PSYCHOLOGICAL PROFILE OF HUNGARIAN NATIONAL YOUNG ICE HOCKEY PLAYERS

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Abstract:

As regards psychological determinants, self-determination, sacrifice, and coping with pressure are all necessary mental skills for success in ice hockey. The aims of this study were to identify those psychological background factors for three age groups of the national ice hockey teams (U16, U18, U20) that are of the most importance. It was also the purpose of this study to determine the age-related psychological differences which may play a long-term role in the ice hockey players' careers. Altogether 95 elite male ice hockey players filled out CSAI-2, ACSI-28, STPI-Y self-evaluation questionnaires. ANOVA showed no differences among the age groups with the exception of the trait anger scale results.

Key words: *anxiety coping skills, personality traits, elite ice hockey players, age groups*

Introduction

Becoming an elite athlete in any sport requires a very high level of persistence, dedication, commitment, and also a supportive environment. Sport psychological studies have shown that athletic coping skills, anxiety, and stress are rather good predictors of sport success (Renger, 1993; Smith & Christensen, 1993; Porat, Lufi, & Tenenbaum, 1989). Also, psychological variables like anxiety, the stress level of a situation, and coping skills may very well influence performance of athletes either in a positive or negative way (Hanin, 1989; Martens, Vealey, & Burton, 1990). Hanin (1986) in his theory confirmed that through purposeful and regulated stress management, the anxiety level will fall within the zone of optimal functioning and also will facilitate the realization of a performance level for which a particular athlete is physically prepared to achieve.

Generally speaking, successful athletes tend to be more committed to sport and training, have clear and measurable goals (McCaffrey & Orlick, 1989; Orlick & Partington, 1988), have a higher confidence level (Gould, Dieffenbach, & Moffat, 2002) and a stable anxiety level prior to competition (Kais & Raudsepp, 2005), and are characterized by a high level of cognitive functioning (Huber, 1997). Also, elite athletes show less depression and sensitivity (Mahoney, 1989), fatigue, confusion, and neuroticism (Weinberg & Gould, 1995) on a daily basis than non-elite athletes.

According to literature, it is evident that the number of studies related to success in ice hockey is fairly limited (Sheldon & Aimar, 2003). Researchers interested in high-level accomplishments in ice hockey mainly focused on measures of aggression as related to cultural comparisons, success, number of goals, assists, and victories (Dunn & Dunn, 1999; Engelhardt, 1995; Gee & Leith, 2007; McCarthy & Kelly, 1978; Sheldon & Aimar, 2003). Regarding other psychological determinants, self--determination, sacrifice, coping with pressure were highlighted as necessary mental skills in this sport (Orlick & Partington, 1988). In addition, elite players have a tendency to be more emotionally stable and extraverted (Novotny & Petrak, 1983) and rate themselves higher in all categories of perceived ability than non-elite players (Ewing, Feltz, Schultz, & Albrecht, 1988). In their study, MacDougall, Scott, Leavins, and Summers (2002) found that love for the game, work ethic, overcoming adversity, and hockey game sense are the key mental contributors required for elite hockey players.

Hence the aims of this study were to identify the anxiety, coping skills, and personality factors that are equally important characteristics for youth na-

tional ice hockey teams. It was also the purpose of this study to determine the age-related (U16, U18, U20) psychological characteristics which may play role in high achievements in ice hockey.

Method

Participants

The total sample was comprised of 95 elite male ice hockey players from three different age groups of the Hungarian Selected National Teams. Consideration was given to the protection of the human subject throughout the study and confidentiality was maintained all through the research. All participants were informed that the results of this study would be published but no names would be revealed. Informed consent was obtained from every player from U20 team and in U18 and U16 teams we requested permissions from the players' parents.

U18 was chosen for this study because it is the youngest age group of selected players with international championships organized by the International Ice Hockey Federation. U16 group was selected in order to facilitate athletes' sport achievements. Also, U20 players play a critical role in the present and the future of ice hockey, as most of these selected players play on a professional basis.

The age groups in the study were: the 16-year--old age-group consisted of 35 players (U16), the 18--year-old age-group (27 players) (U18), and the 20--year-old age-group (33 players) (U20). Altogether, 95 participants participated in the study.

