Influence of Anger and Aggression in Physical Health of Contact and Non-Contact Sports Players

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Abstract

Psychological factors have been identified as important determinants of aggressive behavior in competitive conditions. This study investigated the relations of anger and aggression in a sample of Iranian professional athletes in contact and non-contact sports. A total of 362 volunteer athletes (231 men: 104 contact, 127 non-contact; 131 women: 54 contact, 77 non-contact) completed the Tehran Multidimensional Anger Scale and the Competitive Aggression Questionnaire. Scores on all anger subscales were positively associated with indices of competitive aggression among male and female athletes in both groups of contact and non-contact sports. The results also revealed that "anger-control–in" and "anger-control–out" were negatively associated with indices of competitive aggression in both groups. It was found that in contact sport group, four measures of anger including anger–in, anger–out, anger-control–in, and anger-control–out predicted changes related to indices of aggression in sport competitions, while in the non-contact sport group, only two measures of anger, i.e., anger–in and anger–out, predicted the changes.

Keywords: *Anger and aggression, physical health, contact and non-contact sports players, Psychological factors.*

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1. INTRODUCTION

Research on the antecedents of aggression has led to formulation of several theories. Frustration-aggression theory (Dollard, Doob, Miller, Mowrer, & Sears, 1939), the experienced frustration-aggression theory (Berkowitz, 1989; Baron & Richardson, 1994), and the theory of social learning (Bandura, 1973) are amongst the most commonly used models for studying aggression in sport. Berkowitz (1983, 1989) demonstrated that, when people deal with frustration, not all respond with overt aggressive behavior, but situational cues and learned responses may affect the probability of aggressive behavior. Based on this evidence, Berkowitz added cognitive factors to the frustration-aggression model so emotional responses and personal motivation are considered in the propensity for aggressive behavior. In his theory of social learning, Bandura (1973, 1983) discussed the role of learning in aggressive behavior. Bandura argued that aggression, like other learned behaviors, is acquired either through direct experience or observation of aggressive acts. The learned aggressive behavior is reinforced by perceived and/or actual approval of such behaviors in the context of social interaction. The theory of social learning has been used in research investigating aggression in sport (Celozzi, Kazelskis, & Gutsch, 1981; Mintah, Huddleston, & Doody, 1999; Kirker, Tenenbaum, & Mattson, 2000; Gee & Leith, 2007; Wittman, Arce, & Santisteban, 2008). Celozzi, et al. (1981) demonstrated that watching an aggressive match increased aggressive behavior in ice hockey by those people who had high scores on trait aggression, while conversation about the aggressive ice hockey match did not have such an effect. This finding suggested that aggressive behavior is learned by observing those people who attain their goals through aggression. Findings suggest that young hockey players imitate the aggressive behavior of professional hockey players (Smith, 1988; Weinberg & Gould, 1999). However, an aggressive act is not always the mere imitation of learned behavior. Aggressive behavior is usually motivated by many situational and personal factors. Research related to aggression antecedents in sport has focused mostly on situational factors and variables related to the competition (Harrell, 1980; Varca, 1980; Keltikangas-Jarvinen & Kelnonen, 1988; Butt & Cox, 1992; McGuire, Courneya, & Windmeyer, 1992; Widmeyer & McGuire, 1997; Coulomb & Pfister, 1998; Maxwell, Visek, & Moores, 2009). The issue which has been given less attention is the discussion of psychological processes that precede the expression of aggressive behavior, particularly anger, in sport. Berkowitz (1989) argued that the experience of provocation, frustration, or unwanted stimuli would lead to aggression through creating this negative emotion. If this negative emotion is considered as fear by the individual, the possibility of avoidance and evasive behavior increases, and if the individual considers it as anger, the aggressive behavior would be more probable (Berkowitz, 1988). Therefore, this study was aimed to investigate whether and how anger predicts aggressive behavior in contact and non-contact sports.

