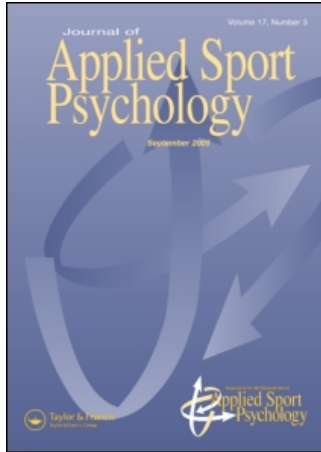


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Anxiety Responses and Psychological Skill Use During the Time Leading up to Competition: Theory to Practice I

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Anxiety Responses and Psychological Skill Use During the Time Leading up to Competition: Theory to Practice I

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This study investigated temporal responses associated with competitive anxiety in athletes with facilitative and debilitating interpretations of their anxiety symptoms. Qualitative interviews assessed the intensity, frequency, and direction of cognitive and somatic symptoms experienced during a 7-day competitive cycle and the psychological strategies used to attain/maintain a positive psychological state. Analysis indicated three distinct temporal phases within the competitive cycle during which the intensity and frequency of cognitive and somatic symptoms increased. The facilitators utilized a refined repertoire of psychological skills to internally control and re-interpret the cognitive and somatic symptoms experienced. The debilitators did not possess this refined repertoire of psychological skills and relied on external strategies to stabilize the negative symptoms experienced. The findings emphasize the dynamic properties of the stress response and provide a framework for the structure, timing, and content of psychological skills interventions for use with performers who interpret anxiety symptoms as debilitating.

This study is the first in a two-part series examining the symptoms associated with competitive anxiety and the psychological skills used during the temporal period preceding performance in elite-level team sports. Sport psychology consultants, coaches, and performers emphasize the importance of effective psychological preparation during the time preceding competitive events (Cerin, Szabo, Hunt, & Williams, 2000). However, there remains a dearth of empirical evidence to support the structure, timing, and content of psychological skill application during the time preceding competition; a severe limitation for a theory-to-practice discipline (Cerin et al., 2000; Thomas, Maynard, & Hanton, 2004). This paper extends recent conceptual findings within anxiety research in an attempt to address these issues.

Traditionally, temporal anxiety research has adopted a multi-dimensional framework and examined the intensity (i.e., level) of cognitive, somatic, and self-confidence symptoms during the time leading up to competitive events (Cerin et al., 2000). However, this measurement

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approach fails to incorporate contemporary developments within the field through a lack of consideration to the dimensions of directional interpretations and frequency (cf. Cerin et al., 2000; Jones, 1995; Mellalieu, Hanton, & Fletcher, 2006). A growing body of literature has supported the dimension of direction and the notion that individuals can interpret the intensity of anxiety-related symptoms as either facilitative or debilitating towards performance (cf. Mellalieu et al., 2006). In comparison, the dimension of frequency, defined as the amount of time athletes spend thinking about, attending to, or experiencing cognitive, somatic, and/or self-confidence symptoms has received limited research attention (Hanton, Thomas, & Maynard, 2004; Thomas et al., 2004). In response, the current authors have conducted an ongoing research program examining the temporal responses of cognitive, somatic, and self-confidence symptoms across the dimensions of intensity, direction, and frequency. This program has focused on examining responses within the 7-day competitive rolling cycle commonly associated with many competitive team sports.

Hanton et al. (2004) examined temporal responses with respect to the between-subject variable of skill level (elite versus nonelite). The results indicated skill level differences were restricted to the direction dimension where the elite group was more facilitative in their interpretation of cognitive and somatic symptoms than the nonelite group. Additionally, temporal changes were noted across cognitive, somatic, and self-confidence intensity, and frequency with greater temporal variation observed in the frequency dimension. Hanton et al. concluded with a call for further research into the temporal responses of athletes that examined variables which may moderate symptoms over time.

In acknowledgement of these issues, Thomas et al. (2004) examined the role of symptom interpretation as a moderator over temporal responses. The rationale for this emanated from both test (Raffety, Smith, & Ptacek, 1997) and competitive anxiety literatures (Hanton & Jones, 1999a, b; Hanton, Wadey, & Connaughton, 2005; Jones & Hanton, 2001; Jones, Hanton, & Swain, 1994) that have distinguished between *facilitators* (i.e., performers with a positive interpretation of both cognitive and somatic symptoms), and *debilitators*. Specifically, facilitators have been associated with higher test and athletic performance levels, lower intensities of anxiety-related symptoms, and more positive interpretations of cognitive and somatic symptoms. However, in sport, the application of these findings has been limited to times immediately prior to performance; only the test anxiety work of Raffety et al. has extended into the temporal domain. Therefore, Thomas et al. measured associated anxiety symptoms of facilitators and debilitators across the dimensions of intensity, direction, and frequency throughout a 7-day competitive cycle. Findings indicated that in addition to interpreting their anxiety symptoms as positive towards performance, facilitators experienced higher intensities of self-confidence, lower frequencies of cognitive anxiety, and higher frequencies of self-confidence throughout the pre-competition period. Further, temporal changes of symptoms indicated fluctuations across the dimensions of intensity, direction, and frequency throughout preparation time for performance.

