

KVANTITATIVNE I KVALITATIVNE RAZLIKE U INDIKATORIMA SITUACIONE EFIKASNOSTI VRHUNSKIH NOGOMETAŠA UČESNIKA TRI POSLJEDNJA SVJETSKA NOGOMETNA PRVENSTVA

Sažetak

S ciljem utvrđivanja kvantitativnih i kvalitativnih razlika u indikatorima situacione efikasnosti između vrhunskih nogometaša učesnika tri posljednja Svjetska nogometna prvenstva, analizirani su rezultati istraživanja na uzorku od 370 vrhunskih nogometaša uzrasta 19-40 godina, koji su odigrali svih 90 minuta utakmice osmine finala tri posljednja Svjetska nogometna prvenstva. Istraživanje je transversalno karaktera, tj. rezultati su dobijeni mjerenjem istraživanih varijabli u jednoj vremenskoj tački na Svjetskim prvenstvima 2010., 2014., i 2018. godine. Analiza razlika dobijenih podataka u istraživanom prostoru posmatrana je na univarijantnom i multivarijantnom nivou.

Rezultati nezavisnih uzoraka univarijantne analize varijanse za tri Svjetska prvenstva pokazali su da gotovo sve korištene varijable imaju statistički značajnu razliku, što nam jasno govori da postoje razlike između tri Svjetska prvenstva (SP2010, SP2014, SP2018).

Rezultati diskriminativne analize u prostoru situacione efikasnosti pokazuju da su dobijene dvije značajne diskriminativne funkcije koje imaju statistički visoku vrijednost na nivou ($\text{sig}=.00$), (Canonical Correlation = ,98, ,91). Vrijednost Wilksove lambde koja je korištena kao kriterij za diskriminativnu jačinu primjenjenog sistema varijabli pokazuju niske vrijednosti (prva funkcija ,003, druga 0,15) što ukazuje na visoku diskriminativnost između grupa. Prva izolirana funkcija objašnjava 89,6% ukupne varijanse, a druga izolirana funkcija 10,4% ukupne varijanse. U prvoj diskriminativnoj funkciji najveća razlika bila je u varijablama koje definišu tehničko-taktički segment u strukturi nogometne igre i to u korist SP 2010, dok u drugoj diskriminativnoj funkciji najveća razlika bila je varijablama koje definišu intenzitet igre, broj sprinteva i brzinu izvođenja nogometnih radnji, i to u korist SP 2018.

Faktorskom analizom utvrđena je struktura indikatora situacione efikasnosti nogometaša za sva tri Svjetska nogometna prvenstva. Dobijeni rezultati nam govore da je objašnjenost ukupne varijanse bila najveća na SP 2010 (83,52 %), zatim na SP 2014 (81,97 %) i najmanje objašnjene varijanse (76,30 %) bilo je na SP 2018 godine. Metodom glavnih komponenti na SP 2010 i SP

2014 izdvojilo se šest faktora, a na SP 2018 izdvojila su se četiri faktora sa značajno različitim zasićenjima izolovanih faktora manifestnih varijabli. Možemo zaključiti da se u vremenskom razdoblju od 8 godina desile promjene u nogometnoj igri što nam jasno pokazuju rezultati izolovanih faktora u strukturi nogometne igre.

Donekle se promjenila struktura nogometa na taj način da se smanjio broj faktora sa šest na četiri, a faktori koji su se izolovali jasno definišu savremeni nogomet, gdje dominira izuzetna kondiciona primremljenost, visok nivo tehnike u kretanju, zatim visok ritam igre i taktička zrelost.

Ključne riječi: nogomet, indikatori, vrhunski nogometaši, situaciona efikasnost, Svjetsko prvenstvo.

QUANTITATIVE AND QUALITATIVE DIFFERENCES IN SITUATIONAL EFFICIENCY INDICATORS OF TOP SOCCER FOOTBALLERS OF THE THREE LAST WORLD FOOTBALL CHAMPIONSHIPS

Abstract

In order to determine the quantitative and qualitative differences in situational efficiency indicators between the top footballers participating in the last three World Cups, the results of a survey of 370 top footballers aged 19-40, who played all 90 minutes of the round of 16 of the last three World Cups, were analyzed. The research is of a transversal character, ie. the results were obtained by measuring the researched variables at one time point at the 2010, 2014 and 2018 World Cups. The analysis of the differences of the obtained data in the investigated space was observed at the univariate and multivariate level.

The results of independent samples of univariate analysis of variance for the three World Championships showed that almost all variables used have a statistically significant difference, which clearly tells us that there are statistically significant differences between the three World Championships (WC 2010, WC 2014, WC 2018).

The results of discriminant analysis in the space of situational efficiency show that two significant discriminant functions were obtained that have a statistically high value at the level ($\text{sig} = .00$), (Canonical Correlation =, 98,, 91). The value of the Wilks lambda used as a criterion for the discriminant strength of the applied system of variables shows low values (first function .003, second 0.15), which indicates high discriminativity between groups. The first isolated function explains 89.6% of the total variance, and the second isolated function 10.4% of the total variance. In the first discriminant function, footballers differed most statistically significantly in the variables that define the technical-tactical segment in the structure of the football game in favor of WC 2010, while in the second discriminant function the biggest statistically significant difference was the variables that define the intensity of the game, sprints and the speed of performing football actions, in favor of WC 2018.

Factor analysis determined the structure of indicators of situational efficiency of football players for all three World Cups. The obtained results tell us that the explanation of the total variance was the highest at the WC 2010 (83.52%), then at the WC 2014 (81.97%) and the least explained variance (76.30%) was at the WC 2018. By the method of main components at WC 2010 and WC 2014, six factors were singled out, and at WC 2018, four factors with significantly different saturations of isolated factors of manifest variables were singled out. We can conclude that in a period of 8 years there have been changes in the football game which is clearly shown by the results of isolated factors in the structure of the football game.

The structure of football has changed somewhat by reducing the number of factors from six to four, and the factors that have been isolated clearly define modern football, dominated by exceptional fitness, high level of technique in movement, then high rhythm of play and tactical maturity.

Keywords: football, top football players, situational efficiency, indicators, World Cup.