ANGER EXPERIENCES, EXPRESSION AND PERCEIVED FUNCTIONAL IMPACT IN HIGHLY-SKILLED CHINESE TAEKWONDO ATHLETES

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ABSTRACT

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The study of emotions and their relationship with athletic performance has received wide research attention. Previous literature has indicated that unpleasant emotions can be beneficial or harmful to performance.

This study, grounded in the Individual Zones of Optimal Functioning (IZOF) model, aimed to examine situational anger, anger disposition as well as anger expression and control. Additionally, the reasons for feeling anger in a combat and perceived impact on performance were investigated. Participants were 21 elite taekwondo athletes in Chinese national team (M age=20.10). The State-Trait Anger Expression Inventory-2 (STAXI-2) in its Chinese version was used to measure state anger, trait anger and anger expression. In addition, semi-structured interviews were conducted with 4 athletes to further investigate anger domains, perceptions about the impact of anger on performance. Coping mechanisms and the role of the coach in emotion regulation were also investigated.

Results from repeated measures ANOVA revealed significant differences in the levels of anger intensity prior to, during and after best and worst performances. A great intra-individual variability was also found. Five profiles represented the levels of anger for the whole group. Results from inductive content analyses indicated that anger related to six different situations stemmed from internal and external reasons. The impact of anger on performance was perceived as facilitative (i.e. mobilizing energy) and also as detrimental (i.e. inefficient utilization of energy). Most Chinese athletes tended to control their anger (i.e. control-in, to calm down). They also endeavored to suppress anger (express-in) rather than express verbally or physically (express-out). In addition, results also pointed out that coach played an important role to assist emotion regulation.

In conclusion, this study replicates previous IZOF-based research and extends it to examine anger experiences in an Eastern culture as well as the role of the coach in anger regulation.

Key words: IZOF model, anger, Chinese athletes, taekwondo

TABLE OF CONTENTS

1 INTRODUCTION

Studies of emotion-performance relationship have raised the interest that sport performance is not only the manifestation of the skill and technique execution, but also the reflection of various psychobiosoical states. Therefore, a great number of studies have emphasized the role of emotion that affects the performance level to different extents (Abele & Brehm, 1984; Barkhoff, 2000; Skinner & Brewer, 2004; Terry, 1995). Among all emotions, anger and its influence on athletic performance have received more and more interest and attention during recent decades (Friend & LeUnes, 1990; Ruiz & Hanin, 2004, 2011; Terry, 1995). The present investigation based on the Individual Zones of Optimal Functioning (IZOF) model (Hanin, 1997, 2000, 2004 & 2010), is aimed at exploring performance-related anger experiences and their impact on athletic performance in highly-skilled Chinese taekwondo athletes. Before presenting the current research, it is important to define key conceptions such as emotion, emotional experience and anger. Furthermore, IZOF model must be explained precisely in order to support the research theoretically. The anecdotal records on cultural perspectives on anger experience and expression will also be briefly reviewed.

1.1 Definition of emotion and emotional experience

Although studies on emotion with the suggested definitions have emerged for years (Arnold, 1960; Carlson & Hatfield, 1992; Ekman & Davidson, 1994; Frijda, 1986; Oatley & Jenkins, 1992), none of them encompasses the entire elements of emotion in different contexts. Additionally, terms describing different affective phenomena (emotion, mood, affect, and temperament) are often interchangeable (Crocker, Kowalski, Graham, & Kowalski, 2002). However, researchers agree on main characteristics to differentiate among these terms. For instance, the criteria that Young (1961) used for distinguishing among feelings, affect and emotions included source of stimulation, intensity, duration, disruptiveness, cognitive involvement, and presence of pathology. Watson and Clark (1994) indicated that emotions may involve physiological and

behavioral changes because they represent a stronger affective state than mood and feelings. Therefore, it is generally accepted that emotion contains several components referring differently to causes, functions and consequences. Young (1973) has suggested that emotion is constituted by three elements: 1) Physiological changes such as increases in heart rate, blood pressure and skin response; 2) Action tendencies which represents the core element of emotions; and 3) Subjective experience which refers to what an individual consciously experiences during the emotional episode. The combination of the three components has definitely offered another focus with regard to emotion analysis—emotion as a response to stimulus.

Deci (1980) has proposed that emotion is a reaction to a stimulus event (either actual or imagined). The particular response to a stimulus is determined by the way eliciting situation is construed (Ortony, Clore, & Collins, 1988). Therefore, a widely accepted definition proposed by Frijda (1986) viewed emotion as a set of stages or a process (Izard, 1977, 1993). It includes the following sequence: 1) Appraisal: Appraisal of the emotional event is a central feature of emotion. It is used both for the process of interpreting a situation and for the resulting experience; 2) Context evaluation: This process is characterized by thoughts about plans and ways to cope with the event that caused the emotion; 3) Action readiness: The core of an emotion is the prompting of plans and readiness to act; and 4) Physiological change, expression, action: Bodily changes mostly include heart rate, breathing patterns, and sweating. Emotions could be expressed through facial expression, body posture, limb movement and voice. Emotions can also be reflected by more general patterns of behavioral action that are highly functional and recognizable to others in a specific situation (Oatley & Jenkins, 1992).

However, as Clore (1994) noted, there must be a cognitive process to determine the relevance of an event or object that results in an emotional response. In order to eliminate the limitations of definition by Frijda (1986), Lazarus (1991, 1993) proposed the cognitive-motivational-relational theory of emotion. This theory includes cognitive,

motivational, and rational variables and processes involved in arousing and sustaining an emotion (Lazarus, 2000). It assumes that emotions, cognition and motivation are three distinct constructs of the human mind but they also strongly interact with each other. Thus, emotion is an ongoing process with conscious appraisal to the relationship between person and environment.

According to Vygotsky (1984), it is necessary to find the construct that interacts with both the characteristics of person (P) and environment (E). The analysis of P-E interactions should focus not so much on the situation or on the person per se, but on how this situation is experienced by this person. Consequently, emotional experience as the indivisible component of human functioning, reflects a person's response to different aspects of the environment and the meaning of the environment for the person. Thus, this study focuses on investigating emotional experience rather than emotion per se to better understand how emotion is appraised and experienced by a person in the consistently changing environment.

1.2 Anger and sport-related anger experiences

Anger was considered by Darwin (1965) and Freud (1936) to be one of the fundamental emotional states that had powerful effects on thoughts and behavior. Kassinove and Sukhodolsky (1995) defined anger as a felt emotional state that varies in intensity, duration and frequency, and is associated with cognitive distortions, verbal and motor behavior, and patterns of physical arousal. Earlier research has pertained to aggression and relevant theories (e.g., Dollard, Doob, Miller, Mowrer, & Sears, 1939; Hartmann, Kris, & Loewenstein, 1949), until Berkowitz (1962) argued that anger, as internal state, could instigate the generation of aggression. Although much has been written about conceptions of anger, aggression and hostility, definitions of these constructs remain ambiguous and are sometimes contradictory (Biaggio, Supplee, & Curtis, 1981). In order to integrate the prevailing conceptual definitions of anger, hostility and aggression, Spielberger and collaborators (Spielberger, Jacobs, Russell & Crane, 1983; Spielberger et al., 1985) have collectively referred these constructs as AHA! Syndrome. Anger is at

the core of AHA! system, which usually refers to an emotional state that consists of feelings that vary in intensity, from mild irritation or annoyance to intense fury and rage (Spielberger et al., 1983). Based on the conceptions of anger, Spielberger (1988) also demonstrated that anger can be measured as state, or as a trait. Besides, anger can be held in (anger-in), or it can be expressed (anger-out).

Proceeding to sport-specific domain, as it is identified by P-E relationship, the emotional experience of a person is dynamic and changing interactively with different situations. From this perspective, emotion research in sport should describe, predict, and explain an athlete's optimal and dysfunctional experiences accompanying individually successful and poor performance (Hanin, 2003). Therefore, three interrelated types of performance-related experiences have been conceptualized: emotional states (state-like experience), relatively stable emotion patterns (trait-like experience), and meta-experiences or preferences and attitudes towards one's experiences (Hanin, 2003). This study integrates the categories of anger defined by Spielberger (1988) with the performance-related emotional experience that is proposed by Hanin (2003), to specifically measure the state anger, dispositional anger and meta-experience of anger in sport context.

