

FACTOR STRUCTURE OF PSYCHOLOGY DOMAIN WITH SPORTSMEN- THE KARATEISTS IN THE MACEDONIA

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Summary

It is necessary to continue to apply the results of researches which make the identification of specific personality features or relevant psychological dispositions possible and not only for the purpose of sport in general but also for specific disciplines of sport. The problem of this research is referred to the analysis of the factor structure of psychological domain with karateists in relation to the wider battery of tests among which a certain number can be described as having specific sport character whereas the rest have general character. With 11 factors in terms of practicality, it is possible to have a complete insight into psychological status of a karateist by knowing this structure. Based on the estimation of theory model at one author, we could make conclusions in respect to other theory models.

Key words: *personality, psychical structure, sportsmen-karateists*

Introduction

Modern researches in sport science, which maximally include sports psychology, are directed to determine general and common disposition of sportsmen's personalities, which appear in sport in general or in some sport disciplines and provoke sportsmen to behave in a same or similar way. It is beyond any dispute that the results produced by a great number of researches (Vanek et al., 1974; Singer et al., 1977; Vealey, 1992, /accord. Wann, 1997/; Keramičiev, 1999; Aleksavska, 2002) reflected the fact that it is not possible to identify a unique general model of a successful sportsman's personality, which was implicitly expected by the researchers. However, there exists an opinion that identification of some specific dispositions or groups of dispositions is possible and especially the ones with the degree of expression characterizing the top sportsmen behavior and which, at the same time, it determines success in sport. Besides this general approach, it is necessary to continue to apply the results of researches which make the identification of specific personality features or relevant psychological dispositions possible and not only for the purpose of sport in general but also for specific disciplines of sport. Lots of authors have mentioned the presence of specific psychological structure of a sportsman's personality depending on the type of sport and which, certainly, includes presence of relevant psychological features in the structure of a sportsman's personality, which lead to high sport results achievements and which determine sport success very much (Gabrijelić, 1977; Kane, 1978; Vanek et al., 1984; Thakur et al., 1980; Havelka et al., 1981; Kejn, 1984; LeUnes et al., 1989; Keramičiev, 1991; Kamal et al., 1995).

Problem and aim

The problem of this research is referred to the analysis of the factor structure of psychological domain with karateists in relation to the wider battery of tests among which a certain number can be described as having specific sport character whereas the rest have general character. Although a larger part of the tests set being analyzed belongs to already well determined factor models in which the factors exist as independent components, some of those components show hypothetical connection with some of the components sorted out in the projects by some other authors. Similarly, it would be also interesting to have an insight in common co-variability of such components, in other words, to sort out latent dimensions that hypothetically generate common variability of the mentioned components. Based on the mentioned information, the aim of this research is to determine psychological structure of the sportsman's personality with sportsmen-karateists, whose structural element includes the relevant psychological features for success in sport such as: general intellect ability, some specific intellect abilities (perceptive reasoning, ability for faster detection of perceptive entities and performance of space relations) emotional features (aggressiveness, anxiety, psychotic quality, extroversion, introversion and neuroticism); motive of general success and sports achievements and sixteen features of personality according to Cattell.

Methods

This research was realized at the sample of 50 subjects-karatesits, male sex, in the Republic of Macedonia.

The total number of 32 variables were applied among which were the following: two variables for to estimate general intellect abilities (PM and D-48), three variables for to estimate specific intellect abilities: perceptive reasoning (F1), ability for fast perception of perceptive entity (F2) and performance of space relations (S1); five variables for to estimate emotional features: aggressiveness (T 15), anxiety (TAI), psychotic quality (R), extraversion (E), introversion (I) and neuroticism (N); sixteen variables or original personality features according to Cattell CA –affectation, CB high-low intelligence, CC-strong-weak ego, CE- domination-submission, CF- surgention-dissurgention, CG-strong super ego-weak super ego, CN- parmia-threctia, CL-protensia-alexia, CM aucion-praxernion, CN- brilliance-simple-mindedness, CO- inclination to the feeling of being guilty – tranquility, CQ1- radicalism-conservatism, CQ2- independence, individuality in making decisions- dependence on other people, CQ3-self control- lack of discipline, CQ4- tension, irritability-relaxedness, peace, and six variables for to estimate motivation dispositions as follows: three variables for to estimate the motif of the general achievement (OPP,OPF+,OPF-), and three variables for to estimate sport achievement motive (SPP,SPF+,SPF-).

