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Original Article

Relationship between Intensity of Anger and its Expression in Competitive Athletes: Mediating Role of Emotion Dysregulation

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Abstract

Background and Objective: Awareness of the relationship between anger and aggression in the sports performance of athletes can be useful in sports psychology to identify the sports population angrier, unable to control their anger, and in need of anger management interventions. The aim of this study was to investigate the mediating role of emotion regulation in the relationship between anger intensity and self-expression in competitive athletes.

Materials and Methods: The present correlational study was carried out based on structural relationships using the partial least squares structural equation modeling (PLS-SEM). The statistical population of this study consisted of all competitive athletes (i.e., all the athletes participating in any level of competitive sports, either individual or collective) in Ardebil, Iran, in 2019. Out of all the participants, 312 athletes were selected through cluster sampling and included in the study. The Clinical Anger Scale, internal and external anger subscales of the Multidimensional Anger Inventory, and Emotion Dysregulation Scale were used to collect data. The data were analyzed by SPSS software (version 22) and PLS-SEM. Coefficients between paths, standard error, and t-statistic were utilized to investigate the direct and indirect effects.

Results: The obtained results showed that emotion dysregulation mediated between the intensity of anger and its externalizing expression or aggression (i.e., behavioral avoidance) and between the intensity of anger and rumination/suppression of anger (i.e., cognitive avoidance).

Conclusion: Based on the obtained findings, it can be said that athletes who are not able to regulate their emotions in competitive situations are more likely to outwardly express their experienced anger.

Keywords: Behavioral escape, Cognitive avoidance, Competitive athletes, Emotion dysregulation, Intensity of anger

Background

Although anger and its clinical behavioral effects often lead to significant intra- and interpersonal outcomes, there is currently no criterion for the diagnosis of anger disorders [1]. In the context of the classification of psychiatric illnesses, anger is merely one of the traits involved in various mental disorders, such as posttraumatic stress disorder, mood disorders, impulse control disorders, and borderline personality disorder [1]. Due to the lack of diagnostic criteria to date, there has been no epidemiological study conducted on anger management [2].

There have been some studies on the anger and aggressive behaviors of soccer [3], basketball [4], rugby [5], ice hockey [6], and baseball [7] players. Several studies conducted to compare the levels of aggressive behaviors between athletes and non-athletes have shown that athletes have a higher level of aggressive behaviors than non-athletes [8-11]. Based on the evidence, it has also been demonstrated that anger and aggression increase an individual's level of arousal and direct the attention to an inappropriate and ineffective outcome, such as hurting an opponent [12].

Based on recent developments in experimental psychopathology and emotional sciences, especially with regard to emotion regulation processes, Gardner and Moore [13] have proposed a theoretical model for the perception of the relationship between anger and aggressive/violent behavior. This model is called the Anger Avoidance Model. The model suggests that specific psychological vulnerability

which is mostly associated with the clinical manifestations of anger is emotion dysregulation, including the impaired ability to regulate and/or tolerate negative emotional states and inability to appropriately express anger.

In order to properly perceive emotion dysregulation, one should first consider emotion regulation. Many researchers have defined emotion regulation, including definitions, such as the capacity to tolerate and appropriately express emotion [14]; therefore, emotion dysregulation is certainly related to the difficulties associated with all or any of these processes. Gardner and Moore [13] pointed out that avoiding or inhibiting anger prevents adaptive information processing of anger and fails to learn that anger and other emotional states are not necessarily dangerous.

From this perspective, aggression or violence and cognitive avoidance (i.e., rumination and suppression) are two types of avoidant or escape behaviors that are chronically extreme and inflexible with a devastating consequence. In Gardner and Moore's view, aggression is defined as the avoidance and low control of anger leading to aggression, and anger rumination is defined as the avoidance of anger at the cognitive level associated with high control. The findings of a study carried out by Roberton and Daffern have also shown that difficulty in emotion regulation is associated with aggression [15]. In addition, recent findings supported this proposition and indicated the mediating role of emotion dysregulation in relation to experience and anger [16-18]. Similarly, in another study, emotional dysregulation mediated the association between restrictive emotionality and aggressive behavior in men [19].

