Re-appraising stress appraisals: 
The underlying properties of stress in sport

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Received 23 June 2006; received in revised form 27 March 2007; accepted 4 April 2007
Available online 24 April 2007

Abstract

Objectives: The purpose of this study is to investigate the underlying properties of athletes’ stressful appraisals. According to Lazarus and Folkman [(1984). Stress, appraisal and coping. New York: Springer] all meaningful situations that are appraised as stressful will include one of eight properties. These properties are: novelty, predictability, event uncertainty, imminence, duration, temporal uncertainty, ambiguity and timing in relation to the life cycle.

Design: This study aimed to examine whether these underlying properties are relevant to the sporting context and if any further properties exist within this context using a qualitative interview approach.

Methods: Sixteen national level trampolinists took part in interviews which focused on their most stressful competitive experience.

Results: Following deductive content analysis all properties were found to have relevance to a sporting domain. Two further properties of Self and Other Comparison and Inadequate Preparation were also revealed which were proposed to be specific to a sporting context.

Conclusions: Suggestions are made concerning future research to extend this line of inquiry and our understanding of stress appraisals.

Keywords: Trampolinists; Qualitative; Appraisal; Stress

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Introduction

Over the past decade there has been an increased focus on the phenomenon of stress and coping in sport psychology research (Giacobbi, Foore, & Weinberg, 2004). Previous studies have shown that sport has the potential to be extremely stressful and that the need to efficiently cope with this stress is an integral part of elite sport performance (Holt & Hogg, 2002). Furthermore, Scanlan, Stein, and Ravizza (1991) asserted that with rare exception all athletes will experience stress during their sporting careers. Fletcher and Hanton (2003) continued that in order to cope with stress athletes will often consult with a sport psychologist on a wide range of stressors stemming from a variety of sources.

Identifying and understanding these stressors in sport has become an important area in sport psychology research. To date, many research studies have examined specific forms of stress or sport-specific stressors. These have included organisational stress (Fletcher & Hanton, 2003), self-presentational stress (James & Collins, 1997), stress during the football World Cup (Holt & Hogg, 2002), golf-related stress (Giacobbi et al., 2004), stress in elite figure skaters (Gould, Jackson, & Finch, 1993; Scanlan et al., 1991) and in Australian footballers (Noblett & Gifford, 2002).

Although there has clearly been a wide variety of studies into the sources of sporting stress most of these studies have resulted in identifying lists of potential stressors which are specific to the population studied. Schwarzer and Taubert (2002) described this approach as stimulus based, emphasising that this perspective focuses on the particular characteristics of the stressor itself. They continued that the main shortcoming of using this approach is that it neglects the fact that different individuals may appraise the same event differently. For example, Scanlan et al. (1991) reported that less than half of their sample identified any one given stressor. Furthermore, events that some athletes reported as stressful were reported by others as enjoyable.

According to Lazarus and Folkman’s (1984) transactional approach it is the individual’s appraisal of the situational relevance to well-being that potentially leads to a stress appraisal rather than the situation itself. Lazarus (1999) asserted that rather than identifying particular stressors, research should aim to identify the rules that make an individual appraise an event as stressful. According to Lazarus (1999) the most difficult problem for stress theory is to specify what makes something psychologically noxious. Lazarus and Folkman (1984) proposed that all encounters of psychological stress will result from the interactions between the individual and the environment. Individuals will assess an event according to how relevant it is to their personal welfare and by its situational characteristics. In order for an event to be appraised as stressful it must contain both person factors and situational factors (Lazarus & Folkman, 1984).

According to Lazarus (2000) the meaning (or person factors) of a situation are dependent on the process of appraising the personal significance of adaptational encounters with others and the environment. The person factors, as described by Lazarus (1999), include the goals at stake (e.g., the championship title), individual beliefs such as how we conceive our place in the environment (e.g., perceived ranking in championship), and our personal resources (e.g., good fitness levels). These person factors shape the personal significance of the encounter, without which an event cannot be appraised as stressful since it has no importance to the individual (Lazarus & Folkman, 1984).

Lazarus (2000) asserted that person factors must be viewed in the context of the situation or environment. Whether a situation is perceived as stressful will be dependent on the individual’s
appraisal of his/her relationship with the environment (Lazarus, 2000). According to Lazarus and Folkman (1984) it is not the situation per se that mediates a stress appraisal. Instead they proposed that certain underlying properties exist which underpin all situations perceived as stressful. Thus, Lazarus and Folkman (1984) suggest that rather than examining the substantive issues of what a situation is about (e.g., pressure to win, need to be selected) we should focus on the underlying properties of situations that would lead to stress appraisals.

In total Lazarus and Folkman (1984) identified eight underlying properties of stress. For a situation that has personal significance or meaning to be appraised as stressful at least one of these eight properties must be present. Table 1 lists and provides definitions of each of these eight properties. If the situation is meaningful to the individual yet does not demonstrate any of the underlying properties then it will not be appraised as stressful. Similarly if a situation contains at least one underlying property yet holds no personal significance it will not be appraised as stressful.