State-like anger presents situational anger experience. It was defined as a psychobiological state or condition, consisting of angry feelings that may vary in intensity, from mild irritation or annoyance to fury and rage, with associated activation of the autonomic nervous system (Spielberger et al, 1983). In sport context, state anger varies across different situations in the ongoing performance. Situational anger experience is dynamic and reflects how the P-E relationship fluctuates over time.

Dispositional anger refers to stable emotional experience. It exists with stable intensity level in repeated activities and displays the similar reaction to situations alike. It is individual differences in anger proneness as a personality (Spielberger et al, 1983). Trait-like anger in sport refers to the individual differences in the disposition to

experience anger without specifying any provoking circumstance and the frequency in response to situations that involved these anger-triggers. In addition, the anger expression and control also manifest the dispositional proneness in coping with anger. Theorists identified that Neuroticism as one of the dimensions in the Big Five dimensions of personality, appears centrally related to emotional expression (McArthur & Baron, 1983). Therefore, it is reasonable to categorize anger expression and control as the dispositional constructs when dealing with anger. In previous research, anger expression was implicitly defined as a unidimensional, bipolar construct (Funkenstein, King, & Drolette, 1954; Gentry, Chesney, Gary, Hall, & Harburg, 1982), varying from extreme suppression or inhibition of anger to the frequent expression of anger in aggressive behavior. Spielberger et al (1985) assessed this dimension by importing concepts of anger-in and anger-out. Anger-in was defined in terms of how often an individual experiences anger, but holds in (suppresses) the feelings. Anger-out was defined as the frequency that an individual expresses angry feelings in verbal or physically aggressive behavior. Anger-control was later extracted as an important element that refers to the differences in how often individuals attempt to control the expression of angry feelings (Spielberger, 1988; Spielberger & Reheiser, 2009).

Meta-experience reflects how an athlete feels about his or her past, present, or anticipated emotional experiences and the perceived effects of these emotional experiences on performance (Hanin, 2003). Prapavessis (2000) suggested that including meta-analysis of emotional states in research on the relationships between emotions and sport performance would increase the overall effect size. Ruiz and Hanin (2004) suggested that examining athletes' perceptions of the impact of angry feelings (meta-experience of anger) on performance is a valuable source of information, since the self-knowledge and attitudes about emotional experiences are involved in the evaluation and regulation of emotions (Mayer & Gaschke, 1988; Mayer & Stevens, 1994). Meta-experience reflects the dynamics of P-E interactions. It enriches the description of anger experiences and provides simultaneous reflection on effect of anger in constantly

changing situations. Thus, the perceived impact of anger on athletic performance is necessary to be investigated in order to analyze the anger functioning accurately.

1.3 Anger as unpleasant emotion to affect athletic performance

Unpleasant emotions have been regarded as harmful to not only well-being, but also information processing, decision making and other cognitive functions in daily-life situations. In addition to that, unpleasant emotions and their impacts on athletic performance have legitimately become the focus in sport-oriented research. Of all the research on negative emotions, anxiety has typically been considered as the most important factors to influence sport performance in past decades (Cerin, Szabo, & Williams, 2000; Gould & Tuffey, 1996; Hanin, 1978, 1989, 2000, 2010; Lazarus, 2000). However, nowadays, other unpleasant emotions, especially anger, have received more and more research interest as well in this field. For instance, Mahoney (1989) found depression and anger to be related to weight lifting performance. Likewise, Friend and LeUnes (1990) found anger and vigor to be related to a range of baseball performance indicators.

In sport, anger as unpleasant emotion, is often evoked by stress and associated with high emotional arousal in competitions, perceived as a detriment to performance by disturbing precision and concentration or leading an athlete to injure another player (Isberg, 2000). Previous models analyzing emotion-performance relationships, such as the Profile of Mood State (Morgan, 1985; Morgan, Costill, Flynn, Raglin, & O`Connor, 1988; Raglin & Morgan, 1994) and Inverted-U hypothesis (Yerkes & Dodson, 1908; Williams, Landers, & Boutcher, 1993), have reached the consensus that only low to moderate anger arousals have optimal functions to performance. However, these viewpoints did not receive sufficient evidential support and were not able to constantly fulfill cross-personal comparisons. Thus, studies have emerged to indicate that even high level of anger could have beneficial influences to performance. For instance, Cockerill, Nevill, and Lyons (1991) used a regression model to show that high level of

tension and anger could collectively facilitate cross-country performance. Gould, Eklund and Jackson (1992) presented that Olympic wrestlers with heightened levels of anger arousal intensity prior to competition displayed optimal pre-match mental states and as a consequence, enhanced the performance. Anger was also perceived as facilitative to performance in research with karate athletes (Ruiz & Hanin, 2004, 2011).

According to these findings, we assume that when athletes perform successfully, there exists a specific subjective anger profile. For instance, some athletes may show a high intensity level of anger that facilitates optimal performance, but they experience low anger in dysfunctional performance. In order to understand the relationship between anger and athletic performance, an alternative approach was used to find the optimal anger profile for athletes. Individual Zones of Optimal Functioning (IZOF) model (Hanin, 1997, 2000, 2004 & 2010) provides the explanation to the dynamics of the emotion-performance relationships based on a detailed description of athlete's intra-individual emotional experiences.

1.4 Theoretical background— the IZOF model

Hanin (1995, 1997, 2000, 2004 & 2010) proposed the Individual Zones of Optimal Functioning (IZOF) model to analyze the relationship between emotion and performance. The IZOF model was developed in the naturalistic setting of elite sport. It holds that emotion is a component of the psychobiosocial state conceptualized as a situational, multi-modal and dynamic manifestation of the total human functioning (Hanin, 1997, 2000 & 2010). IZOF model was applied to examine the individually optimal and dysfunctional emotional profile related to athletic performance. It was initially applied in the study of pre-competitive anxiety.

Within IZOF model, emotions have five dimensions: (1) form: conceptualized as a manifestation of phenomenon, which includes eight interrelated form components: cognitive, affective, motivational, bodily, motor-behavioral, operational, communicative and volitional components; (2) content: manifested in four emotion

categories derived from the valence or hedonic tone (pleasure-displeasure) and performance functionality (optimal-dysfunctional) distinctions; (3) intensity: a quantitative character measured by the in-out of the zone notion, which adopts a range of intensities producing optimal, neutral, or dysfunctional effects on performance; (4) time: reflects the dynamics of emotional experience; and (5) context: an environmental characteristic including situational, interpersonal, and intra-individual antecedents or consequences that determines emotion intensity and content.

Anger as the sport-related experience, is conceptualized with these five components within the IZOF model. First of all, the form of anger has three components. The affective form indicates the distinction between "angry temperament" (no particular provocation required) and "angry reaction" (provocation required) in anger-proneness (Spielberger & London, 1990), which clearly implies the context dimension of anger. The cognitive form of anger is obviously relevant in sport since anger can either enhance or impair focus, information processing, and decision making (Hanin, 2004). The behavioral component reflects an individual's observable interactions with the environment and is manifested in expression (or suppression) of anger (Hanin, 2004). These three forms interact together to provide a relatively complete description of performance-induced anger states in this study. Hence, this research focused on analyzing affective, cognitive and motor-behavioral form of anger to explain the emotion-performance relationships.

Secondly, the content of anger in the IZOF framework has four categories: pleasant-optimal (P+), pleasant-dysfunctional (P-), unpleasant-optimal (N+), and unpleasant-dysfunctional (N-) (Hanin, 1997, 2004). Optimal emotions (pleasant and unpleasant) are usually defined as facilitative that related to success whereas dysfunctional emotions (pleasant and unpleasant) are debilitative, and thus are related to failure.

Thirdly, the intensity of anger, especially the intensity of state-like anger and trait-like anger are measured by State-Trait Anger Expression Inventory-2 (STAXI-2,

Spielberger, 1999). It provides athletes the awareness of their optimal and dysfunctional zones so that they are able to enter and stay in the optimal zone during performance.