In another study, the ability to perceive and emotion differentiation moderated the relationship between anger and aggression [20]. In a study carried out by Garofalo and Velotti [21], emotion dysregulation was also confirmed with a moderating role in the relationship between negative emotions and aggression. There have also been multiple studies demonstrating the role of emotion dysregulation in aggressive and impulsive behaviors [22-28]. Overall, related studies have highlighted the importance of emotion dysregulation in relation to anger and aggression (i.e., behavioral manifestation) or rumination and suppression (i.e., cognitive manifestation). However, emotion dysregulation seems to be one of the important factors in converting anger to self-expression.

Objectives

The aim of the present study was to investigate the mediating role of emotion dysregulation in the relationship between the intensity of anger and its self-expression in competitive athletes.

Materials and Methods

This correlational study was carried out based on structural relationships using the partial least squares structural equation modeling (PLS-SEM). In this study, the statistical population consisted of all the competitive athletes (all the athletes competing at any level of competition, either individual or collective) in Ardabil, Iran, in 2019. Out of all the athletes, 312 subjects were selected as the participants of this study. Firstly, 500 athletes (at the competitive level) were chosen by multistage cluster sampling. For this purpose, Ardebil was divided into four regions, including north, south, east, and west, and 10 exercise clubs and gymnasiums were selected from each region. In addition, the athletes with the eligible inclusion criteria were chosen from each club and gymnasium.

Out of all the athletes, 143 subjects either not submitting the questionnaire or submitting an incomplete one were excluded from the study, and 45 respondents were also ruled out from the study based on exclusion criteria. Consequently, 312 individuals were selected as the sample of the study. The inclusion criteria included at least 18 and up to 35 years of age, literacy, informed consent to participate in the study, and participation in competitive sports (all the athletes competing in any level of competition, either individual or collective).

The exclusion criteria consisted of a large mass of missing data, unwillingness to complete the questionnaire after receiving, substance abuse, and a history of repeated aggression. After permission from the coaches and staff of the club and gymnasium, the objectives of the study were explained to the athletes while attending the club, and they were invited to participate in the study. After filling out the consent form, the tests related to the model were provided to the athletes to be completed.

Research tools

Clinical Anger Scale (CAS)

It is an objective self-report tool designed by Snell et al. [29] to measure psychological symptoms that are assumed to be associated with the perception and treatment of clinical anger. The individuals were asked to read each of the 21 groups of words (4 in each group) and choose a sentence that best describes their feelings (e.g., item 1: A) I do not feel angry; B) I feel angry; C) I am angry most of the time; D) I am always angry and fighting with people

so that I become exhausted). Each cluster of expressions was scored based on a 4-point Likert scale (a=0; b=1; c=2; d=3). Four sentences in each cluster differed on the severity of symptoms, and more severe clinical anger was associated with the expression d.

Finally, individuals' responses to the CAS were summarized. Higher scores were associated with more clinical anger (21 items; score range: 0-63). In a study carried out by Snell et al. [29], internal consistency for 21 items of the CAS using Cronbach's alpha and reliability coefficient analysis of 0.94 was achieved at 0.95 for men and 0.92 for women. Preliminary evidence for the validity of the CAS was identified by the examination of the relationship between the CAS and scores associated with Spielberger's State-Trait Anger Expression Inventory.