Anger as an emotion (Oatley, 1992) is characterized by negative feeling related to cognitive assessment and an increase in physiological provocation. It may be a consequence of threat to the physical and psychological well-being of an individual (Averill, 1983; Spielberger, Crane, Kearnes, Pellegrin, & Rickman, 1991; Kassinove & Sukhodolsky, 1995). Although there is an association between anger and aggression (Berkowitz, 1993), they are distinguished from each other (Friedman, 1992; Spielberger, Reheiser, & Sydeman, 1995), and there is a comprehensive literature about the necessity of distinguishing between these two concepts (Sukhodolsky, Golub, & Cromwell, 2001; Maxwell & Moores, 2007). Berkowitz (1993) argued that anger and aggressiveness are important antecedents of aggression. Aggressiveness is defined as the readiness or as the propensity for aggressive behavior. The association between anger and aggression has been widely reported in sport settings (e.g., Kirker, et al., 2000; Conroy, Silva, Newcomer, Walker, & Johnson, 2001; Gee & Leith, 2007; Maxwell, et al., 2009; Grange & Kerr, 2010).

The present study was aimed to gain a better insight into the relations of anger and aggression in contact and non-contact sports. In accordance with previous research, it was predicted that there is a positive association between anger and aggression in sport activities. Furthermore, based on existed empirical evidence, it can be predicted that there is a positive association between anger and aggression, both in contact and noncontact sports. Also, the present study aimed to answer the question whether different aspects of anger are related to aggressive behavior in a similar way? In this study it was assumed that the relationship between various aspects of anger with aggression is different. In other words, aggression is not caused by every kind of anger. The answer to this question is important at least in two ways: confirming anger as a multidimensional structure, and supporting those theories which emphasized the distinction between anger and aggression.

2. PHYSICAL HEALTH AND PERFORMANCE

The phenomenon of concurrent training (CT), or simultaneous training of strength and endurance, was first described in 1980 by Robert C. Hickson (Nader, 2006). Endurance in sport has been defined as the ability to maintain or repeat a given force or power output. Strength can be defined as the ability to produce force. Strength is a skill, which can be expressed in a magnitude of 0-100% (Bazyler et al., 2015). These contrasting modes of activities are included in various sports together, such as sprint running, rugby, football, swimming, and decathlon. In the past two decades, concurrent programs have received much attention as a form of training (Arazi et al., 2011). However, conflicts among coaches still exist regarding the role of strength training for endurance athletes. Historically, resistance and endurance training have been viewed as training modalities at opposite ends of a continuum with divergent adaptations (Bazyler et al., 2015). Previous studies have reported positive effects of concurrent exercises for maintaining and optimising fitness levels (Kraemer et al., 2004); long-term effects leads to physiological changes in human body and alters body composition (Sale et al., 1990). The American College of Sports Medicine has also examined the results of combined exercise programs of aerobic and resistance exercise.

Physical fitness

Physical fitness refers to a physiologic state of well-being that allows individual to meet the demands of daily living and/or provides the basis for sport performance. It can be illustrated by health and skill related components of physical fitness. Health-related components include: cardiovascular endurance, musculoskeletal fitness, body composition and metabolism (Darren et al., 2006). Skill-related and/ or sports-related components include: agility, balance, coordination, power, reaction time, and speed.

Performance

In one of the earliest studies, the effectiveness of CT in prepubescent age groups by 8 weeks of continuous exercise program was examined. They reported improvement in performance of vertical jump height, ball throwing speed, and standing long jump (Marta et al., 2013). In addition, positive results were also shown for agility, flexibility, muscular endurance and strength in adolescents (Arazi et al., 2011; Tarasi et al., 2011). Understanding effects on athletes is crucial for designing their training protocol. Seven week of CT in basketball players resulted in better improvement in vertical jump performance as compared to resistance training alone (Christos et al., 2003). A study was done during the preseason period of elite football players, where combined training improved counter movement jump, running economy, and 10 and 20 m sprint time (Helgerud et al., 2011).

