

# LATENT DIMENSIONS OF CONATIVE CHARACTERISTICS OF TOP SENIOR BASKETBALL PLAYERS

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## Abstract

The aim of this study was to investigate the latent structure in the set of conative characteristics of Croatian elite male senior basketball players. We have examined the purposeful sample of 74 basketball players, who played in 9 teams of A-1 Croatian Men's Basketball League, with the corresponding measuring instruments. The factor analysis results showed that space of conative characteristics and perceived group cohesion can be satisfying explained with four factors. The construct validity of psychological measurement instruments, applied on a sample of basketball players, is well-confirmed.

**Key words:** principal components, psychological traits, basketball, variance explained

## INTRODUCTION

Basketball is a complex polystructural variable activity characteristic for its cyclic and acyclic motion types that are preceding the main goal of the game, shooting the ball into the basket, as well as preventing the opponent player to make a shot. Basketball has complex demands that require a combination of individual skills, team plays, tactics, and motivational aspects (Trninic, Perica, & Dizdar, 2001). Certainly, success in basketball depends mostly on the levels of specific basketball motor abilities and skills, but also on the particular psychological factors, like cognitive abilities and conative dimensions (Becker, 1981; Karalejic, & Jakovljevic, 2008). Conative dimensions are manifest and latent structures which make a construct of human personality and are responsible for human behavior, they help to explain how knowledge and emotions are translated into behavior in human beings. Coaches and sport psychologists discuss the specific psychological structure of an athlete's personality. It may be a special combination of personality dispositions which should represent good conditions for successful work, especially in the process of selection. One of the most important approaches in basketball training is the relationship between coaches and players. A coach has to be a very good psychologist. Studies of psychological profiles and the personalities of athletes is present in many sports (Junge et al. 2000) and then in basketball as well (Maddi & Hess, 1992). Svoboda (1993) has indicated a significant difference in personality characteristics between excellent (stars) and poor quality (feeble) basketball players. Conative dimensions play a significant part in a basketball player's actions/ reactions (Becker, 1981; Horga & Milanovic, 1983, from Jakovljevic, Karalejic, & Lazarevic, 2010). These studies show the importance of conative dimensions for a basketball player's performance and successes. In our research we have chosen a few important conative characteristics and their inter-relations at the elite

male senior basketball players in A1 Croatian Championship. The *Big Five Model* or the *Five-Factor Model* (FFM) is substantially descriptive, with the emphasis on the taxonomic aspect, that is, on the way in which personality can be divided into a smaller number of fundamental constructs (Jakovljevic, Karalejic, & Lazarevic, 2010). According to that theory, personality can be described by five factors: *extraversion*, *agreeableness*, *conscientiousness*, *emotional stability* and *intellect* (Pervin & John, 1997). *Hardiness* is an individual differences variable that develops early in life and is reasonably stable over time, though amenable to change under certain conditions (Maddi & Kobasa, 1987). Hardy persons have a high sense of life and work commitment, greater sense of control, and are more open to change and challenges in life. *Perceived Group Cohesion* is described by Carron et al. (1985). In their conceptual model, cohesion is considered to be a result of four primary constructs: Individual Attractions to the Group-Task, Individual Attractions to the Group-Social, Group Integration-Task and Group Integration-Social. *Multidimensional Perfectionism in Sport* is the perfectionism trait that is expounded only in a sport situations. It has four aspects: Personal Standards, Concern Over Mistakes, Perceived Parental Pressure and Perceived Coach Pressure. *Unidimensional Perfectionism* is a concept made by Burns (Ivanov, & Penezic, 2004), and it describes generalized but negative perfectionism.

The aim of this study was to investigate the latent structure in the set of conative characteristics of Croatian elite male senior basketball players.

## METHOD

### *Participants and procedure.*

Population from which the purposeful sample of participants was drawn represented by sport success top Croatian senior basketball players, who played in nine men's senior teams of A-1 Croatian Men's Basketball League in 2006/2007: «Cedevita», «Svetlost», «Borik», «Kvarner», «Dubrava»,

«Dubrovnik», «Alkar», «Šibenik» and «Osijek». The average chronological age was 23. The final sample of participants (74 basketball players) was selected from the initial sample of 107 players. The criteria for selection of a player into the final sample of respondents was the number of minutes in play (minimum 10 minutes per game), i.e. the number of games played (minimum eight games played in championship). The players were examined between sixth and eighth round of A-1 league championship (from December 2006 until mid January 2007).

#### Variables.

In Table 1 we show the main characteristics of the measuring instruments (number of items, estimation scales) for all the dimensions of chosen

conative characteristics, with the reliabilities measured in the our research. We have found that all the instruments for measuring all conative dimensions have a satisfying reliability, except the one dimension of hardiness (commitment).