Although this growing body of research has indicated the cohort of dimensions are susceptible to temporal change, and that facilitators and debilitators react differentially during the seven days preceding competition, neither the quantitative design used, nor the data produced provide any information to possibly explain *why* these phenomena occur. In line with contemporary perspectives regarding method selection, the current study adopted qualitative techniques in an attempt to explain the previously outlined quantitative findings (cf. Patton, 2002; Steckler, McLeroy, Goodman, Bird, & McCormick, 1992). Therefore, the first study of the series utilized interviews to explore the perceived underlying mechanisms (i.e., perceived reasons and causes) associated with triggering temporal changes in associated

anxiety symptomatology between debilitators and facilitators and the psychological skills that these groups of players initiated in an attempt to control these changes.

Several studies have adopted qualitative methods of inquiry within contemporary competitive anxiety research. For example, Hanton and Jones (1999a) indicated that throughout their careers, elite swimmers had developed cognitive skills and strategies that enabled them to interpret pre-race thoughts and feelings as facilitative towards performance. The swimmers were influenced by advice from significant others, and used self-education as resources when experientially developing these skills. This was recently supplemented with the finding that elite debilitators failed to progress through this experientially related learning process (Hanton et al., 2005). In another study, Hanton and Connaughton (2002) assessed how the intensity and direction of anxiety and self-confidence affected performance in elite and sub-elite competitive swimmers. The findings indicated both groups of swimmers interpreted their pre-race symptoms as debilitative or facilitative towards performance based on their perception of control over the symptoms (cf. Jones, 1995). Interestingly, the elite group reported a unique attribute in that they were able to trigger psychological strategies that resulted in the re-interpretation of symptoms that were originally perceived as uncontrollable and debilitative into symptoms that were perceived as controllable and facilitative. The skills underpinning this process were cognitive rationalization and relaxation.

However, although the findings of Hanton and Jones (1999a), Hanton and Connaughton (2002), and Hanton et al. (2005) are insightful, their research questions were not constructed to evaluate symptom responses as temporal events during the time preceding competition. Further, due to the lack of a temporal focus, the researchers did not consider the frequency dimension of responses. One study that has considered frequency was that of Hanton, Mellalieu, and Young (2002) who provided a qualitative examination of the intensity, direction, and frequency of anxiety responses during the 48 hrs leading up to competition. The athletes interviewed used mental rehearsal, thought stopping, and positive self-talk as strategies to overcome the accumulation of negative symptoms during the two days prior to performance.

Although Hanton et al.'s (2002) study advanced literature examining performance preparation, the authors highlighted several recommendations for future research. First, the authors suggested their focus on elite individual athletes and a 48 hr preparation period limited application of the findings to team performers and the 7-day competitive cycle commonly associated with these sports. Second, the authors made no attempt to categorize athletes as facilitators or debilitators; an important conceptual issue in light of previous research (Hanton & Jones, 1999a, 1999b; Hanton et al., 2005; Jones et al., 1994; Jones & Hanton, 2001; Thomas et al., 2004).

Therefore the purposes of this study were twofold: First, the study aimed to examine the temporal triggers that athletes perceive cause the intensity and frequency of negative symptoms to initiate and increase during the time preceding competition. Second, the study aimed to establish the perceived underlying causal mechanisms that enable facilitators to maintain a positive psychological state during a 7-day competitive cycle (i.e., a facilitative interpretation). Examination of these issues could provide an empirical framework for the structure, timing, and content of temporal psychological skills interventions designed to assist performers debilitated by their pre-competition symptoms. The present study adopted qualitative interviews (cf. Patton, 2002), which is consistent with recent inquiries in competitive anxiety that have aimed to establish detailed information on the perceived underlying mechanisms of phenomena.

