

A Study of Sources of Stress in International and National Referees of Soccer, Volleyball, Basketball and Handball in Iran

¹E. Mirjamali, ²R. Ramzaninezhad, ²F. Rahmaninia and ²M. Reihani

¹Islamic Azad University of Anzali, Iran

²University of Guilan, Rasht, Iran

Abstract: The aim of this research was to study the sources of stress in international and national referees of soccer, volleyball, basketball and handball in Iran. The role of referees in all sports fields has always been followed with stress and anxiety. Therefore, the purpose of the present study was to identify the stress factors in international and national referees in Iran. For this purpose, 252 referees (104 international and 148 national) out of all national and international referees of soccer, volleyball, basketball and handball in Iran participated in this study. The sources of stress survey (SOSS) questionnaire was used to collect data. This questionnaire included 29 questions. The statements of 15 faculty members were used in order to determine its validity and its inner reliability was proved by 30 referees ($r=0.93$). The data were statistically analyzed by factor analysis and Friedman test, Mann-Whitney U and Kruskal-Wallis ($P\#0.05$). Using exploration factor analysis, six factors were identified: interpersonal conflicts, personal and technical performance, fear of judgment mistake, evaluation of performance, time pressure and personal problems. Among these six stress factors in referees, factor of personal and technical performance, evaluation of performance and fear of judgment mistake had the highest effects on stress of referees. The male referees compared to female ones, international referees compared to national ones and soccer referees compared to other fields had higher stress in their personal and technical performance. However, no significant difference was observed between frequency factors of stress in referees and their level of education. The results of this study indicated that three stress factors, namely personal and technical performance, evaluation of performance and fear of mistake were reported as the highest stress factors in referees; therefore, it is recommended that the referees try to promote their technical and performance related affairs.

Key words: Stress % Sources of Stress % National and International Referees

INTRODUCTION

Sport judgment is a very exciting occupation and a stressful one in any stage [1]. Any judgment comes with some types of stress anyhow and stress has an important role in referees' performance [2]. Meanwhile, in seasons of matches, referees must not only continuously endure physical pressure (keeping their body fitted) but also they should be willing psychologically to endure various stresses. It is considered that their stress is more than sportsmen and coaches.

As the best performance could not be expected from sportsmen and coaches in such a condition, referees could not represent a proper performance due to stress [3]. Some researches show that officiating is stressful just like some special occupations and referees suffer from various stressors [4-6]. The prevalence of stress

factors in referees could have outcomes as well [7]. For example, Fry and Soften (1992) studied the viewpoints of the referees who quit their referee profession and concluded that 20% of these referees stated that their most important reason for quitting was the excessive criticism of themselves and their family (personal and family problems). 40% of them stated that they were willing to return to this profession in a condition that the views and ideas in this regard were improved [8]. Anshel and Vinberg (1995) have shown that more than 45% of basketball officials experience symptoms like headache, muscle cramp and blood pressure [9]. Dorsch and Paskevich (2007) considered the prevalence of the stressful factors among the hockey referees and stated that job exhaustion of many referees and their job abandonment should not be very amazing [10].

Despite importance and sensitivity of referees' role in quantitatively holding a sport competition and in calmness of competitors and spectators, there have been a few researches about different aspect of their job. It should be acknowledged that referees after coaches and players play the third important role in sport competitions and have one of the hardest sport responsibilities [2]. A good judgment facilitates to hold a sport event, since the referee causes the score of an event to be based on the players' skills and techniques. However, a weak judgment lowers the value of competition and reduces the players', coaches' and audience' enjoyment of the game. The referees have great responsibilities and if they make mistakes in their duties, they are often interrogated and face public reflections; on the contrary, when the game is taken place in its normal way, they receive less attention than players and coaches [11]. In general, not only referees have been slightly considered, but also they are ignored and forgotten in many cases. Many studies were carried out about sources of job stress in sport organizations. These studies in Iran and other countries were mainly carried out on physical education teachers [12], athletes [13-15], sport administrators [16] and sport coaches [17, 18]. However, few studies were performed on different sport referees' stresses abroad and this type of study is very rare in the country [19-22].

