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PROPOSING A COMPREHENSIVE MODEL FOR EVALUATION OF PERFORMANCE QUALITY OF REFEREES OF IRAN SOCCER PREMIER LEAGUE USING DEMATHEL TECHNIQUE

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ABSTRACT

The goal of the present study was to propose a comprehensive model for evaluation of performance quality of referees of Iran premier soccer league using DEMATHEL technique. This is an applied investigation with survey approach. Statistical population includes experts of the studied area. The investigation was carried out through two steps; the first step was qualitative in which a questionnaire was prepared based on experts' comments, and the second step includes confirming reliability and validity of the questionnaire and then its distributing among the sample. Ten federation agents and supervisors were used as experts. Cronbach's alpha was calculated as 0.836. Via random sampling, a sample including 107 people was selected and data were analyzed using SPSS and LISREL software and also structural equation model. Hypotheses were tested using descriptive and inferential indices and statistical tests. Results revealed that performing the duties, accurate interpretation and application of rules, fitness, personal characteristics and match control are positively related to referees' performanc

Keywords: Performance Appraisal, DEMATHEL Technique, Quality, Soccer Judgment

INTRODUCTION

Performance appraisal is a main circle of management chain in organizations whose importance is so high that management scholars believe that something that can't be measured can't be managed. Currently, performance appraisal has a broader look on organizational performance so that it is replaced with performance management concept. Performance management is an integrated process which provides sustainable success of organizations by improving performance of those who work in the organization and higher reliance on development of individual and group capabilities. A key factor for achieving success in realization of perspectives, approaches and goals is management's attention to performance appraisal and its more general concept that is performance management (Armstrong, 2006). Soccer (football) is undoubtedly the most popular sport around the world possessing the widest collection of rules and regulations and has been investigated more than any other sport course (Reely et al, 2005). Football is one of the most controversial issues in Iran and world sport meetings which encounters many problems. Some soccer referees are accused of bribing and supporting certain teams; for example in Germany, a referee was arrested for betting and changing match results. All mentioned cases indicate people and media attention to soccer judgment (Abdi, 2010). Mack Lean and Zakrajsck expressed that performance appraisal requires organization-oriented behaviors and based on this, it is necessary for all jobs regardless of their complexity. Performance appraisal deals with evaluation of human factor in organization-oriented effects and includes a trend for official evaluation of performance and a feedback based on which performance regulation can be executed. Since referees play critical role, designing an appraisal model and determining evaluation criteria and indices seems necessary; quality and effectiveness of referees' performance is a determinant of match results. Dehghan ghahfarokhi (2011) maintained that spectators' pressure doesn't disturb referees' task in Turkey. Fitness test is one of the tests performed for evaluation of referees. Referee should be present in all parts of match field for a fair judgment and he should have enough mobility. Referee should have high running ability and good position in the game; if he get tired after a while and can't be present in all scenes will negatively affect his judgment quality, so he can't have good performance. Therefore, the goal of the

present study was to design a comprehensive model for evaluation of referees' performance in Iran premier League using DEMATHEL technique. Unfortunately there is very low scientific support for performance and improvement of soccer referees. Although experimental investigations are growing (Mescranhaus and Mortimer, 2005), there is still information shortage for various requirements of soccer judgment. During recent years, weak participation of Iranian referees in international matches has been more conspicuous. There have been some cases of problems and complains against soccer judgment in Iran as well. It seems that lack of a comprehensive appraisal system in soccer judgment has not been extensively dealt with. Selection of referees based on an appraisal model concerning with various professional, educational, personal and physical aspects may result in selection of better referees for Iran soccer. However, the author found out that such a multidimensional appraisal model does not exist for soccer referees. Results of scientific researches show that evaluation of national soccer referees lacks a comprehensive, systematic and independent model and issues such as lack of comprehensive and updated criteria and indices covering all aspects of judgment are observed in the current models. According to mentioned cases, the present study tries to find out answers to these questions: what is the suitable model for evaluation of Iran soccer referees? What are updated indices and components of referees' evaluation?