Multidimensional Anger Inventory

This scale consists of 38 items. This self-report questionnaire was designed to evaluate anger as a multidimensional construct [30] and measures five dimensions of anger, namely 1) anger-arousal, 2) anger-eliciting situations, 3) hostile outlook, 4) anger-out, and 5) anger-in. Responses were scored based on a 5-point Likert scale. The subjects responded to each question on a 5-point scale ranging from one (i.e., completely false) to five (i.e., completely true). The scoring method was in a way that both the individual score factor and total score can be calculated. The correlation coefficient obtained from the test-retest as the reliability index for the two samples was 0.75, and internal consistency using Cronbach's alpha for the two samples obtained as 0.84 and 0.89, respectively [30].

In the Persian version of this questionnaire [31], Cronbach's alpha for each subscale and total score of the questionnaire for student and general population samples was within the range of 0.75-0.91, indicating good internal consistency. Besharat [31] examined the content validity of the Multidimensional Anger Inventory based on the judgment of six psychologists and Kendall's coefficients of the agreement for each of the scales of anger-arousal, anger-eliciting situations, hostile outlook, anger-out, and anger-in reported as 0.81, 0.84, 0.77, 0.85, and 0.89, respectively. The subscales of anger-in and anger-out were used in the present study.

Difficulties in Emotion Regulation Scale

This self-report questionnaire was designed by Gratz and Roemer [32]. The primary scale for difficulty in emotion regulation is a 36-item self-report measuring tool that has been formulated to clinically assess difficulty in emotion regulation [32]. The generalized Negative Mood Regulation Scale [32] has been used as a model for the development of this scale. Factor analysis revealed the existence of six factors of nonacceptance of emotional responses, difficulties engaging in goal-directed behavior, impulse control difficulties, lack of emotional awareness, limited access to emotion regulation strategies, and lack of emotional clarity. The results indicated that this scale has a high internal consistency of 0.93 [32]. Based on the findings of a study conducted by Azizi et al. [33], Cronbach's alpha for this questionnaire was estimated to be 0.92. Convergent and discriminant validity of this scale was also confirmed by the Mental Health Scale, Cognitive Emotion Regulation Questionnaire, and Positive and Negative Affect Schedule at a p-value of less than 0.001 [34].

Data analysis method

After data collection, the data were analyzed by SPSS software (version 22) and PLS-SEM. Coefficients between paths, standard error, and t-statistic were used to investigate the direct and indirect effects. Additionally, the determination coefficient of model endogenous variables and Standardized Root Mean Square Residual (SRMR) index was utilized to test the structural model.

Results

As shown in Table 1, the mean (standard deviation) intensity of anger, emotion dysregulation, behavioral escape (i.e., aggression), and cognitive avoidance (i.e., suppression/rumination) among the athletes were reported as 16.06 (10.52), 86.62 (20.65), 11.65 (2.8), and 17.57 (3.84), respectively.

Table 2 tabulates the correlation matrix of emotion dysregulation with respect to anger and its expression.

As presented in Figure 1 and Table 3, based on direct assumptions, there is a significant relationship between the intensity of anger and emotion

Table 1. Mean and standard deviation of study variables

Variable	Mean	Standard deviation
Intensity of anger	16.06	10.52
Emotion dysregulation	86.62	20.56
Behavioral escape (i.e., Aggression)	11.65	2.08
Cognitive avoidance (i.e., Suppression/Rumination)	17.57	3.84

Table 2. Correlation between study variables

Variable	1	2	3	4
Intensity of anger	1			
Emotion dysregulation	0.61**	1		
Behavioral escape (i.e., Aggression)	0.32**	0.38**	1	
Cognitive avoidance (i.e., Suppression/Rumination)	0.25**	0.33**	0.14**	1