Fourthly, the time dimension in this study focuses on the anger experiences prior to, during and after one combat in taekwondo match. And lastly, this study adopts competitive sports as the context, explores anger and other related phenomena (trait, expression, control) in Chinese culture.

As it is mentioned before, the IZOF model indicates that pleasant and unpleasant emotions can have facilitating and debilitating impact on performances. In elite level of sports, functions of emotions can be different from non-sport related context. To be concrete, a certain negative emotion can be recognized as helpful as long as it has appropriate intensity and contributes to athletic performance. Two constructs with their opposites related to effort and skill aspect of emotion mechanisms interpret the emotion-performance relationship (Hanin, 1997). The effort aspect refers to the generation of energy (mobilizing, demobilizing effects); the skill aspect reflects the organization of energy (efficient utilization, miss-use). These concepts indicate the notion of the functional emotion for human behavior and performance (Hanin, 2004). The term of energy here in IZOF model is a general sense to imply an active force, an intensity of effort, persistence, and decisiveness in reaching one's goal (Hanin, 1997). Research has revealed that the failure to generate enough energy typically resulted in less-than effective performance and another detrimental effect was observed in the enormous or inadequate utilization of energy (ineffective information processing) (Hanin, 1993; Hanin & Syrjä, 1995). Optimal function becomes possible through generation of enough energy to initiate and maintain the task execution process with adequate effort level as well as efficient utilization of available resource until the task is successfully completed. Dysfunctional emotions typically result in too much (or too little) energy generation and its inefficient, erroneous or inappropriate utilization (task-irrelevant focus). Ruiz and Hanin (2004) reported that karate athletes experienced optimal anger states that were characterized as high generation of energy in combat.

Thus, optimal and dysfunctional effects of emotions upon the quality of individual performance are manifested in the increase or decrease in the energizing (increasing intensity, effort) and energy utilizing functions.

1.5 Cross-cultural perspectives on anger and coping strategies

Although previous researchers have analyzed emotions and their influences on performance (Hanin, 1986, 1989; Hanin & Syrjä, 1995; Robazza & Bortoli, 2003, 2007; Ruiz & Hanin, 2004), the athletes were all from Western countries.

Subjective culture (Triandis, 1972, 1994), a concept that addresses a connotative meaning of emotion words, categorization of emotional experiences, values and norms for appropriate actions, is particularly important in emotionally charged situations (White ,1993). Chon (2000) noted that anger appears in both Western and Eastern cultures from ancient to contemporary times. Moreover, in different cultures, people experience anger in different ways, both within individuals over time as well as across people within the same situation (Tanaka-Matsumi, 1995). These differences manifest in the triggers of anger, cognitive appraisals and the coping strategies, since cultures define norms for the verbal and behavioral enactment of emotions, especially negative emotions (Ekman, 1972; Harre, 1986; Lutz & White, 1986; Thoits, 1989). Gibson (1979) also indicated that the emotional response tendencies are engaged by the social judgment. For instance, Japan as one of the non-Western countries, has collectivistic cultural traditions that strongly inhibit public display of private emotions, particularly negative emotions (Johnson, 1993). Furthermore, the Japanese self-report of anger antecedents were described as radically different (Scherer, Wallbott, Matsuomoto, & Kudoh, 1988) from the Europeans and Americans. Similarly, Chinese culture typically disapproves of extremely negative emotional expression, such as the expression of anger through aggressive behavior, because extreme emotions are seen as pathogenic, disrupting the body's natural harmony (Veith, 1972; Chen, Cheung, Bond, & Leung, 2005). The disapproval of extreme emotional expression may exert a strong influence

on the control of anger and aggression in Chinese individuals. Even in similar Eastern cultural background (China, Malaysia and India), Bishop and Quah (1998) reported that Chinese showed significantly lower hostility, which partially supports the common belief that the Chinese tend to restrain aggressive expressions of anger. In addition, Maxwell and colleges (Maxwell, 2007; Maxwell, Sukhodolsky, Chow, & Wong, 2005) found a higher tendency to ruminate about anger experiences in Hong Kong Chinese relative to British participants, but a slightly lower tendency to express anger.

As previous research has agreed upon, social norms are inherently culture-specific. Therefore, an athlete's anger expression is supposed to be influenced by both cultural norms and certain social beliefs with regard to consequences of behavior. Referring to the combination of Chinese cultural norms and beliefs in the world of taekwondo, Chinese taekwondo athletes are highly assumed to be humble, patient, and self-controlled with integrity. With this kind of social norms, the strategies for Chinese athletes to cope with anger are supposed to be distinguishing from Western athletes. Hence, this study shifts attention to an Eastern cultural context, and aims to investigate Chinese athletes' anger expression and control, thus to better understand athletic anger experiences and coping mechanisms at a cross-cultural level.

2 PURPOSE OF THE STUDY

The purpose of this study was to examine the intensity of state-anger prior to, during, and after best and worst performances in highly-skilled Chinese taekwondo athletes. Dispositional anger, expression and control of anger in the competition context were also assessed. In addition, the study investigated the reasons for anger, perceived impact on performance, as well as strategies of anger control and expression (or suppression) in Chinese cultural background. Finally, the role of significant others (e.g. coach) in athletes' anger regulation was examined. Thus, this study aimed at replicating previous IZOF-based research in another martial art form, and extending it to analyze the performance-related anger experiences of a sample in a different culture.

3 METHODS

3.1 Participants

Participants were 21 elite taekwondo athletes (6 females, 15 males). Their age ranged from 14 to 28 (M= 20.10, SD=4.02). All athletes were members of the national team of China. They had competed at national or international level.

3.2 Measures

3.2.1 State-Trait Anger Expression Inventory-2 (STAXI-2, Spielberger, 1999)

The State-Trait Anger Expression Inventory-2 (STAXI-2, Spielberger, 1999), a revised version of the STAXI (Spielberger, 1988), was used to measure experience, disposition and expression and control of anger. In this study, the Chinese version of STAXI-2 (Tao, 2009) was used as the instrument. It consists of 57 items with six scales and five subscales.

The State-Anger scale consists of 15 items to assess the intensity of anger that athletes feel under a particular situation and at a particular time. The State-Anger scale is subdivided into Feelings ("I am furious"), Physical ("I feel like hitting someone") and Verbal ("I want to yell at somebody"), with 5 items each, measured on a 4-point Likert scale: 1= "not at all", 2= "somewhat", 3= "moderately so" and 4= "very much so".

The Trait-Anger scale has 10 items and measures an individual's disposition to experience angry feelings. It contains two 4-item subscales: Anger Temperament ("I am quick tempered") and Anger Reaction ("It makes me furious when I am criticized in front of others"); another 2 items contributed to total Trait-Anger Score. A 4-point Likert scale ranges from 1= "almost never", 2= "sometimes", 3= "often", and 4= "almost always" is used for rating.

The expression and anger control is measured on four scales: a) the anger expression-out (A/O) scale to measure the expression of anger toward other persons or objects ("I

express my anger"); b) the anger expression-in (A/I) scale to assess the suppression or holding in angry feelings ("I boil inside but I don't show it"); c) the anger control-out (C/O) scale that measures the control of angry feelings by preventing the expression of anger toward other persons or objects ("I keep my cool"); and d) the anger control-in (C/I) scale, which is an entirely new scale to assess the control of suppressed angry feelings by calming down or cooling off ("I take a deep breath and relax"). Each scale, containing six items is rated on the same four-point frequency scale.

The STAXI-2 was translated into Chinese and validated (Maxwell, Sukhodolsky & Sit, 2009; Tao, 2009). The internal consistency of the whole Chinese version STAXI-2 is .82. In terms of State-Anger scale, the Chronbach's alphas range from .84 to .86. For the Trait-Anger scale, the internal consistencies range from .72 to .78. The alphas coefficient from four scales of Anger Expression and Control range from .65 to .87 (Tao, 2009). The convergent validities (varied from 0.82 to .93) indicate an acceptable correlation between each scale (Tao, 2009). The correlation between each scale of anger expression and control was good (Tao, 2009). In conclusion, the indices of Chinese version STAXI-2 indicate acceptable reliability and validity for usage.