Body composition

Authors have reported reduction in the fat percentage and an increase in fat-free mass as post-CT outcome in young healthy and older men (Arazi et al., 2011; Davis et al., 2008; Glowacki et al., 2004; Sillanpaa et al., 2008); however, Di Blasio et al. (2012) reported contradictory results, where body composition did not change after the three months of training program. Recent studies resulted in improvement in body composition by CT, particularly in middle age individuals having diabetes (Rosa et al., 2016). Six months of detraining in postmenopausal women brought them back to the same position of leg lean mass after 16 weeks of CT (Rossi et al., 2017). Additionally, it enhanced the physical performance, body composition, metabolic profiles, and inflammatory state in obese adults (García-Hermoso et al., in press; Villareal et al., 2017). Significant decreases in body mass, body mass index, total body fat, total body fat mass, and waist and hip circumference were observed after three months of endurance strength training in women with abdominal obesity (Skrypnik et al., 2015).

Physiological adaptation

Several studies support the notion stated by the SAID (specific adaptation to imposed demands) principle that adaptive response shown by an individual is specific to the demands that are imposed on them. Physiological adaptations associated with each mode of training are diverse (Gravelle and Blessing, 2000). Strength and endurance training produce a wide variety of adaptations, with only a slight overlap between them (Nader, 2006). With CT, major physiological adaptions are increases in muscular strength (weight lifted in squat and bench press), muscular endurance [number of pull-ups and sit-ups], one repetition maximum (RM), aerobic capacity, and flexibility (Arazi et al., 2011; Chtara et al., 2005; Kazior et al., 2016; Libardi et al., 2012; Marta et al., 2013; Robineau et al., 2016; Taipale et al., 2010). It has also been shown to increase VO2max, especially in prepubescent children after eight weeks of training (Marta et al., 2013). Observations have supported positive outcomes of combined training regimen by showing an increase in the proportion of type IIA muscle fibres, maximum voluntary contraction (MVC), rate of force development, and neuromuscular function (Aagaard and Andersen, 2010). Moreover, intervention studies were also performed on endurance runners which reported improvements in running velocity at VO2max, running economy, muscle activation of vastus lateralis and vastus medialis, and counter-movement jump height. However, serum concentrations of testosterone and cortisol remained statistically unaltered, which indicates a homeostasis response (Taipale et al., 2010). Strength maintenance training in well-trained cyclists resulted in improvement in cross-sectional area of thigh musculature and leg strength. Thus, it further enhanced cycling performance and could be used as best protocol for athletes (Christos et al., 2003; Kazior et al., 2016). In a more recent investigation, authors have reported exceeding hypertrophy with CT over resistance training, because pronounced stimulation of anabolic response was shown by protein kinase B (Akt) and mechanistic target of rapamycin (mTOR) protein, rather than inhibition of catabolic response. With CT ribosomal genesis is more favourable as compared to resistance training, which is an important step in muscle synthesis but still the muscle hypertrophy is attenuated, which drives attention towards incompatibility between resistance and endurance exercise (Coffey and Hawley, 2017; Fyfe et al., in press). Several investigators have also reported the effect of concurrent exercises on cardiovascular variables. Postexercise hypotension was found following an acute bout of exercise in normotensive individuals as well as in borderline hypertensive women (Delavar and Faraji, 2011; Santiago et al., 2013; Teixeira et al., 2011). Cardiac output, heart rate, stroke volume decreased following an acute bout of exercise (Senthil and Arul, 2012).

3. METHOD

Participants

The sample of the present study included Iranian professional athletes in contact and non-contact sports at national levels of competition. Three hundred and sixty-two athletes from federations of wrestling, taekwondo, basketball, football, volleyball, track and field, swimming, gymnastics, and weight lifting volunteered to participate in this research. According to the suggested and applied criteria in previous studies (e.g., Smith & Stewart, 2003; Keeler, 2007), sports such as football, basketball, taekwondo, and wrestling were considered as contact sports, and those like volleyball, track and field, swimming, gymnastics, and weight lifting were considered as non-contact sports. The athletes were asked to complete the Tehran Multidimensional Anger Scale (TMAS; Besharat, 2008) and Competitive Aggression Questionnaire (CAQ; Besharat, 2009). Thirty-four participants were omitted from statistical analysis due to incomplete answers to the questionnaires, thus research sample was reduced to 362 athletes (231 men: 104 contact, M age = 22.7 yr., range = 18–29, and 127 non-contact, M age = 24.2 yr., range = 18–31; 131 women: 54 contact, M age = 22 yr., range = 18–25, and 77 non-contact, M age = 23.6 yr., range = 18–29). The number and percentage of the athletes in each sport field was as follows: wrestling, 34 (9.4%), taekwondo, 32 (8.8%), basketball, 38 (10.5%), football, 54 (14.9%), volleyball, 53 (14.6%), track and field, 47 (13%), swimming, 37 (10.2%), gymnastics, 31 (8.6%), and weight lifting, 36 (9.9%). There were no significant differences between the contact and non-contact sport groups in terms of age ($t_{360} = 1.38$, $p < .17$), education ($t_{360} = 0.13$, $p < .87$), and skill level ($t_{360} = 0.65$, $p < .52$).