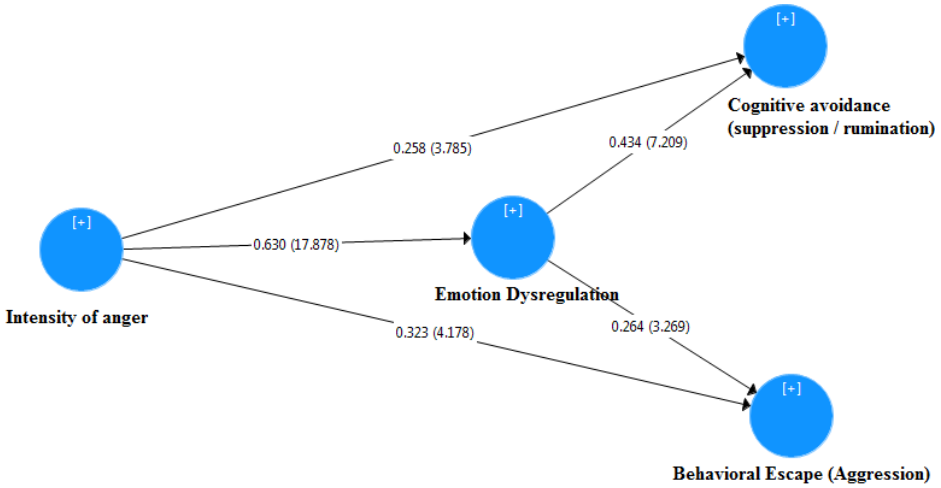

Figure 1. Structured model fitted with path coefficients of (β) and (T) in study population

Table 3. Results of β, S.E, T, and P of the model presented in study population

Independent variable	Dependent variable	β	S.E	t	P-value (Sig)
Intensity of anger	Emotion dysregulation	0.63	0.03	17.87	<0.001
Intensity of anger	Behavioral escape (i.e., Aggression)	0.32	0.07	4.17	<0.001
Intensity of anger	Cognitive avoidance (i.e., Suppression/Rumination)	0.25	0.06	3.78	<0.001
Emotion dysregulation	Behavioral escape (i.e., Aggression)	0.26	0.07	3.26	<0.001
Emotion dysregulation	Cognitive avoidance (i.e., Suppression/Rumination)	0.43	0.05	7.20	<0.001

Table 4. Analysis of indirect effects

Predictive variable	Mediator variable	Dependent variable	β	P-value (Sig)
Intensity of anger	Emotion Dysregulation	Behavioral escape (i.e., Aggression)	0.16	0.01<
Intensity of anger	Emotion Dysregulation	Cognitive avoidance (i.e., Suppression/Rumination)	0.27	0.001<

dysregulation (β=0.63; P<0.001), intensity of anger and behavioral escape (i.e., aggression) (β=0.32; P<0.001), intensity of anger and cognitive avoidance (i.e., suppression/rumination) (β=0.25; P<0.001), emotion dysregulation and behavioral escape (i.e., aggression) (β=0.26; P<0.001), and emotion dysregulation and cognitive avoidance (i.e., repression/rumination) (β=0.43; P<0.001).

The results also showed that the indirect path of "intensity of anger → emotion dysregulation → behavioral escape (i.e., aggression)" was significant (β=0.16; P<0.001), and "intensity of anger → emotion dysregulation → cognitive avoidance (i.e., suppression/rumination)" was significant (β=0.27; P<0.001) (Table 4). Furthermore, the results of R^2 of latent variables were 28% and 39% for the behavioral escape (i.e., aggression) and cognitive avoidance (i.e., suppression/rumination), respectively, indicating a good model fit. In addition, the SRMR index, which is one of the main indicators for the overall fit of the model in the PLS-SEM, was observed to be 0.07 in the present study, indicating a good overall fit of the present model.

Discussion

The aim of this study was to investigate the mediating role of emotion dysregulation in the relationship between the intensity of anger and its expression in competitive athletes. The results of the present study showed that emotion dysregulation played a mediating role in the relationship between the intensity of anger and its expression among competitive athletes. These results are in line with the findings of other studies [24-28] and illustrate the important role of emotion dysregulation in the relationship between anger and its expression.