METHODOLOGY

The present study is a combinatory or mixed research meaning that in the first step, a questionnaire was prepared according to soccer judgment experts' comments; and in the second step, data were collected by submitting the author-synthesized questionnaire among 114 soccer referees. The present study is an applied survey. In this approach, statistical population includes experts of the studied field. Ten persons of football federation agents and observers were selected as expert panel. Randomized sampling was used in this study. Sample size was calculated as 114 persons. Data were collected by questionnaire. To evaluate validity of questionnaire, the questionnaire was submitted to some experts and professors and investigated by them. Reliability of each tool depends on its internal stability, alignment and coordination. Cronbach's alpha of each construct is presented in **Table 1**. Both descriptive and inferential statistic methods were applied for data analysis. Data were analyzed using SPSS and LISREL software. Cronbach's alpha coefficient was

calculated as 0.836 suggesting good reliability of the investigation. Statistical methods used in this study can be divided in to two inferential and descriptive categories. Descriptive statistics such as mean and frequency distribution table were used for describing general properties of the respondents. Inferential statistical methods used in this research include DEMATHEL technique, structural equation model, one sample t-test and Kolmogorov-Smirnov test. Moreover, data were analyzed using SPSS and LISREL software.

RESULTS

Data normality test

Results of data normality test indicate that significance level in all the cases was higher than 0.05, suggesting that there is no reason to reject null hypothesis denoting normality of the data. In the other words, data of the investigation are normal and parametric tests can be performed.

Personal characteristics are important in evaluation of soccer referees' performance.

According to the results presented in **Table 1**, significance level was calculated as 0.001 which is lower than error level (0.05). Thus, null hypothesis is rejected; and it can be expressed by 0.95% of confidence that personal characteristics are important in evaluation of soccer referees.

Fitness is important in evaluation of soccer referees' performance.

According to the results presented in **Table 1**, significance level was calculated as 0.021 which is lower than error level (0.05). Thus, null hypothesis is rejected; and it can be expressed by 0.95% of confidence that fitness is important in evaluation of soccer referees.

Accurate interpretation and application of rules are important in evaluation of soccer referees' performance.

According to the results presented in **Table 1**, significance level was calculated as $p< 0.001$ which is lower than error level (0.01). Thus, null hypothesis is rejected; and it can be expressed by 0.95% of confidence that Accurate interpretation and application of rules are important in evaluation of soccer referees.

Performing the duties is important in evaluation of soccer referees' performance.

According to the results presented in **Table 1**, significance level was calculated as 0.001 which is lower than error level (0.05). Thus, null hypothesis is rejected; and it can be expressed by 0.95% of confidence that performing the duties is important in evaluation of soccer referees.

Match control is important in evaluation of soccer referees' performance.

According to the results presented in **Table 1**, significance level was calculated as 0.003 which is lower than error level (0.05). Thus, it can be expressed by 0.95% of confidence that match control is important in evaluation of soccer referees.

Evaluating variables relations pattern using DEMATHEL

After identifying the main variables affecting referees' performance appraisal, the relationships among these variables were determined. DEMATHEL technique was used to present the pattern of relationships among the major criteria of performance appraisal of soccer premier league referees, so that experts can express their ideas with higher strengths regarding the effects (direction and severity) among the factors. It should be mentioned that the matrix resulting from DEMATHEL technique (internal relations matrix) shows both cause and effect relations among the factors and variables' influencing and influence reception.

Step1. Calculation of direct relation matrix (M)

When comments of multiple experts are used, simple mathematical mean is used and direct relation matrix (M) is formed.

Step2. Calculation of normal direct relation matrix: N=K*M

Sum of all rows and columns is calculated at first. K is formed by inversion of the largest number of row and column. Based on table5, the largest number is 12.35 and all the values of the table are multiplied by inverse value of this number to form normal matrix.

