	-.37**	.58**	.25	.38**	1							
EGP	-.46**	-.40**	.55**	.18	.05	.51**	1						
EW	-.16	-.15	.13	.00	-.03	.10	.44**	1					
EHM	-.28*	-.13	.24	.22	.15	.33*	.32*	-.10	1				
SP	-.30*	-.26*	.08	-.10	-.04	.04	.20	.02	.07	1			
FPG	-.23	-.25	.09	-.06	-.04	-.01	.18	-.08	.04	.82**	1		
FCG	-.33*	-.37**	.22	.05	.04	.04	.19	.05	.03	.80**	.84**	1	
CAP	-.27**	-.26	.14	-.11	.11	.08	.12	-.06	.09	.49**	.48**	.53**	1

Legend: ICA - intensity of cognitive anxiety; ISA - intensity of somatic anxiety; ISC - intensity of self-confidence; ICA – interpretation of cognitive anxiety; DSA - direction of somatic anxiety; DSC - direction of self-confidence; EGP - expectation of a good performance; EW - expectation of winning; EHM - expectation of a hard match; SP - satisfaction with one's own performance during the match; FPG - fulfilment of personal goals; FCG - fulfilment of perceived goals set by coach; CAP - coach's assessment of performance *-p<.05, **-p<.05.01.

3.3. Regression Analysis

The first series of linear regression analyses (Table 2) was applied to determine the predictive value of the pre-performance expectations (Expectation of a good performance, Expectation of winning, Expectation of a hard match) for the intensity of competitive state anxiety and self-confidence. The second series of linear regression analyses (Table 2) was applied to determine the predictive value of the pre-performance expectations (Expectation of a good performance, Expectation of winning, Expectation of a hard match) for the directional interpretation of both components of the competitive state anxiety and self-confidence.

Table 2 Multiple regression analysis: prediction of competitive anxiety and self-confidence intensity and interpretation of symptoms based on pre-performance expectations

	Intensity of cognitive anxiety			Intensity of somatic anxiety			Intensity of self-confidence		
Pre-performance expectations	*β*	*t*	*p*	*β*	*t*	*p*	β	*t*	*p*
Expectation of a good performance	-.41	-2.86	.01	-.42	-2.79	.01	.60	4.46	.00
Expectation of winning	-.00	-.01	.10	.03	.21	.83	-.13	-1.01	.32
Expectation of a hard match	-.15	-1.16	.25	.01	.07	.95	.03	.27	.79
	Direction of cognitive anxiety			Direction of somatic anxiety			Direction of self-confidence		
Pre-performance expectations	*β*	*t*	*p*	*β*	*t*	*p*	β	*t*	*p*
Expectation of a good performance	.02	.13	.90	.14	.89	.38	.51	3.70	.00
Expectation of winning	-.02	-.16	.88	-.05	-.31	.76	-.10	-.80	.43
Expectation of a hard match	.14	.96	.34	.17	1.21	.23	.16	1.25	.22

The results of the first series of simple linear regression analyses (Table 2) showed that the regression function in which the criterion variable intensity of cognitive anxiety was significant, $R = .48$, R2 = .23, $F(3, 55) = 5.49$, $p = .00$, with the only negative predictor being the expectation of a good performance. The regression function in which the criterion variable intensity of somatic anxiety was significant, $R = .40$, $R^2 = .16$, $F(3, 55) = 3.55$, p = .00, with the only one negative significant predictor being the expectation of a good performance. The third regression function in which the criterion variable intensity of self-confidence was significant, $R = .57$, R2 = .32, F(3, 55) = 8.76, $p = .00$, and again the only significant predictor being the expectation of a good performance. The results of the second series of regression analyses (Table 3) showed that the regression function in which the criterion variable's directional interpretation of cognitive anxiety was not significant, $R = .15$, $R^2 = .02$, F(3, 55) = 5.49, $p = .74$; the regression function in which the criterion variable's directional interpretation of somatic anxiety was not significant, $R = .15$, $R^2 = .02$, $F(3, 55) = .42$, $p = .74$. The third regression function in which the criterion variable directional interpretation of self-confidence was significant, $R = .55$, R2 = .30, $F(3, 55) = 7.80$, $p = .00$, and the only significant predictor was the expectation of a good performance.