Procedure

After describing the aims and significance of the study to the authorities of the fore mentioned federations and sport clubs, the response format was explained and athletes completed the questionnaires. The researchers provided oral and written information concerning the nature of the study, athletes' responsibilities as participants, time requirements, and response confidentiality. Every effort was made to avoid possible demand characteristics. They emphasized that honest responses were expected and that there were no correct or incorrect answers. There was no time limitation on answering the questions, but the maximum time taken was not more than 30 minutes. No coercion was used to make athletes participate in the study, and all of them participated voluntarily. The questionnaires were distributed, answered, and collected the day before the competitions. The order of the questionnaires was counterbalanced across participants.

Measures

Tehran Multidimensional Anger Scale (TMAS).—This scale has 30 questions derived from the State-Trait Anger Expression Inventory (STAXI–2; Spielberger, 1999) and validated for the purpose of measuring dimensions of anger and for application to samples of students, athletes, and the Iranian general population (Besharat, 2008). The items of the scale measure six dimensions of anger including trait anger, state anger, anger–in, anger–out, anger-control–in and anger-control–out. Rating was on a 5-point scale, with anchors of 1: Very little and 5: Very much. According to Besharat's (2008) preliminary findings, in a sample of 680 students, calculated Cronbach's alphas for the six subscales were .91, .87, .90, .89, .79, and .76, respectively. These are indicative of adequate internal consistency of the scale. Twoweek test-retest correlation coefficients for scores of 111 athletes from mentioned samples were calculated as .82 for trait anger, .74 for state anger, .77 for anger–in, .75 for anger–out, and .71 for anger control-in, .69 for anger control-out (all ps < .001). Content validity of the TMAS was analyzed based on the views of 10 experts in psychology and sport. Calculated Kendall's tau coefficients for the six subscales were .83, .82, .89, .90, .88, and .89, respectively. Convergent and discriminant validity of the TMAS was assessed through simultaneous application of Anger Rumination Scale (correlations ranged from .53 to .67), Competitive Aggression Questionnaire (correlations ranged from .45 to .58), and Mental Health Inventory (correlations with psychological well-being ranged from −.43 to −.55; correlations with psychological distress ranged from .48 to .56; Besharat, 2008). Similar results were obtained for a sample comprised of 243 athletes from various sport fields: Cronbach's coefficients alpha for the six subscales were .92, .89, .90, .81, .78, and .79, respectively. Test-retest correlation coefficients for 74 athletes were calculated as .78 for trait anger, .73 for state anger, .76 for anger–in, .70 for anger–out, .68 for anger-control–in, .67 for anger control-out. This was conducted on two occasions over a 4-wk. period. The indices related to content and convergent and discriminant validity were also confirmed (Besharat, 2008).