Instruments and procedure

1 CSAI-2 scoring and reliability

Competitive State Anxiety Inventory-2 (CSAI-2) was selected for this study because it is sensitive to sport-specific research and also it has been useful in assisting athletes with high anxiety in competitive situations (Martens, et al., 1990). CSAI comprises 27 items in three subscales: a cognitive anxiety scale, a somatic anxiety scale, and a competition--related self-confidence scale. It is widely employed in Hungary (Jelinek, 2000; Sipos, Kudar, Bejek, & Tóth, 1999), the Hungarian version of CSAI-2 reported a relatively high internal consistency for *Cognitive Anxiety* (.80), *Somatic Anxiety* (.85), and also for *Self-Confidence* (.85).

2 ACSI-28 scoring and reliability

Athletic Coping Skills Inventory-28 (ACSI-28) (Smith, Schutz, Smoll, & Ptacek, 1995) was utilized in this study because through determining the players' scores, a conclusion regarding their psychological skills can be drawn and subsequent psychological skills training can be identified. ACSI-28 consists of 28 items in seven subscales (*Coping with Adversity*, *Peaking under Pressure*, *Goal Setting/ Mental Preparation*, *Concentration*, *Freedom from Worry*, *Confidence and Achievement Motivation*, and *Coachability*). The ACSI-28 is also commonly employed in Hungary (Jelinek, 2000; Sipos, et al., 1999) and its Cronbach alpha coefficients were .61 for *Coping with Adversity*, .84 for *Peaking under Pressure*, .67 for *Mental Preparation*, .64 for *Concentration*, .72 for *Freedom from Worry*, .59 for *Confidence and Achievement Motivation*, and finally .69 for *Coachability.*

The Cronbach alpha coefficients of the Hungarian version of ACSI-28 scales between .59-.84 do not differ from the original English ACSI-28 (Smith, et al., 1995).

3 STPI-Y scoring and reliability

The State-Trait Personality Inventory (STPI) was developed by Spielberger with eight 10-item scales to measure stable personality traits as well as transitory states influenced by a specific situation. The revised STPI (STPI Form Y) also measures state and trait anxiety (Ax), anger (Ag), depression (Dp), and curiosity (Cy) (Sipos & Spielberger, 2005; Sipos, Spielberger & Bodó, 2004). The internal consistency of the Hungarian version of STPI-Y for its eight scales ranged from .64 (*State Curiosity*) to .91 (*State Anger*).

Data Collection and Analysis

For the current study, three valid psychometric measures were selected to provide a detailed description of elite ice hockey players' important psychological characteristics. Participants were asked to fill out ACSI-28, CSAI-2 and STPI-Y self-evaluation questionnaires in the first part of the 2006/2007 ice hockey season. Athletes were informed that their participation was voluntary. The entire data collection took approximately about thirty minutes to complete.

Basic statistics (means and standard deviations), and Cronbach alphas were calculated for all psychological scales and subscales. Analysis of variance (ANOVA) was used for the comparison among the age groups of our sample. Additionally, after checking for normality and homogeneity of variance assumptions, we performed discriminant analysis. Stepwise discriminant analysis was used to differentiate the psychometric differences among the three different age groups.

Results

Results show that national ice hockey players have relatively low *Cognitive* and *Somatic State Anxiety* and high *State of Self-Confidence* (Table 1). In ACSI-28, our sample had low values for most subscales (from the lowest to the highest) in comparison to the Hungarian standard (Jelinek, 2000): *Goal Setting/Mental Preparation*, *Coping with Ad-*

versity, *Peaking under Pressure*, *Confidence and Achievement Motivation*, *Freedom from Worry*, and *Concentration* (Table 2). *Coachability* seems to have the highest value of all in this scale. Also, players demonstrate a very low *State Anger*, a moderately low *State Anxiety*, *State Depression*, and *Trait Depression*; however, the results show a relatively high *State Curiosity*, *Trait Anger*, and a very high *Trait Curiosity* (Table 3). This is where we found the only difference among the different age groups. According to our results, U20 players have significantly higher *Trait Anger* than U16 players do.