The following statistical indicators were calculated: basic descriptive statistical parameter, Skewness i Kurtosis, matrix of correlations, Kaiser-Guttmanov criterion, factor analysis of common factors.

Table 3. Varimax orthogonally rotated matrix

Var.	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11
PM	-.78	.05	.04	.07	-.09	-.00	.03	-.01	.08	.04	.06
D-48	-.73	-.02	-.02	.05	.09	-.00	-.12	.04	-.09	.18	.08
F1	-.45	-.35	-.09	.04	.00	-.13	-.00	.15	.03	.44	-.12
F2	-.32	-.15	-.42	.25	.22	.12	.12	-.16	-.08	.33	.07
S1	-.64	.20	-.24	-.20	.09	.00	-.09	.01	-.08	-.20	-.11
TAI	.14	-.03	-.05	.12	-.13	.11	.53	.03	.03	-.54	.05
T-15	.17	-.17	.36	.04	-.13	.27	-.01	.09	-.07	-.52	-.11
P	.10	.04	.30	-.31	-.02	.60	-.07	.02	.11	-.07	.15
E	.12	.13	-.01	.71	-.13	-.01	.03	.11	.12	.08	.04
N	-.06	.05	.03	.23	.55	-.00	.20	-.14	.30	-.43	.23
OPP	-.21	.04	-.13	.65	.16	-.06	-.06	-.05	-.17	-.09	-.07
OPF+	.07	-.03	.07	-.02	.03	-.72	-.14	.05	-.02	.06	.04
OPF-	.32	.02	.00	.17	.21	.37	-.00	-.08	.10	-.09	.58
SPP	.01	.11	.78	.05	-.00	.07	.17	-.10	-.09	.05	.02
SPF+	.08	.04	.08	.03	.09	.13	-.19	-.62	-.17	.05	.05
SPF-	-.01	-.00	-.11	-.01	-.00	.00	-.07	.04	.07	-.63	-.02
CA	.02	-.15	.00	-.08	-.63	.09	.05	-.07	-.03	-.08	.06
CB	.05	.51	-.00	.16	.25	.24	.14	-.01	.09	.03	-.44
CC	.02	-.01	.02	.20	-.43	.33	-.16	.04	.55	-.19	-.17
CE	-.04	-.09	-.22	-.17	-.14	-.14	-.07	-.66	.20	-.13	-.06
CF	-.26	.56	.19	.08	.06	.09	-.27	-.14	-.10	-.01	.02
CG	-.09	.13	.48	-.04	-.24	-.11	.20	-.61	-.09	.10	-.04
CH	-.01	.10	.18	.33	-.57	-.29	-.02	-.33	.21	-.12	.10
CI	.40	-.22	.59	-.19	.09	-.09	.00	-.15	.28	.13	-.13
CL	-.01	.69	-.05	-.02	.09	-.10	.18	.06	.36	.03	.17
CM	-.18	-.25	.39	-.03	.01	.10	.32	-.06	.41	-.29	.24
CN	.01	-.36	.35	.62	.15	-.01	.00	.09	.17	-.13	-.24
CO	.09	.03	.20	-.05	.09	.04	.78	.07	.03	.06	.09
CQ1	-.00	.06	.17	-.01	-.04	.15	.43	-.53	.10	.19	-.06
CQ2	.08	.14	-.03	.01	.06	.03	.07	.00	.68	-.01	.08
CQ3	.09	.03	.37	.11	-.16	.28	.28	.06	-.31	.01	-.20
CQ4	-.15	.11	-.06	-.13	-.08	-.06	.12	.07	.07	.04	.77

Results and discussion

Using Guttman –Kajser's criterion in factor analysis of common factor with the population of sportsmen, the number of 11 factors with positive generalization were extracted (Table 2). The total amount of the explained variance referring to the kept extracted latent dimensions amounts 63.04 %.