Cronbach's coefficients alpha obtained for all dimensions of anger including trait anger, state anger, anger–in, anger–out, anger-control–in, and anger-control– out for the sample in the present study among contact athletes were .93, .85, .89, .78, .80, and .77, respectively, and among non-contact athletes were .90, .88, .92, .77, .88, and .79, respectively. Competitive Aggression Questionnaire (CAQ).—This is a 25-item questionnaire which was derived from the Aggression Questionnaire (BPAQ, 1992, and BWAQ, 2000) and validated for measuring different dimensions of anger and aggressive behavior in samples comprising Iranian students and athletes (Besharat, 2009). The questions measure five dimensions of aggression including physical aggression, verbal aggression, aggressive anger, hostility, and indirect aggression on a 5-point scale, with anchors of 1: Very little and 5: Very much. All items are scaled so that higher scores indicate a greater level of aggression. The total score of aggression is obtained when all the scores of the five subscales' questions are calculated. Psychometric characteristics of the CAQ have been examined and confirmed in several studies (reported in Besharat, 2009). According to the preliminary findings, in a sample of 440 athletes, calculated Cronbach's alphas for the five subscales and aggression total score were .93, .91, .85, .88, .83, and .89, respectively. Test-retest correlation coefficients among the scores of 73 athletes from the mentioned sample were calculated on two occasions over a 4-wk. period. They were .81 for physical aggression, .77 for verbal aggression, .73 for aggressive anger, .69 for hostility, .70 for indirect aggression, and .75 for the total aggression (ps < .001). Face validity of the CAQ was analyzed based on the views of eight experts in psychology and sport. Calculated Kendall's tau coefficients for the five subscales and the total aggression score were .83, .81, .75, .70, .76, and .78, respectively. Convergent and discriminant validity of the CAQ was calculated and confirmed through simultaneous application of Tehran Multidimensional Anger Scale (correlations with anger scales ranged from .55 to .73; correlations with anger control scales ranged from −.52 to −.65), Anger Rumination Scale (correlations ranged from .47 to .58), and Mental Health Inventory (correlations with psychological well-being ranged from −.40 to −.55; correlations with psychological distress ranged from .48 to .59; Besharat, 2009). In the present study, Cronbach's coefficients alpha for all dimensions of aggression including physical aggression, verbal aggression, aggressive anger, hostility, indirect aggressions and total aggression among contact athletes were calculated as .91, .88, .87, .90, .89, and .89, respectively and among non-contact athletes they were calculated as .90, .91, .89, .85, .87, and .83, respectively.

4. RESULTS

Table 1 shows mean scores and standard deviations on each scale of anger and aggression among the participants. Pearson correlations were statistically significant and positive between dimensions of anger and various subscales of the aggression questionnaire among male and female athletes both in contact and non-contact sports. Also, there were significant negative correlations between anger control-in and anger control-out scores with subscales of the aggression questionnaire in these athletes (Table 2). As the pattern of correlations between anger and aggression subscales was relatively similar for the groups of men and women, subsequent analyses were collapsed across sex.

Table 1 Means and standard deviations on each scale of anger and aggression variables for athletes in contact and non-contact sports

Variable / Scale	Contact Sport				Non-contact Sport			
	Men		Women		Men		Women	
	M	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
Anger								
Trait anger	15.2	2.95	13.5	2.02	11.7	2.28	10.6	2.35
State anger	16.4	3.43	12.5	3.99	11.1	2.79	10.2	2.65
Anger–in	14.9	2.89	13.4	3.34	10.7	2.51	10.3	2.42
Anger–out	15.7	2.79	11.1	4.00	10.8	2.62	10.4	2.06
Anger-control–in	15.8	2.81	16.7	3.60	17.9	4.09	19.0	2.56
Anger-control–out	16.4	2.81	17.5	3.92	18.5	3.85	20.1	2.04
Aggression								
Physical aggression	22.3	3.21	18.9	2.27	18.6	3.07	14.6	2.70
Verbal aggression	18.1	2.35	19.9	3.02	13.7	2.51	16.7	2.60
Aggressive anger	22.2	3.52	20.9	2.78	18.2	3.24	16.4	2.75
Hostility	19.9	2.53	21.3	3.21	15.6	2.76	17.6	3.05
Indirect aggression	19.8	3.32	19.7	2.80	15.9	2.47	15.5	2.69

Table 2 Zero-order correlations between anger dimensions and measures of aggression for male and female athletes in contact and non-contact sports