Table 1. CSAI-2 means (M), standard deviations (SD), and Cronbach alphas (α) of different age groups for ice hockey players

CSAI-2-H Variables		Players of ice hockey			
		Age groups			
		Total N=95	16yrs N=35	18yrs N=27	20yrs N=33
Cognitive State Anxiety	M	15.90	15.2	16.92	15.85
	SD	4.69	4.3	5.13	4.73
	α	.84	.84	.86	.70
Somatic State Anxiety	M	14.53	14.94	14.68	13.97
	SD	3.62	3.78	3.59	3.51
	α	.72	.74	.66	.75
State Self-confidence	M	26.86	27.0	26.84	26.74
	SD	4.13	3.69	4.98	3.92
	α	.77	.72	.84	.75

Table 2. ACSI-28 means (M), standard deviations (SD), and Cronbach alphas (α) of different age groups for ice hockey players

ACSI-28-H Variables		Players of ice hockey			
		Age groups			
		Total N=95	16yrs N=35	18yrs N=27	20yrs N=33
Coping with Adversity	M	11.16	11.0	11.73	10.86
	SD	2.03	1.53	2.24	2.30
	α	.61	.50	.51	.72
Peaking under Pressure	M	12.07	11.97	11.89	12.34
	SD	2.65	2.45	2.95	2.66
	α	.84	.64	.86	.84
Goal Setting/ Mental Preparation	M	10.07	10.43	10.22	9.56
	SD	2.63	2.42	2.75	2.76
	α	.67	.64	.66	.69
Concentration	M	12.44	12.34	12.22	12.75
	SD	2.04	1.69	2.50	1.98
	α	.64	.48	.72	.63
Freedom from Worry	M	12.29	12.42	11.92	12.43
	SD	2.33	1.96	2.79	2.34
	α	.72	.76	.75	.69
Confidence And Achievement Motivation	M	12.07	11.91	11.92	12.38
	SD	2.08	1.80	2.27	2.25
	α	.59	.47	.66	.65
Coachability	M	13.19	13.03	13.74	12.91
	SD	1.96	1.85	2.23	1.80
	α	.69	.66	.78	.61

Table 3. STPI-Y means (M), standard deviations (SD), and Cronbach alphas (α) of different age groups for ice hockey players

STPI -Y-H Variables		Players of ice hockey			
		Age groups			
		Total N=95	16yrs N=35	18yrs N=27	20yrs N=33
State Anxiety	M	16.72	15.6	17.52	17.3
	SD	4.36	3.84	5.76	3.44
	α	.80	.75	.88	.71
State Curiosity	M	21.59	21.75	22.73	20.5
	SD	3.91	4.13	3.19	4.02
	α	.69	.74	.44	.73
State Anger	M	12.79	12.21	13.48	12.81
	SD	4.43	3.87	4.5	4.95
	α	.90	.85	.90	.94
State Depression	M	16.01	15.82	15.85	16.34
	SD	3.87	3.25	5.22	3.19
	α	.73	.67	.86	.56
Trait Anxiety	M	18.91	18.44	19.26	19.13
	SD	3.72	2.72	4.28	4.18
	α	.70	.47	.77	.76
Trait Curiosity	M	28.61	27.91	28.96	29.03
	SD	4.37	4.36	3.46	5.12
	α	.77	.82	.54	.84
Trait Anger	M	22.04	20.57	22.33	23.45*
	SD	4.75	4.36	5.77	3.95
	α	.82	.82	.86	.73
Trait Depression	M	1656	16.34	16.50	16.94
	SD	3.95	3.31	4.92	3.91
	α	.81	.76	.87	.79

When comparing and contrasting the three age groups of ice hockey players we found that U20 players had a significantly higher *Trait Anger* than U16 players (F=3.251; p=.043). However, there were no differences among the three age groups of national ice hockey team members in all subscales of STPI-Y, CSAI-2, and ACSI-28.

The age-specific means and standard deviations and Cronbach alphas for all STPI-Y, CSAI-2, ACSI-28 subscales are shown in Tables 1, 2, 3. STPI-Y-H had Cronbach alphas of .67 or higher with the exceptions of *State and Trait Curiosity* for U18 (.44; .54), *State of Depression* for U20 (.56), and *Trait Anxiety* for U16 (.47). CSAI-2 variables had Cronbach alphas between .66 (*Somatic State Anxiety* for U18) and .86 (*Cognitive State Anxiety* for U18). Cronbach alphas ranged between .47 (*Confidence and Achievement Motivation* for U16) and .86 (*Peaking under Pressure* for U18).

