SPORT PSYCHOLOGY

JOURNAL OF SPORT & EXERCISE PSYCHOLOGY, 2005, **27**, 407-431

Development and Validation of the Sport Emotion Questionnaire

Marc V. Jones[1], Andrew M. Lane[2], Steven R. Bray[3], Mark Uphill[4], and James Catlin[2]

[1]Staffordshire University; [2]University of Wolverhampton; [3]McMaster University; [4]Canterbury Christ Church University

The present paper outlines the development of a sport-specific measure of precompetitive emotion to assess anger, anxiety, dejection, excitement, and happiness. Face, content, factorial, and concurrent validity were examined over four stages. Stage 1 had 264 athletes complete an open-ended questionnaire to identify emotions experienced in sport. The item pool was extended through the inclusion of additional items taken from the literature. In Stage 2 a total of 148 athletes verified the item pool while a separate sample of 49 athletes indicated the extent to which items were representative of the emotions anger, anxiety, dejection, excitement, and happiness. Stage 3 had 518 athletes complete a provisional Sport Emotion Questionnaire (SEQ) before competition. Confirmatory factor analysis indicated that a 22-item and 5-factor structure provided acceptable model fit. Results from Stage 4 supported the criterion validity of the SEQ. The SEQ is proposed as a valid measure of precompetitive emotion for use in sport settings.

Key Words: measurement, anxiety, anger, dejection, excitement, happiness

Individuals experience an array of different emotions in sport settings (Hanin, 2000; Lazarus, 2000). Sport researchers interested in examining the prevalence of emotions and relationships between emotions and performance rely on the availability of valid measures. The present paper outlines the development of a sport-specific measure of precompetitive emotion containing items grounded in the experience of athletes.

Currently Used Measures

Analysis of the literature reveals both individualized and group-oriented measures of emotion. Individualized emotion profiling has been pioneered by the work of Hanin and colleagues (e.g., Hanin, 2000; Hanin & Syrjä, 1995; Ruiz &

[1]Faculty of Health and Sciences, Staffordshire Univ., Stoke-on-Trent, ST4 2DF, U.K.; [2]Dept. of Sports Studies, Univ. of Wolverhampton, Walsall, WS1 3BD, U.K.; [3]Dept. of Kinesiology, McMaster Univ., Hamilton, ON, L8S 4K1 Canada; [4]Dept. of Sport Science Tourism & Leisure, Canterbury Christ Church University, Canterbury, CT1 1QU, U.K.

Hanin, 2004). Data from these studies suggest that positive and negative emotions may have facilitating or debilitating effects on performance depending on their idiosyncratic meanings and intensities. This approach captures the idiosyncratic nature of the emotional response to competition by generating content relevant to each athlete, although theory testing and the synthesis of data across different studies is difficult using this approach.

From a group-oriented perspective, several standardized sport-specific measures focus on single emotions, for example the Competitive State Anxiety Inventory-2 (CSAI-2: Martens, Burton, Vealey, Bump, & Smith, 1990) and the Sport Anxiety Scale (SAS: Smith, Smoll, & Schultz, 1990). To assess a broader range of affective states, researchers have typically used two non-sport-specific scales. The Profile of Mood States (POMS: McNair, Lorr, & Droppleman, 1971) or derivative scales (Terry, Lane, & Fogarty, 2003; Terry, Lane, Lane, & Keohane, 1999) assesses six states: anger, confusion, depression, fatigue, tension, and vigor. The original POMS has been shown to be predictive of sport performance (e.g., Beedie, Terry, & Lane, 2000) and capable of diagnosing overtraining syndrome (Morgan, Brown, Raglin, O'Connor, & Ellickson, 1987). Factorial and concurrent validity of a 24-item measure, the Brunel Mood Scale (BRUMS), which assesses the same six states as the POMS, has been confirmed in a sport sample (Terry et al., 1999; 2003).

The second predominant multidimensional affect measure used in sport is the Positive and Negative Affect Schedule (PANAS: Watson, Clark, & Tellegen, 1988). The PANAS assesses two broad emotional states: positive affect and negative affect. Positive affect comprises a range of pleasant states including happiness, excitement, and calmness. Negative affect comprises a range of unpleasant states including anger, sadness, and anxiety. The PANAS has demonstrated evidence of factorial validity in sport (Crocker, 1997).

Although both multidimensional scales have been used in sport contexts, one limitation of these measures is that neither the POMS nor PANAS were designed to assess emotions in sport. The POMS was developed for use with a clinical population, and this may help explain the predominance of negative moods (five) assessed, compared with one positive mood. Although the BRUMS was developed for use with a sport population, it is based on the clinical model outlined in the POMS. Accordingly, there are concerns with three of the subscales used. Fatigue is not an emotion, confusion would probably best be considered a cognitive state, and depression is fraught with clinical connections, which can confuse researchers and athletes. The PANAS was designed to assess affective responses for daily living where emotions such as anger and anxiety tend to converge to form negative affect, while excitement and happiness converge to form positive affect.

Because athletes can experience a range of intense positive and negative emotions during their competitive experiences, measures such as the POMS and PANAS may not adequately capture the emotional spectrum that exists in this specialized context. The present paper describes the development of an emotion questionnaire specific to sport settings. The objective was to produce a measure of emotion grounded in the experience of athletes, which sport researchers and practitioners alike could use to assess emotions in the field; therefore ease of administration was considered important. Hence the final version needed to be relatively brief and contain items that could be readily understood by athletes and be relevant to their real experiences.

Development of the Sport Emotion Questionnaire

Although precise definitions of an emotion may vary among researchers, Fredrickson (2001) suggests there is a consensus that an emotion is a cognitively appraised response to an event, either conscious or unconscious, which "triggers a cascade of response tendencies manifest across loosely coupled component systems, such as subjective experience, facial expression, cognitive processing and physiological changes" (p. 218). Some researchers also emphasize a behavioral aspect (e.g., action tendencies) in the emotional response (e.g., Gross, 1998; Russell, 2003).

The focus of the present paper is on the development of an inventory to assess the subjective feelings associated with an emotion. Research suggests that only two dimensions, intensity and pleasantness, are found to reliably describe the content of the emotional experience (Parrott, 2001). Physiological or behavioral aspects may at best remain correlates of emotions, without confirmation through the reported introspection of the individual experiencing those states.

Evident in the previous section, which outlined measures of emotion used in sport research, is that the terms emotion, affect, and mood have been used interchangeably. Yet there are theoretical distinctions between these constructs (see Ekman & Davidson, 1994, for discussion of this issue). Mood is proposed to be an enduring state in which the individual does not know the causes of feelings experienced (Parkinson, Totterdell, Briner, & Reynolds, 1996). In contrast, emotions are proposed to be of relatively short duration and triggered by a specific antecedent (Lane & Terry, 2000). Affect is considered to be a broad term referring to all things emotional such as preferences, emotions, and moods (Rosenberg, 1998).

With these definitional distinctions in mind, a questionnaire designed to measure emotion should aim to assess an individual's response to a particular event (e.g., how do you feel in relation to this competition?) rather than asking how an individual feels in general (e.g., how do you feel right now?). The "how do you feel right now?" response timeframe when used prior to competition could assess emotional responses to competition but could also include a range of emotional responses to other situational factors (e.g., anger resulting from a traffic delay on the way to competition). By using the response stem "how do you feel in relation to this competition?" it is argued that the resultant measure will assess emotional responses to competition.

Clark and Watson (1995) emphasized the importance of clarifying the range of the target construct when developing a measure. An attempt to reduce the range of sport related emotions to a finite list is bound to generate discussion. Any approach (short of an idiographic one such as that pioneered by Hanin and colleagues) is unlikely to capture the entire range of emotions experienced. Nevertheless, we propose there is sufficient empirical evidence to suggest that at least five emotions are particularly relevant to sport settings. The decision to focus on discrete emotions is based on the premise that there are differences (e.g., antecedents, appraisals, action tendencies) between emotions that would otherwise be obscured by a dimensional perspective (Parrott, 2001). These differences may have important implications for athletes' performances and how athletes control their emotions (Jones, 2003; Lazarus, 2000).