Variable	Men ($n = 231$)					Women ($n = 131$)				
	1	2	3	4	5	1	2	3	4	5
Contact sport										
Trait anger	.40	.53	.39	.41	.61	.46	.54	.44	.47	.56
State anger	.46	.63	.44	.47	.75	.78	.81	.81	.83	.81
Anger–in	.55	.69	.53	.55	.77	.79	.83	.78	.80	.84
Anger–out	.54	.68	.52	.54	.76	.84	.88	.83	.85	.88
Anger-control–in	−.52	−.59	−.51	−.53	−.58	−.51	−.50	−.45	−.45	−.38
Anger-control–out	−.43	−.48	−.42	−.43	−.49	−.47	−.48	−.41	−.41	−.37
Non-contact sport										
Trait anger	.20	.22	.19	.18	.31	.27	.26	.25	.23	.21*
State anger	.29	.19	.29	.26	.14*	.50	.55	.56	.56	.55
Anger–in	.59	.52	.59	.56	.44	.45	.49	.50	.49	.50
Anger–out	.58	.49	.57	.54	.42	.46	.50	.50	.51	.51
Anger-control–in	−.44	−.38	−.43	−.42	−.32	−.10*	−.11*	−.19*	−.24	−.23
Anger-control–out	−.40	−.37	−.39	−.37	−.31	−.12*	−.14*	−.21*	−.26	−.25

A series of regression analyses were conducted to examine the relations between anger subscales as predictive variables and aggression subscales as dependent variables. The results of separate regressions for contact and non-contact sports are summarized in Table 3. In the contact sport group, 37% of the variance related to physical aggression subscale scores was explained by anger–in, anger–out, anger-control–in, and anger-control–out scores. For the verbal aggression subscale, 49% of the variance was explained by anger– in, anger–out, anger-control–in, and anger-control–out subscales scores. Results for the aggressive anger subscale showed that 35% of variance was explained by anger subscale scores. For the hostility subscale, 37% of variance related to hostility was explained by the anger subscale scores. For indirect aggression, 63% of variance was explained by the anger subscale scores. In the non-contact sport group, 38% of the variance in physical aggression scores was explained by anger– in and anger–out. For verbal aggression, 34% of the variance was explained by anger–in and anger–out. For hostility 33% of variance, and for indirect aggression 25% of variance, was explained by the anger subscales.

5. DISCUSSION

The relations of self-reports of anger and aggression in contact and non-contact sports were examined in a sample of Iranian professional athletes. Scores on trait anger, state anger, anger–in, and anger–out were positively associated with self-reports of competitive aggression among male and female athletes in both contact and non-contact sports. Correlations between anger-control–in and anger-control–out subscales and sport aggression subscales were negative. These findings support the hypotheses. Statistical analysis indicated that in the contact sport group, four measures of anger (including anger–in, anger–out, anger-control–in, and anger-control–out) predicted indices of aggression in sport competitions, while in non-contact sport groups, only two measures of anger (anger–in and anger–out) predicted scores on the measures. These findings suggest that all aspects of anger do not have the same relation with aggression. Although for the scales of anger–in and anger–out, the anger predictors functioned similarly in both contact and non-contact sports athletes; for the scales of anger-control–in and anger-control–out, they did not. Only anger-control–in and anger-control– out predicted self-reported aggressive acts in the contact sport group. The data are in line with results of previous studies (Berkowitz, 1989, 1993; Conroy et al., 2001; Maxwell & Moores, 2007; Wittmann et al., 2008) and can be explained based on the following interpretations.

The relations of different dimensions of anger with aggression suggest that trait anger or state anger, or a combination of both, may exist in any person, but these aspects of anger are not automatically and necessarily followed by aggression. Converting anger to aggression requires activation, intensification, and directing the anger. If the athlete takes responsibility for a situational failure, anger is internalized, intensified, and activated against the self. In contrast, if other people are seen to be responsible for the failure, then anger may be activated and intensified outward and against others. Of course, anger is not always activated completely inward or outward, but the outcome of the individual's evaluation does activate anger and can influence aggression. For example, in a competition, an athlete might consider that his opponent's provocation, cheating, aggression, or even better performance are "responsible" for his own failure and defeat, and as a result may express anger as aggressive behavior toward others. Another athlete might assume that personal issues (poor preparation, concentration, etc.) have contributed to a failure and therefore express anger toward the self. Anger activation and directing of anger occurs in both scenarios, and may be followed by aggression. In other words, within the phenomenological analysis of an athlete in a sport situation involving defeat and failure, anger is expected to be associated with aggression.