The second series of four independent hierarchical multiple regression analyses (Table 3) was applied to determine the predictive value of the competitive state anxiety and self-confidence for the post-performance assessment (Satisfaction with one's own performance, Fulfilment of personal goals, Fulfilment of perceived goals set by the coach and Coach's assessment of individual player's performance). The first block included both components of anxiety intensity and self-confidence intensity, the second block included the interpretation of anxiety symptoms, and the third block included interaction between the intensity of cognitive anxiety and directional interpretation of cognitive anxiety, the intensity of somatic anxiety and directional interpretation of somatic anxiety, and the intensity of self-confidence and directional interpretation of self-confidence (3 in total).

Table 3 Hierarchical multiple regression analysis: prediction of post-performance assessment based on competitive anxiety and self-confidence intensity, interpretation of symptoms and their interactions

	Satisfaction with one's own performance				Fulfilment of personal goals				Fulfilment of perceived goals set by coach				Coach's assessment of performance			
	ΔR^2	β	t	p	ΔR^2	β	t	p	ΔR^2	β	t	p	ΔR^2	β	t	p
Block 1	.15				.10				.17				.10			
ICA		-.20	-2.05	.05		-.13	-1.20	.23		-.12	-1.26	.21		-.27	-1.27	.21
ISA		-.15	-1.37	.18		-.17	-1.41	.17		-.20	-1.85	.07		-.23	-1.10	.28
ISC		-.22	-1.95	.06		-.16	-1.32	.19		-.11	-1.02	.31		-.21	-1.00	.32
Block 2	.07				.04				.03				.12			
ICA		-.24	-2.34	.02		-.18	-1.54	.13		-.17	-1.60	.12		-.26	-1.22	.23
ISA		-.18	-1.59	.12		-.18	-1.44	.16		-.20	-1.8	.08		-.26	-1.31	.20
ISC		-.19	-1.66	.10		-.12	-.92	.36		-.07	-.5	.57		-.17	-.80	.43
DCA		-.10	-1.42	.16		-.06	-.75	.46		-.03	-.38	.70		.39	2.06	.04
DSA		-.03	-.29	.78		-.04	-.45	.66		-.05	-.54	.59		-.54	-2.72	.01
DSC		-.01	-.14	.89		-.03	-.55	.59		-.03	-.73	.47		.04	.21	.83
Block 3	.06				.09				.09				.04			
ICA		-.24	-2.31	.03		-.15	-1.25	.22		-.17	-1.54	.13		-.28	-1.29	.21
ISA		-.19	-1.59	.12		-.21	-1.62	.11		-.21	-1.72	.09		-.18	-.79	.43
ISC		-.24	-2.05	.05		-.16	-1.23	.23		-.11	-.88	.39		-.21	-.93	.36
DCA		-.14	-1.85	.07		-.08	-1.00	.32		-.06	-.75	.46		.31	1.51	.14
DSA		-.01	-.06	.95		-.05	-.50	.62		-.03	-.37	.71		-.46	-2.15	.04
DSC		.01	.11	.91		-.01	-.22	.83		-.02	-.53	.60		.02	.09	.93
ICAxDCA		.01	.55	.58		-.01	-.61	.55		.00	.37	.72		.26	1.24	.22
ISAx DSA		-.01	-.85	.40		.00	-.03	.97		-.01	-.60	.55		-.07	-.34	.74
ISCxDSC		-.01	-1.73	.09		-.02	-2.26	.03		-.01	-1.35	.18		.01	.08	.94
Total	.28				.23				.29				.26			

Legend: ICA - intensity of cognitive anxiety; ISA - intensity of somatic anxiety; ISC - intensity of self-confidence; ICA – interpretation of cognitive anxiety; DSA - direction of somatic anxiety; DSC - direction of self-confidence; ICAxDCA – intensity of cognitive anxiety x direction of cognitive anxiety; ISAxDSA - intensity of somatic anxiety x direction of somatic anxiety; ISCxDSC - intensity of self-confidence x direction of self-confidence;

The results of the first hierarchical regression analysis with the criterion variable Satisfaction with one's own performance showed that the regression function in the first block was significant, R = .39, R^2 = .15, F(3, 55) = 3.29, p = .03. In the second block, adding directional interpretation of anxiety and self-confidence did not increase the percentage of variance explained, ΔR^2=.07, p=.24, total R = .47, R^2 = .22, F(3, 55) = 2. 40, p = .04, and intensity of cognitive anxiety, was identified as significant negative predictor. Adding interactions in the third block did not increase the percentage of variance explained, ΔR^2=.07, p=.25, total, R = .53, R^2 = .28, F(3, 55) = 2.11, p = .05, and the intensity of cognitive anxiety and intensity of self-confidence emerged as positive predictors.