Based on appraisal theories of emotion, discrete emotions would be differentiated by the evaluations, either conscious or unconscious, that athletes make

with respect to specific objects. These five emotions constitute a 5-factor model that forms the basis of our proposed questionnaire. These five emotions cover a range of pleasant and unpleasant states associated with sport competition, and the brief sections to follow present a review of literature containing empirical evidence showing the relevance of each emotion to sport. The emotions are anger, anxiety, dejection, excitement, and happiness.

Unpleasant Emotions

Anger. Anger is considered to be an emotion comprising high arousal (Kaufman, 1970) that results from an event perceived to be a "demeaning offence against me and mine" (Lazarus, 2000, p. 234). Anger can be expressed toward another person when accompanied by thoughts or intentions to harm another person (Kaufman, 1970), and it has been associated with aggressive sport behavior (Isberg, 2000). Anger can be channeled internally to self-blame, and in such conditions tends to be associated with feelings of depression (Spielberger, 1991) and poor performance (Lane & Terry, 2000). By contrast, anger can be channeled externally toward the source of the frustration, and under such conditions can be associated with good performance (Beedie et al., 2000; Lane & Terry, 2000). The prevalence of anger in sport has been outlined in research by Hanin and colleagues (e.g., Hanin & Syrjä, 1995), while the relevance of anger to sport involvement is exemplified by Brunelle, Janelle, and Tennant (1999), who suggested:

> Anger appears to be an intrinsic product of an environment that locks opposing forces together in athletic competition. Not only has it been accepted as an inherent part of sport, but anger is often encouraged and elicited to improve athletic performance. (p. 283)

Given that anger is an emotion experienced by athletes in competition, and could impact performance, any scale designed to assess emotion in sport should assess anger.

Anxiety. Anxiety is an emotion that has generated a great deal of research interest in sport psychology (for a review, see Jones, 1995). Raglin and Hanin (2000, p. 93) proposed, "Of all the psychological factors thought to influence sport performance, anxiety is often considered the most important." In general, anxiety is considered to reflect uncertainty regarding goal attainment and coping (Lazarus, 2000) and is typified by feelings of apprehension and tension along with activation or arousal of the autonomic nervous system (Spielberger, 1966). Similar to anger, anxiety has been found to be associated with good performance in some studies and poor performance in others (Jones, 1995). The vast amount of research on anxiety and related concepts, such as tension, in sport would suggest that anxiety should be a key construct represented in a sport-specific measure of emotion.

Dejection. Another prominent affective state proposed to influence sport performance is depressed mood (Lane & Terry, 2000). Although research findings indicate that few participants report feelings of depressed mood before competition (Hanin, 2000; Terry & Lane, 2000), it has been proposed that when depressed mood does occur it has a substantial influence on performance (Lane & Terry, 2000). Also, research has found that poor performance is associated with depressed mood (e.g., Hassmén & Blomstrand, 1995). Accordingly, a third emotion in the 5-factor model was termed dejection. The term dejection was used in contrast to

depressed mood because the term depression is fraught with clinical connections. It is proposed to be a low intensity negative emotion characterized by feelings of deficiency and sadness. Drawing on Carver and Scheier's (1990) control process view of affect, Frijda (1994) proposed that dejection is an emotion that results from an individual's perception of the relationship between actual progress and expectations regarding rate of progress. It is likely to arise if one does not believe he or she is making sufficient progress to achieve a meaningful goal, or following actual or perceived failure to achieve a meaningful goal.

Pleasant Emotions

Happiness. Taking part in sport is a positive experience for many people, yet research has focused predominantly on sport participants' experiences of negative emotions (Jackson, 2000). Positive emotions associated with sport include happiness and joy (Jackson, 2000; Lazarus, 2000). Both Jackson and Lazarus see happiness and joy as interchangeable terms indicating that a person has appraised him/herself as making progress toward a goal (Lazarus, 2000). Joy refers to a higher intensity feeling (similar to ecstasy) while happiness refers to a lower intensity feeling (similar to contentment). Therefore the fourth component of the 5-factor model was termed happiness. Although the term happiness was used for the subscale, it is acknowledged that a high score may indicate the individual is experiencing something more akin to joy or ecstasy.

Excitement. Although there has been little research on excitement in sport, athletes report experiencing excitement in relation to performance and often perceive it to be facilitative of performance (Robazza, Bortoli, & Nougier, 2002). Burton and Naylor (1997) identified the need to accurately distinguish between anxiety and high intensity positive emotions such as excitement. Accordingly, excitement was chosen to reflect the high intensity positive feelings reported by individuals. Excitement is typically considered to be a positive emotion that is associated with arousal and activation of the autonomic nervous system (Kerr, 1997), and is often cited as being "facilitative anxiety" (Burton & Naylor, 1997; Jones, 1995). It is proposed to occur when a person has a positive expectation of his or her ability to cope and reach goals when placed in a challenging situation (Jones, 1995).

In summary, based on a review of literature, a 5-factor model was proposed for the questionnaire comprising the emotions anger, anxiety, dejection, excitement, and happiness. The ongoing nature of validation means that questionnaire development should be done over a series of stages (Anastasi & Urbina, 1997). The present series of studies represents our attempts to develop a questionnaire with face, content, factorial, and concurrent validity that could be used to measure precompetitive emotion in sport.

Stage 1: Identification of Adjectives for Item Pool

The first stage in the instrument development process was to develop a set of suitable items that reflected each of the five emotional constructs and could be easily interpreted by potential respondents. The adjectives for the item pool were identified in two steps. For the first step we invited athletes to report adjectives and phrases that best described the emotions they had experienced when competing in sport. The second step combined a refined list of adjectives generated by

athletes with those adjectives used to describe the emotional states of athletes from contemporary literature on sport emotion (Hanin, 2000; Lazarus, 2000).

Method

Participants. The participants were 264 athletes who were involved in competitive sport at the time of data collection: male, $n = 171$ (mean age 19.82 yrs, $SD = 2.37$) and female, $n = 93$ (mean age 19.83 yrs, $SD = 2.23$). All participants were undergraduate sport-science students at a British university and were involved in the following sports: soccer ($n = 95$), track and field ($n = 31$), rugby ($n = 19$), field hockey ($n = 19$), netball ($n = 18$), swimming ($n = 13$), cricket ($n = 12$), tennis ($n = 11$), badminton ($n = 11$), basketball ($n = 10$), gymnastics/trampolining ($n = 7$), martial arts/boxing ($n = 5$) and others ($n = 13$). The highest level at which participants had competed in their main sport was: Recreational ($n = 15$), Club ($n = 88$), District ($n = 128$), and International ($n = 33$).

Procedure. Participants completed an open-ended survey in which they were asked to list any adjectives or phrases that best described the emotions they had experienced at any time when competing in sport. They were encouraged to spend at least 10 minutes recalling adjectives or phrases that described emotions covering a wide range of competitive experiences (e.g., performing poorly, adequately, very well). Data collection took place in lecture theatres following an introductory course lecture; the participants' coaches were not present and the participants did not receive any compensation for taking part in the study.

Results and Discussion, Stage 1

Participants reported 548 adjectives and phrases, with an average of 12.33 ($SD = 4.26$) adjectives reported by each athlete. Frequency analysis indicated that 52 of the adjectives accounted for 73.3% of the total number of adjectives listed. The remaining adjectives were listed by less than 1% of the athletes in the sample and were not included in subsequent analyses. The 52 most common adjectives are listed in Table 1.

Eight adjectives were subsequently removed from the list of the 52 most common adjectives reported by athletes because they referred to physical states or cognitions rather than emotions, or because they could be easily misinterpreted. The 8 adjectives were: competitive, confident (refers to cognitions), pain (refers to a physical state), mad (open to misinterpretation), and tired, exhausted, drained, fatigued (open to misinterpretation in that they may relate to a physical state brought on by physical exertion).