Stepwise discriminant analysis on U16, U18, and U20 age group players revealed that eight steps (subscales) were used in the discriminating model (*State Anxiety*, *State Curiosity*, *State Anger*, *Trait Anger*, *Coping with Adversity*, *Goal Setting/Mental Preparation*, *Confidence and Achievement Motivation* and *Coachability*) with a total accuracy of 73.1%. Table 4 shows that the 1st function had a relatively high canonical correlation (.598) and explained 66.2% of the variance and Table 5 proves that it is worthwhile keeping both functions in the calculations.

Table 4. Discriminant analysis U16, U18, and U20 canonical correlations (Eigenvalues). First 2 canonical discriminant functions were used in the analysis

Function	Eigenvalue	% of variance	Cumulative %	Canonical correlation
1	.557(a)	66.2	66.2	.598
2	.285(a)	33.8	100.0	.471

Table 5. Discriminant analysis U16, U18, and U20 Wilk's Lambda (Wilks' Lambda)

Test of function(s)	Wilks' Lambda	Chi-square	df	Sig.
1 through 2	.500	39.856	16	.001
2	.778	14.407	7	.044

Discussion and conclusion

The ice hockey players in this study are the best in their age groups in Hungary. This part of the research, conducted at the beginning of the 2006/2007 ice hockey season, has extended the previous research on the psychological measures on ice hockey players by providing an international scope of stress, coping, and personality factors, and also comparing and contrasting selected national team members of different age groups. One of the most important results in this study was that different age groups of elite ice hockey players did not differ in all STPI-Y, CSAI-2, ACSI-28 subscales except for *Trait Anger*.

Some of the psychological examinations were not performed in optimal and favorable conditions that may have been the reason of the low Cronbach alphas. However, Hungarian reliability coefficients are almost the same as those in the English version. Still, we believe that our results are of importance in filling a gap in the literature.

Smith and Christensen (1995) reported that ACSI-28 athletic performance is a good indicator of athletic performance. In an earlier study Géczi, Bognár, Tóth, Sipos, and Fügedi (2008) reported that the members of the adult national ice hockey team were generally in a more beneficial state from the standpoint of anxiety, pressure, and worry than the U18 group. From that particular study the authors concluded that the experienced players could better manage unexpected events (stress situations), than the younger players. As opposed to this, in the present study there were no differences among U16, U18, and U20 national ice hockey teams. Our study proves that age has no effect on athletic coping skills subscales.

Using the Competitive State Anxiety Inventory-2, Kais and Raudsepp (2005) did not find any difference between the first league male volleyball and basketball players. They reported somewhat lower *Cognitive*, *Somatic State Anxiety*, and also *Self-Confidence* than we found in this study. Ice hockey players of different age groups did not differ in any of the CSAI-2 subscales.

Sipos and Spielberger (2005) described a higher *State Anxiety*, *State Anger*, *State Depression*, *Trait Anxiety, Trait Curiosity*, *Trait Depression* and lower *State Curiosity* and *Trait Anger* for physical education teacher students than was found in this research among ice hockey players. It seems that elite ice hockey players of U16, U18, and U20 have higher results in *State* and *Trait Curiosity* and *Trait Anger*.

ANOVA confirmed that the only significant difference for the CSAI-2, STPI-Y, ACSI-28 occurred in the *Trait Anger* scale results. The youngest and oldest age groups differed significantly ($p<.016$). At 20 years of age, the *Trait Anger* mean reached the highest level in the sample. The players' age-related differences in *Trait Anger* in this study emphasize that the coach has to take into consideration such trait characteristics of his players. Similar findings were found for ice hockey players by Bushman and Wells (1998) on trait aggressiveness and minutes spent in the penalty box due to aggressive penalties. They found that high trait aggressiveness or trait anger do not serve the team winning.

Contrary to ANOVA, stepwise discriminant analysis showed eight subscales that differentiated among the U16, U18, and U20 players: *State Anxiety*, *State Curiosity*, *State Anger*, *Trait Anger*, *Coping with Adversity*, *Goal Setting/Mental Preparation*, *Confidence and Achievement Motivation*, and *Coachability*. Due to the fact that discriminant analysis is a sensitive analysis, this result means that coaches and experts working with players need to expect different states, trait characteristics, and coping skills in their work.

Our result shows that there can be no difference among age groups in the methodological approach and competitive level because national team members have to perform on the highest level both during the training sessions and matches. For all age groups the performance requirements are the same in the international arena. However, different psychological approaches are needed to get better results and achievements.