In this research, the STAXI-2 was slightly modified in order for use in the sport context. The State-Anger scale was adapted into six different combat situations by adding "prior to the best performance", "during the best performance" and "after the best performance" as well as "prior to the worst performance", "during the worst performance" and "after the worst performance". Scales for measuring Trait-Anger and Anger Control and Expression were adapted into competition context by extending the original questions with "in the taekwondo combat" or "in the athletic performance". The extended questions had correct sentence structure and fulfilled Chinese grammar instruction; they were understood by the athletes who read and answered the questionnaire.

3.2.2 Semi-structured individual interviews

Open-ended interviews were designed to explore: 1) anger domains, 2) the perceived impact of anger on performance, 3) coping strategies to anger and 4) the coach's role in emotion regulation. Interview questions basically tapped themes such as reasons of being angry, athletes' perception about impact of anger on performance. In addition, questions covered the strategies to control anger, ways to express anger as well as the role of the coach within anger experience. Athletes were also asked about social norms of anger expression in the Chinese culture.

3.3 Procedure

A pilot interview was conducted with a Chinese boxing trainer. A brief unstructured interview was carried out to ask for feedback referring to the meaning of questions and structure of the interview. Accordingly, as an athlete in combat sport, the interviewee noted that all questions were literally understandable and highly relevant to the purpose of this study. Therefore, the content of interview questions was considered as valid and executable for this study.

An information sheet with the purpose and procedure of the research was presented to all participants before the initiation of data collection procedure. Anonymity and confidentiality were assured. The athletes gave their written consent form after they have acknowledged the research.

The STAXI-2 was administrated in a quiet place at the training facility. It should be noted that the State-Anger scale was used for six times in order to investigate six different situations, namely, prior to, during, and after best and worst performances. In case that those athletes could not distinguish the differences between each other, key words of each situation were highlighted with distinct colors. The whole set of questionnaires were completed individually in approximately 30 minutes.

Based on the answers to STAXI-2, four athletes, who reported the most different and highly variable anger intensities across six different combat situations, were chosen for individual interview. These four athletes were also required to provide basic information such as their competitive level and brief description of athletic career at the beginning of the interview. Interviews were conducted in a quiet place. Each interview took approximately 30 minutes and all interviews were tape-recorded.

3.4 Data analysis

This study has collected both quantitative and qualitative data. With regard to the results from STAXI-2, quantitative data were analyzed using repeated measures Analysis of Variance (ANOVA) to examine differences between the intensities of situational anger prior to, during and after best and worst performances. Inductive content analyses were used to interpret information from the interviews. Themes were generated through the review of transcripts, and then categorized into four investigated areas: a) anger domains, b) perceived impact of anger on performance, c) coping mechanisms in Chinese culture; and d) the role of the coach in regulation of emotion.

4 RESULTS

4.1 Descriptive statistics and internal consistency

Table 1 presents means, standard deviations and internal consistency values for state anger prior to, during and after best and worst performances. As it can be seen, coefficient alphas ranged from .84 to .95, which represented high internal consistency. As expected, the variability was high among six situations and the highest levels of anger were experienced in worst performances. Descriptive statistics for anger disposition (i.e. trait), expression and control are presented in Table 2. As we can see, the Cronbach's alphas for Trait-Anger subscales $\geq .71$, which are also acceptable. For scales of Anger-Expression-out and Anger-Expression-in as well as Anger-Control-out and Anger-Control-in, Cronbach's alphas ranged from .88 to .91.

Table 1 Descriptive statistics and Cronbach's alphas in the State-Anger scale (N=21)

State Anger	M	SD	α
Best Performance			
Prior to	26.95	8.83	.93
During	29.33	10.32	.95
After	24.05	9.29	.94
Worst performance			
Prior to	26.81	8.48	.89
During	34.29	7.82	.84
After	31.81	11.02	.93

Note: All subscales scored based on 4-point Likert scale.

Table 2 Descriptive statistics and Cronbach's alphas in the Trait-Anger scale and Anger Expression and Control subscales (N=21)

	M	SD	α
Trait Anger	18.10	3.65	.75
Temperament	7.19	1.69	.71
Reaction	7.71	1.95	.72
Anger-Expression			
Expression-Out	13.95	4.76	.89
Expression-In	20.05	5.30	.91
Anger-Control			
Control-Out	21.33	4.92	.88
Control-In	23.33	5.00	.89

Note: All subscales scored based on 4-point Likert scale.

4.2 Types of anger

According to situational anger intensities, five different types of anger profile across six situations among all 21 athletes were found. As it is shown in Figure 1, the first type was characterized as stably low anger intensity levels across pre-, mid- and post-combat in best and worst performances. 4 athletes were experiencing this anger profile. The second type (4 athletes) was characterized by moderate intensity of anger across all six situations. In the third type, six athletes had low anger intensity through best performance; in worst performance, the anger level was varying from low to moderate or from moderate to low from pre- through mid- to post-match. In the fourth type, 6 athletes' anger profiles varied from low to moderate or from moderate to low across both best and worst performances. The fifth type involved 2 athletes; both of them were experiencing highly varied anger intensity from low through moderate to high in best performance. In worst performance, the anger level ranged from moderate to high across the combat.

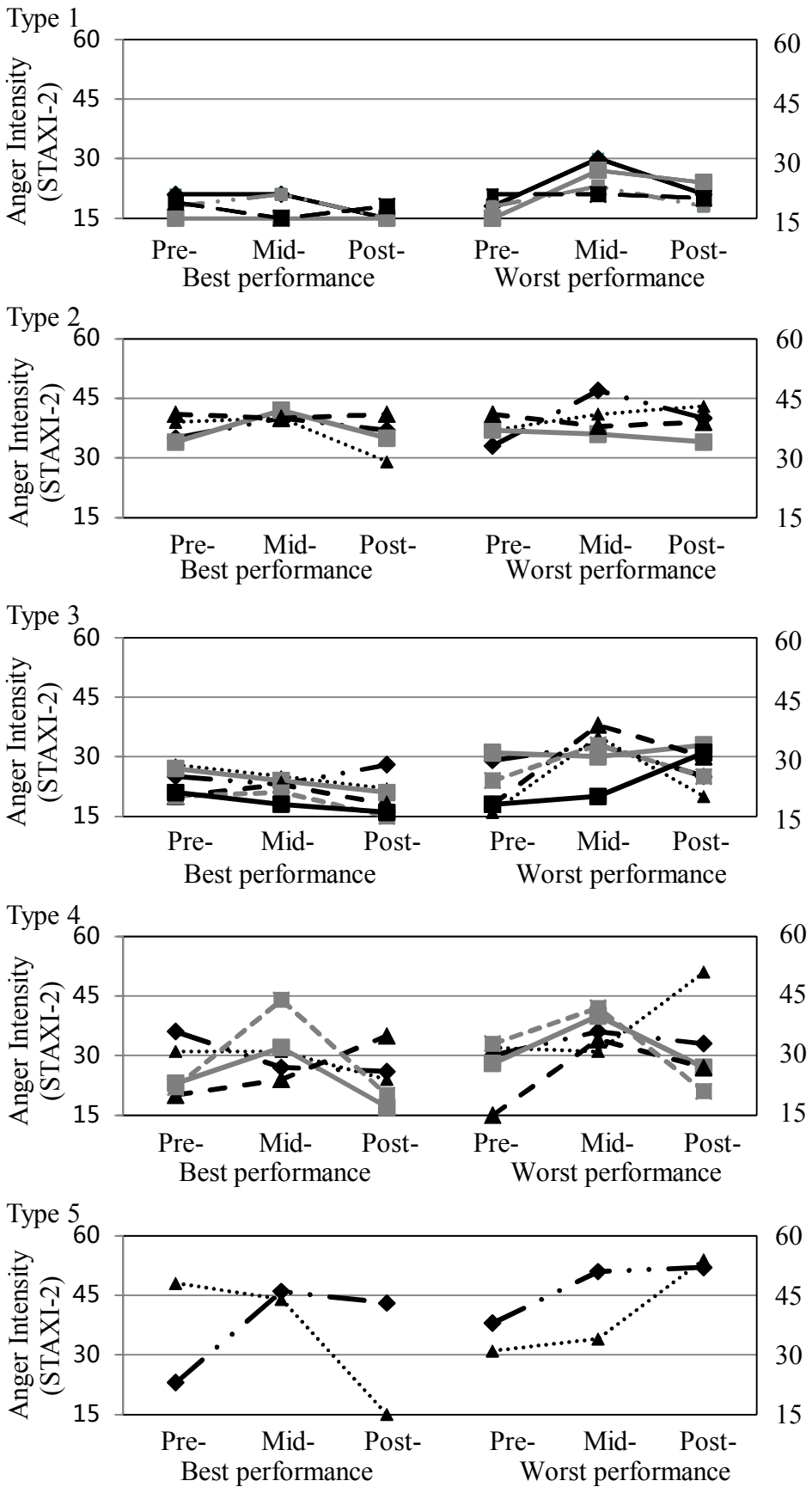

Figure 1 Anger profiles of athletes prior to, during, and after best and worst performances (N=21).

