Original Paper

Biomedical Human Kinetics, 3, 67 – 71, 2011

DOI: 10.2478/v10101-011-0015-4

Aggression and fouls in professional football

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Summary

Study aim: To assess the frequency, timing, zone and player category of fouls and of aggressive behaviour in professional football.
Material and methods: Video recordings of 17 matches played by one team out of 18 of the Turkish Football Super League with all other teams were analysed with the use of observational foul analysis form. The following criteria were considered: time, score of the match, zone, players' position and foul category. The fouls were analysed in 6 periods of a match, 15 min each. Foul location in the football field was analysed in four zones according to player's positions: Defence, Defence mid-zone, Offensive mid-zone and Attack.
Results: Eleven out of 17 analyzed matches 11 were won, 3 were lost and 3 were even. A total of 652 fouls were recorded, mean numbers of fouls per match amounting to 24.2, 87.0 and 41.7 in won, lost and even matches, respectively. Most of the fouls (50.8%) were committed by middle zone players mostly in the defensive and offensive middle zones (33.9%). Only 1.2% of all fouls were unintentional, 11% were intentional, hostile, the other ones were intentional, instrumental.
Conclusions: The fouls could be attributed to the social learning theory that values the environmental factor in the cognitive process of aggression. The presented results may be of help to football coaches and sport psychologists teaching players how to control aggression and how to play the game wit minimum harm while increasing their performance.

Keywords: Aggressive behaviour – Fouls – Football

Introduction

The boost in the progress of football has turned it into a potential market to the extent that in the contemporary global economy it is realised as an industry with enormous capital. The progress in football in the last decade resulted in e.g. increased physical contact between players. In view of the technological and scientific developments that often exceed the physiological limits in order to increase the players' performance, FIFA has taken a series of precautions to protect the players; FIFA states that football is a harsh game and the referee is to permit to continue the game even if the player-ball interferences are tough. Nevertheless, behaviours like intending to interfere or interfering in a harmful manner need be punished.

Aggressiveness and fouls in football: Aggression is a behaviour intended to harm others; Baron von Richardson defined aggression as behaviour committed to harm or injure a living creature that tries to avoid it. The behaviour need not necessarily be physical; any oral behaviour that produces psycho-emotional harm to the victim can also be considered an aggression. Aggression in sports is the result of challenging struggle of players to prove their superiority over the opponents, which was already present in the human nature [5]. Bayern Munich player, Jupp Kapellmann, admitted that "*I am not quite unlike an animal; we are trying to survive by means of all substances. Everybody can attempt to destroy one another*." Thus, fouls in sports can be defined as an intentional behaviour aimed at harming the opponent [7]. Violence is most prevalent in team contact sports, such as ice hockey, football, and rugby. While most occurrences of violence emanate from players, others, including coaches, parents, fans, and the media, also contribute to what has been described as an epidemic of violence in sports today [14].

Aggressive behaviours are classified in sport psychology as instrumental (tactical) and hostile. In both types the main idea is making harm either physically or psycho-emotionally [6]. Thus, the following foul categories can be discerned:

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1. Unintentional foul – the player unconsciously hits or may harm the opponent;
2. Intentional foul (instrumental) – the player does not intend to harm the opponent but his behaviour may be harmful;
3. Intentional foul (hostile) – the behaviour is deliberate, aimed at injuring the opponent.

Fouls in football can be considered in relation to aggression theories with regard to the psychology of the players, and the reasons of the fouls [3].

Instinctive aggression theory: Freud, McDougall, Lorenz and others claimed that aggression was one of the instincts inherent in the human nature. In human beings, the frustration of death is compensated by aggressive behaviours, yet followed by re-emerging frustration. For this reason, Freud [8] views aggression of human beings as inevitable. Lorenz considered aggression as tolerable or non- tolerable depending on the degree of harm done. Thus, while war is considered to be an unacceptable way of exhibiting aggression, sports are considered to be just the opposite. The contemporary view supports the role of sports in human life as a way to discharge aggressive behaviours.

Frustration-aggression theory: According to psychologists, frustration hinders or stops a person from reaching an aim or target, and the greater frustration the more intense are the aggressive intuitions that may lead to aggression. For instance, a striker, who cannot pass a defence player, may intentionally hit him with his feet and elbow, or show a violent behaviour like Mike Tyson, who bit off his opponent's (E. Hoolyfield) ear. Therefore, frustration always causes aggression, and aggression is a result of frustration [8]. Frustration appears when one's efforts to reach a particular goal are blocked. In sports, frustration can be caused by questionable calls by officials, failure to make a specific play, injuries that interfere with optimum performance, heckling from spectators, or taunts by coaches or players [13].

Social learning theory: Social learning theory of aggression was developed by Bandura [1]; according to that author, rather than being inherited from the ancestors, aggressiveness is a feature that is solely learnt by environmental observation. Sociologists supported the view that aggressiveness develops as a result of socialisation of individuals. In contrast to other aggression theories that value aggression as a genetically programmed behaviour, social learning theory stresses the environmental factor in the process of learning aggressive behaviours. The social learning theory has received the most empirical verification and maintains that aggressive behaviour is learned through modelling and reinforced by rewards and punishments. Young athletes take sports heroes as role models and imitate their behaviour. Parents, coaches and team mates are also models that may demonstrate support for an aggressive style of play [13].