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<thead>
<tr>
<th>Property</th>
<th>Description</th>
<th>Example</th>
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<tr>
<td>(1) Novelty</td>
<td>Situations that the person has not previously experienced. Previous experience may include both experiencing a similar situation and information that can be read, heard or inferred</td>
<td>First injury of athletic career</td>
</tr>
<tr>
<td>(2) Predictability</td>
<td>When established expectancies are no longer met the situation becomes unpredictable</td>
<td>A change in competition structure compared with usual An 80% chance of rain cancelling play</td>
</tr>
<tr>
<td>(3) Event uncertainty</td>
<td>The likelihood or probability of an event’s occurrence. These can be subjective or objective probabilities although subjective estimates do not necessarily match objective ones</td>
<td>Anticipation while travelling to the competition</td>
</tr>
<tr>
<td>(4) Imminence</td>
<td>The period of anticipation before an event occurs</td>
<td>Anticipation while travelling to the competition</td>
</tr>
<tr>
<td>(5) Duration</td>
<td>The length of an event. Events of a long duration will be deemed more stressful than those of a short duration</td>
<td>A two-day competition</td>
</tr>
<tr>
<td>(6) Temporal uncertainty</td>
<td>The individual knows that an event will definitely happen but is unsure of the precise timing</td>
<td>Waiting to be called off a substitutes’ bench</td>
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<tr>
<td>(7) Ambiguity</td>
<td>When the information needed for appraisal is unclear or insufficient resulting from a lack of situational clarity</td>
<td>An unknown referee umpiring the game</td>
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<tr>
<td>(8) Timing of events in relation to the life cycle</td>
<td>Events occurring at the same time as other stressful events in the individual’s life cycle may be appraised in relation to these other events</td>
<td>Competing during university exams</td>
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variables as antecedents to predict appraisal. Similarly other studies have endorsed Lazarus and Folkman’s (1984) transactional approach as a method of understanding cognitive appraisal and coping strategies (e.g., Ben-Ari, Tsur, & Har-Even, 2006; Lee & Poole, 2005; Stephens & Gwinner, 1998).

Previous studies have also examined some properties in isolation. For example, Kirschbaum (1999) summarises that laboratory findings have shown novelty, predictability and anticipation (imminence) to profoundly influence the stress response. Dugdale, Eklund, and Gordon (2002) identified that unexpected (unpredictable) stressors were appraised as more threatening than expected ones. In addition, Marchant, Andersen, and Morris (1997) examined certainty of losing (event uncertainty) among golfers. Previous research has not, however, aimed to examine the relevance of all eight of Lazarus and Folkman’s properties within a sporting context.

A variety of methods have also been used to examine the underlying properties of a stressful situation. For example, Perrez and Reicherts (1992) used a computerised recording and rating scale for participants to describe what they perceived to be the most important characteristics of the stressful situation. The scales used included a measurement of which situational characteristics (underlying properties) were appraised during the event. Alternatively, Dugdale et al. (2002) used an open-ended questionnaire in which participants were asked to recall their most stressful competitive experience and answer questions relative to that experience. Lazarus (1999) emphasised the need for research examining stress and coping to remain focused on the human significance of the experience. He asserted that in-depth interviewing is an efficient approach to examining the appraisal process (Lazarus, 1995). For example, Stephens and Gwinner (1998) used in-depth interviews to examine whether Lazarus and Folkman’s (1984) proposals concerning cognitive appraisal were relevant and applicable to a specific context. They proposed that this method allowed for the probing and follow-up questions necessary to elicit detailed information when little is known about the research area.

Given that previous authors (e.g., Anshel et al., 2001) have highlighted the need for studies that examine Lazarus and Folkman’s (1984) proposals, in particular within competitive sport, the present study examined Lazarus and Folkman’s (1984) theory in a competitive sporting situation. The study had three aims:

1. to examine the relevance of Lazarus and Folkman’s (1984) properties of stress in a sporting context,
2. to establish if some properties are more relevant to the competitive sporting environment than others,
3. to examine whether any further properties are evident in a competitive sporting environment.

Method

Participants

Sixteen (eight male and eight female) national standard trampolinists were recruited using purposive sampling. National standard was defined as having qualified in the last year for National finals or having competed in at least one international competition. At the time of
interview all 16 participants had qualified for National finals, 12 had competed at an international level and 4 had competed at junior World Championship level, including 2 gold medallists. Participants had an average of 11.2 years (SD = 2.95) experience of competitive trampolining. The age range of participants was from 16 to 26 years (M = 21, SD = 3.31). It must be noted that trampolinists will be expected to peak at a lower age than athletes in many other sports. This is reflected in the relatively young age at which some participants have met the criterion of national performance in this study. As this study is testing Lazarus and Folkman’s (1984) theory for the first time in a sporting context a homogenous sample of participants was used to limit the influence of a heterogeneous sample on study findings. Trampolinists were recruited and interviewed by the second author who is herself involved in the sport. According to Sève, Poizat, Saury, and Durand (2006) sharing a common culture will enhance an atmosphere of trust between interviewer and participant.