Each age group of ice hockey players requires a different special psychological treatment from the coach. Athletes with psychological problems in different sports require the adequate psychological intervention of a sport psychologist. The described psychological profiles concern only the elite ice hockey players' main characteristics and seem to be useful in the development of ice hockey players. The above results underline the fact that a coach has to find the instruction methods psychologically appropriate for each player by a different way of communication.

Due to the fact that there was only one age--related difference (*Trait Anger*), it can be concluded that the typical young elite ice hockey player in Hungary is characterized by a relatively low level of anxiety and coping skills and a high level of confidence, coachability, and curiosity.

The practical implication of this study is awareness that repeated psychometric examinations are needed to be performed with athletes of different ages, from the adolescent years to adulthood, using different tests. Also, it seems important to build appropriate communication and cooperation among athletes and coaches, which are specific to age and ability level.

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PSIHOLOŠKI PROFIL MLADIH HOKEJAŠA NA LEDU ČLANOVA MADŽARSKE NACIONALNE VRSTE

Sažetak

Uvod

Da bi se postalo vrhunskim sportašem, potrebna je velika upornost, predanost, odgovornost, osjećaj obveze, ali i podupiruća okolina. Psihološke studije u sportu su pokazale da su vještine nošenja s poteškoćama, anksioznost i stres vrlo dobri prediktori sportskog uspjeha. Također, psihološke varijable kao što su anksioznost, situacijska razina stresa i vještine njegova svladavanja, mogu iznimno utjecati, i pozitivno i negativno, na sportaševu uspješnost. Uspješni sportaši su predaniji sportu i treningu, s jasnim i mjerljivim ciljevima, vrlo su pouzdani, razina anksioznosti prije natjecanja im je stabilna. te ih karakterizira visoka razina kognitivnog funkcioniranja. Također su manje depresivni i osjetljivi, rjeđe su umorni i zbunjeni, a neuroticizam im je nizak na dnevnoj bazi u odnosu na manje kvalitetne sportaše.

Istraživanja o uspješnosti u hokeju na ledu prilično su rijetka. Znanstvenici zainteresirani za istraživanja visokih postignuća u hokeju na ledu većinom su se fokusirali na mjere agresije, koje su povezivali s kulturološkim utjecajima, uspjehom, postignutim golovima, asistencijama i pobjedama. Ciljevi istraživanja bili su identifikacija pozadinskih psiholoških faktora koji su jednako važni za različite dobne kategorije (U16, U18 i U20) nacionalnih selekcija hokeja na ledu. Cilj je također bio i utvrditi razlike u psihološkim karakteristikama među pojedinim dobnim kategorijama, što može biti važno u dugoročnoj sportskoj karijeri.

Metode

Uzorak ispitanika

Uzorak ispitanika činilo je 95 vrhunskih mladih hokejaša na ledu tri različite dobne kategorije madžarskih nacionalnih selekcija. Istraživanje je provedeno u skladu sa zakonom o ljudskim pravima, a zajamčena je tajnost podataka. Dobne kategorije hokejaša na ledu bile su: do 16 godina (U16) - 35; do 18 godina (U18) - 27 te do 20 godina (U20) - 33 ispitanika.

Mjerni instrumenti i procedure

1. CSAI-2 ocjenjivanje i pouzdanost
   Upitnik stanja natjecateljske anksioznosti – 2 (CSAI-2) je izabran zbog svoje primjerenosti za specifična sportska istraživanja i zbog činjenice da je već uspješno pomogao sportašima s visokom razinom anksioznosti u natjecateljskim situacijama. Sastoji se od 27 čestica u 3 subskale: kognitivne anksioznosti, somatske anksioznosti i natjecateljskog samopouzdanja.
2. ASCI-28 ocjenjivanje i pouzdanost
   Upitnik vještine suprotstavljanja problemima – na temelju rezultata ispitanika na ovom upitniku može se zaključivati o njihovim psihološkim vještinama i programirati kasniji trening psiholoških vještina. Sastoji se od 28 čestica u 7 podskala (suočavanje s nevoljama, uspijevanje pod pritiskom, određivanje ciljeva/mentalna priprema, koncentracija, nezabrinutost, pouzdanost i motivacija za postignućem te sposobnost vođenja/upravljanja.
3. STPI-Y ocjenjivanje i pouzdanost
   Upitnik stanja crta ličnosti (STPI) bio je ranije razvijen sa skalom od 10 čestica koje mjere stabilne osobine ličnosti, kao i prolazna stanja na koja utječu specifične situacije. Korigirani STPI (STPI oblik Y) također mjeri stanje i osobine anksioznosti (Ax), bijes (Ag), depresiju (Dp) i znatiželju (Cy).