The remaining 44 items were combined with adjectives drawn from the works of Lazarus (2000) and Hanin (2000), who have explored the relationship between emotion and sport performance. Lazarus (2000) outlined a list of 15 discrete emotions. Out of these emotions, 8 were added to our list of items (fright, guilt, shame, envy, jealousy, hope, gratitude, compassion), while 6 emotions (anger, anxiety, sadness, happiness, pride, relief) had already been generated by the athletes. The remaining emotion outlined by Lazarus was love. This was not included as there has been little research showing it to relate to the competitive sport experience. Also, while it may be possible to love your teammates, coach, or significant others, we were unconvinced that you could have feelings of love in relation to an upcoming, current, or previous competition.

Table 1 The 52 Most Commonly Reported Adjectives Describing Emotions Experienced by Athletes in Sport

Nervous	Sad	Embarrassed	Adrenaline Rush
Excited	Tired	Pressured	Competitive
Happy	Proud	Scared	Content
Frustrated	Enjoyment	Motivated	Dejected
Confident	Elated	Upset	Mad
Anxious	Relaxed	Pleased	Pleasure
Angry	Fulfilled	Pain	Drained
Satisfied	Fearful	Boredom	Calm
Disappointed	Stressed	Exhausted	Energetic
Focused	Apprehensive	Determined	Fatigued
Joyful	Tense	Ecstatic	Enthusiastic
Relieved	Hatred	Depressed	Important
Annoyed	Exhilarated	Anticipation	Overwhelmed

Hanin (2000) outlined a list of 60 positive and negative emotion markers based on a number of studies with athletes exploring the relationship between emotion and performance. Of those 60 items, 13 were the same as those identified by athletes in our elicitation exercise (energetic, depressed, motivated, enthusiastic, excited, relaxed, satisfied, calm, tense, nervous, angry, sad, and dejected). We elected not to include 8 of Hanin's items: confident (cognition), exhausted and tired (assessing physical states), and 5 items (concerned, certain, excited, nervous, and distressed) that were mentioned twice by Hanin in his list. A total of 39 emotions from Hanin's list were added to our initial measure, resulting in a final pool of 91 items.

Stage 2: Assessing the Face Validity of Items and Proposed Factor Structure

The aims of the second stage were to trim items and examine the preliminary factor structure of the proposed questionnaire. First we attempted to verify the extent to which items generated by athletes and those adopted from Hanin (2000) and Lazarus (2000) had face validity for two independent samples of athletes. Second, we aimed to determine whether the 5-factor model proposed for the questionnaire was considered appropriate by athletes through the use of qualitative techniques. These data, along with the expertise of the first four authors, were used to reduce the item pool to produce a questionnaire that would be subjected to factor analysis.

Method

Participants. Two samples of participants were recruited to take part in this stage of the research. The first sample was composed of undergraduate sport-science students from three British universities. They were asked to read the items generated in Stage 1 and indicate whether these described emotions relevant to their competitive experiences. The participants in this sample comprised 148 ath-

letes (82 M, 66 F; mean age 20.39 yrs ± 6.56) who, at the time of data collection, were competing in the following sports: soccer (n = 42), field hockey (n = 19), rugby (n = 15), track and field (n = 13), netball (n = 12), cricket (n = 6), swimming (n = 5), basketball (n = 5), gymnastics/trampolining (n = 4), and others (n = 24). The levels of sport at which they competed were Recreational (n = 9), Club (n = 43), District (n = 83), and International (n =13).

A separate sample of participants from one British university was asked to read the 91 items and consider the compatibility of each item with any of the five factors proposed in the a priori model. This second sample of 49 participants included 28 males (mean age 21.61 yrs ± 3.45) and 21 females (mean age 20.71 yrs ± 0.85) from the sports of soccer (n = 18), hockey (n = 6), track and field (n = 5), netball (n = 4), cricket (n = 4), and others (n = 12). The highest level at which participants had competed in their main sport was: Recreational (n = 6), Club (n = 16), District (n = 20), and International (n = 7).

Procedure. Participants in the first sample were given a list containing the 91 items and were asked to indicate whether or not each item could be used to describe emotions they had experienced before, during, or after competition. Data collection took place in lecture theatres following a course lecture (not on competitive emotions). The participants' coaches were not present and the participants did not receive any compensation for taking part in the study.

Participants in the second sample were asked to match any of the items they felt were appropriate to the anger, anxiety, dejection, excitement, and happiness subscales. Data collection took place in seminars. The participants' coaches were not present and the participants did not receive any compensation for participating.

Results and Discussion, Stage 2

Table 2 reports the percentage of participants from the first sample who perceived items to be relevant emotions in their sport experience. Findings show that many items under the subscale headings of anxiety, excitement, and happiness were reported as relevant to sport by over 50% of participants. Items forming the subscales of anger and dejection tended to be reported by less than 50% of participants. Results for the relevance of excitement and happiness are supportive of suggestions made previously for researchers to focus on positive emotions (Hanin, 2000). The results for anger and dejection indicate that these emotions may be experienced less frequently. However, researchers have pointed out that these emotions are often experienced with powerful intensity when they do occur (Lane & Terry, 2000). Table 2 also contains the percentage of athletes from the second sample who indicated the extent to which each item related directly to the five factors (anger, anxiety, dejection, excitement, happiness). Results showed strong support for the 5-factor model.

Based on analysis of the data collected from both samples, it was decided that 39 items would go forward for factor analysis. Findings for the anxiety subscale indicated that 7 items (anxious, nervous, tense, apprehensive, pressured, stressed, concerned) were considered relevant by at least 50% of participants and were conceptualized as being related only to anxiety by most participants. A further item (uneasy) was also included, as it was reported to be strongly related to anxiety even though it was only reported as relevant by 47% of participants. Findings for dejection indicated that 6 dominant items were relevant to sport and exclusive to

Table 2 Percentage of Athletes (*N* = 148) Indicating the Item Was Personally Relevant and Percentage (*N* = 49) Reporting Which Emotion Each Item Described

Emotion	Relevant	Anxiety	Dejection	Anger	Excitement	Happiness	Not descrip. of any emotion
Anxiety							
Anxious	84	96	0	0	2	0	2
Nervous	90	88	0	0	6	0	6
Tense	78	86	0	10	0	0	4
Apprehensive	71	84	4	0	4	0	8
Uneasy	47	84	6	0	0	0	10
Stressed	53	78	6	8	0	0	8
Concerned	71	78	8	2	0	0	12
Fearful	30	76	6	10	0	0	8
Pressured	72	73	6	4	0	0	17
Afraid	26	71	6	6	0	0	17
Fright	20	69	2	0	2	0	27
Scared	28	63	8	4	2	0	23
Uncertain	43	47	20	0	0	0	33
Dejection							
Sad	32	0	100	0	0	0	0
Dejected	37	0	100	0	0	0	0
Disappointed	81	0	100	0	0	0	0
Depressed	28	2	96	2	0	0	0
Unhappy	39	2	90	2	0	0	6
Upset	41	4	88	4	0	0	4
Sorrowful	13	4	86	0	0	0	10
Dissatisfied	66	0	67	18	0	0	15
Sluggish	30	2	55	2	0	0	41
Embarrassed	32	8	53	0	0	0	39
Guilt	25	12	51	8	0	0	29
Shame	19	2	51	8	0	0	39
Distressed	29	43	47	6	0	2	2
Unwilling	11	6	33	10	0	0	57
Bored	15	2	35	0	0	0	63
Lazy	14	0	29	2	0	0	69
Jealousy	28	2	18	47	0	0	33
Restless	58	41	12	2	14	0	31
Envy	28	2	12	45	0	0	41
Tight	36	47	2	10	0	0	41
Anger							
Furious	40	0	0	100	0	0	0
Angry	54	0	0	100	0	0	0
Hatred	14	0	2	98	0	0	0

(*continued*)

