

The Comparison of Performance and Injury Incidence Rate in Home and Away Games in Iran Premier League Teams

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Abstract: In soccer, home advantage is a very important factor in determining the outcome of a game. The main purpose of this study was to compare the performance and injury incidence rate in home and away games in Iran Premier League. The information about the number of wins, lost, received goals, scored goals, yellow and red cards in home and away teams were obtained via the website of www.iplstats.com. Then, videotapes for 253 matches of this league were selected and analyzed. The results showed that when teams played at home, they scored significantly higher points than when they played away ($p < 0.05$, $t = 4.2$). The number of wins in home games was significantly higher than the away games ($p < 0.05$, $t = 3.8$). The number of lost in away games was higher than home games ($p < 0.05$, $t = -4.6$). Injury rate for away teams was significantly higher than home teams ($Z = 1.98$, $P < 0.05$) (57.6 injuries per 1000 hours vs. 72.01 injuries per 1000 hours). Consequently, the results showed more ideal performance of the teams in home games. The rate of injury in away teams was significantly higher than home teams. Thus, these factors must be considered by team coaches and physicians to prevent injuries and to enhance performance.

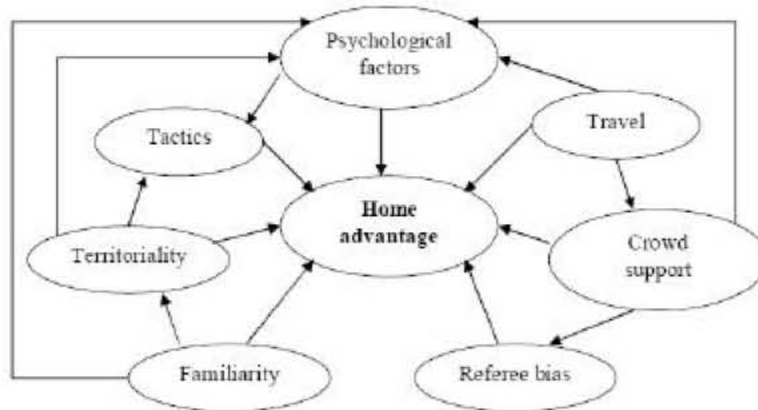
Key words: Soccer · Sports injury · Away game · Home game

INTRODUCTION

Soccer is one of the most popular sports fields around the world. In most countries, soccer teams play in leagues, home and away games. Various researches show that host teams win over 50% of the games. This phenomenon is known as home advantage [1]. For example, Seckin *et al.* (2008) reported that in Turkey, host teams wins 61.5% of the points during last 12 years. They also stated that host teams shot at the guests' goal frame 26% more than away teams, but there was no difference in the number of fouls, red and yellow cards between host and rival teams [2]. Despite the effect of home advantage on better performance of sports team, especially soccer teams [1, 2], the reason is not clear. Various researchers try to identify the factors affecting this phenomenon. Coumeya and Carron (1992) stated four factors (crowd support, playing field familiarity, travel fatigue and game rules) as the reasons for this effect [1]. Pollard and Pollard (2005) reported the most important reason for the better performance of soccer teams in home games as crowd support. They proposed a model to explain these reasons as well (model 1) [14].

Despite many researches on home advantage and the factors affecting it, there is controversy over its effect on the injury rate of host and away teams. For example, in their research on Sweden adult national team, Ekstrand *et al.* (2004) did not observe a difference in team injury rate between home and away games [4]. But in an investigation of England premier league injuries (10 games), Rahnama *et al.* (2002) reported that the number of injuries in away teams (65%) was higher than that of host teams (35%) [5]. In addition to soccer, researchers reported different injury rates of other sports in home and away games. For example, Orchard (2004) reported that rugby injury rate of away games was higher than that of home games [6]. The higher injury rate of various sports in away games can be attributed to the guest team's lack of familiarity with the playing field, psychological factors such as stress, travel distance and crowd pressure.