Procedure

All interviews were conducted by the second author, who had completed postgraduate training in qualitative research and has previously published qualitative research. Prior to participant interviews the second author also took part in a bracketing interview. According to Creswell (1998) the researcher must bracket their own preconceived ideas about the phenomenon in question in order to ensure an understanding from the true perspective of the participant. Since qualitative interviews involve the possible subjective influence of the researcher it becomes important to understand the personal perceptions and perspectives that may be influential during interview (Secrest, Iorio, & Martz, 2005). By clarifying personal presuppositions prior to any interview the interviewer is able to address his/her own biases and assumptions. This awareness of personal biases and assumptions will sensitise the researcher to conceptual biases that may serve to change his or her interpretive vision (Pollio, Henley, & Thompson, 1997). This will then ensure that the researcher’s own hypothesis is not imposed on the experience of the participant (Creswell, 1998).

A semi-structured interview guide was developed for the purpose of this study. Questions were centred on participants’ most stressful competitive experiences. Govaerts and Gregory (2004) demonstrated that asking participants to recall a stressful situation could be used to generate detailed description of the characteristics of a situation and what made it stressful. Participants were asked to describe their most stressful competitive experience. During this description the interviewer asked questions to examine the personal meaning of the situation, for example, how important was this competition to you, did you have any goals for this competition? Throughout the interview the interviewer asked probing questions to examine why the experience was stressful. At no point in the interview were participants asked specifically about any of the underlying properties of stress.

Prior to the main study the interview schedule was pilot tested on four experienced athletes. These participants were male (n = 2) and female (n = 2) and varied in age to represent the sample age of the main study. All pilot interviews were transcribed verbatim and examined for interview bias using the bracketing interview and to ensure that no questions referred specifically to any underlying properties of stress.

After initial agreement to participate in interviews, each participant was informed that they would be required to discuss their most stressful sporting experiences. Participants were
encouraged to spend some time prior to the interview considering an event in the last 2 years that they felt they would like to discuss. The purpose of this was firstly to allow adequate time to consider which competitive experiences had been their most stressful. Secondly, this also meant that prior to interview participants were given the opportunity to recall this experience in more depth.

In accordance with Giacobbi et al. (2004) the strengths of qualitative research will be reliant on establishing trust and rapport between the researcher and the participant. In order to establish trust the interview procedure began with a brief explanation of the study rationale. It was explained that the study aimed to examine the stress process in sport and stressful experiences of individuals. At no point in this explanation were participants informed that the study was examining underlying properties of stress. The reasons for this were twofold. Firstly, this ensured that participants were blind to the underlying properties, thus all properties described were entirely based on the participants' own experiences. Secondly, by informing participants that the study was based on their own experiences this ensured that they did not feel pressured to discuss what they felt may be the “correct” responses concerning athlete stress in sport. In order to reiterate this, participants were also assured that there were no right or wrong answers.

Data analysis

Following the completion of all 16 interviews each interview was transcribed verbatim. Data transcription and analysis did not start until the last of the interviews was completed. This ensured that results compiled from early interviews did not influence later interviews. Following transcription all interview transcripts were read and re-read to ensure familiarity with the data. At this point any additional non-verbal information from the interview tapes was incorporated into bracketed notes in the text (James & Collins, 1997). This included emotional responses such as laughter and vocal tone such as sarcasm. Interview transcripts were then sent back to participants to ensure that their experiences had been accurately represented in the interviews (Patton, 1990).

Analysis of the data followed a five step deductive procedure:

1. All the data from each interview transcript were compiled into quotations or paraphrased quotations.
2. For each participant these quotations were then grouped together to form organised raw data themes.
3. Raw data themes were sorted into groups using Lazarus and Folkman’s (1984) definitions of underlying properties.
4. Raw data themes which did not fit any of the underlying properties were grouped together and sorted into common themes.
5. These common themes were labelled according to the meaning of the data.

Primary analysis was carried out by the second author. The first author then verified this by independently checking each raw data theme for each property of stress against Lazarus and Folkman’s (1984) definitions. Initial consensus between the two authors was 96%. Both researchers then revisited Lazarus and Folkman’s (1984) definitions and discussed the classification of the remaining 4% of data until a consensus was reached on their classification.
Final verification was then sought by a researcher who was blind to the study in order to eliminate any possible bias. The researcher was given Lazarus and Folkman’s (1984) definitions and a random selection of raw data themes which they were asked to allocate into underlying properties. These were then compared to the categorisations in the initial analysis which resulted in 100% consensus between the three analysts.

**Results and discussion**

The main aim of this study is to determine if Lazarus and Folkman’s (1984) underlying properties of stress can be used to define stressful experiences in sport. Analysis of interview data revealed that all 16 participants reported stressful events that had personal significance or meaning. All participants described stressful events and underlying properties as inherently negative to performance. Although it is recognised that some stressful events also have the potential to be interpreted as challenging and beneficial for the individual, this discussion will focus on the negative aspects of the stressful event as described by participants. In the current study participants were asked to discuss their most stressful experience and it is suggested that this research question led to the discussion of more harm and threat appraisal experiences.