Table 2 ***Cont.***

Emotion	Relevant	Anxiety	Dejection	Anger	Excitement	Happiness	Not descrip. of any emotion
Irritated	49	10	2	88	0	0	0
Annoyed	69	2	6	90	0	0	2
Provoked	53	4	4	84	0	0	8
Frustrated	64	18	14	65	0	0	3
Attacking	61	2	0	61	14	2	21
Intense	78	39	0	10	27	4	20
Excitement							
Excited	91	0	0	0	100	0	0
Energetic	95	2	0	0	90	6	2
Enthusiastic	96	0	0	0	84	12	4
Exhilarated	66	6	4	2	76	12	0
Charged	78	8	0	6	73	2	11
Daring	58	0	0	2	67	0	31
Alert	93	10	0	0	63	0	27
Motivated	96	2	0	0	65	8	25
Adrenaline Rush	94	12	0	2	86	0	0
Ecstatic	59	2	0	0	47	51	0
Anticipation	85	37	0	0	41	0	22
Enjoyment	93	0	0	0	41	55	4
Elated	66	0	0	0	37	53	10
Brave	58	4	0	0	35	4	57
Animated	47	6	0	4	33	14	43
Brisk	43	2	0	2	31	14	51
Overjoyed	55	0	0	0	31	69	0
Determined	96	4	0	2	27	2	65
Hope	76	6	4	0	27	20	43
Fearless	47	6	0	6	24	6	58
Overwhelmed	39	24	4	0	24	16	32
Willing	77	0	0	0	20	20	60
Exalted	39	0	0	2	18	12	68
Certain	61	0	0	0	12	29	59
Purposeful	80	0	0	0	12	10	78
Happiness							
Happy	77	0	0	0	0	100	0
Cheerful	67	0	0	0	2	96	2
Pleasure	76	0	0	0	6	90	4
Pleased	78	0	0	0	2	90	8
Joyful	63	0	0	0	10	88	2
Pleasant	37	0	0	0	0	82	18
Fulfilled	67	0	0	0	2	76	22

(*continued*)

Table 2 ***Cont.***

Emotion	Relevant	Anxiety	Dejection	Anger	Excitement	Happiness	Not descrip. of any emotion
Satisfied	79	0	0	0	0	76	24
Content	56	0	0	0	0	73	27
Comfortable	64	2	0	0	2	71	25
Easygoing	53	0	0	0	2	69	29
Nice	35	0	0	0	0	69	31
Proud	89	0	0	0	6	63	31
Tranquil	28	0	0	0	0	59	41
Relieved	70	2	0	0	0	55	43
Gratitude	50	0	0	0	0	55	45
Compassion	53	0	0	0	8	43	49
Calm	57	2	0	0	0	41	57
Relaxed	63	0	0	0	0	33	67
Rested	43	0	0	0	6	31	63
Important	77	12	0	0	4	14	70
Resolute	49	0	0	6	8	8	78
Vehement	23	0	0	35	2	0	63
Focused	95	8	0	0	2	0	90

the construct (sad, dejected, disappointed, depressed, unhappy, upset). The item dissatisfied was relevant to sport, but it described two emotions (dejection, anger) and thus was not included. The anger subscale contained 8 items (furious, angry, hatred, irritated, annoyed, provoked, frustrating, attacking) that participants reported as describing anger.

Eight items were relevant to the subscale of excitement (excited, energetic, enthusiastic, exhilarated, charged, daring, alert, motivated). Although "adrenaline rush" was reported by 94% of the participants as representing excitement, it was removed as we felt it to be a colloquial expression for which familiarity would vary widely with age. Happiness contained 9 items that were relevant and related predominantly to the subscale (happy, cheerful, pleasure, pleased, joyful, fulfilled, satisfied, content, comfortable).

Stage 3: Examining Factorial Validity

Stages 1 and 2 generated items that related to the entire competition period, i.e., before, during, and after competition. The purpose of Stage 3 was to explore the factorial validity of the questionnaire for use prior to competition through the use of confirmatory factor analysis. We chose to focus on validating the questionnaire for use prior to competition, as there has been a great deal of interest in the relationship between precompetition emotion and performance, and the identification of dysfunctional emotions makes it possible to deploy appropriate emotional

control interventions. This stage is characterized by anticipation and preparation for action in contrast to the task-execution and postperformance situations (Hanin, 2000).

An important research decision in the development of a questionnaire concerns the number of items to include in each factor, particularly when brevity is important. Jackson and Marsh (1996) argued that the optimum number of items needed to describe a construct in a short questionnaire is 4. Further, Bollen (1989) cautioned against reducing the number of items in a factor to less than 3. From a statistical perspective, Watson and Clark (1997) reported that factors with less than 4 items typically fail to yield an internal consistency (alpha) coefficient above the generally accepted criterion value of 0.70. Therefore, the aim of the current research was to produce a version of the Sport Emotion Questionnaire (SEQ) with five factors containing 4 items each, although where the difference between items was marginal, a subscale could have 5 items.

Going into this stage of instrument development with 39 items for analysis, the strategy was to use confirmatory factor analysis results as a guide for removing items. The decision to remove an item was based on factor loadings from the confirmatory factor analysis results and the Lagrange Multiplier test results that indicate whether an item should correlate with other items (share error variance) or should load onto a second factor. The goal was to find items that loaded predominantly onto one factor that did not correlate strongly with a second item. In combination with the factor loading analyses, results from Stage 2 were also re-examined. That is, where factor loadings were similar, the decision to include an item was based on the percentage of athletes who felt the emotion was relevant to their sport competition experiences.

Method

*Participant*s. The participants comprised 518 athletes: male, n = 300 (mean age 21.61 yrs ± 3.45) and female, n = 218 (mean age 20.71 yrs ± 0.85). The participants were drawn from a variety of sports including soccer (n = 73), field hockey (n = 80), athletics (n = 87), netball (n = 97), cricket (n = 45), distance running (n = 101), and various other sports (n = 35). They were drawn from varsity and regional competitions in the United Kingdom.

Procedure. Participants completed the Provisional Sport Emotion Questionnaire (SEQ) within 90 minutes of the start of a competition. Using the following stem: "*based on how you feel right now, at this moment, in relation to the upcoming competition,*" participants rated each item on a 5-point response scale identical to that of the POMS (McNair et al., 1971), where 0 = *not at all*, 1 = *a little*, 2 = *moderately*, 3 = *quite a bit*, and 4 = *extremely*. They were informed about the nature of the research project and gave consent before participating. Prior to completing the questionnaires, the Martens (1977) "antisocial desirability" statement was read aloud to each participant by one of the authors. Participants did not receive any compensation for taking part in the study.

The 5-factor model that formed the basis of the measure was tested using confirmatory factor analysis (CFA). The software, EQS V5 (Bentler, 1995; Bentler & Wu, 1995) was used to test a model, which specified that the factor explained the variance in items hypothesized to relate to that factor. The maximum likelihood estimation method was used to extract factors. If data deviated significantly

from multivariate normality, the Satorra-Bentler scaled statistics (robust) would be used, as these have been found to perform adequately under such conditions (Bentler, 1995). Factors were free to intercorrelate. As the aim was to produce a short questionnaire, factor loadings, results of the Lagrange Multiplier and Wald tests, were used to guide modifications to the model as recommended by Biddle, Markland, Gilbourne, Chatzisarantis, and Sparkes (2001).

The choice of cutoff criteria used to evaluate model adequacy is a contentious issue. Hu and Bentler (1999) favor a 2-index strategy, with the indices selected on the basis of sample size, model complexity, and the distributional properties of the data. We followed their proposed 2-index strategy and used the Robust Confirmatory Fit Index (RCFI) and the Root Mean Square Error of Approximation (RMSEA). According to Hu and Bentler (1999), in most circumstances the values for the RCFI should approach .95. For the RMSEA, which indicates the mean discrepancy between the observed covariances and those implied by the model per degree of freedom, a value of .05 or lower indicates a good fit and values up to .08 indicate an acceptable fit (Browne & Cudeck, 1993).