Most studies on officials' stress have been conducted on a single group, a special sport and mostly the same instruments. The main resource of these instruments is SOSS questionnaire (Soccer Officials Stress Survey). These researches have been started since 1990 when this main questionnaire was made by Taylor and Daniel (1987) for officials. In the present investigation, six stressors were identified: interpersonal conflicts, fear of injury, time pressure, conflict with the colleagues, role conflict and fear of judgment mistakes [23]. Goldsmith and Williams (1992) revealed five important factors as the sources of stress in volleyball and soccer, which three factors of judgment mistakes, fear of injury and time pressure were similar to Taylor and Daniel's results [19]. Stewart and Ellery (2004) concluded that the factors of judging mistakes, fear of injury and time pressure were the most important sources of stress for volleyball referees [21].

Aggressive behaviors of many competition specialists and technical crew such as coaches, players and audiences are one of the main stressful factors for the referees (interpersonal conflicts) [24]. For example, Phillips (1985) studied the points of view of the college basketball

referees with regard to audiences, coaches and players and indicated that from the referees' point of view, the audiences showed the worst type of behavior. Another finding of this study was that the referees were not able to properly appreciate the behaviors of these three groups. The referees could not also evaluate their judging ability in regard to different groups of audiences, coaches and players [25]. In a similar study, Mitchell, Leonard and Schmitt (1982) studied the feelings and emotions of the prominent referees of the national hockey leagues with regard to audiences and players and concluded that with regard to audiences, both groups of hockey and baseball referees' points of view were in contrast with their role as a referee [26].

Folkesson *et al.* (2002) studied judging experiences of soccer referees and showed that three sources of coaches or technical personnel, spectators and players were the main sources which threatened referees. These active sources could affect negatively referees' concentration, motivation and performance [27]. Nevil *et al.* (2002) concentrated on spectators and by survey of 40 viewpoints of English football referees in 1998-1999 showed that rumpus by crowd influenced referees' decisions and it could be a source of stress [28]. Friman *et al.* (2004) believed that spectators' aggressiveness was the main threat to soccer referees [29].

Tsorbatozoudias *et al.* (2005) surveyed stressors of 84 Greek handball referees and reported four factors as major stress sources: evaluation of performance, fear of injury, interpersonal conflict and fear of inefficiency [22]. Thatcher (2005) by reviewing related researches on stressors showed that many of the stressors in different sports were common and there were special stressors for some sports. For example, spectators' rumpus in team sports such as soccer and proper location in basketball are very sensitive but in volleyball, location of referees is fixed. Conclusions of his research showed that deciding factors, expectations and evaluations, nature of competition (type of sensitivity), individual and personal factors (age, experience) and self-assertion (controlling others) were negative stressors. In addition, the attempt to prevent failure and soft play, professional development, compliance with others' expectations and the importance of competition are considered as positive challenges and stresses for them [4]. Doric and Paskovich (2007) surveyed stressful experiences of 421 officials of ice hockey and showed that the severity of stressors was at a medium level and serious conflicts, working with colleagues and contact with coaches were the main factors of stress [10].