The referee in a soccer game is the principal in the playing field. The referee can protect the players' health if he enforces correct rules and professionally manages the game. However, it should be investigated whether the referees can do their duty. Hawkins and Fuller (1996) concluded that the referee did not announce any fouls for



Model 1: The model of home advantage, Pollard and Pollard [14]

71% of the injuries [7]. Junge *et al.* (2004) reported that in team physicians, physiotherapists and injured players' opinions, over 50% of contact injuries as well as 37% of all injuries occurred due to the away player' fouls while only 50% of the contact injuries or 21% of all injuries were considered by the referee [8]. Dvorak *et al.* (2007) reported that team physicians believed that 61% of the contacts resulted in injury was foul while the referee considered only 57% of these contacts [9]. Many researches show that crowd noise makes the referee to whistle unconsciously to favor the host team [10].

Despite many researches on the effects of home and away games on the performance of soccer teams in different countries, the researches in Iran are limited. The existing researches only compare the team scores and wins in home and away games. No researches point to red and yellow cards, lost goals, scored goals, awarded penalties and lost penalties; therefore, the present research intends to compare the home game scores of Iran Soccer Premier League and the away game scores of the same league as well as to investigate the mentioned factors in home and away games. As there is controversy over injury rate in home and away soccer games, this research tries to investigate this point as well.

METHODOLOGY

This research is descriptive-comparative which compares the performance and injury rate of host and guest teams in Iran Soccer Premier League in 2006-07 and 2007-08 seasons.

The researcher gathered the information about wins, lost, draws, red and yellow cards, received goals, scored goals, awarded penalties, scored penalties and lost penalties as well as the scores in home and away games

of 19 teams who participated in Iran Premier League games (2006-07 and 2007-08 seasons) via Iran Soccer Premier League website (www.iplstats.com) in order to investigate the effect of home games on the performance of Iran Premier League teams.

Videotapes of 125 games out of 240 (2006-07 season) games and 128 games out of 306 (2007-08 season) games were analyzed by computer and a video. The videotape was paused after each injury and the information was recorded in a form by slow motion and zoom of the incidents. This form was created based on Fuller *et al.* (2006) and Junge *et al.* (2004) injury forms [11, 12].

In this research, an incident in which the player needed medical care and received medical treatment during the game was called an injury [5]. The hours in which the players were vulnerable to injury were calculated under the following conditions: 22 players are constantly present in each game and each game takes 100 minutes (45 minutes/half as well as 5 minutes extra time/half). Injury frequency rate (IFR) was considered as the number of injuries per 1000 hours of game [7].

SPSS version 13, one-way and two-way chi-square (χ^2) test were used to analyze the non-parametric data ($p < 0.05$). Poisson distribution test (Z test) was used to compare the injury rate of host and guest teams. Dependent t test was used to compare team performance in home and away games.

RESULTS

Team scores of home games were significantly more than those of away games ($t=4.2$, $p < 0.05$). Host teams achieved 59% of the possible scores. Wins in home games was significantly more than those in away games ($t=3.8$, $p < 0.05$). Lost in home games were significantly

Table 1: Number and percentage of the variables in home and away games

	Host		Guest	
	Number	%	Number	%
Wins	222	40.65	135	24.72
Lost	135	24.72	222	40.65
Draw	189	34.63	189	34.63
Received goal	573	44	693	55
Scored goal	728	56	548	45
Yellow card	1011	48	1095	52
Second yellow card	35	53.5	31	46.5
Red card	62	51.5	59	48.5
Awarded penalty	79	54	69	46
Scored penalty	64	51.2	61	48.8
Lost penalty	15	65	8	35
Score	855	59	594	41

Table 2: The performance of Iran Premier League teams (2006-07 and 2007-08 seasons) in home and away games