Results and Discussion, Stage 3

Preliminary analysis indicated that data deviated from multivariate normality (Mardia = 873.75, $p < .01$) and thus the Satorra-Bentler statistics were considered. Factor loadings are contained in Table 3. Confirmatory factor analysis of the full model indicated the RCFI (0.86) was below the .95 criterion and the RMSEA was acceptable (= 0.07). Results of the multivariate LM test indicated 185 significant modifications that could be included to improve model fit. These results indicated that model fit would be improved by correlating error variances for items with weak factors, or for items to load onto more than one factor. However, the strategy was to explore model fit for each factor independently, and thereby provide a 4- or 5-item subscale and then reanalyze the full model.

Confirmatory factor analysis results indicated some support for each factor when assessed independently, although given that the aim was to reduce the number of items, it was important that some items would load more strongly than others (anxiety, RCFI = 0.96, RMSEA = .10; anger, RCFI = 0.93, RMSEA = 0.11; dejection, RCFI = 0.99, RMSEA = 0.07; excitement, RCFI = 0.97, RMSEA = 0.07; happiness, RCFI = 0.96, RMSEA = 0.08). Although RCFI fit indices are above the .95 criterion, the RMSEA is marginally worse. Analyzing each factor independently produces a relatively simple model and the RMSEA penalizes simple models (Bentler, 1995). While these results could call into question the validity of taking items forward, it should be noted that the aim of the analysis was to remove weak loading items, which by definition will reduce the size of fit indices. Thus the decision was to use items with the strongest factor loadings. Twenty-two items were retained and subsequently reanalyzed using CFA. The CFA results for the 22-item scale indicated general support for the revised model (RCFI = 0.93, RMSEA = 0.07), although it should be recognized that the RCFI fell marginally below the .95 criterion suggested by Hu and Bentler (1999). Factor loadings and error variances for the 22-item measure are contained in Table 4.

There were no significant results from the Wald test. Examination of LM test results indicated that 37 significant modifications could be made to improve model fit. The most substantive revisions proposed were to correlate error vari-

Table 3 Factor Loadings and Error Variances for the 39-Item Preliminary Sport Emotion Questionnaire

Subscale	Item	Factor loading	Error variance
Anger	Annoyed	.799	.602
	Furious	.814	.581
	Irritated	.611	.791
	Angry	.767	.641
	Hatred	.595	.752
	Frustrated	.568	.823
	Provoked	.540	.841
	Attacking	.353	.936
Anxiety	Nervous	.802	.597
	Uneasy	.684	.730
	Anxious	.801	.599
	Tense	.763	.647
	Apprehensive	.753	.658
	Concerned	.667	.745
	Stressed	.729	.684
	Pressured	.606	.800
Dejection	Upset	.729	.684
	Unhappy	.753	.658
	Sad	.723	.691
	Dejected	.658	.753
	Disappointed	.627	.779
	Depressed	.587	.727
Excitement	Enthusiastic	.787	.617
	Energetic	.735	.679
	Excited	.714	.700
	Exhilarated	.607	.702
	Motivated	.543	.770
	Charged	.537	.771
	Alert	.569	.822
	Daring	.513	.858
Happiness	Joyful	.816	.578
	Pleased	.793	.609
	Cheerful	.781	.624
	Happy	.757	.653
	Pleasure	.765	.644
	Satisfied	.703	.712
	Fulfilled	.647	.762
	Content	.569	.822
	Comfortable	.586	.810

Table 4 Factor Loadings and Error Variances for the 22-Item Sport Emotion Questionnaire

Subscale	Item	Factor loading	Error variance
Anxiety	Nervous	.820	.573
	Anxious	.811	.584
	Tense	.765	.644
	Apprehensive	.750	.661
	Uneasy	.683	.731
Dejection	Unhappy	.771	.637
	Sad	.753	.658
	Upset	.706	.709
	Dejected	.667	.745
	Disappointed	.603	.798
Anger	Annoyed	.815	.580
	Irritated	.754	.657
	Furious	.739	.674
	Angry	.711	.703
Excitement	Enthusiastic	.760	.650
	Excited	.755	.655
	Energetic	.717	.697
	Exhilarated	.645	.765
Happiness	Joyful	.808	.589
	Pleased	.805	.594
	Cheerful	.794	.608
	Happy	.794	.608

ances for happy and excited (χ^2 = 39.14, $p < .001$), and furious and sad (χ^2 = 33.85, $p < .001$). As correlating error variances is proposed to reduce psychometric integrity, we decided not to rerun the analyses with these modifications. It is suggested that there is a need to cross-validate the factor structure to a different sample. It is generally accepted that validity is an ongoing process (Anastasi & Urbina, 1997), and therefore conducting a multisample analysis would test the extent to which findings from the present study are invariant across different samples. These would allow researchers to have confidence that factor loadings, correlations, and error variance are consistent between samples.

An accepted limitation of the present study is that the same sample was used to refine the item pool and test the entire model. As outlined in Table 5, for each of the five subscales internal consistency coefficients were all above the .70 criterion proposed for acceptability (Tabachnick & Fidell, 1996). An examination of relationships between emotion subscale scores indicated that anxiety, dejection, and anger were significantly intercorrelated (see Table 5). The direction of relationships indicated that as scores of anxiety increased, scores of dejection and anger

Table 5 Descriptive Statistics, Correlations, and Alpha Coefficients for Sport Emotion Questionnaire Scores

	Alpha	*M*	*SD*	1	2	3	4	5
1. Anxiety	.87	1.40	0.93	1.00				
2. Dejection	.82	0.31	0.53	.30*	1.00			
3. Anger	.84	0.58	0.78	.29*	.73*	1.00		
4. Excitement	.81	2.28	0.84	.04	–.03	.16	1.00	
5. Happiness	.88	1.90	0.92	–.25*	–.01	.01	.67*	1.00

* $p < .01$

also increased. Excitement correlated positively with happiness. A repeated-measures ANOVA was computed to test differences in the intensity of emotion subscale scores. Results indicated a significant overall effect (Wilks' lambda $_{4,514} = .18$, $p < .001$, $\eta^2 = .82$). Follow-up paired sample *t*-tests indicated that mean scores for each emotion subscale differed significantly (all *p* values < 0.01). The rank order of emotions in terms of intensity was: excitement, happiness, anxiety, anger, and dejection.

The initial face validity of the SEQ is derived from its grounding in the experience of athletes. Reflecting on the data obtained during Stage 1, all the items represented on the 22-item scale were considered to describe emotions relevant to sport participation. The data from Stage 2 also indicated that most items in the final 22 were reported to represent their respective subscales by at least 84% of participants, with the exception of exhilarated (considered by 76% of the participants to represent excitement). The results of Stage 3 provide support for the factorial validity of the SEQ as well as evidence that its subscales provide reliable scores for five emotions.

Stage 4: Exploring Concurrent and Construct Validity

The purpose of Stage 4 was to explore the concurrent and construct validity of the SEQ. Evidence of concurrent validity is examined by computing the degree of correlation between the new measure and an established inventory designed to measure a similar construct (Estabrooks & Carron, 2000). To test concurrent validity we used the BRUMS, which is a sport-specific variation of the POMS developed and validated by Terry and his colleagues (1999; 2003).

We also elected to examine the preliminary construct validity of SEQ scores by looking at the relationship between those scores and scores from the emotional-control-in-competition subscale from the Test of Performance Strategies (TOPS: Thomas, Murphy, & Hardy, 1999). The emotional-control-in-competition subscale of the TOPS provides an indication of athletes' use of psychological skills and strategies to control emotions during competition. Several researchers (see Gould, Dieffenbach, & Moffatt, 2002; Jackson, Thomas, Marsh, & Smethurst, 2001; Lane, Harwood, Terry, & Karageorghis, 2004) have recommended the TOPS for assessing the use of psychological skills. For our purposes it is important to note that the construct validity of the emotional control subscale in competition has been supported by Jackson et al. (2001), who found that emotional control in competition

was positively related to flow states among a sample of 236 athletes. In addition, Gould et al. (2002) found that Olympic champions reported higher scores on emotional control in competition compared to Thomas et al.'s (1999) norms for international athletes. We hypothesized that emotional control in competition would be positively associated with excitement and happiness and negatively associated with anxiety, anger, and dejection.