#### Data analysis

Standard descriptive statistic was applied. To evaluate the latent structure of conative dimensions, a Principal Components analysis was used, with Varimax Rotation. We have used Pearson correlations for calculationg intercorrelations between specific dimensions in each conative characteristics. Data processing was done in the statistical program Statistica.

Table 1.

Review of the conative characteristics, their dimensions and characteristics of the measuring instruments

<b>Conative characteristics and instruments</b>				
<b>Characteristic</b>	<b>Reliability (Cronbach's <math>\alpha</math>)</b>	<b>Variables (scales)</b>	<b>Measuring Instruments</b>	<b>Number of items</b>
Hardiness	.45	Commitment	Short Hardiness Scale (Bartone, 1995, translated and adopted by Kardum, I.) – SHC  <i>4-point Likert scale anchored at the extremes by 'strongly disagree' (0) and 'strongly agree' (3)</i>	5
	.52	Control		5
	.68	Challenge		5
Perfectionism	.69	Unidimensional Perfectionism	Burns's Perfectionism Scale (translated and adopted by Penezić, Ivanov, & Proroković, 1998) – BPS  <i>5-point Likert scale anchored at the extremes by 'strongly disagree' (1) and 'strongly agree' (5)</i>	10
	.62	Personal Standards	Multidimensional Sport Perfectionism Scale (Dunn, Causgrove Dunn, & Syrotnik, 2002, translated and adopted by Sindik, J.) – MSSP  <i>5-point Likert scale anchored at the extremes by 'strongly disagree' (1) and 'strongly agree' (5)</i>	7
	.77	Concern Over Mistakes		8
	.61	Perceived Parental Pressure		9
	.68	Perceived Coach Pressure		6
Big Five Personality Traits	.56	Extraversion	IPIP Big-Five Factor Markers 50 items (translated and adopted by Mlačić, B., 2002) – IPIP50  <i>5-point Likert scale anchored at the extremes by 'strongly disagree' (1) and 'strongly agree' (5)</i>	10
	.73	Agreeableness		10
	.71	Conscientiousness		10
	.65	Emotional Stability		10
	.68	Intellect		10
Perceived Group Cohesion	.55	Individual Attractions to the Group-Social	The Group Environment Questionnaire (Carron, Brawley & Widmeyer, 1985, translated and adopted by Sindik, J.) – GEQ	5
	.66	Individual Attractions to the Group-Task		4
	.68	Group Integration-Social	<i>9-point Likert scale anchored at the extremes by 'strongly disagree' (1) and 'strongly agree' (9)</i>	4
	.68	Group Integration-Task		5
Total		17 variables	5 instruments	123 items

## RESULTS AND DISCUSSION

Table 2 provides the average values, standard deviations and data about the normality of the distributions for each variable, i.e. the dimensions of certain measuring instruments for the measurement

of perfectionism, hardiness and perceived group cohesion. Of all the conative dimensions, only two variables from the Short scale of hardiness (commitment and control) deviate from the normal curve distribution.

Table 2.  
Descriptive statistics for all the dimensions of all measuring instruments

Variables	Mean	Minimum	Maximum	Range	Std.Dev.	max D	p
Extraversion	33,054	22	44	22	4,514	0,093	> .20
Agreeableness	37,122	23	50	27	4,968	0,092	> .20
Conscientiousness	37,135	23	50	27	5,362	0,090	> .20
Emotional Stability	33,757	23	45	22	5,155	0,072	> .20
Intellect	34,932	25	46	21	4,683	0,092	> .20
Individual Attractions to the Group-Social	33,18	12	45	33	8,16	0,11	> .20
Individual Attractions to the Group-Task	26,46	6	36	30	7,50	0,11	> .20
Group Integration-Social	28,47	8	36	28	6,28	0,15	> .10
Group Integration-Task	32,36	14	45	31	7,63	0,09	> .20
Personal Standards	22,15	9	35	26	5,40	0,09	> .20
Concern Over Mistakes	18,89	8	35	27	6,07	0,10	> .20
Perceived Parental Pressure	16,47	9	28	19	5,09	0,15	> .10
Perceived Coach Pressure	15,51	6	25	19	4,62	0,10	> .20
Unidimensional Perfectionism	33,23	18	46	28	6,07	0,09	> .20
Commitment	12,07	6	15	9	1,60	<b>0,06</b>	<b>&lt; .05</b>
Control	11,04	6	15	9	1,92	<b>0,16</b>	<b>&lt; .05</b>
Challenge	7,42	0	15	15	3,38	0,09	> .20

Table 3.  
Latent structure of the set of conative characteristics and perceived group cohesion at elite senior basketball players– Principal Components, Varimax rotation