6. CONCLUSION

In this study, self-report of aggression in both contact and non-contact sports was predicted by self-report of specific aspects of anger. Anger does not necessarily lead to aggression, and only some kinds of anger may be risk factors for sport aggression. Patterns of relations between anger and aggression were relatively different for contact and non-contact sports, with better prediction of aggression reports among athletes in contact sports. On a practical level, the results could address the importance of attention to anger as an influential factor in sport aggression, perhaps suggesting some steps toward prevention such as anger management, especially in contact sports. At the theoretical level, results obtained indicate that the anger construct and the type of sport may be strong influences in sport aggression, another step toward developing a theory of psychopathology in a sport context. It is well known ii sport psychology that when an athlete shifts his focus of attention away from the athletic task, failure and defeat are more likely; activation and intensification of anger may occur, finally potentiating aggressive behavior. In addition, it could be argued when anger is activated, concentration will be disrupted and disturb the professional performance of the athlete. Failure in such situations is expected to increase the possibility of aggressive behavior. Fear and anxiety regarding failure should also be addressed in this type of circumstance. In a situation where concentration is disrupted and professional performance and behavior of the athlete is disturbed, it is possible that fear and anxiety about failure may increase aggressive behavior.

REFERENCES

1. Averill, J. R. (1983) Studies on anger and aggression: implications for theories of emotion. American Psychologist, 38, 1145-1160.
2. Bandura, A. (1973) Aggression: a social learning analysis. Englewood Cliffs, NJ: Prentice Hall.
3. Bandura, A. (1983) Psychological mechanisms of aggression.
4. In R. G. Geen & E. I. Donnerstein (Eds.), Aggression: theoretical and empirical reviews. Vol. 1. New York: Academic Press. Pp. 1-40.
5. Baron, R. A., & Richardson, D. R. (1994) Human aggression. (2nd ed.) New York: Plenum.
6. Berdemeier, B. J., Weiss, M. R., Shields, D. L., & Cooper, B. A. B. (1987) The relationship between children's legitimacy judgments and their moral reasoning, aggression, tendencies, and sport involvement. Sociology of Sport Journal, 4, 48-60.
7. Besharat, M. A. (2008) [Development and validation of the Tehran Multidimensional Anger Scale]. Unpublished research report,
8. Univer. of Tehran. [in Farsi] Besharat, M. A. (2009) [Development and validation of the Multidimensional Competitive Anxiety Questionnaire]. Unpublished research report, Univer. of Tehran.
9. Buss, A. H., & Perry, M. (1992) The Aggression Questionnaire. Journal of Personality and Social Psychology, 63, 425-459.
10. Buss, A. H., & Warren, W. L. (2000) The Aggression Questionnaire manual. Los Angeles: Western Psychological Services.
11. Butt, D. S., & Cox, D. N. (1992) Motivational patterns in Davis Cup, University, and recreational tennis players. International Journal of Sport Psychology, 23, 1-13.
12. Conroy, D. E., Silva, J. M., Newcomer, R. R., Walker, B. W., & Johnson, M. S. (2001) Personal and participatory socializers of the perceived legitimacy of aggressive behavior in sport. Aggressive Behavior, 27, 405-418.
13. Coulomb, G., & Pfister, R. (1998) Aggressive behaviors in soccer as a function of competetion level and time: a field study. Journal of Sport Behavior, 21, 222-231.
14. Gee, C. J., & Leith, L. M. (2007) Aggressive behavior in professional ice hockey: a cross-cultural comparison of North American and European born NHL players. Psychology of Sport and Exercise, 8, 567-583.

15. Grange, P., & Kerr, J. H. (2010) Physical aggression in Australian football: a qualitative study of elite athletes. Psychology of Sport and Exercise, 11, 36-43.