Method

Participants and Procedure. A total of 111 adult 10K runners (61 males, 50 females; mean age 28 yrs ± 8.85) completed the SEQ, the BRUMS (Terry et al., 1999; 2003), and the scale for the ability to control emotions in competition from the Test of Performance Strategies (Thomas et al., 1999). Participants completed measures within 1 hour of competition.

Criterion Measures. The Brunel Mood Scale (BRUMS) was used as one criterion measure. The BRUMS is a 24-item derivative of the Profile of Mood States (McNair et al., 1971). Like the POMS, the scale assesses anger, confusion, depression, fatigue, tension, and vigor. Participants respond to items using a response timeframe "How do you feel right now?" Terry et al. (1999; 2003) have provided comprehensive support for the validity and internal reliability of the BRUMS.

The second criterion measure was the emotional control subscale from the Test of Performance Strategies (TOPS). The TOPS is a self-report instrument designed to measure an athlete's use of psychological skills and strategies during competition and practice (Thomas et al., 1999). The emotional-control-in-competition subscale has 4 items rated on a 5-point scale anchored by 1 (*never*) to 5 (*always*). Thomas et al. (1999) reported that emotional control in competition emerged from exploratory factor analysis with an acceptable alpha coefficient of .74. Jackson et al. (2001) reported that emotional control in competition showed a coefficient alpha of .82. Lane et al. (2004) reported an alpha coefficient of .72 among elite adolescent athletes. The score for the subscale was the average of the 4 items that could range from 1 to 5. Examples of items assessing emotional control during competition include "My emotions keep me from performing my best at competitions" and "My emotions get out of control under the pressure of competition."

Results and Discussion, Stage 4

Concurrent validity coefficients are contained in Table 6. The BRUMS and SEQ scores show strong positive relationships between the corresponding anger scales, tension and anxiety, depression and dejection. The relationship between vigor and excitement was stronger than that between vigor and happiness.

A pertinent issue related to concurrent validity is interpreting the strength of relationships. Evidence for strong relationships could mean that both scales assess the same underlying construct, and therefore unless there is a good reason, only one scale is needed. In the present study the BRUMS (Terry et al., 1999; 2003) and SEQ are closely associated. However, the SEQ is different in several ways. First, it was developed to provide a measure grounded in the experience of athletes, and while it does share some items with the BRUMS, most are unique. Second, a limitation of the BRUMS is that the factor structure was based on that used in the

Table 6 Concurrent Validity Coefficients for the Sport Emotion Questionnaire

	TOPS	BRUMS						SEQ			
	Comp	ANG	CON	DEP	FAT	TEN	VIG	ANX	ANG	EXC	HAP
Mood anger	–.31*										
Confusion	–.12*	.39*									
Depression	–.33*	.72*	.35*								
Fatigue	.03	.08	–.19**	.23**							
Tension	–.08	.35*	.58*	.37*	.01						
Vigor	.24*	.23	.17	–.07	.07	.15					
Anxiety	–.16	.47*	.67*	.40*	–.06	.93*	.15				
Emotion anger	–.30*	.94*	.32	.70*	.12	.28*	.26*	.38*			
Excitement	.27*	.18	.22	–.07	.14	.14	.85*	.08	.17		
Happiness	.31*	–.14	.35*	–.20**	.04	.09	.69*	.08	–.16	.73*	
Dejection	–.28*	.67*	.45*	.87*	.24**	.43*	–.04	.50*	.65*	–.04	–.10

*$p < .01$; **$p < .05$

POMS, which was specifically developed for use with clinical populations and contained subscales assessing fatigue, confusion, and depression. The SEQ measures two positive states (excitement, happiness) in comparison to the BRUMS, which only measures one (vigor).

Finally, the high correlations may also be a function of the methodology employed. The participants completed the SEQ and BRUMS concurrently, and in the present study we would argue that the BRUMS was measuring emotion rather than mood. A "right now" response set taps into current feelings and thus we would expect current emotions to dominate. Therefore, by asking athletes how they feel "right now" in a time period leading up to competition, it is probable (although not definite) that feelings about the competition will dominate, regardless of which inventory the athletes were completing. In developing the SEQ we have tried to provide an object to the emotions (e.g., the upcoming competition) and this does distinguish it from the BRUMS, or indeed the POMS. For these reasons we argue that there is a need for the SEQ.

Relationships between SEQ scores and those from the emotional-control-in-competition subscale from the TOPS (Thomas et al., 1999) lend support for the construct validity of the SEQ. High scores on psychological skills to control emotions during competition were associated with low scores of anger and dejection and high scores of excitement and happiness. These findings lend support for the notion that psychological skills to control emotions before competition are related to precompetition emotions other than anxiety, which showed a weak nonsignificant relationship.

These results provide a tentative indication of the concurrent and construct validity of the SEQ. However, it is important to recognize that the TOPS has not been subjected to concurrent validity and while it is possibly the most appropriate

measure available, there is need for further validation work on the scale. Thus while this stage of the research process suggests promising results, we propose that further work is needed.

General Discussion

The present paper reports on the development and initial validation of a sport-specific measure of emotion: the Sport Emotion Questionnaire (SEQ). We have provided evidence suggesting the SEQ yields scores that accurately reflect the emotions of anger, anxiety, dejection, excitement, and happiness as they are experienced by athletes in precompetition settings. The SEQ is unique in that it was specifically designed to measure emotion rather than mood or affect. Furthermore, the 5-factor structure of the SEQ allows athletes to report on a broader range of emotional states than the PANAS, which measures positive and negative affect only, or the POMS, which measures primarily negative moods. Thus the SEQ is in keeping with recent calls for a greater focus on positive emotions in sport settings (Skinner & Brewer, 2004).

From a compositional standpoint, the SEQ covers an array of emotions experienced by athletes representing a broader range than either the PANAS or the POMS. However, at the same time there is overlap between some of the items comprising the SEQ and those of the BRUMS (a 24-item version of the POMS), the POMS, and the PANAS. Specifically, of the 22 items in the final version of the SEQ, 73% (16) also appear on at least one of the POMS, BRUMS, or PANAS. A summary of the SEQ items shared with other scales (POMS, BRUMS, PANAS) and the list of items used by Hanin and colleagues in their idiographic assessment of emotion (PNA) is reported in Table 7. It is noted that although the data from Stage 4 shows a high correlation between the SEQ and the BRUMS, 73% of the items used are different, and based on the methods employed in Stages 1, 2, and 3 they are more likely to be relevant to sport settings. Thus, despite some overlap, we propose that there is a need for the SEQ as it is grounded in the experience of athletes and has a greater focus on positive emotions than measures currently used (e.g., BRUMS, POMS, PANAS). It is also a normative scale that facilitates the testing of theory and the synthesis of data across different studies.

It is important to note that there are significant correlations among some of the subscales in the SEQ. For example, results from Stages 3 and 4 showed that the negatively toned emotions have significant intercorrelation and, in particular, there is evidence of a strong relationship between anger and dejection. The strong correlations seen between subscales do not mean the scales are necessarily measuring similar constructs. In fact, each has been shown to represent qualitatively different emotional experiences (see Stage 2). Furthermore, differences in the mean scores from each scale were clearly evident in the MANOVA results from Stage 3. It is possible to have both independence and association.