Psychological characteristics	Perceived Group Cohesion	Multidim. Sport Perfectionism	Hardiness Big Five (Personality)	Challenge Nonperfectionism	Multiple R-Square
Individual Attractions to the Group-Social	<b>0,981</b>	0,089	0,002	0,030	0,973
Individual Attractions to the Group-Task	<b>0,964</b>	0,026	0,035	-0,013	0,901
Group Integration-Social	<b>0,983</b>	0,074	0,021	0,023	0,975
Group Integration-Task	<b>0,979</b>	0,080	-0,038	0,054	0,963
Personal Standards	0,062	<b>0,829</b>	0,042	-0,105	0,659
Concern Over Mistakes	0,068	<b>0,811</b>	0,038	0,108	0,634
Perceived Parental Pressure	0,005	<b>0,774</b>	-0,064	-0,018	0,524
Perceived Coach Pressure	0,144	<b>0,835</b>	0,155	-0,069	0,689
Commitment	0,066	0,279	<b>0,694</b>	-0,133	0,461
Control	-0,125	0,116	<b>0,518</b>	-0,506	0,422
Challenge	-0,065	0,186	0,058	<b>0,832</b>	0,522
Unidimensional Perfectionism	-0,086	0,232	-0,084	<b>-0,545</b>	0,234
Extraversion	-0,061	0,152	<b>0,574</b>	0,272	0,402
Agreeableness	-0,038	-0,060	<b>0,603</b>	0,133	0,433
Conscientiousness	0,022	-0,056	<b>0,642</b>	-0,256	0,353
Emotional Stability	0,043	0,097	<b>0,632</b>	0,323	0,388
Intellect	0,059	-0,266	<b>0,432</b>	-0,069	0,240
Expl.Var (Eigen Values)	3,887	2,952	2,486	1,561	10,886
Total Variance Explained	22,9 %	17,4 %	14,6 %	9,2 %	64,037 %

The results of factor analysis of the dimensions of conative characteristics and perceived team cohesion showed that the results confirm the construct validity of instruments used to measure the conative characteristics and properties of perceived group cohesion, in terms of matching dimensions that are essentially conative characteristics and perceived group cohesion with their corresponding characteristics. In other words, the factor structure of the space of conative characteristics and perceived group cohesion quite match the assumed dimensions, presented with the results at certain scales of measurement instruments used. Dimension of perfectionism factor describes perfectionism dimensions, dimension of hardiness represents the construct of hardiness, etc. Almost all the variables have positive projections on specific factors, except for negative projection of the challenge on the fourth extracted factor (named Challenge – Nonperfectionism). The highest percentage of variance explained we found in the dimensions of perceived group cohesion and multidimensional perfectionism in sport situations, which are the best interpreted characteristics in the whole set of conative characteristics and perceived group cohesion. It is possible that the group aspect of team functioning is primary important at basketball players. Players are probably trying to play disciplined basketball, trying to act in accordance with the duties assigned to them by their coach. It is possible that players in the same time intensely try to minimize the excessive expectations of themselves (to avoid too high

perfectionist standards). On the other hand, it is possible that the characteristics of commitment and challenge (as well as aspects of hardiness) reflect the individual's attitude toward the life and stress in general, more than their attitude in specific sports (basketball) situations. All the dimensions of the Big Five personality traits are 'mixed' with two dimensions of hardiness (commitment and control). The smallest percentage of explained variance was obtained for the Challenge (dimension of hardiness) and unidimensional perfectionism. It could be the direction for further speculation about the nature of the perfectionism. Firstly, perfectionism can be better understood if it is viewed as a multidimensional construct. Second, perfectionism is a situational specific, and is associated only with certain areas of life and only with some life situations (in this case, the situation of sports, specifically basketball). The small number of participants can be the main disadvantage of the research, but small number of elite basketball players is our real limitation in this direction.

## CONCLUSION

The factor structure of the space of conative characteristics and perceived group cohesion virtually showed that it could be satisfying explained with four factors. The construct validity of psychological measurement instruments, applied on a sample of basketball players, is well-confirmed.

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## LATENTNE DIMENZIJE KONATIVNIH KARAKTERISTIKA VRHUNSKIH SENIORSKIH KOŠARKAŠA

### **Sažetak**

*Cilj ovog istraživanja bio je ispitati latentnu strukturu skupa konativnih karakteristika vrhunskih hrvatskih seniorskih košarkaša. Ispitali smo namjerni uzorak od 74 košarkaša, koji su igrali u 9 muških ekipa A-1 hrvatske košarkaške lige, odgovarajućim mjernim instrumentima. Rezultati faktorske analize su pokazali da prostor konativnih karakteristika i percipirane grupne kohezije mogu zadovoljavajuće objasniti četiri faktora. Valjanost psiholoških mjernih instrumenata, primijenjenih na uzorku košarkaša, dobro je potvrđena.*

**Ključne riječi:** glavne komponente, psihološke osobine, košarka, objašnjena varijanca

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