4.3 Situational anger intensity at inter-individual level

Significant differences were found between the intensity of anger across the six different situations [F (5, 100) = 8.34, p= .000, $\eta_p^2 = 2.94$]. To be more specific, results from post hoc analyses indicated accurately where these differences existed at inter-individual level. In best performance, significant differences were found between mid-match and post-match (p=.014). However, no difference was found between pre-match and mid-match as well as between pre-match and post-match. In the worst performance, there were significant differences between pre-combat and mid-combat (p=.000) as well as between pre-combat and post-combat (p=.013). However, the difference between mid-combat and post-combat was not found.

Situational anger intensities have also been compared between best and worst performances. Results also revealed that prior to the combat, there was no significant difference between best performance and worst performance. Nevertheless, during the best and worst performance, the anger intensity levels were different from each other (p=.031); and after the best and worst performance, anger intensities were also dissimilar (p= .003).

The intensity of state anger varied across pre-, mid- and post-combat situations. Situational anger intensities ranged from 15 to 60. Scores were divided into three categories. Score 15-29.9 are perceived as low state anger intensity, score 30-44.9 are moderate anger intensity and score 45-60 are high level of anger. At the inter-individual level, in best performance, prior to the match, most of the athletes were having low (67%) and moderate (29%) anger intensity; they seldom experienced high level of anger (4%). During the combat, the percentages of low (57%) and moderate (33%) anger intensity were more than high level (10%). After the match, athletes were mostly experiencing low (76%) and moderate (24%) level of anger; no one had high anger intensity. In worst performance, before the combat, there were still more athletes staying in low (52%) as well as moderate anger level (48%); nobody was with high

anger intensity. However, during the combat, there were less percentages of low anger intensity than moderate anger intensity, 19% and 71% respectively; and 10% athletes had high anger intensity level. After the combat, there were still more athletes staying in low (48%) and moderate (38%) anger; and relatively more athletes were experiencing high anger intensity (14%). Anger intensity variations for each situation can be seen from boxplots in Figure 2.

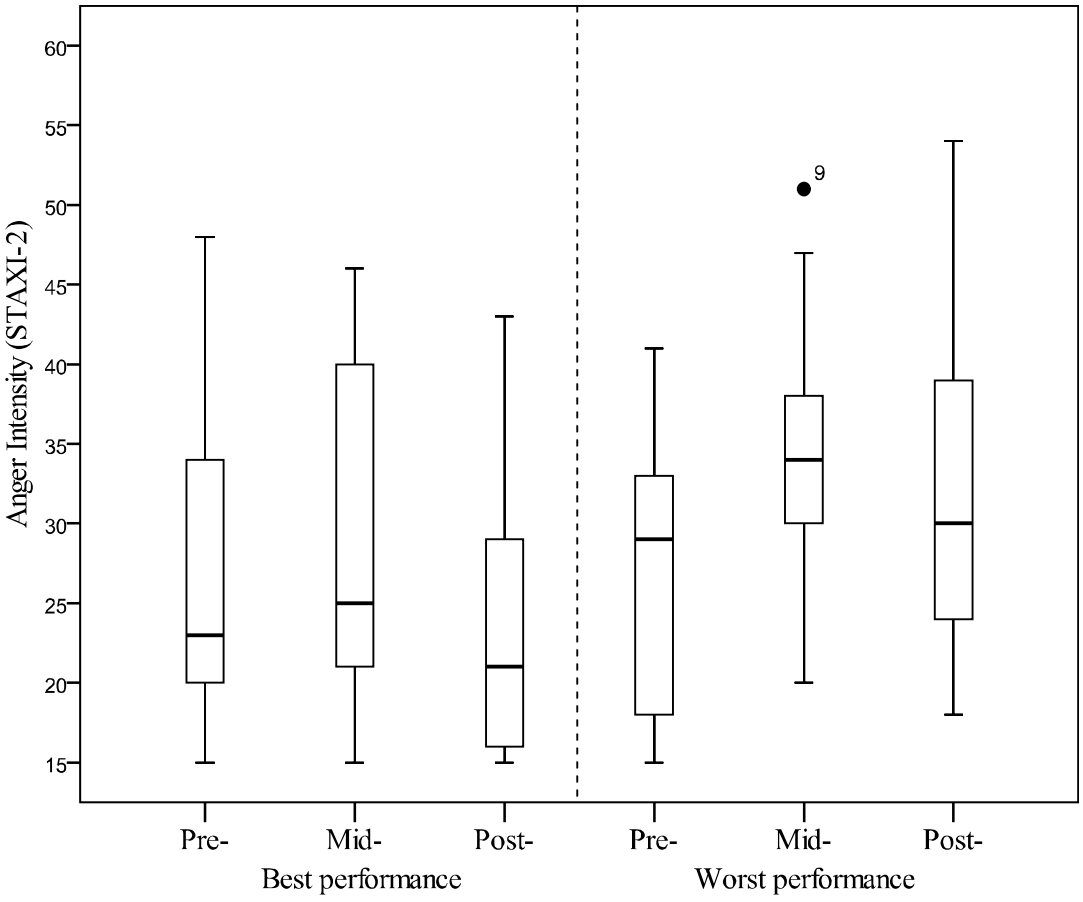

Figure 2 Box plots of state anger intensities prior to, during and after best and worst performances (N=21).

4.4 Intra-individual analysis of anger

As expected, each athlete experienced individualized anger intensity prior to, during and after best performance and worst performances. Figure 3 shows the intra-individual dynamics of 4 athletes. The anger profile of Athlete A represented Type 2 in Figure 1. More specifically, Athlete A had similar anger experience in both best and worst

performances; the anger intensity was moderate before the combat and then the it increased during the combat to high level, later it returned back to moderate again after the combat. Anger profiles of Athlete B and Athlete C represented Type 6. Athlete B demonstrated a very changeable tendency in best and worst performances. The anger intensity was extremely high before the match, and it declined to moderate level during the match, and became extremely low after the match, with regard to best performance; in worst performance, Athlete B's anger intensity was moderate prior to and during the match, and it soared to extremely high after the match. Referring to Athlete C, in best performance, the anger intensity was at the low level before the combat, but increased sharply to high intensity, and finally went down to moderate level after the combat; in worst performance, the anger intensity ranged from moderate to high across the performance. In contrast, Athlete D (Type 1) had a relatively low level of anger intensity prior to, during and after best and worst performances.