 N = 0.0809*M

Step 3. Calculation of complete relation matrix

To calculate complete relation matrix, identity matrix (I) is first formed. Then, identity matrix is deduced by normal matrix and the resulted matrix is inverted. Finally, normal matrix is multiplied by inverse matrix:

Step 4. Representation of network relations map

To determine network relations map (NRM), threshold severity should be calculated. In this approach, small relations are neglected and network of significant relations can be formed. Only relations whose values in matrix T is higher than threshold value are represented in NRM. To calculate threshold value, average of values in matrix T is used. After determination of threshold value, all values of matrix T that are lower than threshold value become zero, meaning that the relation is not considered as causative. Threshold value in the present study was calculated as 0.77; therefore, pattern of

significant relationships is represented as follows:

Cluster relations pattern is presented in **Figure 2**.

According to relationship pattern, causative graph can be drawn based on **Table 2**:

Sum of elements of each row (D) in **Table 2** represents influencing of that criterion on other criteria of the model. In this regard, personal characteristics had the highest influence, followed by interpretation and application, match control and performing the duties. Fitness has the lowest influence.

Sum of elements of each column (R) shows response (degree of being influenced) of each factor under influence of other factors. According to this criterion, fitness is most affected and "personal characteristics" has the lowest degree of response.

Horizontal vector (D+R) is interaction level of the interested factor in the system. In the other words, higher value of D+R shows that the factor has higher level of interaction with other factors of the system. In this regard, fitness has the highest interaction with other studied criteria, followed by performing the duties, interpretation and application and fitness; match control has the lowest interaction with other factors.

Vertical vector (D-R) shows influencing power of each factor. In general, if D-R is positive, the variable is considered as cause; and if D-R is negative, the variable is considered as effect. In this model, interpretation and application and match control are effect variables; whereas personal characteristics and fitness are cause variables.

Structural equation model

In the previous step, internal relations among the variables affecting evaluation of referees' performance was determined based on experts' comments using DEMATHEL technique. In this step, using structural equation model, influence of each variable on other variables was determined according to the pattern obtained in the previous step. Results of structural equation model are presented in **Figure 2**.

Table1: Results of one sample t-test

Significance value	Mean	t value	Hypotheses
0.001	**4.040**	**34.222**	**Personal characteristics**
0.021	**3.493**	**11.788**	**Fitness**
0.000	**3.657**	**21.053**	**Accurate interpretation and application of rules**
0.001	**3.904**	**22.782**	**Performing the duties**
0.003	**3.602**	**17.868**	**Match control**

Table 2: Pattern of causative relations among main criteria of performance appraisal model of referees of premier league

D-R	D+R	R	D	
-1.36	8	4.68	3.32	Fitness
-0.13	7.76	3.95	3.81	Match control
1.34	7.52	3.09	4.43	Personal characteristics
- 0.19	7.94	4.07	3.87	Performing the duties
0.35	7.45	3.55	3.90	Interpretation and application