Many of these researches concentrated on psychological and social stressors while Silva *et al.* (2008) showed that Brazilian soccer referees run approximately 9 kilometers using their aerobic energy system and this physical stress could intensify stressors [30]. However, more researches concentrated on non-physical stressors because a referee should preserve, control and develop his body but there are lots of stressors which are out of his control. On this matter, Baryon (2009) concentrated on time stress of a competition and omitted family and social stress. Using Sport Official Stress (SOS) questionnaire, he surveyed viewpoints of 347 baseball officials, 618 basketball officials and 400 American football officials and showed that the following factors as three top sources of stress considering frequency and effectiveness: whistling and deciding, wrong settlement and location, verbal abuse by coaches. Of course in basketball, inconsistency with other officials was in the second place and wrong settlement and location was in the third place [31]. To survey soccer in American universities, Voight (2009) used a 15-question questionnaire of Basketball Official's Sources of Stress Inventory (BOSSI) and added seven other questions (SOSQ). After factor analysis of the new 22-question questionnaire, six main stressors were identified: behavioral abuse, pressure of game, fear of judgment mistake, interpersonal conflict, time pressure and role conflict. Comparing questions with the words of this questionnaire revealed that officials suffer from the following factors respectively: family-work conflicts, inconsistent decisions, work- organization conflicts, wrong decisions, verbal abuse by coaches, wrong location, making a controversial call, verbal abuse by players, importance of game conclusions and being evaluated by supervisor [5]. However, it was reported that stress is at an upward medium level in most of these researches. For example, Gencay (2009) through a survey of stress sources of 156 Turkish soccer referees showed that stress is different from very low to medium and there are not any differences between referees and assistant referees. He concluded that stress of these referees was not high [32].

Regarding the variety of foreign researches, there have been few researches on stressors of Iran different sports. Among national studies, Ahmadi (2009) studied stressors of the state soccer officials by questionnaire of Taylor and Daniel (1987) [23] and revealed that stress of these officials was downward medium and following stressors had the most influence on them respectively: technical performance, evaluation, time pressure and individual conflicts [33]. Nazari (2008) studied four

psychological skills of 66 referees in Iran soccer premier league and showed that level of these skills were at a medium level and their stress was mostly due to pressure of media, coach's nervousness, spectators' aggressiveness, unsatisfied athletes and high pressure of refereeing [1]. However, it is considered that even three skills of communication, confidence or certainty and concentration in referees of this research required psychological energy; otherwise, they probably had more stress. Abbasi (2008) revealed that there was a significant negative relationship between amount of stress and performance of the state Iranian soccer referees. Yet, there was not any relationship between age/experience and education with amount of stress [34].

In recent years, few studies were conducted regarding sources of stress in referees of different sport fields and each introduced and classified different sources of stress. However, the stressful factors in referees in different sport fields and cultures can be different [9]. Since the external stressful factors especially in team sports have side effects on outcomes and results of the competitions, it was decided to study and compare the stressful factors in referees of team sports that are very popular in Iran. Therefore, the major question of the researcher is that which stressful factors are very prevalent among the referees in team sports? And what are their priorities? In the present study, the researcher tried to identify these factors in different sport fields, so the sport experts and specialists use this information so that they can make better decisions and more suitable planning.

MATERIALS AND METHODS

This Research Is a Descriptive Survey

Subjects: The statistical population of this study included all the international and national referees in fields of soccer, volleyball, basketball and handball, which according to the related federations were 252 subjects. These referees were judging in duty during the super league competitions in 2008-2009. Statistical sample of the study equaled statistical population which consisted of 151 male referees and 101 female ones.

Instruments: The Sources of Stress Survey (SOSS) questionnaire by Taylor and Daniel (1987) was used in this study [23]. 20 questions by Ahmadi (2009) were also used and their validity was computed and its inner constancy ($r=0.91$) was also reported [33]. After interviews with the referees, nine more questions were

added to this questionnaire. The 4-point Likert scale was used (zero for no effects and 3 for most effect). In order to confirm its validity, this questionnaire was distributed among 20 physical education and psychology specialists and after adding their expert points of view, the inner constancy of the questionnaire for 30 referees was $r=0.93$. The inner constancy of factor of fear of judgment mistake was $r=0.83$, factor of interpersonal conflict was $r=0.89$, factor of performance assessment was $r=0.72$ and factor of technical and personal performance was $r=0.72$ and time pressure was $r=0.73$.

Procedure: The method of collection and analysis of data was as follows. After coordination with referee committee federation, the investigators departed to different cities where the competitions were holding so that they could personally distribute the questionnaires between the national and international referees. The time to answer the questions for the subjects was 30 minutes.