The results obtained by the second hierarchical regression analysis in which the criterion variable was Fulfilment of personal goals showed that the regression function in the first block was not significant, R = .32, R^2 = .10, F(3, 55) = 1.98, p = .13. In the

second block, adding directional scales, the percentage of variance explained did not increase ΔR^2=.09, p=.17, total, ΔR^2=.04, p=.46, total, R = .38, R_2 = .14, F(3, 55) = 1.42, p = .23. By adding interactions in the third block, the percentage of explained variance did not increase ΔR^2=.04, p=.17, total, R = .48, R^2 = .23, F(3, 55) = 1.58, p = .15.

The results of the third hierarchical regression analysis in which the criterion variable Fulfilment of perceived goals set by coach showed that the regression function in the first block was not significant, R = .49, R^2 = .24, F(3, 55) = 1.68, p = .12.

By adding the second block of predictors, by adding directional scales, the percentage of explained variance did not increase ΔR^2=.03, p=.54, total, R = .37, R^2 = .14, F(3, 55) = 1.42, p = .23., nor did it increase by adding interactions in the third block, ΔR^2=.04, p=.49, total, R = .48, R^2 = .23, F(3, 55) = 1.58, p = .15.

The results of the fourth hierarchical regression analysis showed that the regression function in the first block, where the criterion variable Coach's assessment of individual player's performance was not significant, R = .31, R^2 = .10, F(3, 52) = 1.90, p = .14. Adding directional scales in the second block did not increase the percentage of variance explained ΔR^2=.12, p=.07, total, R = .47, R^2 = .22, F(3, 55) = 2.89, p = .05. Also, adding interactions in the third block, the percentage of the variance explained did not increase ΔR^2=.04, p=.60, total, R = .450, R^2 = .25, F(3, 55) = 1.70, p = .12.

4. DISCUSSION

The purpose of this study was twofold. The first one was to examine the performance expectations as antecedents of the intensity of competitive state anxiety and self-confidence, and on the directional interpretation of anxiety symptoms in a sample of successful female basketball players. In addition, we wanted to examine potential directional and interactive effects of anxiety intensity and perceived effects of the symptoms (as facilitative or deliberative) on the competitive performance.

Before discussing the main results of this study, we will present several interesting observations about anxiety intensity, directional interpretation of anxiety, and correlational analysis obtained in this research. Firstly, female basketball players in our research showed a higher level of self-confidence than on both anxiety components. These results are supported by previous empirical findings (Kais & Raudsepp, 2005; Thanopoulos & Platanou, 2016). Secondly, players perceived cognitive anxiety as more intensive than somatic anxiety. There are at least two possible explanations for this, that are not mutually exclusive. The first one is Martens' theoretical assumption that antecedents of cognitive anxiety are evaluative in nature and related to the expectation of performance. The data for this research were collected during the final state tournament, immediately before an important match. Therefore, we can hypothesize that relatively uniform teams competed and this situation which is characterized by a high degree of uncertainty, and has the potential to provoke an increase of cognitive anxiety. Secondly, somatic anxiety is mainly caused by conditioned situational antecedent, for example, stimulus within the locker room, preparation of equipment, pre-game routines, coach's instructions (Jones, et al., 1990; Gould, Dieffenbach, Moffett, 2002). Similarly, due to data collection in the course of the final tournament, it can be assumed that players during the competitive season have frequently been in similar situations with similar anxiety triggers. Consequently, because of the habitational processes, their somatic response (somatic anxiety) decreased. This result is supported by results that are obtained on a

sample of elite karate athletes during the final tournament (Vesković, Koropanovski, Dopsaj, & Jovanović, 2019).

Further, the correlational analysis indicated higher correlations among all three anxiety intensity subscales than presented in earlier research (Kais & Raudsepp, 2005; Jones, et al., 1990). Taking into account that our research included a relatively small number of participants and that it was not our major research question, we cannot take a final position whether our results confirm theoretical propositions about the separation of cognitive and somatic components of anxiety.