As suggested also by FIFA, fouls are the inevitable events in football. There are no foul-free football matches due to frequent physical contacts combined with aggressiveness. For this reason, it is crucial to figure out when, where, and by whom fouls are committed before the players learn how to control their aggression and to play football without harming each other while improving their performance. Therefore, the aim of this study was to analyse the fouls committed in the professional football matches in terms of frequency, timing, place, category, and player interactions, in order to determine the relationship of the fouls with aggressive behaviours from a theoretical perspective.

Material and Methods

Out of 18 teams of the Turkish Football Super League, one was randomly selected and 17 video recordings (by 18 cameras) of all matches of that team were analysed. An observational foul analysis form was designed using the following criteria: time, score of the match, zone, players' position, and foul category. In order to determine the timing of fouls, the matches were analysed in 6 periods, 15 min each. Foul location in the football field was analysed in four zones according to player's positions: Defence, De-fence mid-zone, Offensive mid-zone and Attack.

Analysis of the recordings was supervised by 2 football coaches and 2 football referees. The frequencies and rankings of events were analysed using the chi-square function or one-way ANOVA, that latter followed by Tukey's *post-hoc* test. The level of $p \leq 0.05$ was considered significant.

Results

Eleven out of 17 analysed matches 11 were won, 3 were lost and 3 were even. A total of 652 fouls were recorded, mean numbers of fouls per match amounting to 24.2, 87.0 and 41.7 in won, lost and even matches, respectively. The distribution of fouls by pitch zone and positions of players is shown in Table 1 and Fig. 1.

The numbers of fouls committed in 15-min intervals did not differ significantly between winners and losers; thus, they were combined and presented as percent frequencies in Fig. 2. A significant ($p<0.001$) opposite tendency in frequencies between winner/loser teams and tie matches can be noted.

Table 1. Distribution of fouls by zones and player positions

Players' position / Pitch zone	Own	Half-backs	Outer
Defence zone	78	64	4
Attack zone	57	46	6
Total	135	110	10
Defence mid-zone	75	117	25
Attack mid-zone	45	104	31
Total	120	221	56

Legend: Own – Defence players in the defence zone and attack players in the attack zone; Outer - Defence players in the attack zone and attack players in the defence zone

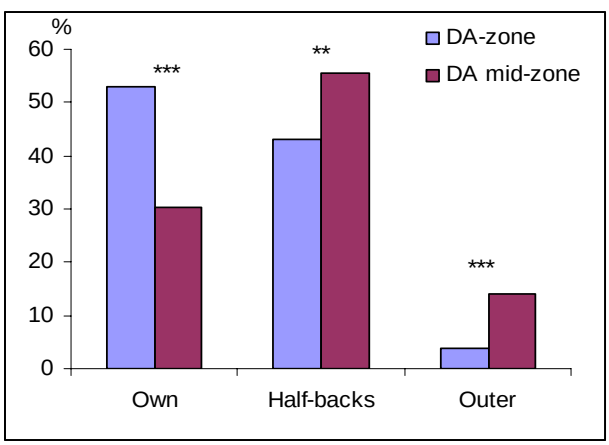


Fig. 1. Percent distribution of fouls by pitch zones and player positions

Legend: DA-zone – Defence or attack zone; DA mid-zone - Defence or attack mid-zone; For other explanations see Table 1; Significant differences between frequencies of fouls committed in the two kinds of zones: ** p<0.01; *** p<0.001

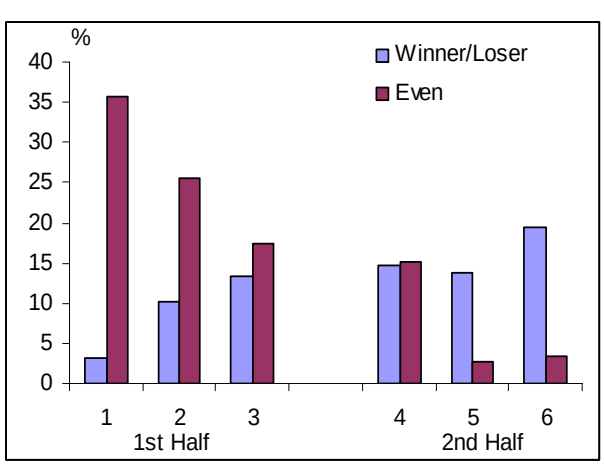


Fig. 2. Percent distribution of fouls by match result and 15-min time interval

Table 2. Distribution of fouls by match location and 15-min time intervals

Time interval	1st Half			2nd Half		
Matches	1	2	3	4	5	6
Home matches	44	58	57	52	35*	61
Away matches	65	61	58	65	45	51

* Significantly (p<0.01) lower than in the time interval 2

Table 3. Distribution of fouls by categories and 15-min time intervals

Time interval	1st Half			2nd Half		
Foul category	1	2	3	4	5	6
Unintentional	1	1	2	1	2	1
Intentional (instrumental)	105	104	105	103	61*	94
Intentional (hostile)	3	14	8	13	17	17

* Significantly (p<0.05) lower than in the time interval 2

Except for the significantly (p<0.01) lower frequency of fouls in middle part of the 2nd half compared with the 1st half of home matches, the frequencies were alike in both home and away matches (Table 2). When the fouls were analysed by categories, the unintentional ones constituted only 1.2% of all fouls recorded, and as much as 11.0% were intentional, hostile fouls, the remaining 87.8% being the intentional, instrumental ones. In that latter category, the frequency of fouls committed in middle part of the 2nd half was significantly (p<0.01) lower compared with the 1st half (Table 3).