Statistical Analysis: Descriptive statistics methods (frequency, mean and standard deviation) to report the importance of variables and exploratory factor analysis with a varimax rotation and all the variables of each factor with their factor loadings were determined. Before factor analysis, Kaiser- Meyer-Oklin test was used to reassure the sampling adequacy and the Bartlett's test of Sphericity to assess correlation among variables. In order to test the hypothesis of the study, the Kolmogorov-Smirnov, Mann-Whitney U and Kruskal-Wallis test were used ($P=0.05$).

RESULTS

After studying the viewpoints of the officials and the referees, 29 questions were considered for the main questionnaire and the minimum factor load was considered 40% for each question. In Table 1, in exploratory factor analysis, this questionnaire was

Table 1: Results of the exploratory factor analysis and load factor of the variables

Variables	Fear of judgment mistake	Interpersonal conflicts	Personal problems	Personal & technical performance	Performance assessment	Time pressure
Presence of careful officials during the game	0.750					
Sensitivity of judgment of popular teams	0.739					
Judging important and sensitive competitions	0.647					
Making sensitive decisions during the game	0.617					
Effects of radio and TV broadcasting game and using them during the match on time	0.519					
Severe protest of the players before the match		0.830				
Severe protest of the coaches before the match		0.827				
Confrontation with rude players and aggressiveness during the match		0.640				
Aggressive behaviors of the audience		0.572				
Lack of the safety before the match		0.533				
Verbal breakout among the players		0.523				
Excessive presence of the audience		0.510				
Lack of cooperation between the coaches and players during the judgment		0.491				
Threatening referees		0.433				
Family expectation of spending more time with them			0.766			
Family problems and disputes			0.707			
Interference of time of judgment with different job opportunities			0.699			
Lack of cooperation in game officials				0.728		
insufficient concentration and losing control of the game				0.727		
insufficient experience in judgment				0.563		
Physical and psychological problems				0.487		
Insufficient physical fitness				0.401		
Inadequate media criticism of the referees' performance					0.736	
Inadequate evaluation of the control and assessment of officials					0.649	
Disputes with the officials of the referee committee					0.564	
Performing series of competitions in inadequate time						0.782
Performing competitions in inadequate time of the day						0.708
improper weather condition during the match						0.431

Table 2: Comparison of stressful factors in referees

Factor	Index		Friedman test		
	Mean	Standard deviation	Chi ²	df	Sig.
Personal and technical performance	1.98	0.63	421.556	5	0.000 *
Performance assessment	1.63	0.81			
Personal problem	1.37	0.79			
Fear of judgment mistakes	1.23	0.69			
Interpersonal conflict	1.01	0.66			
Time pressure	0.99	0.67			

*it is significant in P#0.05

classified into six factors (personal problems, interpersonal conflicts, personal and technical performance, performance assessment, fear of judgment mistakes and time pressure). Two new stressors in this research were fear of judgment mistakes and personal problems. Any factor represents the situation the referee could be confronted before, during and after the game.

In Table 2, there were significant differences in the hierarchies of stressful factors in the referees. Therefore, it could be stated that the hierarchies of the stressful factors of referees in four fields of soccer, volleyball, basketball and handball were as follows: personal and technical performance, performance assessment, fear of judgment mistakes, personal problems, interpersonal conflicts and time pressure. However, considering the scoring of the questionnaire, the level of stress among the referees could be stated as lower than medium.

Comparing the stressful factors in female and male referees, it was indicated that stress as a result of personal and technical performance and personal problems is higher in males compared to females. However, in other stressful factors, no significant differences existed between the two groups. The comparison of stressful factors between national and international referees showed that the international referees scored higher than national referees only in personal and technical performance (P#0.05). Comparing the stressful factors of different sport fields indicated that the referees of all four sports fields selected the personal and technical performance factor as their first stressful factor and factor of interpersonal conflict had the lowest average among referees of these fields. However, soccer referees were mostly affected by the stressful factor of time pressure. Referees aged between 30 and 40 were affected by the stressful factor of individual performance assessment more than other age groups. Also, there was no significant difference between the referees with high and low academic levels and between the referees with high and low experiences.