Considering the directional interpretation scale, female basketball players have perceived both anxiety manifestations as deliberative to performance. Only self-confidence has been perceived as a factor with facilitative effects upon performance. Having in mind that equivocal results exist, the presented results are partly supported by the previous findings on a sample of male basketball professional players who competed in the highest national league (Kais & Raudsepp, 2005) but not with all (Jones, et al., 1990). Due to our sample including only female players, a possible explanation for deliberative perceptions of anxiety symptoms can be found in empirical evidence (Thanopoulos & Platanou 2016) that female athletes perceive anxiety as more negative than males. The associations between intensity and directionality scales are low, except between the intensity of cognitive anxiety and directional interpretation self-confidence (negative association, moderate intensity), and between self-confidence intensity and directional interpretation of self-confidence (positive association, moderate intensity). This means that facilitative interpretation of self-confidence has a protective potential for experiencing cognitive anxiety, and secondly, that the more self-confident players are, the more they would interpret self-confidence as facilitative (and opposite). These results are partially supported by a previous study (Edwards & Hardy, 1996).

In this study, the results directly associated with the main research aims are addressed to investigate the anxiety-pre-performance expectations and anxiety-performance relationship. Considering the direction and strength of the association between different subjective performance measures: Expectation of good performance, Expectation of winning, and Expectation of a hard match, a positive relationship can be seen, of moderate intensity. Statistically, it means that these expectations share some common variance, but also they have some unique variances. From a practical standpoint, it would mean that athletes who pose a higher expectation of a good performance, to some extent, tend to posit a higher expectation of winning and a hard match. However, the regression analysis revealed that the only significant negative predictor of Cognitive anxiety and Somatic anxiety intensity is Expectation of a good performance. Moreover, the same expectation positively predicts the intensity as well as directional interpretation of self-confidence. The results obtained suggest that athletes with higher Expectation of a good performance would experience a lower degree of cognitive and somatic anxiety and a higher degree of self-confidence and also a more facilitative perception of self-confidence. Additionally, other results that add complexity to these relationships are that Expectation of a good performance is less prominent when compared to Expectation of winning and with Expectation of a hard match. At first sight, the results obtained seem to be unexpected and contrary to Martens' theoretical assumptions (Martens, et al., 1990) that higher performance expectations are related to higher cognitive anxiety and lower self-confidence. A possible partial explanation can be found in Jones's control model of competition anxiety and in the different types of competition goals (Jones, & Hanton, 1996). In the heart of Jones's model are behaviour

toward specific goals, expectation of goal attainment, and degree of (perceived) control over goal attainment. Different types of goals differ from each other according to the degree of controllability. Performance goals are focused on the specific, desired standard of performance, whereas outcome goals are focused on the outcome or result of a competitive event and include comparison with other athletes. Performance goals in comparison to the outcome goals are more under personal control. In other words, and in accordance with propositions of Jones's model, we can assume that Expectation of good performance emerged as a negative predictor of both components of the anxiety intensity and positive of self-confidence intensity and also an interpretation of self-confidence thanks to its potential to refocus athlete's attention from less to more controllable factors. Unlike individual sports, where individual performance is under the personal control of an athlete, basketball is a team sport and the outcome depends on the performance of each individual player, as well as their cooperation and cohesiveness. Additionally, Expectances of winning depend on the performance of the opposite team. Bearing in the mind that our sample consisted of experienced and successful players, we can assume that in the light of the above-mentioned characteristics of team sport, they adopted more comprehensive and more adaptive criteria for setting expectations and learned to successfully cope with factors that are less or not under their control (do not focus on the expectation of winning and having a hard match). Due to these reasons, Expectation of winning and Expectation of a hard match probably did not emerge as significant predictors of anxiety intensity.

In the current study, the intensity of cognitive anxiety and intensity of somatic anxiety are in negative correlation with Satisfaction with one's own performance and Fulfilment of perceived goals set by the coach. Additionally, only the intensity of cognitive anxiety is negatively associated with Coach's assessment of athletes' performance. Although there are moderately positive correlations among all three performance measures, the regression analysis revealed only one significant prediction: Satisfaction with performance is predicted by intensity of cognitive anxiety (negative predictor). It means that athletes who scored higher on cognitive anxiety concurrently are less satisfied with their own performance (and opposite). These results are generally supported by a previous study of a sample of swimmers (Polman, et al., 2007), but not in detail, which showed no significant relationship between anxiety and different measures of performance, including satisfaction with one's own performance. On the other hand, completely different expectations could be formed based on Craft's and collaborators' meta-analyses (2003). It could be expected that self-confidence appears as a better predictor of performance than anxiety. Further, our results indicated a relatively weak anxiety-performance relationship, congruent with the results of Craft's meta-analysis (Craft at al., 2003). In sum, with the existence of numerous performance measures (objective and subjective), but none universally reliable, any further precise comparison with previous results could be classified as complicated and problematic.