Table 1. Correlation residual test for extraction of latent dimensions

Chi-sqr.	Df	P
205.16	199	.37

Table 2. Eigen readings (E), explained variances (%) and cumulatively explained variance (%C) of the delayed latent dimensions

Factors	E	%	%C
1	3.71	11.58	11.58
2	2.37	7.40	18.99
3	2.26	7.05	26.04
4	2.06	6.45	32.50
5	1.82	5.71	38.21
6	1.66	5.18	43.39
7	1.61	5.03	48.42
8	1.26	3.93	52.35
9	1.18	3.70	56.05
10	1.13	3.52	59.58
11	1.10	3.45	63.04

The test of out diagonal correlation structure after 11 factors extraction (Table 1) showed that out diagonal elements of residual correlation matrix can be considered zero, in other words there are no existence of any further correlation structure more in the data or that the same was completely used up. By inspection of non-rotated factor matrix, it was shown that a large number of variables participated in the first main component structure formation. But it was noted that a large number of manifest variables were complex in the factor scope, which means that they saturate other latent dimensions. The same is shown by the value of their communalities. For that reason that function was rotated into orthogonal Varimax solution (Table 3). The Varimax orthogonal solution defines the following structures of co-variability of the applied psychological variables: The first factor dominantly, with the negative sign, saturates the following variables: PM, D48, F1, F2 and S1. Based on its structure, it can be defined as **general and specific intellect ability**. The second factor saturate very much the following variables: CB, CF, and CL. And it can be defined as **crystallized intelligence with the feeling of inner relaxedness**, and it is also featured by confidence with expression of carelessness as well as cheerfulness and tranquility. The third factor is defined by the following variables: SPP, CI, CG, and CQ3, and it can be defined as the **motive for sport achievements with independence**, together with practicality, independence, strong character or persistency, punctuality, responsibility and self control. The fourth factor is defined by the following variables: E, OPP and CN. The same can also be defined as extroversion with the motive of general success with high intelligence and inventiveness. The fifth factor saturates considerably the following variables: CA, CH and N, but with the opposite sign. The same can also be defined as **sociability, adaptation, fearlessness and low emotional stability**. The sixth factor dominantly with the positive sign saturates the OPF+ variable. Based on its structure, the same can be defined as a **positive emotional engagement in the conditions of general achievement**. The seventh factor considerably saturates the following variables: CO, TAI and CQ1. The same can be defined as **self-confidence, security** with optimal anxiety and radicalism. The eighth factor dominantly with the negative sign saturates the following variables: SPF+, CE, CG, CQ1. Based on its structure, it can be defined as a **positive emotional engagement in the conditions of sport achievements with the feeling of dominance**, a strong super ego or persistency, punctuality, responsibility and radicalism. The ninth factor considerably saturates the following variables: CQ2, CC, CM, CL, and N. The same can be defined as independence and individuality in making decisions, strong ego, practicality and realism with the inner relaxedness, confidence and emotional stability.

The tenth factor, dominantly with the negative sign, saturates the following variables: TAI, T15 and SPF. Based on its structure, it can be defined as **low negative emotional engagement in the conditions of sport achievements with the presence of aggression** during matches and optimal anxious reaction. The eleventh and the last factor, dominantly with the positive sign, saturates the OPF- i CQ4 variables. Based on its structure, it can be defined as **low negative emotional engagement in the conditions of sport achievements with the feeling of relaxedness** and tranquility.

The results identified the following: Psychological structure at sportsmen-karateists was determined and together with it a group of 11 factors were extracted as it follows: the first factor is, as it can be seen from the factor matrix, responsible for variability and co-variability of cognitive abilities measurements. This factor also explains the largest percent of variance. It is possible to determine, using more detailed inspection, that this latent dimension is responsible for connection among the measures for general intelligence, in other words, of the cognitive factor for acquisition, storage and data and perceptive reasoning measures processing, speed of detecting perceptive structures and specific intellect abilities for performing special relations. The second factor of chrystallized intelligence with the feeling of inner relaxedness, confidence with expression of carelessness, cheerfulness and tranquility, indicate the connection of the so called area intelligence, which results as the product of mutual interaction of general actor of intelligence with motivation, memory and influence by different and specific fields with the factor which estimates inner relaxedness, tolerance, explicitness and understanding other people as well as the factor which is defined as carelessness, cheerfulness, tranquility and security of sportsmen. A sportsman should pay a special attention to the mentioned features of personality, especially in the process of selection and later in the process of training. The third factor is the factor of sport achievement with independence, practicality, strong character or persistency, punctuality, responsibility and self control. It is possible to determine, using more detailed inspection, that this latent dimension is responsible for connection among the measures of sport achievement motive which is manifested in the desire for self-confirmation together with quantitatively expressed information for the process of motivation and measure for practicality, independence, self-reliance and emotional maturity. In the further processing of the pieces of information and measuring the factors of moral responsibility, persistency and punctuality, we have as a result the factor saturated by the measures of self control, which means that they are able to control their desires, will, emotions and their own reactions.