METHOD

Participant Selection Criteria

The classification of a performer as a debilitator or facilitator was based on the criteria used in previous research (e.g., Hanton & Jones, 1999a, b; Hanton et al., 2005; Jones et al., 1994; Jones & Hanton, 2001; Thomas et al., 2004). Specifically, 16 elite female field hockey players were screened at the trait and state level to ensure accurate classification. Screening at the trait level was conducted using the cognitive and somatic scales of the Competitive Trait Anxiety Inventory-2 (Albrecht & Feltz, 1987), modified to include the direction scale (Jones & Swain, 1995). Screening at the state level was undertaken using the cognitive and somatic scales of the Competitive State Anxiety Inventory-2 (Martens, Burton, Vealey, Bump, & Smith, 1990), modified to include the direction scale (Jones & Swain, 1992). Participants were classified as a debilitator through scoring a negative interpretation at both the trait and state level for both cognitive and somatic symptoms; conversely, participants were classified as a facilitator through scoring a positive interpretation at both the trait and state level for both cognitive and somatic symptoms. Following the screening process, 12 participants (6 'debilitators' and 6 'facilitators') satisfied the selection criteria. The remaining 4 participants displayed inconsistent interpretations at the trait-state level across cognitive and somatic symptoms and did not take further part in the study.

Participants

The participants were elite female field hockey players who competed in the English Hockey League National Premier Division, the highest competitive league for field hockey in Great Britain. Seven of the players had competed internationally. The players' ages ranged from 18 to 28 years ($M = 23.09$, $SD = 3.83$). All participants provided written informed consent to undertake the research, and the Research Ethics Committee at the institution of the lead author approved the procedures of the study. All participants were screened for previous formal exposure to sport psychology; no debilitator or facilitator reported receiving any formal intervention from an accredited/certified practicing sport psychology consultant although some players from both groups indicated they had previous exposure to sport psychology in educational settings. The players' competitive season included 22 competitive National League fixtures (11 home fixtures and 11 away fixtures) and their normal 7-day competitive cycle included: Saturday match day, Sunday team debrief, Monday to Wednesday individual training programs, Thursday team training, and Friday a rest day that incorporated travel commitments across the United Kingdom in the event of an away fixture.

Instrumentation

Cognitive and Somatic Symptoms Booklet

In an attempt to avoid issues of recall within an interview setting, a cognitive and somatic symptoms booklet was completed by each participant during one 7-day competitive cycle¹. The Experience Sampling Method (ESM) underpinned this process. In mainstream psychology ESM, and the collection of information pertaining to individuals' general everyday affective experiences within their indigenous environment, has been used to alleviate concerns with the

¹A copy of the cognitive and somatic symptoms booklet used within the ESM procedure can be obtained from the lead author.

retrospective nature of qualitative interviews (Hormouth, 1986; Larson & Csikszentmihalyi, 1983). Researchers have used the information derived from temporal ESM data collections to help underpin the probes used in retrospective interviews that assess general affective responses to important events over time (Voelkl & Nicholson, 1992); the notion being, that the use of probes that have relevance to the participants' affective experiences over time can help aid recall in interview settings.

The booklet comprised a cognitive and somatic symptom list based on previous idiosyncratic affective label research (Hanin, 2000; Jones & Hanton, 2001; Mellalieu, Hanton, & Jones, 2003). Examples of some of the symptoms of this list included: excited, concerned, anxious, composed, confident, relaxed, tense, and nervous. Participants were asked to select labels off this list that reflected their emotional state at that time and were unconstrained in the number of labels they could record. In addition to selecting labels off the list within the booklet, participants were able to record symptoms that were not provided (i.e., select their own pre-performance labels). Once a label was selected, the participant recorded the level of this symptom (i.e., the intensity, on a 1 to 7 scale), reported whether they viewed the symptom as a positive or negative influence towards their upcoming performance (i.e. the direction), and documented the percentage time (0% to 100%) they had experienced the symptom since the last time they were signalled (i.e., the frequency). Finally, in an attempt to elicit information on the perceived underlying mechanisms of the response, participants were asked to record what triggered the symptom to occur and what caused them to interpret the symptom as positive or negative towards performance.

Interview Guide

Consistent with previous qualitative research in sport psychology an interview guide was developed for the study². In line with recommendations of Patton (2002), the guide included both open and closed questions and was created with reference to previous qualitative studies addressing competitive anxiety (e.g., Hanton & Connaughton, 2002; Hanton & Jones, 1999a; Hanton et al., 2002; Hanton et al., 2005). Further, due to the causal nature of the research, probes associated with the questions searched for: perceived explanations of the underlying mechanisms that triggered temporal changes in symptomatology and, perceived explanations for the underlying mechanisms used to attain/maintain a positive psychological state. For example, what triggered a player's symptoms to occur/increase and what/why did a player initiate as a strategy to overcome the negative symptoms they were experiencing. The guide was pilot-tested with four elite female field hockey players (two debilitators and two facilitators) following which minor refinements to the guide were made. All interviews were conducted by the lead author, a trained qualitative researcher.