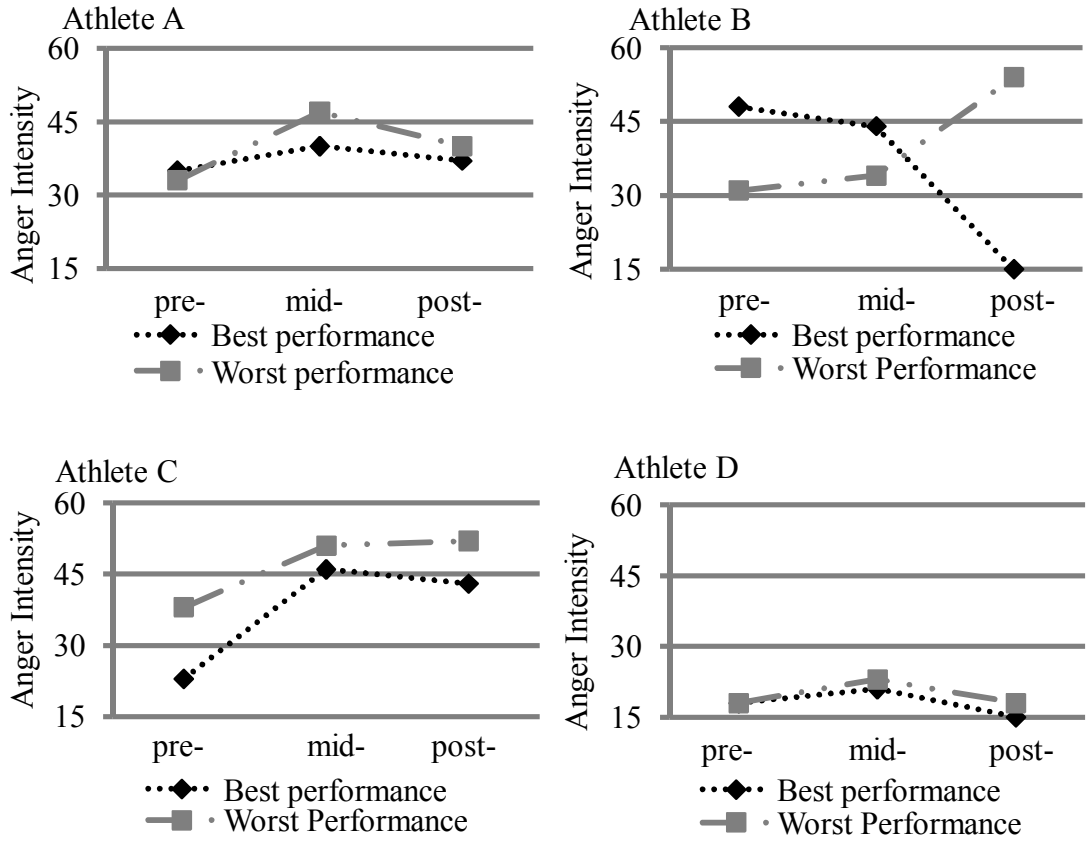

Figure 3 Intra-individual anger profiles among 4 athletes prior to, during and after best and worst performance

4.5 Perceived functional impact of anger

According to the anger profiles in Figure 3, four athletes with individually distinct anger intensities prior to, during and after the best and worst performance were selected to take individual interview. Themes were generated from inductive content analyses and used to interpret anger and its relationship with performance.

4.5.1 Reasons of being angry

Athletes experienced anger because of different reasons. Generally, the anger aroused due to external or internal reasons. External causes that lead athlete to be angry related to coaches, opponents, referees, equipments, results or some other influential factors. In contrast, internal reasons of being angry related to personal feelings and cognitions to the performance, including insufficient preparation in warming-up session, lack of motivation to compete and injuries.

Prior to the best performance, two athletes indicated their coaches as the main factor to make them angry. The following quote examples describe the reasons: “I felt annoyed by my coach, she took away my mobile phone, my laptop, she stayed in my room and didn’t allow me to contact anybody, and so I became aggressive and wanted to fight as soon as possible in order to be free” (Athlete A). “My coach controlled me a lot before the competition. I was training hard, felt annoyed and depressed, but my coach didn’t allow me to complain or to take a break. I was angry because I felt restricted by her. I wanted to escape from her control!” (Athlete B). Moreover, two athletes mentioned that opponents also irritated them before the combat. For instance, Athlete D stated that “I lost to my opponent in the qualification trials for Olympic Games; that was why I became angry when I know I had to fight against him again, I wanted to take the revenge, I wanted to beat him and to prove that I’m better than him!” Prior to the worst performance, two athletes indicated that they were angry due to inadequate preparation for the combat. For example, as Athlete A reported: “It was one important combat, but I didn’t prepare well and I didn’t expect to fight at all prior to the combat, I was

displeased and unwilling to play, I felt angry and annoyed at that moment".

During the best performance, the first external reason that made athletes feeling angry was unfair treatment. For instance, Athletes A and Athlete C stated similarly: "I felt angry because I kicked my opponent, but the referee didn't give me the point!" The second external reason to make athletes angry was the functioning of equipment— "the electronic equipment was not sensitive enough so that I didn't get my point when I kicked my opponent" (Athlete A). Thirdly, athlete C indicated that both his coach and opponent's coach were external factors to make him angry in his best performance. "When my coach felt that I was unmotivated to compete, he asked me to stop fighting and insulted me verbally. I was irritated by my coach's words. Meanwhile the opponent's coach told his player that I play worse than him. What he said provoked my anger because he underestimated me". In contrast, during the worst performance, two athletes were angry because of the results. Like Athlete A said: "When I was losing, I remembered that my coach said I'm a loser because I couldn't perform well in competition. I felt worried, annoyed and extremely angry because I couldn't catch up with the score." In addition, another internal factor that could arouse anger was athlete's injuries, stated by Athlete B. "I had an injury on my foot, during the match, it was swelling and painful. I was so worried about my performance and angry at myself being injured!"

After the performance, if athletes had won the match, but still experienced high anger intensity, normally, they deliberately used the anger. "I was angry and I wanted to keep this highly aroused state for the next combat", stated by Athlete A and Athlete B. However, after worst matches, athletes were angry because of the bad results. These four athletes all indicated that they blamed themselves when they lost the match. "I didn't perform to my best level, and I could not accept the results, I was very angry at myself." reported by Athlete A, B, C and D.

4.5.2 Perceived impact of anger on performance

Three athletes perceived anger as helpful, as it was a source of energy, motivation, willingness and confidence in their performance. For example, Athlete C mentioned that in his best performance, the anger aroused by his coach and opponent's coach facilitated his performance: "I felt extremely motivated and energetic, and I had strong willingness to win the combat when I was irritated by coaches." Furthermore, the facilitative anger was considered as having an optimal intensity for athletes to utilize. The anger intensity was enough for athletes to mobilize energy, and the energy happened to be within control. Athlete C continually noted: "I needed anger because it helped me to generate energy. But the intensity should be appropriate. If there was too much anger, I would lose control of the emotion and the performance."

However, athletes also found anger to be harmful to their performances. Athlete A reported that she could not perform well because she was entirely occupied by anger: "Anger distracted my focus. I was no longer concentrating on my performance. Anger was disturbing." For Athlete C, he perceived anger as detrimental since the intensity was too high that he felt it was out of the control. —"I was unable to control my anger. Anger was generated excessively, and I failed to utilize anger in an efficient way. As a consequence, anger disturbed my performance, and I was totally out of my own track to perform all the tactics", Athlete A explained. However, some athletes reported that anger was too low to generate sufficient energy. For instance, Athlete B indicated that she was angry but that was not enough to generate energy during the combat, "I was not aroused by anger, I felt unmotivated and lack of energy. I didn't perform optimally. As the result, I was overcome by the opponent."

Athlete D reported that anger did not function as helpful or harmful to his performance. He stated that: "There was no impact of anger on my performance. I didn't use anger as facilitator. Anger also didn't disturb my performance. I was totally concentrated on the match and felt mindful."

4.5.3 Expression and coping strategies

As it was expected, all four athletes believed that it was not acceptable to express the unpleasant emotions. When they were experiencing anger, they intended to control it. If they could not control the anger and needed to express it, they preferred to express anger inwards. Like Athlete B indicated, "When I felt angry, I first tried to control it. If I failed to suppress anger, I would choose to express anger inwards, like shouting or screaming at myself instead of other people." However, if she was unable to control and express her anger to channel the energy, like kicking opponents or throwing things, this behavior always led her to losing the match. Athlete D expressed that "I think that to be angry in the combat is not good, and to express anger is even worse, I prefer to suppress it." To summarize, athletes believed that it was not acceptable to express negative emotions. Athletes tended to regulate their anger by using different strategies to control it. Athlete D stated that "Prior to the match, I would sit in the corner listening to music and do not talk to anybody if I experienced anger. During the match, when I sensed that my anger intensity was higher than usual, I would slap my face in order to calm down."