DISCUSSION

The results of exploratory factor analysis indicated that the stressful factors of the referees could be classified into six groups. Even though Ahmadi (2009) specified four stressful factors in soccer referees [33], considering the variety of different sports, two new stressful factors (fear of judging mistakes and personal problems) were also added in this study. Many studies considered stressful factors in sports organizations and facilities. However, very few studies were performed regarding stressful factors in referees. Therefore, this matter affected the study and comparison of the results. The conclusion of the prevalence of stressful factors among the referees of different sports agreed with the findings of the following investigators: Fry and Soften (1982), Taylor (1989), John Dulla (1996), Anshel and Weinberg (1995), Tsorbatzoudis (2007), Doric and Paskevich (2007), Ahmadi (2009) and Nazari (2008) [1, 8, 9, 10, 22, 23, 33, 35]. However, considering the order or priority of stressful factors, many differences were observed in these studies. Probably the differences in the priorities of these factors is related to cultural differences (audiences and media) and management of the competitions. However, priorities of stressful factors of technical and individual performance and then individual and personal performance indicates that after the environmental and management factors, the individual and personal factors of the referees should also be considered. The prevalence of time pressure stressor in soccer referees showed that time is an important and sensitive factor in this sport, since such a condition exists in most sports, it is not very much clear why the soccer referees stated higher level of stress in this factor compared to other referees.

The results of this study also showed that the most important stressful factor among referees in all four fields of soccer, volleyball, basketball and handball is the factor of individual and technical performance. Almost in most

studies that were performed in different sport fields, this factor is reported as the important stressful factor [19, 22, 23, 36]. The technical performance of the referees could easily be disturbed by the stressful factors, which makes the sensitivity of the role of judgment in a good competition evident. Considering these job characteristics, the stressful factors should be recognized so that the technical performance of the referees can be less disturbed. When the referees remember their best performance, they usually indicate matters such as not being afraid of whistling, or players' and coaches' criticisms [33]. The findings of this study is also important because it reveals that the Iranian referees are more concerned with technical performance and judging and the personal, family and other unprofessional stressful factors can not affect them.

The second stressful factor in referees of every four sport fields was the factor of performance assessment. In most previous studies this factor was neglected and only Tsorbatzoudis (2005) stated this factor as the stressful factor of the handball referees [22]. Ahmadi (2008) also introduced this factor as the fourth stressful factor in Iranian soccer referees [33]. Therefore, inadequate assessment of the officials and inaccurate media criticism of referees' performance could be stressful for them. The evaluative officials in different professional sports that assess and measure the judgments of the referees and assistant referees, also focus on coherence in judgment, consistency in prompt and quick decision and relaxation as the most important assets of a good referee. Therefore, continuous assessment of all the people present in a match is one of the situations that confront the referees with stress [22]. The referees should also accept that performance assessment is a part of the process of guaranteeing the quality of judgment and should be executed; however, considering the high priority of this factor, it seems that the referee committee should try more to design assessment measures and indices so that the process of referee supervision can be executed according to more acceptable standards.

Personal problems were the third stressful factor among the soccer, volleyball and handball referees and the fourth factor in the basketball referees. Some of the previous studies also stated the personal and family problems as the factor of stress among the referees in different sport fields [19]. Some of the referees in their reports that were provided as open questions at the end of questionnaires mentioned the importance of variables of interference of holding sport competitions in different occupational, social and family situations, which creates

high stress. Even though this factor has the third priority, it does not indicate the indifference of personal and family problems in the process of being a referee. In one of the studies, the most important reason for quitting was the excessive criticism by family [10].