Some issues arising from the development of the SEQ should be qualified. First, while the SEQ measures five emotions associated with competition in sport, we recognize that this is not an exhaustive list and that emotions such as guilt, shame, relief, and pride may also be experienced (cf. Lazarus, 2000). Yet, constructing a comprehensive list of all possible emotions was beyond the parameters we set for our instrument development. Therefore the SEQ will certainly fall short of capturing the ideographic nature of emotion in sport (Hanin, 2000). The choice

Table 7 Percentage of Items on the SEQ That Are Shared With Other Selected Measures of Affect

PNA	POMS	BRUMS	PANAS
77%	50%	27%	23%
	Name of Items		
Unhappy	Nervous	Nervous	Nervous
Uneasy	Tense	Anxious	Irritated
Tense	Uneasy	Annoyed	Upset
Sad	Anxious	Anger	Enthusiastic
Pleased	Annoyed	Unhappy	Excited
Nervous	Furious	Energetic	
Irritated	Angry		
Happy	Unhappy		
Furious	Sad		
Exhilarated	Energetic		
Excited	Cheerful		
Energetic			
Cheerful			
Apprehensive			
Anxious			
Annoyed			
Angry			

of a standardized scale (e.g., SEQ) or an ideographic alternative is up to the researcher and should be driven by his/her research question. Research using individualized emotion scales has the advantage of identifying a range of self-identified unpleasant and pleasant states relevant to the individual's sport experience. However, a limitation of the use of individualized scales is that each study produces a slightly different and unique measure of emotion. A proliferation of studies that use different measurement protocols are difficult to synthesize. We suggest the SEQ provides a valid and internally reliable alternative to ideographic measurement techniques.

Future research is also needed to explore the predictive validity of the SEQ. One possible avenue would be to examine the relationships between the five emotions assessed by the SEQ and the athletes' performances. Some research indicates that emotions can have a positive or negative effect on performance, depending on their idiosyncratic meanings and intensities (e.g., Hanin & Syrjä, 1995). Other studies indicate that careful consideration of the task demands can help unpack the complex relationship between emotions and sport performance. For example, emotions accompanied by an increase in physiological arousal (e.g., anxiety, anger, excitement) may very well facilitate performance on tasks with a high anaerobic capacity (e.g., Parfitt, Hardy, & Pates, 1995). Research along these lines is recommended.

One important conceptual caveat regarding the current SEQ measure pertains to whether it is indeed measuring emotion as opposed to mood. Despite the distinctions between these two constructs (cf. Parkinson et al., 1996), it is acknowledged that the boundaries between mood and emotion are blurred (Lane & Terry, 2000; Parrott, 2001). We attempted to address this issue by contextualizing the response stem in the SEQ asking participants to indicate "how do you feel about this competition?" rather than the more general "how do you feel right now?" The close conceptual ties between mood and emotion are reflected in the commonality of some items across the BRUMS, POMS, and SEQ. Furthermore, although the response stems differed between the BRUMS and the SEQ, results from Stage 4 showed strong relationships during precompetition.

It is possible that no single-adjective scales such as the PANAS, POMS, or SEQ can ever completely distinguish mood from emotion, because individuals may find it difficult to distinguish between feelings triggered in response to specific events and those already present as part of an underlying mood state (Lane & Terry, 2000). Nevertheless, research exploring the antecedents of emotions assessed by the SEQ, along the lines of that conducted by Amiot, Gaudreau, and Blanchard (2004) with the PANAS, is to be welcomed.

It is also important to point out that the SEQ only focuses on one aspect of the emotional response, the subjective feeling. It does not provide a measure of behavioral tendencies or physiological responses. This is in line with similar inventories (e.g., BRUMS, POMS, PANAS), although because of the strong physiological response associated with anxiety, inventories such as the CSAI-2 (Martens et al., 1990) and SAS (Smith et al., 1990) do provide information about an individual's perception of physiological changes. In the SEQ, individuals' perceptions of physiological changes were not assessed due to difficulties in distinguishing which high arousal emotion (e.g., anxiety, anger, excitement) the changes accompanied.

The data from Stages 1 and 2 report items that describe emotions experienced before, during, and after competition. However, factorial and concurrent validity for the SEQ was only examined with reference to the precompetition period. Future research should investigate whether the SEQ is valid for use during and after competition, or specific measures for these time periods could be developed from the list of items generated by the end of Stage 2 (see Table 2). Further, as the data were collected on samples of athletes based in the United Kingdom, research considering the factorial and concurrent validity of the SEQ in other cultures (e.g., North America) is to be welcomed.

In conclusion, the Sport Emotion Questionnaire is a sport-specific measure of precompetitive emotion grounded in the experience of athletes, assessing: anger, anxiety, dejection, excitement, and happiness. The SEQ shows good evidence of validity and reliability and represents a range of emotions with greater emphasis on positive emotions than that provided by other available group-oriented measures for use in sport research.

References

Amiot, C.E., Gaudreau, P., & Blanchard, C.M. (2004). Self-determination, coping, and goal attainment in sport. *Journal of Sport & Exercise Psychology*, **26**, 396-411.

Anastasi, A., & Urbina, S. (1997). *Psychological testing* (7th ed.). Englewood Cliffs, NJ: Prentice Hall.

Beedie, C.J., Terry, P.C., & Lane, A.M. (2000). The Profile of Mood States and athletic performance: Two meta-analyses. *Journal of Applied Sport Psychology*, **12**, 49-68.

Bentler, P.M. (1995). *EQS Structural equation program manual*. Los Angeles: BMDP Statistical software.

Bentler, P.M., & Wu, E.J.C. (1995). *EQS/Windows user's guide*. Los Angeles: BMDP Statistical software.

Biddle, S.J.H., Markland, D., Gilbourne, D., Chatzisarantis, N.L.D., & Sparkes, A.C. (2001). Research methods in sport and exercise psychology: Quantitative and qualitative issues. *Journal of Sports Sciences*, **19**, 777-809.

Bollen, K.A. (1989). *Structural equations with latent variables*. New York: Wiley.

Browne, M.W., & Cudeck, R. (1993). Alternative ways of assessing model fit. In K.A. Bollen & J.S. Long (Eds.), *Testing structural equation models* (pp. 132-162). Newbury Park, CA: Sage.

Brunelle, J.P., Janelle, C.M., & Tennant, L.K. (1999). Controlling competitive anger among male soccer players. *Journal of Applied Sport Psychology*, **11**, 283-297.

Burton, D., & Naylor, S. (1997). Is anxiety really facilitative? Reaction to the myth that cognitive anxiety always impairs sport performance. *Journal of Applied Sport Psychology*, **9**, 295-302.

Carver, C.S., & Scheier, M.F. (1990). Origins and functions of positive and negative affect: A control-process view. *Psychological Review*, **97**, 19-35.

Clark, L.A., & Watson, D. (1995). Constructing validity: Basic issues in objective scale development. *Psychological Assessment*, **7**, 309-319.

Crocker, P.R.E. (1997). A confirmatory factor analysis of the Positive Affect Negative Affect Schedule (PANAS) with a youth sport sample. *Journal of Sport & Exercise Psychology*, **19**, 91-97.

Ekman, P., & Davidson, R.J. (1994). *The nature of emotion*. Oxford, England: Oxford University Press.

Estabrooks, P.A., & Carron, A.V. (2000). The Physical Activity Group Environment Questionnaire: An instrument for the assessment of cohesion in exercise classes. *Group Dynamics*, **4**, 230-243.

Fredrickson, B.L. (2001). The role of positive emotions in positive psychology: The broaden-and-build theory of positive emotions. *American Psychologist*, **56**, 218-226.

Frijda, N.H. (1994). Emotions are functional, most of the time. In P. Ekman & R.J. Davidson (Eds.), *The nature of emotion* (pp. 112-122). Oxford, England: Oxford Univ. Press.

Gould, D., Dieffenbach, K., & Moffatt, A. (2002). Psychological characteristics and their development in Olympic champions. *Journal of Applied Sport Psychology*, **14**, 172-204.

Gross, J.J. (1998). The emerging field of emotion regulation: An integrative review. *Review of General Psychology*, **2**, 271-299.

Hanin, Y.L. (2000). Successful and poor performance emotions. In Y.L. Hanin (Ed.), *Emotions in sport* (pp. 157-187). Champaign, IL: Human Kinetics.

Hanin, Y., & Syrjä, P. (1995). Performance affect in junior ice hockey players: An application of the Individual Zones of Optimal Functioning model. *The Sport Psychologist*, **9**, 169-187.

Hassmén, P., & Blomstrand, E. (1995). Mood state relationships and soccer team performance. *The Sport Psychologist*, **9**, 297-308.