Participants experienced all of the underlying properties, including two possible new properties specific to the sporting environment. Table 2 provides an overview of the number of participants citing each property. When discussing their most stressful competition participants often reported a variety of properties throughout the event that contributed to their high stress level. In order to clearly present the results each property will be discussed individually.

**Novelty**

Lazarus and Folkman (1984) proposed that absolute novelty will be a rare occurrence. For a situation to be absolutely novel the individual will have had no past similar experiences. However, individuals will inevitably have had previous experiences with many situations through inferences, sightings, discussions or readings. For example, previous experiences could have been relevant

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<th>Table 2</th>
<th>Incidence of stress properties experienced by trampolinists</th>
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<td></td>
<td>1</td>
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<tr>
<td>Novelty</td>
<td>x</td>
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<tr>
<td>Predictability</td>
<td>x</td>
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<tr>
<td>Event uncertainty</td>
<td>x</td>
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<tr>
<td>Imminence</td>
<td>x</td>
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<td>Duration</td>
<td>x</td>
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<td>Temporal uncertainty</td>
<td>x</td>
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<td>Ambiguity</td>
<td>x</td>
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<tr>
<td>Timing</td>
<td>x</td>
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<td>Self and Other Comparison</td>
<td>x</td>
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<td>Preparation</td>
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since they may have created similar emotions, occurred in a similar setting or required similar coping strategies. Finally, individuals may learn about unfamiliar situations through external sources such as the media or from the experiences of others. With this wealth of experience and information available absolute novelty will only occur in circumstances where pre-existing knowledge has no relevance.

This study reinforced Lazarus and Folkman’s (1984) difficulty in defining and categorising true novelty. In accordance with Lazarus and Folkman’s (1984) definitions of novelty it was unlikely that elite athletes would face a completely novel situation. Even in situations where athletes had no previous experiences it was probable that there would be similarities to past related experiences.

Interestingly, and in contrast to Lazarus and Folkman’s (1984) definition, participants themselves perceived novelty to be a frequent occurrence in their stressful competitive situations. Statements such as “I’d never done anything like that before” (participant 1) and “It was a new kind of competition” (participant 4) were common among many of the interview transcripts. Participants’ perceptions of novelty were, however, not in accordance with Lazarus and Folkman’s (1984) definition of absolute novelty. Participants themselves viewed novelty as either a change or something that they had not experienced before (for example, competing to music). To illustrate, participant 1 reported that novelty was a stressful factor despite previous similar experiences:

I’ve been in big competitions because I used to be a gymnast...but at that time [stressful experience] I couldn’t see that at all. I just remember the size of it and the amount of people and in trampolining I’d never done anything like that before.

The past experiences of participant 1 did not affect her perceived novelty of the situation since she felt unable to link her past experiences to her present situation as she had not encountered the same situation before. Under Lazarus and Folkman’s (1984) explanation of novelty this situation, in which past experiences are related to the current stressful experience, would not be categorised as novel. Yet participant 1 clearly perceived the stressful competition as being a novel experience and her appraisal of the situation showed that this was the source of stress resulting from this experience.

It became evident in the analysis of novelty that themes such as “different” and “unusual” were frequently cited as underlying reasons for stress. The participants’ responses suggest that absolute novelty as defined by Lazarus and Folkman (1984) is not easily applied to the sporting stressors of elite athletes. It was evident, however, that a lesser degree of novelty was reported as an antecedent of stress in 14 of the 16 participants. In line with Lazarus and Folkman’s (1984) definition of novelty, previous experience was taken into account in appraising whether or not a potential stressor is novel. If the individual had previously experienced an identical stressor then novelty could not be the underlying factor. Unlike previous definitions of novelty, past experiences which were markedly different from the stressful situation did not discount the stressor from being classified as novel. Instead, novelty was categorised as: “A change or a difference in the competitive situation which had not been previously experienced”.

The overall nature of the sporting competition itself is not likely to change. In contrast to this, Lazarus and Folkman (1984) discussed situations which were not frequently experienced such as marriage, divorce and death. This increases the potential for novelty in these contexts since most
individuals did not frequently experience these situations. It was for this reason that the definition of novelty has been reshaped for the sporting context. Its main essence remains the same in that the participant will not have previously experienced the stressor in question. However, instead of addressing only absolute novelty it allows for a previously inexperienced change from usual to be categorised as novel. Cognitive restructuring (Moran, 2004) may help to reframe the athlete’s perceptions that the experience is completely novel and that they have no experience to draw on to deal with this stressor.

Predictability

Predictability was based on the assertion that when an individual’s established expectancy of the situation is no longer met then a loss of predictability occurs (Lazarus & Folkman, 1984). Since the trampolinists involved in this study had a vast experience of competitive situations they reported many established expectancies of the competitive environment. These were based on past competitive experiences, attending similar competitions in previous years and the rules governing the sport. For example, many of the trampolinists had competed in National finals for several years and therefore had developed expectancies based on these previous experiences.