Team	Home or away															
	Scores		Games		Win		Draw		Defeat		Scored goal		Lost goal		Goal difference	
	home	away	home	away	home	away	home	away	home	away	home	away	home	away	home	away
1 Sepahan ESF	72	38	32	32	21	10	9	8	2	14	53	41	24	42	29	-1
2 Abumoslem MSH	72	21	32	32	22	3	6	12	4	17	61	23	34	41	27	-18
3 Persepolis TEH	67	51	32	32	19	13	10	12	3	7	64	17	36	13	28	4
4 Esteghlal AHV	61	39	32	32	17	10	10	9	5	13	51	43	28	51	23	-8
5 Zobahan ESF	61	26	32	32	17	4	10	14	5	14	44	34	27	47	17	-13
6 Saipa KRJ	54	47	32	32	14	13	12	8	6	11	45	33	32	34	13	-1
7 Paas HMD	50	33	32	32	12	6	14	15	6	11	44	28	31	33	13	-5
8 Esteghlal TEH	49	46	32	32	13	12	10	10	9	10	47	36	41	33	6	3
9 Fajr SHZ	39	37	32	32	9	7	12	16	11	9	34	32	39	34	-5	-2
10 Bargh SHZ	48	32	32	32	12	7	12	11	8	14	38	40	36	56	2	-16
11 Mes KRM	48	33	32	32	12	7	12	12	8	13	37	34	30	43	7	-9
12 Paykan TEH	46	41	32	32	12	11	10	8	10	13	42	36	41	43	1	-7
13 Malavan ANZ	44	24	32	32	10	5	14	9	8	18	42	21	31	40	1	-19
14 Saba TEH	44	40	32	32	11	9	11	13	10	10	36	33	29	39	7	-6
15 Rahahan TEH	37	27	32	32	8	5	13	12	11	15	38	37	35	50	3	-13
16 Pegah RST	20	18	17	17	4	5	8	3	5	9	7	19	9	26	-2	-7
17 Foolad KHU	15	13	15	15	3	2	6	7	6	6	10	14	14	19	-4	-5
18 Sanat Naft ABD	18	17	17	17	5	4	3	5	9	8	24	13	28	18	-4	-5
19 ShirinFaraz KER	10	11	17	17	1	2	7	5	9	10	11	14	28	31	-17	-17

Table 3: Number and percentage of injuries in host and guest players

Team	Number of injury	% of injury	Injury rate per 1000 hours
Host	267	44.4	57.56
Rival	334	55.6	72.1
Total	601	100.0	64.8

lower than those in away games ($t=-4.6, p<0.05$). Although scored goals in home games were more than those in away games ($t= 2.9, p>0.05$), received goals in home games were significantly lower than those in away games

($t=-2.3, p<0.05$). Wins in home games (222 wins) were more than those in away games (135 wins) ($t= 4.1, p>0.05$). Scored goals in home games (728 goals) were more than those in away games (548 goals) ($t= 7.08, p>0.05$).

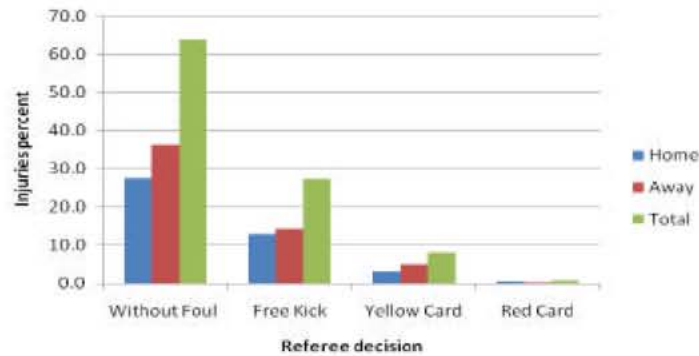


Fig. 1: Referee's decision in injury incidents

There was no significant difference in yellow cards, second yellow cards and red cards between host and rival teams ($p > 0.05$). Out of 148 penalties, 54% was awarded to the host team and 46% to the guest team (Table 1). Host team lost 65% of penalties and scored 51.2% of penalties.

Table 2 shows the performance of Iran Premier League teams (2006-07 and 2007-08 seasons) in home and away games. Z test (Poisson distribution) showed that the injury rate of away team players was significantly higher than that of host players ($Z = 1.98, p < 0.05$). The injury rate of host players was 57.56 injuries per 1000 hours of game. The injury rate of away team players was 64.8 injuries per 1000 hours of game (Table 3).