4.5.4 The role of the coach in emotion regulation

According to the athletes, coaches were playing a significant role in terms of regulating athletes' anger. Athletes perceived that coaches did adopt different training strategies to assist them to find the most appropriate intensity of anger for their optimal performances. Athlete A stated that "My coach understands the best way to arouse the anger in me is to control my behavior, because I would easily get angry if I couldn't be free." Furthermore, Athlete B and Athlete C indicated the similar strategies from their coaches, "I need my coach to say something to irritate me. When she verbally insulted me, I felt obsessively defiant and angry; this anger could stimulate me to perform to my best extent." Nevertheless, for Athlete D, his coach normally did not use any methods to regulate his anger intensity because anger played an unimportant role in his performance. However, sometimes, coaches' strategies functioned in an opposite way and led the performance to failure. For instance, athlete C mentioned that in his worst

performance, he was too angry, but this anger was still facilitative to his performance since he was extremely excited and motivated to beat the opponent. “But my coach thought that I was too angry and unable to control my performance. We had different perceptions about the impact of anger. He asked me to calm down during the combat. I became confused in regulating my anger and didn’t know whether to maintain this anger level or reduce it. I spent too much energy on controlling anger. As a result, I didn’t know how to regulate the anger intensity and finally, I lost the match.”

5 DISCUSSION

The purpose of this study was to examine the individualized subjective anger experience among highly-skilled Chinese taekwondo athletes. Both of quantitative and qualitative approaches were adopted to address the investigation. This study analyzed the intensity of anger (state-like anger) prior to, during and after the best and worst performances. Additionally, the frequency of being angry (trait-like anger) and the anger expression and control were also examined. In addition, the study explored the reasons for being angry in different situations, the perceived functional impact of anger upon performance, coping strategies in the Chinese culture, as well as the role of the coach in relation to emotion regulation.

5.1 Findings of the study

As expected, all athletes have experienced anger with different intensity prior to, during and after best and worst performance. At the intra-individual level, four athletes have presented subjective anger profiles across six situations. Similarly, Ruiz and Hanin (2011) have already identified that differences did emerge in anger profiles between personal-level comparisons. Therefore, these different anger profiles have provided support to the concept of the IZOF model (Hanin, 2004, 2010), demonstrated the fact that athletes, especially those who are at elite level, experience highly varied and individualized anger intensity in an ongoing competition.

Five types of anger profiles were generated according to the variance level of anger intensity across pre-match, mid-match and post-match in best and worst performances. The majority of athletes were characterized as having low to moderate anger intensity level that varied across the best and worst performances. The rest of the types have shown variations from moderate to high level of anger intensity in the most successful and unsuccessful combats. Similar findings also emerged from studies of Ruiz and Hanin (2011), which clearly stated the concept in the IZOF model (Hanin, 2004) that, optimal and dysfunctional anger can be high, moderate or low according to individual

differences.

The comparisons between each situational anger profiles at inter-individual level have shown that the differences were appearing as hypothesized. More precisely, in best performance, low and moderate levels of anger were dominated rather than high intensity across the whole combat, and the anger intensity was significantly different only between mid-match and post-match. In worst performance, the variations of anger intensity were relatively complex. The anger intensity in pre-match was distinguishing from mid-match and post-match. Low to moderate anger profiles were dominating prior to the combat; and moderate to high level of intensity appeared during and after the combat. The results concurred well with the research rationale, provided support to concepts of the IZOF model (Hanin, 1997, 2004) that, emotional experience is characterized as multi-dimensional. Intensity dimension of anger is varying along with the changing of time dimension.

The variations across different situations can be explained by the personal reasons of being angry. Anger domains have been investigated in this study to interpret more precisely the causes of different anger profiles. Results of this study indicated that anger was aroused by internal factors (insufficient preparation, low motivation or injuries) and external factors (coaches, opponents, referees, results etc). These findings are consistent with previous research results. For instance, Tanaka-Matsumi (1995) noted that anger can be elicited by internal stimuli such as hurt and by external stimuli such as humiliation from others. Moreover, Lazarus (1991) stated that individuals evaluate an event through a two-layer appraisal. In the primary appraisal, anger increases with attribution of injustice (i.e., the source is unwarranted and unfair as judged against the individual's sense of value, justice, and equality), intentionality (i.e., someone or something purposefully made the event happen to the person) and/or blameworthiness (i.e., the source responsible for the event should be made to pay or suffer for its occurrence). Furthermore, in sport, previous research has also revealed that injuries

foster the experience of negative emotions such as anger (Diane, Wiese-bjornstal , Smith , Shaffer, & Morrey, 1998). In addition, insufficient preparation, referee, opponent and result were also factors to elicit athletes' anger in karate performance (Ruiz & Hanin, 2004).

As expected, athletes perceived anger as facilitative, but only in the best performance. Anger was either high or low according to individual's subjective preferences. Anger was beneficial and facilitative since it assisted athletes to generate energy for the combat. Anger functions as facilitator of energy mobilization was also examined by previous research (Hanin, 1997, 2004; Thayer, 1996). When anger functioned optimally, it helped to increase motivation, willingness, confidence and activeness to fight and therefore, resulted in successful performance. In contrast, anger was also perceived to have dysfunctional impact on performance. The low or high intensity of anger could generate insufficient or excessive energy. When there was insufficient energy, athletes felt unmotivated to play. When there was over-generated energy, athletes could not efficiently deal with the energy since they considered the anger as being of control. Similarly, Lazarus (1991) pointed out that anger is likely to eventuate and has negative effects if the individual does not possess adequate coping and controlling skills. In essence, the facilitative anger would refer to sufficient intensity to help generate energy and efficient utilization of anger within the functional zone; while detrimental and harmful anger is the result of insufficient energy mobilization and inefficient utilization of energy. The results are consistent with previous studies on athletes' negative emotional experiences have facilitating and debilitating effects on athletic performance (Hanin & Syrjä, 1995; Robazza, Pellizzari, Bertollo, & Hanin, 2008; Ruiz & Hanin, 2004).

Culture did channel the coping strategies of anger. As previous literature reported, nonverbal and indirect emotional communication has been encouraged in countries with collectivistic culture (Benedict, 1946; Morsbach, 1973). The Chinese culture embraces

virtues such as being humble, tolerant and peaceful. Athletes also stated that taekwondo promotes the spirit of etiquette, sense of shame, patience, and katsumi (means overcome oneself). This sprit is congruent with Chinese philosophy, thus, it is more acceptable to suppress emotions in every situation. This explanation is consistent with the tendency of Chinese culture to view negative emotions as harmful or pathogenic and their expression as socially unacceptable (Bond, 1993; Chen et al., 2005). Athletes tended to control anger rather than to express it. Similar findings from cross-cultural studies on Chinese athletes also proved that they tended to suppress the expression of aggression, due to culturally inherited disapproval (Maxwell, Moores, & Chow, 2007). To conform to these views, angry feelings must be internalized and controlled. Overall, Chinese athletes' anger coping skills referred to control-in and express-in, which is in accordance with conceptualizations from Spielberger (1999).

Athletes reported that coaches played an important role in regulating their emotions. However, few previous research has indicated that the coach is the influential factor to arouse athletes' anger in the competition. Therefore, this finding has provided new viewpoints in athletes' emotional regulation. Coaches' particular strategies were used to arouse athletes' anger and regulate the anger intensity to the most appropriate level, in order to generate sufficient energy to optimize the performance. Coaches also guided athletes to utilize the mobilized energy efficiently in combat. This anger regulation strategies applied by coaches were in line with the notion of optimal functioning emotion level, which was proposed by previous research and used in emotional regulation (Cox, 2002; Morgan, 2002; Robazza, Pellizzari, & Hanin, 2004; Taylor & Wilson, 2002; Weinberg & Gould, 1999). However, athletes also reported that sometimes coaches' regulation directed them oppositely to failure. Therefore, although coaches have influenced particular athletes' awareness of anger and perceptions about anger, sometimes, their strategies for regulation were not always feasible for the athletes since coaches and athletes have different viewpoints in relation to dealing with emotions in different situations. This statement corresponds to the arguments from Cox

and Bachkirova (2007). Hence, coaches should perceive their role as an assistive element in emotional regulation rather than the dominating one. Otherwise, athletes would be deprived of their own emotional regulation skills and end up losing the match.