One of the main themes highlighted by participants was that competitions were expected to be as usual. In most cases participants had not been prepared for any change in their expectations. Many of the participants who discussed predictability as an underlying factor described how they believed the competition would be prior to arriving in comparison to what actually occurred. For example, participant 13 highlighted the expectations that she had formed from her past competitive experiences:

You kind of think of things a certain way and you get it into your mind that it’s going to be like that and then when it’s different it kind of throws you and it just made me feel like I didn’t really know what was going on.

Participant 13 discussed that at some competitions (e.g., internationals) she was aware that there may be possible differences and was able to adequately prepare herself for this. This meant that the situation was not perceived as stressful because although it was different, these differences were anticipated.

Given that participants reported a number of pre-conceived expectations prior to competing this may have meant that they were more susceptible to a loss of predictability. This is in accordance with Dugdale et al. (2002) who reported that of the elite athletes that were asked to describe their most stressful experience, approximately two-thirds identified unexpected stress. This may indicate the need to ensure that athletes are adequately prepared for change and able to cope with the unexpected. The use of “what if” scenarios (Bull, Albinson, & Shambrook, 1996) prior to competition may be a useful applied technique of limiting the occurrence of unpredictable situations and preparing for the unexpected.

Event uncertainty

Event uncertainty was defined by Lazarus and Folkman (1984) as the likelihood of an event’s occurrence. This situational factor introduces the notion of probability as an underlying cause of
stress. Results from this study demonstrated that participants discussed subjective probability more frequently than objective probability. One reason for this may be due to the nature of the sampled sport. The trampolinists reported no instances of knowing direct probabilities surrounding their performance or their sport. Alternative sports, however, may be more centred on objective probabilities (e.g., the probability of scoring from a free kick in football or of winning a horse race). Although in many cases objective probabilities were available to participants through written training diaries detailing current form in training, these were not used by most participants to predict their competition performance.

The participants in this study reported their own subjective perceptions of probabilities for performance. The most commonly cited example of event uncertainty was the probability of falling, crashing or making a mistake in competition. For example, participant 10 described the increased likelihood of falling in a competition following previous poor performances:

The last two competitions that I’ve done I have crashed out in some way and not got through the routine…I just kept thinking over and over again what if it happens again, I couldn’t cope if it happened three times in a row…I thought it was much more likely because I’d done it the last two times.

Participants reported feeling the most stress when they were more uncertain about which outcome would prevail. For example, participant 6 had been close to achieving her performance goal for the past few competitions:

When it’s close either way it’s much more stressful than if you don’t think you will qualify… It was so close before that I knew if I qualified I would only just do it and so every little mark counted…I knew it could go either way and it could be hardly anything between the two.

Participants’ descriptions have supported the assertions of Lazarus and Folkman (1984) that an increase in event uncertainty will increase stress appraisals. Participants did not report the use of any objective probabilities and instead relied on their own subjective analysis of the situation. This personal analysis of the situation was frequently based on previous competitions although the effect of previous performance on the probability of future performance varied greatly. This variation in subjective probabilities following past performance demonstrated the influence of person factors on subjective probabilities and on resultant stress appraisals. To minimise the impact of this stressor, athletes might be encouraged to incorporate objectively derived probabilities, where available, into their personal judgements of event predictability.

Imminence

The period of time when an event is anticipated proved highly relevant in the sporting context. This may be because of the organisational and temporal features of sports competition. Fixtures are arranged in advance and elite training will tend to be centred towards an upcoming competition. The athlete’s awareness of the imminence of the competition may increase as the competition draws closer and training centres on preparation for this. This anticipation of the competition alongside personal factors such as performance goals may lead to a potential stress appraisal. For example, participant 16 described: “Things started to change in the week leading
up to the competition, only because I knew the competition was coming up and how important it was. I felt stressed before I even got to training”.

Participants in this study were able to describe their feelings of increased stress as the time to competition decreased. The descriptions of imminence were mainly centred on participants’ increased stress and negative emotions either in the training period leading up to the competition or on arrival at the competition itself. Participants who identified imminence as a source of stress often reported a constant focus on competing during their training. For example, participant 9 described how he felt in the time leading up to the competition:

“When there’s a competition coming up, especially quite close to it I’m thinking about that instead… I’m so busy thinking about how little time I’ve got and how the competition is coming up that I lose the ability to get through my routine… I’m worried about how little training I’ve got left and how there’s a competition coming up but actually instead of using that time I’m wasting it by worrying about time.”