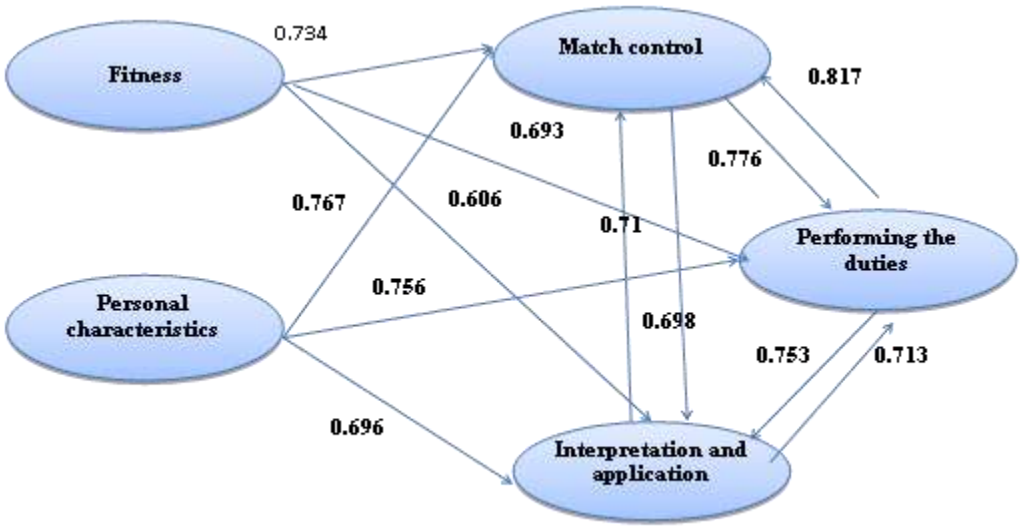

Figure1: Pattern of internal relations of main criteria in performance appraisal model for referees of Iran soccer premier league

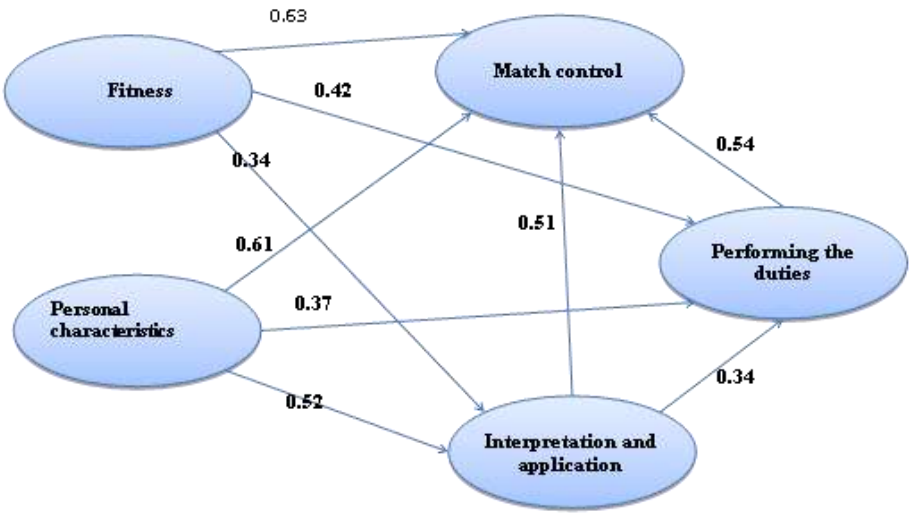

Figure 2: Structural equation model of variables affecting referees' performance appraisal

DISCUSSION AND CONCLUSION

The present study was carried out to propose a practical comprehensive model for evaluation of Iran soccer referees' performance using DEMATHEL technique.

Personal characteristics are important in evaluation of soccer referees' performance.

According to the results obtained in this study based on respondents' answers, the variable "personal characteristics" is related to referees' performance appraisal ($p<0.05$). Since it is so probable that referees' judgment be perceived as unfair by players, coaches and even spectators; the referees are frequently exposed to disrespect and mistreatment. So if the referee is not patient and is affected by the words coming from around the match, he can't concentrate his mind on the match. In this regard, Ghahfarokhi (2011) maintained that spectators' pressure can't disturb the task of referees in Turkey football.

Physical fitness is important in evaluation of soccer referees' performance.

According to the results obtained in this study based on respondents' answers, the variable "fitness" is related to referees' performance appraisal ($p<0.05$). Fitness test is one of the tests performed for evaluation of referees. Referee should be present in all parts of match field for a fair judgment and he should have enough mobility. Jones et al (2012) reported that referees' performance varies according to various fitness levels. Yukuhiro et al (2010) investigated the relation between physical health aspects and referees' performance during the match; their results are in agreement with those obtained in the present study.

Accurate interpretation and application of rules is important in evaluation of soccer referees' performance.