The factor of fear of judgment mistakes was indicated as the fourth stressful factor among the Iranian referees. Almost in most studies that were performed on different sport fields, this factor was stated as the important stressful factor [8, 9, 19, 22]. In most situations, the fear of judgment mistakes includes matters such as being very concerned about an important whistle, inadequate placement in the field, judging a sensitive game, weak evaluation or not fulfilling someone's expectations. These points of view are very evident in referee classes, clinics and camps, in a way that in such situations, the referees manifest their stress and incompetence as a result of assessment, with the feeling of disturbance, insult and even screaming [34]. For this purpose, the referees are afraid of this process and anything that tries to make them accept that this assessment is beneficial. However, this internal incompetence has roots in the referees and in certain conditions is more evident in some people. Weak performance or more precisely conceiving weak individual performance is a danger to referees' confidence [9].

Interpersonal conflict was the fifth stressful factor among the referees; however, Ahmadi (2008) reported this factor as the second stressful factor [33]. Taylor and Daniel (1987) reported this factor in soccer referees in Ontario and Rainey (1995) reported the same in basketball referees and Tsorbatzoudis (2005) indicated this in Greece handball referees [22, 23, 37]. In studies of Goldsmith and Williams (1992) on soccer referees and Rainey (1995) on baseball and softball referees, this was not indicated as the factor of stress [19, 20]. It seems that the aggressive behaviors of many technical officials of the competitions such as coaches, players and audiences are the main sources of interpersonal conflicts [24, 26, 35-37]. For example, Phillips (1985) concluded that the audiences' behavior is the main source of stress [25].

Time pressure for the referees was the last stressful factor. Therefore, holding the game in an inadequate time of day, weather condition and place of holding the game which inflict time pressure on the referees cause little stress. However, Ahmadi (2008) introduced this factor as the fourth source of stress in referees [33]. According to a few of the previous investigators such as Taylor and Daniel (1987) on soccer referees in Ontario and Goldsmith and Williams (1992) on soccer and volleyball referees and

Rainey (1995) on baseball and softball referees and Stewart and Ellery (1998) on volleyball referees and Rainey (1995) on Basketball referees stated the time pressure as one of the important stressful factors [23, 19, 20, 37].

Despite little difference in priority of stressors in other studies in contrast with the present study, it is considered that technical performance and evaluation of performance could be the main stressors for referees. This matter shows that personal problems and even interpersonal conflicts have less importance and sensitivity for referees and they are more concerned with their performance. High priority of these two factors in Iran studies shows that referees may feel more inability due to pressure of effective internal and external factors in competitions or they may really worry to present a proper judgment. This matter could be recognized by an exact survey in stressors, especially that Abbasi (2008) showed that the relationship of psychological pressure with performance of referees was negative and significant [34].

Comparing the stressful factors among male and female referees indicated that regarding only individual and technical performance and personal problems, the male referees are more confronted with this stressful factor. However, it should be noted that the conditions of competition for females in Iran and some of Islamic countries are more limited and because the media does not have the possibility of live coverage; therefore, these competitions are less sensitive. Even though this factor is represented as the most prevalent stressful factor, all different situations and conditions that could be stressful for the referees could not be completely explained by this factor. Many stressful factors exist in referee profession which few of these factors are recognized and introduced in previous studies. Generally; the referees should cope with some level of stress in any game. Meanwhile, in order to reduce the effects of stressful factors related to technical and individual factors and assessment of the referees' performance, it is suggested that the officials of referee technical committee take several changes into account when they are to select referees for certain competitions. Probably once the referees are involved with judgment, they lose a lot of time. Therefore, if the number of judging sessions especially for the double job referees is reduced and games that are close to their place of living are selected, many of the stressful factors can be reduced. Even though the stressful factors in the players are more noticed by the media and spectators, the stressful situation for the referees are more neglected.

However, more studies and researches could be performed to better recognize the problems related to the referees. Since the referees have sensitive roles in performance of any sport league, it is necessary to protect and maintain them for many years in any certain sport field.

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