The second form of imminence described by participants was an increase in stress due to imminence on the day of competition. For most participants the period discussed was from the point of arrival at the venue to the start of the competition. This was often due to the fact that participants arrived at the competition in plenty of time and then had to wait for the start of the competition. Often imminence became salient as an underlying property of stress by the start of significant events during the competition. This included examples such as the finals of the group beforehand, the start of a floor warm-up and the opening ceremonies of the competition. The nature of the sport meant that participants were acutely aware of when they were competing and needed to constantly check the timings of the competition to ensure that they were ready for the start. This meant that participants had to be aware of the imminence of the competition. The participant’s stress appraisal was therefore compounded by a need to be prepared for competition whilst experiencing stress due to an awareness of the imminence of the competition. Practically, a structured, established preparation routine (Shaw, 2002) with clear timings may serve to reduce the athletes’ focus on the imminence of competition. Potentially, stress associated with the imminence of competition could be replaced by confidence in preparing well for the upcoming competition.

**Duration**

Whereas imminence refers to the period prior to an event, duration refers to the period of time during an event. Research focused on duration has mainly examined disease and pathology, asserting that enduring and chronic stressors will wear the individual down both psychologically and physically (Lazarus & Folkman, 1984). Sports competition, however, typically takes place over a timed period or allocated time. Despite this difference, participants in this study cited duration as a factor underlying their stress appraisals.

Duration was mainly a cause of stress when competition took place over a longer period of time than usual. The comments made by participants that reflected duration as an underlying property of stress discussed a prolonged period of waiting between warming up and competing. Most of these participants reported that they found this period of time stressful due to a dislike of waiting and an increase in negative thinking about their imminent performance during this time.
example, participant 5 reported: “I had to wait for ages, it made the competition drag out and I just wanted to get it over with. I started thinking about all the things that could go wrong”. Other sports examples of duration may include a sprinter being held up by a false start or a tennis player waiting while an opponent is treated for an injury.

A second form of an increased duration of the competition occurred when competitions were divided up throughout the day or took place over an entire weekend. One such example of this was a break between the start and the finals of the competition as discussed by participant 11, where he competed in a preliminary round in the morning and then had to wait until the evening to compete in the finals:

The break between the prelims [sic] and the final was too long…we didn’t really know what to do with ourselves and the whole way through the day we were always thinking about competing later. You couldn’t relax because you knew that you had the most important competition that you’d ever done coming up.

Although previously duration has mainly been used to describe chronic stressors, participants in this study have demonstrated its relevance to the sporting context and more acute short-term stressors. Participants identified that duration is also stressful in the time building up to an event as the potential for negative self-talk increases. In addition, competitions requiring separate performances at different times throughout the day may be linked to difficulties in maintaining focus during the waiting period. One way that athletes can be helped to deal with this stressor therefore is by learning to use strategies such as positive self-talk (Hardy, Hall, & Hardy, 2005) to eliminate unwanted negative self-talk.

Temporal uncertainty

Temporal uncertainty, in accordance with Lazarus and Folkman (1984), refers to not knowing when an event will happen. The individual knows that it will definitely happen but is unsure of the precise timing. In this study it was proposed that temporal uncertainty prior to the competition day was unlikely. This was because competitions were scheduled prior to the event and so each individual would be aware of when they would be competing. In accordance with this participants did not discuss temporal uncertainty in terms of the days prior to the competition. Instead, temporal uncertainty was focused on the day of competition when changes to the programme of events could lead to not knowing precise timings.

Although the competitions had been timetabled, often they were running early or late and so participants reported that it was difficult to judge the start of the competition. This resulted in temporal uncertainties regarding the start of competing. As elite competitors participants had pre-performance routines that they needed to carry out prior to competing. However, in situations of temporal uncertainty competitions were either running early and therefore did not allow time for preparation or were running late and preparations had taken place too soon. In both instances there was a disruption to the athlete’s physical and/or psychological preparation. Participant 3 described why she found temporal uncertainty stressful: “You don’t know when you’re on and so I didn’t know what to do. I didn’t know when to get myself prepared and I didn’t want it to come as a surprise”.
Similar to the proposals of Lazarus and Folkman (1984) participants in this study perceived situations as more stressful when they took place in an unknown timeframe. Participants demonstrated that pre-performance routines were only effective in the absence of temporal uncertainty. During temporal uncertainty participants felt they had made inadequate preparations, which resulted in stress. On-site relaxation strategies and contingency plans, such as abbreviated pre-performance routines derived from considering adverse situations that may occur prior to competition (Bull et al., 1996) and that incorporate essential aspects of the routine may be useful to deal with this stressor.

**Ambiguity**

Ambiguity will occur when the information needed for appraisal is unclear or insufficient (Lazarus & Folkman, 1984). Ambiguity results from a lack of situational clarity which means that the individual is unable to evaluate what is at stake, its significance for well-being and what can be done about it. Ambiguity in this study was frequently described as a lack of performance-related clarity. This included uncertainties of judging, scoring and opponents, all of which were significant for the athletes’ well-being. For example, judging was seen to affect well-being as the selection of unknown judges could influence performance both positively and negatively. Participant 1 demonstrated the ambiguity caused by competing in front of unknown judges and her preference for knowledge of the situation:

> It’s better when you know them [judges] because at least then you know how you need to perform to get good scores. When you’re first up and you don’t know the judges, well that’s really difficult. Sometimes you try and work it out and think oh, she looks OK. I just think even if they’re quite harsh judges at least you know that beforehand.