4. CONCLUSION

This study is one of few aimed to explore specific expectancy antecedents of anxiety on a sample of successful female basketball players. The presented results indicated that Expectation of a good performance is the only significant predictor of all three components of multidimensional components of anxiety as well as directional interpretation of self-confidence. Also, this study aimed at extending empirical findings about the complex

relationship between anxiety and performance. Although moderate positive correlations between different measures of subjective self-assessment of performance and coaches' assessment of individual performance have been shown, only intensity cognitive anxiety emerged as a significant predictor of performance satisfaction.

Results of the current study potentially have two important implications for the practice of sports psychology and could be implemented in interventional programs for preventing and reducing the precompetitive anxiety state. First, our results suggest a potentially protective role of facilitative interpretation of self-confidence for experiencing cognitive anxiety. In other words, the promotion of facilitative perception of self-confidence can be recommended. The next contribution is based on the assumption about the possible anxiety protective effects of dominating Expectation of a good performance. It can be recommended to athletes to systematically develop and encourage expectation of a good performance along with setting performance goals.

The study has some limitations that give perspectives for future research. The first one is methodological in nature and refers to the relatively small number of participants. The participants in this study were highly selected female basketball players, and there is not much possibility of including a larger number of female basketball players who compete at the same level in our country. Consequently, having in mind that some antecedents of competitive anxiety are universal, while some are specific and unique for a concrete sport discipline, the findings cannot be highly generalized, but only for team sports. Future research could include different antecedents of anxiety as well as different moderators like gender, different ages, less and more experienced athletes, different competition levels, and also athletes from other sports. The results about the anxiety-performance relationship did not achieve further advances in its comprehensive understanding. From the methodological point of view, examining and developing more reliable measures of performance would be valuable.

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ODNOS IZMEĐU INTENZITETA I ANKSIOZNOSTI I OČEKIVANJA PRE TAKMIČENJA I TAKMIČARSKOG USPEHA

*Tokom sportskih takmičenja sportisti doživljavaju anksioznost, često intenzivnu, koja može uticati na performanse i dobrobit. Prvi cilj ove studije bio je da se testira prediktivna moć očekivanja pre nastupa za intenzitet i smer višedimenzionalnih komponenti anksioznosti stanja. Drugi cilj je bio da se testira prediktivna moć direktnih i interaktivnih efekata intenziteta i smera simptoma anksioznosti na performanse. Uzorak su činile košarkašice (N= 58) prosečne starosti M=15,68±,99 i prosečnog sportskog iskustva M=5,85±2,23, tokom finalnog turnira. U roku od sat vremena pre meča završili su CSAI-2, CSAI-2-d, tri pojedinačne stavke o očekivanjima učinka i četiri pojedinačne stavke koje se odnose na procenu učinka. Nakon meča, igrači su odgovarali na tri pojedinačna pitanja za procenu učinka. Posle utakmice treneri timova (n=5) su takođe ocenjivali učinak pojedinačnih igrača. Regresiona analiza je otkrila da se očekivanje dobrog učinka pojavilo kao jedini negativni prediktor Intenziteta kognitivne anksioznosti, Intenziteta somatske anksioznosti i pozitivni prediktor Intenziteta i smera interpretacije samopouzdanja. Samo je Intenzitet kognitivne anksioznosti negativan prediktor zadovoljstva učinkom. Dobijeni rezultati upućuju na zaključak da se dominacija Očekivanja dobrog učinka može posmatrati kao zaštitni faktor koji ima potencijal da umanji anksioznost i poveća samopouzdanje i percipira samopouzdanje kao podsticajnije za učinak. Ostala testirana predviđanja mera anksioznog učinka nisu značajna. Potrebno je više studija da bi se istražili drugi potencijalni prethodnici i moderatori komponenti anksioznosti. Takođe, dalji empirijski razvoj mera performansi i testiranje odnosa anksioznosti i učinka bi unapredili sveobuhvatno razumevanje tako složenih odnosa*Ključne reči: *izvođenje, očekivanja vezana za izvođenje, posttakmičarske mere izvođenja, intenzitet stanja anksioznosti, interpretacija delovanja anksioznosti.*

Ključne reči: *performansa, očekivanja pre takmičenja, intenzitet anksioznosti, interpretacija pravca anksioznosti*