Prikupljanje i analiza podataka

Izračunati su osnovni statistički podaci (aritmetička sredina i standardna devijacija) te Cronbachove alfe. Za usporedbu grupa ispitanika korištena je analiza varijance (ANOVA), a dodatno, nakon pregledavanja normaliteta i homogenosti varijance, provedena je diskriminativna analiza. Koračna diskriminacijska analiza provedena je radi razlikovanja psihometrijskih razlika među trima skupinama ispitanika.

Rezultati

Članovi madžarskih nacionalnih selekcija u hokeju na ledu pokazali su relativno nisku razinu kognitivnog i somatskog stanja anksioznosti i visoku razinu samopouzdanja. U ASCI-28 ispitanici su postigli niske vrijednosti u većini subskala u usporedbi s madžarskim standardima: postavljanje ciljeva/ mentalna priprema, suočavanje s nevoljma, uspijevanje pod pritiskom, pouzdanost i motivacija za postignućem, nezabrinutost te koncentracija. Čini se da sposobnost vođenja/upravljanja ima najviše vrijednosti na ovoj skali. Ispitanici su pokazali vrlo nisku razinu bijesa, umjereno nisku razinu stanja anksioznosti, stanja depresije i osobina depresije; s druge strane pokazali su relativno visoku razinu stanja znatiželje, osobina bijesa i vrlo visoku razinu osobina znatiželje. Samo su u ovom upitniku utvrđene razlike između grupa ispitanika. Prema dobivenim rezultatima, igrači U20 imaju statistički više vrijednosti značajki bijesa u odnosu na U16 (F=3,251; p=,043). Nisu utvrđene statistički značajne razlike među trima grupama ispitanika ni u jednoj subskali STPI-Y, CSAI-2 i ACSI-28 upitnika.

Koračna diskriminacijska analiza na grupama U16, U18 i U20 otkrila je da je 8 stupnjeva (subskala) bilo korišteno u diskriminacijskom modelu (stanje

anksioznosti, stanje znatiželje, stanje bijesa, suočavanje s nevoljom, postavljanje ciljeva/mentalna priprema, pouzdanost i motivacija za postignućem te sposobnost vođenja (upravljanja) s ukupnom pouzdanošću od 73,1%.

Rasprava

Jedan od najvažnijih rezultata istraživanja bio je da se različite grupe ispitanika definirane po starosti nisu razlikovale ni u jednoj subskali (STPI-Y, CSAI-2, ACSI-28), osim u subskali osobina bijesa.

Neki psihološki testovi nisu provedeni u optimalnim uvjetima što je mogao biti uzrok niskih Cronbachovih alfa. Kako bilo, koeficijenti pouzdanosti utvrđeni u našem istraživanju gotovo su identični onima koji su dobiveni u istraživanjima engleskih kolega.

Analiza varijance (ANOVA) potvrdila je da je jedina statistička značajnost razlika u CSAI-2, STPI-Y i ACSI-28 upitnicima utvrđena na skali osobina bijesa. Najmlađa i najstarija grupa ispitanika razlikovala se na razini značajnosti od p<,016. Aritmetička sredina osobina bijesa dostigla je svoju najvišu vrijednost uopće u grupi U20. Treneri moraju biti svjesni razlika u osobinama bijesa među igračima različitih dobnih kategorija, koje su potvrđene ovim istraživanjem. Slični su rezultati dobiveni i u prethodnim istraživanjima drugih autora između crta agresivnosti i minuta provedenih na klupi za kažnjenje igrače. Utvrdili su da izražene značajke agresivnosti ili bijesa ne pomažu uspjehu ekipe.

Suprotno od rezultata dobivenih analizom varijance, stupnjevita diskriminacijska analiza pokazala je 8 subskala koje razlikuju grupe U16, U18 i U20: stanje anksioznosti, stanje znatiželje, stanje bijesa, osobine bijesa, suočavanje s nevoljom, postavljanje ciljeva/mentalna priprema, pouzdanost i motivacija za postignućem i sposobnost vođenja/upravljanja. Stoga treneri i stručnjaci u svom poslu moraju očekivati različita stanja igrača, različite osobine ličnosti i različite vještine suočavanja s poteškoćama.