Ambiguity surrounding the format of competition was also frequently cited as a reason for increased stress. This also demonstrated the link between novelty and ambiguity with participants describing ambiguity resulting from a new format or change in the competition structure. For example, participant 15 commented: “It was so different, different to everything I’d done and then because of that I didn’t really know what was going on. It felt different and I didn’t know what was going to happen”.

When participants were faced with a new situation or change in a situational aspect of the competition they also found it difficult to evaluate the situation. New situations often meant a lack of situational clarity as the information needed was unclear or insufficient. Evans, Coman, Stanley, and Burrows (1993) suggested that in ambiguous and novel situations seeking additional information may help to reduce stress. They reported that police officers in stressful situations were able to limit the potential for stress by requesting further information about the situation. In relation to athletes, it may be beneficial to encourage individuals to adopt a problem-solving approach to stress management (Smith, 1993) by seeking information in advance about potentially stressful situations due to their current ambiguity.

**Timing in relation to the life cycle**

Lazarus and Folkman (1984) asserted that stressful events will occur in the context of the individual’s life cycle. The significance of stressful events may be determined by other events
occurring at the same time. This may lead to an appraisal of the situation as more or less stressful dependent on these other events. In the sporting context, stressful events may take place at the same time as other life stressors. The appraisal of the sporting stressor may therefore be dependent on other events in the individual’s life. According to Pillow, Zautra, and Sandler (1996) major life events can cause a “ripple” effect making minor events appear more stressful.

Participant 8 demonstrated the effect that stressors outside of sport had on his stress levels at the competition. He discussed that usually he did not have any injury worries at competitions, however, when other stressors were present outside of sport this increased his stress. The influence of outside issues prior to the competition affected how he perceived the potential for injury during the competition:

I don’t usually think about it [injury] but it was just like I think that because it was such a bad day everything was stressful and in my mind...they [other life events] make me stressed and then it affects how I do and then that makes me stressed and it all starts because I was stressed in the first place.

Participants also described how it was necessary to fit their sporting careers into their life cycle. As reported by participants, concentrating on outside stressors led to a decreased focus on sport and an increased likelihood of finding smaller stressors increasingly stressful. Life cycle events were also deemed stressful since they affected the ability to perform sporting tasks. For example, the time needed to focus on events outside of sport such as exams detracted from the time needed to train and compete in sport. Participant 7 described her difficulty in fulfilling both tasks:

I’ve got all this stuff going on and I’ve got uni [sic] exams and coursework and I do some kind of training every day. It’s so stressful with competing as well. I get so tired, I’m really tired and there’s not enough time in the day.

Timing in relation to the life cycle may also have a secondary relevance in the sporting context. Lazarus and Folkman (1984) described that an individual’s life cycle may include several important features such as marriage, giving birth and retirement. The sporting year may also be viewed as a cycle which can be divided into phases. This may include competitive phases, rest phases and phases that show variations in training. Similar to the life cycle, which is marked by certain life events, the competition cycle may also be marked by events such as National finals and World Championships. Timing in the competition cycle represented an underlying property of stress in a similar way to timing in the life cycle. Participant 8 described his experience of stress caused by timing in the competition cycle: “this was it, I was supposed to be peaking for this competition, for the trials but maybe I wasn’t ready, maybe I hadn’t got it quite right”. Time management and social support (Smith, 1993) appear to be relevant strategies that may help the athlete to deal with this underlying property of stress.

Additional properties

Following analysis, two additional underlying properties were also found to be relevant to the sporting context.
Self and Other Comparison

The nature of any sporting contest suggests that in order to win the individual must perform better than an opponent. In this respect it is not only the performance of the individual or team that is significant but also that of their opposition. Participants in this study reported that their opponents’ ability to perform well in similar situations was an underlying property of their stress. Frequent comparisons to other individuals were reported both in training and in competition. Comparisons were made both between personal performance and that of opponents and also of team mates. If others were appraised as performing more successfully then this led to an increase in stress levels. Participant 1 reported:

...I used to compare myself to him [other athlete] all the time. I would think I’d done badly when actually I had done really well - if he’d got like third or something and I’d come tenth. It demotivated me...I felt like I would let our coach down, especially when [name of athlete] was doing so well.

Self and Other Comparison has been defined in this study as comparing any physiological, psychological or social aspect of performance with that of another individual. Results have demonstrated that Self and Other Comparison may stem from an initial perception that the individual with whom the comparison is being made should be or has previously been perceived as at an equal performance standard to the appraiser. Participants demonstrated that often the expectation that they should be at an equal performance standard to others stemmed from the competition group in which they were placed. Frequently, competitions are grouped by ability leading to the perception that coaches or judges will expect similar performance standards from others in the same group. This was often reported as the initial reason for comparisons with opponents. Comparisons with team mates occurred when the appraiser had previously been at a similar standard as another individual. The performance of this other individual was then used as an indication of the quality of personal performance or expected progress. Clearly, goal setting that focuses on promoting the athlete’s use of performance and process goals (Weinberg, 2004) would seem to be a sensible suggestion to help athletes to deal with this stressor.