The referees' decisions in injury incidents were investigated and it was observed that the referee did not announce any fouls in 64% of the injury incidents. The referee announced free kick in 27.3% of injuries. The referee announced a yellow card in 8% of injuries and he announced a red card in 0.7% of injuries (Fig. 1).

DISCUSSION AND CONCLUSIONS

This research aimed to investigate the effect of home games on the performance of Iran Premier League teams (2006-07 and 2007-08 seasons). In most countries, each team plays each other team at home and away once during each season. It is the original model on which most other soccer leagues throughout the world are based, so that meaningful international comparisons can easily be made. It was implemented for the first time in England in 1888 [13] and created a phenomenon called home advantage.

The results of the present research showed that the total scores in home games were significantly more than those in away games. In other words, home advantage was higher than away advantage. The results also showed that host teams obtained 59% of the total scores. Courneya (1992), Seckin (2008), Pollard (2006) and

Pollard (1986) reported the same results in various countries [1-3, 13].

Many researchers investigated the factors affecting home advantage and presented various patterns and models. For example, Pollard and Pollard (2005) presented a model (model 1) [14]. Many researchers investigated the effects of these factors on home advantage. Pollard (2002) states the following factors which affect home advantage: familiarity, facilities, playing field dimensions, surface and stadium lightening. He also stated that home advantage decreases after a team is transferred to a new stadium [15]. Neville and Holder (1999) introduced the crowd as another factor affecting home game points. They believed that the crowd noise leads to the better performance of the teams and influences referee's decision to unconsciously favor the host team [16]. In Iran, the average crowd in stadiums (2007-08 season) was 11150 individuals per game and totally 3.4 million individuals attended the sports events in stadiums [18] and it may lead to the better performance of host teams in Premier League games.

The present research showed that scored goals in home games was insignificantly more than those in away games. Received goals in home games were significantly more than those in away games. It was observed that home games did not affect the number of red and yellow cards. Seckin *et al.* (2008) reported the same results as well [2]. Awarded penalties for host teams were insignificantly more than those for guest teams and it may indicate that referees support host teams more.

Injury rate of away team players was significantly more than that of host players. The injury rate of host players was 57.56 injuries per 1000 hours of game and the injury rate of away team players was 72.01 injuries per 1000 hours of game. Rahnama *et al.* (2002) reported the same results [4]. The reason for lower injuries in home games can be explained by Pollard and Pollard (2005) model of home advantage (model 1) [14]. Based on this

model, the high injury rate in away games can be attributed to unfamiliarity with the playing field, psychological factors such as stress, travel distance and crowd pressure. But Ekstrand *et al.* (2004) did not report any difference in injury rate between home games and away games [4]. This contradiction can be attributed to a difference in data collection procedures and statistical population under study.

The results showed that the referee announced a foul in only 36% of injury incidents and he did not announce any fouls in 64% of injury incidents. Junge *et al.* (2004) also stated that the referee announced a foul in only 34% of injury incidents while in 57% of contact injuries; the injured player and the team physician believed that the opponent committed a foul [8]. They also reported that more than 50% of contact injuries or 37% of the total injuries were due to the fouls game in World Cup 2002 [8]. Fuller *et al.* (2004) evaluated the referees' decisions in injury incidents and stated that from referees' point of view, 49% of injury incidents were due an opponent's foul while the refereeing experts stated that a foul happened in 69% of injury incidents. These researchers state that the playing rules are sufficient to preserve the players' health, but referees do not do their duties well [17]; therefore, the referees should try their best to prevent injuries. The results also showed that in 36.3% of injury incidents of away team players, the referee did not announce any fouls while in 27.7% of injury incidents of host players, the referee did so.

It can be concluded that Iran Premier League teams can perform better in home games than away games. The injury rate of away teams was significantly more than that of host teams. These results can help coaches, players and sports psychologists in increasing team performance. Physicians, sports physicians, bodybuilding coaches, coaches and players can use these results to prevent injuries.

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