Hu, L., & Bentler, P.M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modelling*, **6**, 1-55.

Isberg, L. (2000). Anger, aggressive behavior, and athletic performance. In Y.L. Hanin (Ed.), *Emotions in sport* (pp. 113-133). Champaign, IL: Human Kinetics.

Jackson, S.A. (2000). Joy, fun, and flow state in sport. In Y.L. Hanin (Ed.), *Emotions in sport* (pp. 135-155). Champaign, IL: Human Kinetics.

Jackson, S.A., & Marsh, H.W. (1996). Development and validation of a scale to measure optimal experience: The Flow State Scale. *Journal of Sport & Exercise Psychology*, **18**, 17-35.

Jackson, S.A., Thomas, P.R., Marsh, H.W., & Smethurst, C.J. (2001). Relationships between flow, self-concept, psychological skills, and performance. *Journal of Applied Sport Psychology*, **13**, 129-153.

Jones, G. (1995). More than just a game: Research developments and issues in competitive anxiety in sport. *British Journal of Psychology*, **86**, 449-478.

Jones, M.V. (2003). Controlling emotions in sport. *The Sport Psychologist*, **17**, 471-486.

Kaufman, H. (1970). *Aggression and altruism*. New York: Holt, Reinhart & Winston.

Kerr, J.H. (1997). *Motivation and emotion in sport*. East Sussex, England: Psychology Press.

Lane, A.M., Harwood, C., Terry, P.C., & Karageorghis, C.I. (2004). Confirmatory factor analysis of the Test of Performance Strategies (TOPS) among adolescent athletes. *Journal of Sports Sciences*, **22**, 803-812.

Lane, A.M., & Terry, P.C. (2000). The nature of mood: Development of a conceptual model with a focus on depression. *Journal of Applied Sport Psychology*, **12**, 16-33.

Lazarus, R.S. (2000). How emotions influence performance in competitive sports. *The Sport Psychologist*, **14**, 229-252.

Martens, R. (1977). *Sport Competition Anxiety Test*. Champaign, IL: Human Kinetics.

Martens, R., Burton, D., Vealey, R.S., Bump, L.A., & Smith, D.E. (1990). Development and validation of the Competitive State Anxiety Inventory-2. In R. Martens, R.S. Vealey, & D. Burton (Eds.), *Competitive anxiety in sport* (pp. 117-190). Champaign, IL: Human Kinetics.

McNair, D.M., Lorr, M., & Droppleman, L.F. (1971). *Profile of Mood State manual*. San Diego, CA: Educational and Industrial Testing Service.

Morgan, W.P., Brown, D.R., Raglin, J.S., O'Connor, P.J., & Ellickson, K.A. (1987). Psychological monitoring of overtraining and staleness. *British Journal of Sports Medicine*, **21**, 107-114.

Parfitt, G., Hardy, L., & Pates, J. (1995). Somatic anxiety and physiological arousal: Their effects upon a high anaerobic, low memory demand task. *International Journal of Sport Psychology*, **26**, 196-213.

Parkinson, B., Totterdell, P., Briner, R.B., & Reynolds, S. (1996). *Changing moods: The psychology of mood and mood regulation*. London: Longman.

Parrott, G. (2001). *Emotions in social psychology*. East Sussex, England: Psychology Press.

Raglin, J.S., & Hanin, Y.L. (2000). Competitive anxiety. In Y.L. Hanin (Ed.), *Emotions in sport* (pp. 39-63). Champaign, IL: Human Kinetics.

Robazza, C., Bortoli, L., & Nougier, V. (2002). Monitoring of precompetition affect in elite Italian archers during the world championships. *International Journal of Sport Psychology*, **33**, 72-97.

Rosenberg, E.L. (1998). Levels of analysis and organization of affect. *Review of General Psychology*, **2**, 247-270.

Ruiz, M., & Hanin, Y. (2004). Metaphoric description and individualized emotion profiling of performance states in top karate athletes. *Journal of Applied Sport Psychology*, **16**, 258-273.

Russell, J.A. (2003). Core affect and the psychological construction of emotion. *Psychological Review*, **110**, 145-172.

Skinner, N., & Brewer, N. (2004). Adaptive approaches to competition: Challenge appraisals and positive emotion. *Journal of Sport & Exercise Psychology*, **26**, 283-305.

Smith, R.E., Smoll, F.L., & Schultz, R.W. (1990). Measurement and correlates of sport-specific cognitive and somatic trait anxiety: The Sport Anxiety Scale. *Anxiety Research*, **2**, 263-280.

Spielberger, C.D. (1966). Theory and research on anxiety. In C.D. Spielberger (Ed.), *Anxiety and behavior* (pp. 3-20). New York: Academic Press.

Spielberger, C.D. (1991). *Manual for the State-Trait Anger-expression Inventory*. Odessa, FL: Psychological Assessment Resources.

Tabachnick, B.G., & Fidell, L.S. (1996). *Using multivariate statistics* (2nd ed.). New York: Harper & Row.

Terry, P.C., & Lane, A.M. (2000). Normative values for the Profile of Mood States for use with athletic samples. *Journal of Applied Sport Psychology*, **12**, 93-109.

Terry, P.C., Lane, A.M., & Fogarty, G. (2003). Construct validity of the Profile of Mood States-A for use with adults. *Psychology of Sport and Exercise*, **4**, 125-139.

Terry, P.C., Lane, A.M., Lane, H.J., & Keohane, L. (1999). Development and validation of a mood measure for adolescents: POMS-A. *Journal of Sports Sciences*, **17**, 861-872.

Thomas, P.R., Murphy, S., & Hardy, L. (1999). Test of performance strategies: Development and preliminary validation of a comprehensive measure of athletes' psychological skills. *Journal of Sports Sciences*, **17**, 697-711.

Watson, D., & Clark, L.A. (1997). Measurement and mis-measurement of mood. Recurrent and emergent issues. *Journal of Personality Assessment*, **68**, 267-296.

Watson, D., Clark, L.A., & Tellegen, A. (1988). Development and validation of brief measures of positive and negative affect: The PANAS scales. *Journal of Personality and Social Psychology*, **54**, 1063-1070.

Manuscript submitted: October 25, 2004
Revision accepted: May 30, 2005

SPORT EMOTION QUESTIONNAIRE

Below you will find a list of words that describe a range of feelings that sport performers may experience. Please read each one carefully and indicate on the scale next to each item how you feel *right now, at this moment, in relation to the upcoming competition*. There are no right or wrong answers. Do not spend too much time on any one item, but choose the answer which best describes your feelings right now in relation to the upcoming competition.

	Not at all	A little	Moderately	Quite a bit	Extremely
Uneasy	0	1	2	3	4
Upset	0	1	2	3	4
Exhilarated	0	1	2	3	4
Irritated	0	1	2	3	4
Pleased	0	1	2	3	4
Tense	0	1	2	3	4
Sad	0	1	2	3	4
Excited	0	1	2	3	4
Furious	0	1	2	3	4
Joyful	0	1	2	3	4
Nervous	0	1	2	3	4
Unhappy	0	1	2	3	4
Enthusiastic	0	1	2	3	4
Annoyed	0	1	2	3	4
Cheerful	0	1	2	3	4
Apprehensive	0	1	2	3	4
Disappointed	0	1	2	3	4
Energetic	0	1	2	3	4
Angry	0	1	2	3	4
Happy	0	1	2	3	4
Anxious	0	1	2	3	4
Dejected	0	1	2	3	4

ScoringInstructions:
Anxiety = (uneasy + tense + nervous + apprehensive + anxious)/5
Dejection = (upset + sad + unhappy + disappointed + dejected)/5
Excitement = (exhilarated + excited + enthusiastic + energetic)/4
Anger = (irritated + furious + annoyed + angry)/4
Happiness = (pleased + joyful + happy + cheerful)/4

Note: Researchers are invited to use the scale without written permission from the authors or publisher. However, the scale cannot be represented in another publication without permission of the publisher. The response stem can be changed to refer to *current* or *previous* competition as required, although the SEQ has only been currently validated for precompetition use.