Such kinds of features indicate that a person is able and motivated to perform the most appropriate choice in situations which appear during his/her sport activity. This factor also reflects the importance of self control and stability for sportsmen motivation. The fourth factor is identically defined by personality dimensions of Eisenck's extroversion, which describes people behavior as preference to have company of other people, making friends in an easy manner, explicitness, communication skills and optimism. The second measure which saturates this factor is the motive of general achievement (Havelka and Lazarević, 1980), which is manifested in desire for confirmation, as the success predictor for basic life occupations and measures of intelligence defined as inventiveness, cunning and emotional discipline. The fifth factor, as it can be seen from the factor matrix, is responsible for variability and co-variability of the measures for two Cattell's personal factors and Eisenck's neurotism but having the opposite sign. Based on its structure, the sixth factor can be defined as the factor of a positive emotional engagement and as emotional self control in conditions of general achievement. This measure represents emotional self-control and stability which optimizes organism for achievement of motivation aims and the measure which means softheartedness, flexibility and adaptability. The seventh factor dominantly defines the measures meaning safety, resistance, absence of vacillation, that is the measures which define general anxiety or anxiety as relatively constant personality feature. It resulted in information on how much is one individual inclined to anxiety reactions in different situations with the measures of radicalism or tendency to be intellectually curious and thus this kind of persons always bring some new questions, new ideas and they tend to do experiments. Based on its structure, the eighth factor can be defined as the factor of a positive emotional engagement in the conditions of sport achievement. This dimension is defined in the same degree with positive emotional engagement in the conditions of sport achievement. It means that a positive tone is given to the whole organism in the process of achieving set sport aims, and they are the tree of the Catell's factors: dominance and tendency for self-confirmation.

These kinds of persons are known as leaders in the area where they live and work and they can be placed above others. Another measure which saturates this factor is moral responsibility, persistency and punctuation, as well as the measures which provide information on radicalism or tendency to new ideas, questions, issues, etc. The ninth factor can be defined as independence and individuality in making decisions, strong ego, practicality and reality with inner relaxedness, trust and emotional stability. In a little bit detailed inspection, it is possible to determine that this latent dimension is responsible for connection among four Cattell's dimensions and the measure of Eisenck's neurotism. The tenth factor can be defined as the factor of a very low negative emotional engagement in the conditions of sport achievement, with the presence of aggression at matches and optimal anxious reaction, too. This factor provides information that means a high self-confidence and safety or optimal anxiety, which always wastes a competitor's aggression and control of negative emotional reactions, which can manifest in appearance of fear due to uncertainty in sport. The last or the eleventh factor is saturated by: control of negative emotional reaction in the conditions of sport achievement; feeling of relaxedness, tranquility and lack of frustration; the measures that provide information on crystallized intelligence which results as the product of mutual influence by the general factor of intelligence with motivation, memory and influence by different specific fields. All the eleven extracted factors have logical explanation and validity, which can be seen in this kind of their description. According to the available bibliography, it is clear that, at least, we can recognize that such kinds of structures have their origin and a certain degree of validity. In maximum degree, a few different dimensions have been found with different authors and they have the same or similar psychology content with dimensions isolated at other authors but in this research they were condensed in a few dimensions. In terms of practicality, it is possible to have a complete insight into psychological status of a karateist by knowing this structure. Based on the estimation of theory model at one author, we could make conclusions in respect to other theory models.

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FAKTORSKA STRUKTURA PSIHOLOŠKOG PROSTORA KOD SPORTAŠA - KARATISTA U MAKEDONIJI

Sažetak

Potrebno je nastaviti s primjenom rezultata istraživanja što identifikaciji posebnih mogućnosti ličnosti ili važne psihološke dispozicije može učiniti mogućima i to en samo u sportu općenito, nego i za specifične sportske discipline. Problem istraživanja se referira kao analiza faktorske strukture psihološke domene kod karatista u skladu sa širom baterijom testova među kojima određeni broj može biti opisan kao oni koji imaju poseban sportski karakter dok ostali testovi imaju opći karakter. Sa 11 dobivenih faktora u terminima praktičnosti, moguće je dobiti kompletan uvid u psihološki status karatista poznavanjem te strukture. Utemeljeno na procjeni nekog teorijskog modela, možemo zaključivati, naravno uz respekt prema drugim modelima.

Ključne riječi: ličnost, psihička struktura, sportaši-karatisti

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