5.2 Limitations

Even though the study replicated the previous IZOF-based studies, some limitations still exist. Although the sample size may seem small in quantitative approach, participants in this study all competed in the national team of China. The selected sample represented the elite level of Chinese taekwondo athletes, which added validity to the study since it fulfilled the application setting of the IZOF model. Therefore, the in-depth and valuable information such as the anger profiles reflected the anger experiences aggregated from the best taekwondo combaters in China. However, due to the lack of time and other resources, individual interviews were only conducted with four athletes. Even though the contents from four interviews were relatively informative, the study could not generalize the results to the whole national team since the information could not represent all team members. Overall, for future direction, similar studies should recruit all athletes who participated in the quantitative study to take part in the interview, for the sake of providing the interactively supportive information to accurately explain the antecedents, functions and consequences of anger experience and its relationship with athletic performance.

5.3 Practical implications

From the applied perspective, the present findings suggested that anger could be helpful and harmful to athletic performance, especially for highly-skilled athletes. Anger intensity would be low, moderate or high prior to, during and after the best and worst performance. However, as long as anger is facilitative to performance rather than impairing it, it is recommended to maintain it at the functional level instead of reducing it.

Sport psychologists should be sensitive to understand the causes of anger, the perceived impact on performance and the cultural norms of anger as well as coach's influences on emotional regulation. The awareness—acceptance—action (triple A) framework can be adopted in explaining the perceived impact of anger on performance and coping strategies of anger (Hanin, 2000; Nieuwenhuys, Hanin, & Bakker, 2008; Nieuwenhuys, Vos, Pijpstra, & Bakker, 2011). According to this model, if athletes are aware of anger impact on their performance and if they have a clear action strategy which is also acceptable in Chinese culture, the coping mechanisms will function well.

5.4 Conclusion

To summarize, this study measured subjective state anger intensities and dispositional anger; this study also investigated reasons to be angry, perceived impact of anger on performance, the role of coach in emotion regulation and coping strategies with influences of Chinese culture. Findings are in accordance with previous studies about anger within the IZOF model. Results on perceived impacts of anger provided support for the notion of resources matching hypothesis used in the IZOF model. Results on reasons to be angry and coaches' role in emotional regulation offered other perspectives, which assist athletes to efficiently utilize coping skills to enter and remain in the functional zone of anger for the purpose of achieving the optimal performance.

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APPENDIX 1

Information Sheet

Anger experiences, expression and perceived functional impact in highly-skilled Chinese taekwondo athletes

What is my study about?

The main aim of this study is to examine the idiosyncratic anger content and intensity prior to, during, and after the best and worst performance. This study also investigates the individual reasons for anger that relate to athletic performance, as well as athlete's perception and relevant meta-experience of the anger states. In addition, this study explores the expression of anger in certain situation in order to understand how athletes manage and regulate their emotions.

What will your participation involve?

If you agree to volunteer for my study, you will be asked to fill in one questionnaire that is related to emotional experience and to answer some open-ended questions about your emotional experience and its relationship with athletic performance in the interview. This research will take appropriate our hour of your time. All of your responses will be kept confidential. We will keep the data that collect from you in a secure place. Only the researchers and faculty supervisor mentioned above will have access to this information. By participating in this study, you are also agreeing that your results may be used for scientific purposes, including publication in sport science and sport psychology specific journals, so long as your anonymity is maintained. There are no known risks associated with participation in this research.

If you would like to any more information concerning this study, please do not hesitate to contact us. Thank you!

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Information Sheet

研究介绍

关于中国高水平跆拳道运动员的愤怒体验、表达及其对功能影响的认知

研究内容：

本研究的主要目的在于调查运动员在比赛的不同阶段里（赛前、赛中以及赛后）独有的特质的愤怒，包括愤怒的内容以及程度。该研究分别调查运动员在最佳的运动表现以及最不理想的运动表现下的愤怒体验。此外，该研究也调查运动员愤怒的个人原因，以及其在愤怒状态下的运动表现水平。运动员对愤怒的看法，以及对愤怒的元体验也是本研究的主要调查内容。最后，该研究也探索运动员对愤怒情绪的控制以及表达方式，以此得知运动员如何处理和调节自己在比赛状况下的愤怒情绪。

调研程序：

如果您同意参加本研究，您需要完成一份问卷调查，并且参与一个访谈对话。首先，您需要独立完成一份关于情绪体验的调查问卷。接下来，您需要参与一个访谈对话。我将会采访关于您在比赛时的愤怒情绪体验，以及这些情绪对您的运动表现的影响。整个研究过程需要一个小时左右。您的问卷和访谈内容将会被保密收藏，只有本人以及本人的指导老师可以接触这些资料数据。此外，我们从问卷调查以及访谈对话中所获取的数据资料将会用于学术研究，而这些研究在将来或许会被发表于体育科学或者体育心理学等学术期刊，但是您所提供的信息将会被一直保密。本研究将不会给您带来任何麻烦以及危害。

如果您需要了解更多与该研究相关的信息，请您联系我，谢谢！

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APPENDIX 2

Consent form

I am aware that my participation in this study is voluntary. I will take part into both questionnaire investigation and interview as the whole process of the study. I understand that the study results can be used for scientific reporting in a format that prevents the recognition of a single participant. If, for any reason, at any time, I may withdraw consent and terminate participation.

The researcher has reviewed the individual and social benefits and risks of this project with me.

I am aware the data will be used for a master thesis paper and relevant presentations. I have the right to review, comment on, and/or withdraw information prior to the paper's submission and presentations. The data gathered in this study are confidential and anonymous with respect to my personal identity unless I specify/indicate otherwise. I've been informed that the interview will be recorded by the interviewer.

I grant permission for the use of this information for

____ Scientific publications

I will be given a copy of the:

____ Paper,

____ A summary of the findings from this study.

____Transcribed interview

I have read the above form, and I consent to participate in this research!

_____	_____	_____
Participant's signature	Date	Interviewer's signature

Consent Form

知情同意书

我自愿参与到本次研究中，为研究人员提供相关的信息和材料。我将会参加整个研究，包括问卷调查以及访谈对话。我已知情本研究的结果将会作为相关科学报告的数据，但是这些数据不会透露我的个人信息。我可以在任何情况，任何时间，终止我对本研究的参与。

研究人员已经告知我本研究的内容和目的，并且也已经告知我本研究的利与弊。

我已经了解了该研究的数据将会用作科研论文的研究数据，并且我保有检阅以及评论的权力。在论文发表以前，如果我对论文的结论有异议，我有权撤回我所提供的数据。所有我提供的信息将会被匿名保密。此外，我已经被告知了访谈将会被录音。

我授权给研究者使用我所提供的信息于：

☐ 学术出版物

我将会收到：

☐ 学术论文终稿

☐ 研究发现的总结

☐ 访谈笔录

我已经阅读以上的信息，现在我同意参与本次研究！

_____	_____	_____
参与者签名	日期	访谈者签名

APPENDIX 3

Interview questions about anger experience and anger expression

Demographic information:
Name:_____ Gender: _____ Date of Birth: _____
Competitive level: _____
Brief description about career life: _____

1. When in a combat, did you experience anger? (prior to, during and after match)
2. When you are angry, what made you feel angry? What's the reason of your anger experience?
3. How was the process and feeling of anger (prior to, during, and after the competition)? Can you describe it?
4. Do you always easy to be angry in this kind of situation? (prior to, during and after match) Are you a person that gets angry easily?
5. Did you realize the change of your emotion when you started feeling angry? How did you feel when you noticed yourself were already angry? (prior to, during and after performance)
6. When you were angry, how did you feel about that emotion? How did angry emotion influence you and your performance? Did you feel the anger is good (facilitative) or bad (harmful) to your performance?
7. Did you try to control or express the anger? How? (prior to, during and after the combat)
8. How did you express it if you didn't manage to control your anger? (prior to, during and after match)
9. When you were experiencing anger, did you consider about others' (e.g., your coach, family and friends') opinions on this emotion? How did these people help you to regulate your emotion in the combat?
10. Were you allowed to be angry? For example, does your training environment, competition context, or culture background allow you to have anger or express anger? (prior to, during and after match)