To support the above-mentioned findings, the results of a study carried out by Herts et al. [35] demonstrated that aggressive behaviors increased in individuals with increased emotion dysregulation. Furthermore, in line with the findings of the current

study, the results of a study conducted by Roberton et al. [36] showed that offenders with a maladaptive emotion regulation style reported a broader history of anger and aggression than those with a consistent emotion regulation style. The findings of a study performed by Shorey et al. [37] indicated that pervasive problems in emotion regulation have been associated with violence and can distinguish offenders displaying aggression and crime from non-aggressors.

In addition, the findings of a study carried out by Donahue et al. [18] showed that emotion dysregulation mediates the relationship between negative affect and aggression. Finally, Mahmoud Nejad et al. [38] demonstrated that difficulty in regulating emotion and emotional distress can predict interpersonal violence. The results of the present study suggested that the ability to perceive and regulate emotions is considered to be an important factor in psychological balance, and failure to regulate emotions can have negative consequences, including anger and subsequent aggression or rumination.

Re-appraisal involves the management of your own and others' emotions, enhancing an individual's ability to adapt and organize in stimulating situations; according, individuals with the capacity to emotionally grow and free from any internal or external coercion can experience emotions. In contrast, individuals who are not capable of managing emotionally enhanced emotions cannot experience emotion well under external or internal coercion; therefore, they are prone to the negative consequences of avoiding emotional experiences. This finding may also support previous results regarding the association between emotional re-appraisal as an emotional adaptive strategy and psychological distress. Since emotions are socially useful and can be effective in displaying feelings, improving social interactions, and maintaining and destroying relationships with others, the regulation of emotions can play an influential role.

In addition, given that emotion regulation strategies can be considered efficient (e.g., acceptance, re-appraisal, and problem-solving) and dysfunctional (e.g., suppression, avoidance, and rumination) [39], the following results can be explained. Individuals with high levels of anger use a set of dysfunctional emotional strategies. Accordingly, by constantly thinking about future events, they somehow judge their own thoughts, and this impedes awareness and acceptance of the emotion. It also prevents from re-evaluating the situation from positive or harmful perspectives by the engagement in the angry thoughts. The ability to recognize and express emotional experiences seems to be an aspect of emotion regulation associated with anger. Defects in the aforementioned areas are explained by structural problems in cognitive emotion regulation. Cognitive processes of emotion regulation can help an individual to manage or regulate emotions after anger and stressful events [40]. In fact, individuals in stressful situations, such as when competing in a sports game, may positively or negatively experience different emotions; however, individuals are often less likely to experience negative emotions. Consequently, when an individual loses a few points in a race, this in turn sparks anger. Now, if the atmosphere of the match also goes up against him/her or the spectators start to criticize his/her poor performance, all of these factors come together and cause misalignment or disruption to the experienced emotions. In this case, if the individual is unable to manage his or her emotions and incapable of coping with the anger simultaneously occurring, this maladjustment will result in verbal or behavioral aggression or suppression and rumination.

Conclusions

The results of this study showed that emotion dysregulation mediated the relationship between the intensity of anger and its expression in competitive athletes. The obtained findings indicated that emotion dysregulation is one of the important factors associated with anger and aggression. Therefore, this variable should be considered important in the development of psychological interventions. One of the limitations of this study was the use of self-report questionnaires in data collection. The current study was also conducted on competitive athletes in Ardabil making it difficult to extend it to other geographical regions of the country. Therefore, it is suggested to carry out similar studies on other samples in other regions of the country and use other data collection tools.

Compliance with ethical guidelines

All the ethical principles were considered in the present study. The participants were informed about the purpose of the study and implementation of stages. In addition, informed consent was obtained from all the study participants. Moreover, the participants were also assured of the confidentiality of their information. Furthermore, the study subjects were allowed to withdraw from the study at any time, and the results of the study would be available to them if desired. This article was extracted from the dissertation of a doctoral degree in clinical psychology at Shahed University of Tehran, Tehran, Iran.

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Conflicts of Interest
The authors declare that there is no conflict of interest.

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