Inadequate Preparation

The final additional theme that emerged from the interview data was labelled Inadequate Preparation. This included all statements where participants felt they were not prepared for the competition. Participants mainly discussed feeling physically unprepared for the competition.

One of the main causes of feeling unprepared was poor training prior to the competition. Many participants stated that they did not feel ready for the competition. For example, participant 12 talked about how he would have felt differently if he had had enough training time to prepare: “I wouldn’t have had to go through all the stress of rushing things like I did and then not feeling ready and stressing about it”.

Participant 12 described how he felt rushed in his training and unprepared for the competition. This lack of physical preparation was common among many participants. This was often expressed as a need for more training time or a need to have trained harder. Many participants also reported difficulties in training prior to the competition meaning they were unable to perform the required skills. Similarly some participants also reported that injury affected their
performance in training and interrupted their preparations. In these examples participants did not feel that they would be able to perform to their full potential in competition.

Another factor which caused Inadequate Preparation was the pre-competition routines of participants. Factors such as lack of sleep and lack of food prior to the competition were reported as poor preparation. Participants also felt that warm-ups prior to competing affected their competition preparations. Warm-ups which were not as expected or were deemed to be poor were seen to affect preparation and therefore led to increased stress. Athletes cannot change the amount of preparation they have undertaken for a competition close to or on the day of the competition. However, they are able to change the focus of their cognitions from worrying about a lack of preparation to focusing on aspects of their preparation that have gone well.

Conclusions

The results of this study verify the eight original underlying properties of stress described by Lazarus and Folkman (1984) as well as including two new properties. Despite the fact that Lazarus and Folkman’s properties were originally based on general psychology, most of the properties were easily applicable to a sporting context. In most cases Lazarus and Folkman’s (1984) definitions of properties allowed a clear categorisation of data. However, as did Lazarus and Folkman (1984) we noted difficulties in categorising novelty, based on the unlikely event of true novelty in elite sport. Data analysis revealed that participants had perceived novelty as an important factor in their stress although this could not be categorised in terms of Lazarus and Folkman’s (1984) original definition. It was decided that given the perceived importance of novelty a modified definition would be proposed specifically for use in the sporting context. In this study novelty was defined as a situation with a change or difference that had not been previously experienced, in comparison with Lazarus and Folkman’s (1984) definition of novelty as: “situations with which the person has not had previous experience”.

The two new properties of Self and Other Comparison and Inadequate Preparation revealed underlying properties that may not have been present in the stressful examples studied by Lazarus and Folkman (1984). Self and Other Comparison reflects the centrality of performing better than an opponent in sport. Earlier psychology studies had not been based upon competition, they often reflected events where others’ ability to cope with the situation had less bearing on the individual (e.g., taking an exam, Smith & Ellsworth, 1987). In elite sport, however, others’ ability to cope and perform in similar situations has a direct influence on the ultimate goal of competition performance. Similarly, Inadequate Preparation may not have been cited by Lazarus and Folkman (1984) as it has particular significance in the sporting context. In most of the events studied in previous research (e.g., divorce, death of a friend) individuals had not entered willingly into the stressful environment. In the sporting context, however, athletes had chosen to enter into the competition with the belief that they would attain the required skill level. When unable to achieve this skill level either because of poor performance in training or physical barriers such as injury this was labelled as poor preparation. In contrast to previously studied stress contexts athletes felt that they were expected to be prepared and to perform well. Being unprepared for competition was therefore an underlying property of stress.
Lazarus and Folkman (1984) proposed that for any meaningful situation to be appraised as stressful at least one underlying property must be present. Results from this study have shown that Lazarus and Folkman’s (1984) assertion can be successfully applied to a sporting context. This finding generates important implications for sport psychology consultants and researchers. The first implication is that rather than examining individual stressors in sport, underlying properties may provide a universal understanding of the causes of stress in sport. As asserted by Thelwell, Weston, and Greenlees (2007) there is a current need for a stronger theoretical underpinning to the study of stress and coping using theories such as that proposed by Lazarus and Folkman (1984). This study has examined the first stage of this theory and future work will continue to link these antecedents to further mechanisms identified in Lazarus and Folkman’s (1984) theory such as primary appraisals and emotions. The second implication is that the underlying properties of stress may provide useful information for sport psychology consultants. Reducing potential underlying properties of stress prior to competition may serve to reduce stressful appraisals. This article provides applied suggestions for each underlying property of stress which may serve as the basis for sport psychology interventions. Essentially, underlying properties may allow for an understanding of the causes of stress and provide an insight into lowering potential stressors prior to competition. Further research will serve to expand upon the findings of this study, although initial results show that Lazarus and Folkman’s (1984) properties are relevant and applicable to the sporting domain. This study has currently focused on one sport and some extension may now be required to comprehensively cover the underlying properties of stressors in a variety of competitive sports.

References