According to the results obtained in this study based on respondents' answers, the variable "accurate interpretation and application of rules" is related to referees' performance appraisal ($p<0.05$). Judgment is an important task and if no rule exist for it, discriminating between accurate and inaccurate will be so difficult. So some rules are set and applied to prevent discrimination. In this regard, jones et al (2012) reported the relationship between understanding match by the referee and performing suitable tasks with referee's accurate performance.

Performing the duties is important in evaluation of soccer referees' performance.

According to the results obtained in this study based on respondents' answers, the variable "Performing the duties" is related to referees' performance appraisal ($p<0.05$). Some duties are defined for referees during the match whose accurate execution affects his

performance. Referee should act in the time of struggle and bring out the peace by inviting the players to calm. Moreover, the time of match start and end, calculation of injury times, action when a player is injured and collaboration with line men are some of referee's duties.

Match control is important in evaluation of soccer referees' performance.

According to the results obtained in this study based on respondents' answers, the variable "Match control" is related to referees' performance appraisal ($p<0.05$). Referee should be well familiar with game control and manages whole the match time. Caracus et al (2011) noted math control as an effective factor that affects referee's performance appraisal.

The relations and influence of factors affecting soccer referees' performance appraisal

Personal characteristics have the highest influence on other factors, followed by interpretation and application, performing the duties, match control and fitness. Moreover, fitness is more influenced compared to other factors. Personal characteristics criterion is less influenced. Regarding interaction level, fitness and performing the duties have the highest degree of interaction compared to other studied criteria; while personal characteristics and interpretation and application have the lowest interaction. Furthermore, personal characteristics and interpretation and application of rules are cause variables and fitness, match control and performing the duties are effect variables. Based on evaluation model, it can be expressed that:

- Fitness has considerable influence on match control and the relation is significant and reliable.
- Fitness has acceptable influence on performing the duties and the relation is significant and reliable.
- Fitness has moderate influence on rule interpretation and application; and the relation is significant.
- Personal characteristics have considerable influence on match control and the relation is significant and reliable.
- Personal characteristics have moderate influence on performing the duties and the relation is significant and reliable.
- Personal characteristics have acceptable influence on rule interpretation and application and the relation is significant.
- Performing the duties has influence on match control and the relation is significant.
- Interpretation and application of the rules has acceptable influence on match control and the relationship is significant.

REFERENCES

1. Armstrong, Michel. 2006. Performance management, scientific guide and key approach. Translated by Dr Saeid Safari, Amir vahhabian. Jahad daneshgahi publication, Tehran.

2. Elahi, Alireza. 2005. Performance appraisal of Iran premier soccer league organization and its comparison with Japan league organization, MSc dissertation, faculty of physical training, University of Tehran.

3. Reely, Thomas; Williams, Marck. 2005. Football science, translated by Abasali Gayini et al, Tehran, national Olympic committee

4. Abdi, Hamed. 2010. Sport management Journal, no 4.

5. Ghahfarokhi, Dehghan. 2011. Performance appraisal of volleyball national teams coaches. Seasonal of sport management

6. Mousavi, Seyyed Ahmad. 2005. Official rules of soccer hudgment. Asatn Qods Razavi publication, Mashhad.

7. Johnston, L. and Mcnaughton, L. (1994). "The physiological requirements of soccer refereeing". J sci med sport. 26 (32): 67-72.

8. Karakus, Seydi and et all. 2011. Evaluation of the factors that affect performances of active football referees in Turkey.

9. Mascarenhas DRD, Collins D, Mortimer P, Morris RL. A naturalistic approach to training accurate and coherent decision-making in rugby union officials. Sport Psychol 2005; 19: 131-47.

10. Nathan,Jones., and et all. 2012. Assessment of Soccer Referee Proficiency Time - Sensitive Decision - Making, University of Virginia.

11. Yukihiro .,Aoba, Yoshimura, Masafumi. 2011, Assessment of Soccer Referee Performance during Games, Football Science, vol, 8, 8-15.