Discussion

The presented results showed that most fouls were committed by players operating in their "natural" pitch zones, i.e. forwards in the attack zone (and attack mid-zone), full-backs in the defence zone (and defence mid-zone), and half-backs in the defence mid-zone. Yet, a fairly large proportion of fouls was attributed to half-backs in the attack zones. This finding is in contrast to the developing game systems and modern football concept that "defence starts by attack". Considering the fact that most of the fouls were committed in the defence and attack mid-zones, it may be concluded that the teams controlled the game from the mid-zone in order to prove their superiority over their opponents. It may be for this reason that they committed more fouls in an environment of struggle and aggression. The fouls that were committed by the mid-zone players, being intentional, instrumental fouls that were tactical in nature, can be explained

with the social learning theories, yet to another extend it is possible to claim that the frustration and the tension that the players may have faced during the struggle and high physical contact in this zone may also have played a role in the abundance of fouls.

The fact that most fouls recorded in matches with a tie result were committed at the beginning of the match was striking. This might have been brought about by the strategically learned behaviour of the players so as to affect the destiny of the game by committing as much fouls as possible in the beginning of the game to intimidate the opponents and was reflected by an enormously high average foul rate of 86 fouls per match. Interestingly, the foul rate in matches won by the analysed team was over 4 times lower (19.9 fouls per match).

The results of this study suggested no significant difference between the victorious and defeated teams in foul frequencies (19.0 and 18.6 fouls per 14 matches, won and lost combined, respectively); that was in line with Gerisch and Sommer's study [3,4] and, besides, indicated no significant relationship between the amount of fouls committed by the victorious and defeated football teams. Despite the fact that the defeated teams were expected to behave in a more aggressive way and commit more fouls due to the increased frustration that defeat supposedly may have caused, this study could not support the frustration-aggression theory in professional football matches. However, the fact that there were slightly more fouls committed in the professional football matches that ended with equality may be explained with the frustration-aggression theory, as aggression occurs due to disappointment caused by a frustrated target [2].

Interestingly, no significant differences in the time-distributed numbers of fouls between matches played home or on opponents' grounds. Conventionally, the host teams would be expected to behave more aggressively and commit as many fouls as possible at the beginning of a match to get score advantage, as they would be inspired with their hall of fans and their tumultuous ovations. Yet, no such fact could be supported statistically.

However, this study showed that the host teams tended to commit more fouls in the last 15 min of the games than the visitors (20 and 15%, respectively; $p = 0.09$), probably in order to preserve the score or to be advantageous. The fact that the visitor teams tended to commit relatively more fouls in the 1st and 4th 15-min intervals, i.e. at the beginnings of the two halves of matches, they may have tried to cope with the ovations from the stadium and shown that they coveted the trophy (31 and 38%, respectively; $p = 0.09$; cf. Table 2).

Summing up, the analysis of fouls committed in professional football matches in terms of frequency, timing, place, category, and player interactions, was made to determine the relationship of the fouls with aggressive behaviours from a theoretical perspective. The fouls were classified into three categories (unintentional, intentional-instrumental, intentional-hostile), attributed to the instrumental, and hostile types of aggressive behaviours in sport psychology. In both types of aggression, the aim is to harm the targeted individual either physically and/or psycho-emotionally. Instrumental aggressive behaviours serve a specific aim – gaining advantage. Under such circumstances, the cognitive process of the individual is quite complex. The player learns how to use aggressive behaviours in order to balance the cost (punishment), and profit (ball advantage, score) in the right place and in the right time. With respect to the fact that the aggressive behaviours (fouls) are learnt in challenging match environments, they can be attributed to the social learning theory that values the environment factor in the process of learning aggressive behaviours. Wandzilak cites a number of intervention strategies, utilising Kohlberg's moral development model and social learning theories which were shown to produce improvement or modification of behaviour, moral reasoning and perception of sportsmanship [12]. Teachers and coaches should commit themselves to actively teaching positive sports-related values, and devise curricula that do so [11]. Across all types of aggression, it is given to people to be accepted for loss or be deemed excused. Therefore, sport rules of the game say not to hurt each other. Winning in an uncontrolled manner, in the sense of human behaviour, is detrimental [9]. In conclusion, the presented results may be of help to football coaches and sport psychologists teaching players how to control aggression and how to play the game wit minimum harm while increasing their performance.

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Received 15.02.2011
Accepted 28.03.2011

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