Due to the in-depth nature of the interview, the guide was separated into three major phases to assess players' general perceptions about psychological preparation for performance. Phase 1 aimed to establish rapport, introduced the structure and content of the interview, facilitated recall to the context of the study through reviewing the ESM data, and reviewed the participant's normal performance preparation routine during a 7-day competitive cycle. Phase 2 formed the main body of the interview and was separated into three sections: Section 1 explored the intensity of cognitive and somatic symptoms experienced during a normal 7-day competitive cycle, and the strategies implemented in an attempt to cope with increases in the level of negative symptoms; Section 2 explored the frequency of cognitive and somatic symptoms

²A copy of the full interview guide and associated interview checklists can be obtained from the lead author.

experienced during a normal 7-day competitive cycle, and the strategies implemented in an attempt to cope with increases in the amount of negative symptoms and; Section 3 explored the interpretation of cognitive and somatic symptoms and the strategies implemented in an attempt to maintain/achieve a facilitative interpretation of felt symptoms during a normal 7-day competitive cycle. To simplify this process both for the interviewee and subsequent analysis, the structure of these sections was kept consistent. Phase 3 of the guide concluded the interview and explored the participant's perception of the process. In a development from previous research (e.g., Hanton & Connaughton, 2002; Hanton & Jones, 1999a; Hanton et al., 2002), a series of interview checklists were created to supplement the guide. The depth and scope of the interview necessitated this process; these checklists were included in the guide and acted as reference points for the interviewer ensuring the full range of topics was covered with each participant.

Procedure

Experience Sampling Method (ESM)

Signals for ESM were underpinned with the use of electronic pagers in line with recent research in sport psychology using the approach to measure pre-competitive emotions (Cerin, Szabo, & Williams, 2001). During an introductory session, participants were briefed on the workings of the pager, familiarized with the cognitive and somatic symptoms list, and educated on the difference between cognitive and somatic symptoms in accordance with the work of Thomas, Hanton, and Jones (2002). Participants were informed they would be paged randomly once a day between the hours of 9 am and 8 pm in the seven days leading up to a competitive English Hockey League (EHL) Premier Division fixture. Messages to the pager were coded in relation to the pre-competition period of assessment; for example, '6 days Form 1' signalled completion of cognitive and somatic symptoms at the 6 days prior to competition phase. Participants were asked to note their responses in the booklet as soon as possible after receiving the signal. On match day, participants were not signalled using the pager, they were asked to complete the form 1 hour prior to performance; a time scale used in previous temporal research (Hanton et al., 2004; Thomas et al., 2004).

Interview

Each participant was sent a copy of the interview guide one week prior to the interview date to familiarize herself with the interview process (Hanton & Connaughton, 2002; Hanton et al., 2002). All interviews were conducted face-to-face by the lead author, away from the competitive and training environment in surroundings familiar to the participant (Patton, 2002). The interviews were tape recorded in their entirety, lasted an average of 90 minutes, and were transcribed verbatim, which yielded more than 250 pages of single-spaced text.

Data Analysis

Data regarding the players' perceived causal beliefs about temporal preparation for performance and the associated symptom responses were analyzed using causal networks and composite sequence analysis (Huberman, 1989, 1993; Miles & Huberman, 1994)³.

³Due to space limitations we have only presented the comparative part of the analysis within this paper that details the differences between facilitators and debilitators throughout the 7-day competitive cycle. However, the authors have formulated a copy of the case-oriented causal networks associated with the first phases of the data analysis procedure. These are available from the lead author and we encourage the interested reader to request this information.

Previous qualitative research in sport psychology has used causal networking (e.g., Hanton & Connaughton, 2002; Hanton et al., 2002); however, the temporal nature of this work necessitated a further step to the analysis. Composite sequence analysis allows stories, plots, or scenarios to emerge from several individual causal networks allowing data to be considered as meaningful time ordered sequences. Use of this analysis process within sport psychology is in its infancy and was pioneered by Thomas (2004) and recently implemented by Hanton, Cropley, Miles, Mellalieu, and Neil (2007). The process is based on Huberman's work that depicted the career trajectories of teachers over a 10-year temporal period. Huberman utilized composite sequence analysis to advance several individual causal networks that each displayed a stage of a teacher's work life and collapsed them to form an inductively elicited time-phased map profiling the complete career trajectory of a teacher. This study adopted the principles of Huberman's work and applied them to the shorter temporal phase of a 7-day competitive cycle within elite-level sport. The maps are described as a visual representation of the causal relationships (indicated through arrows) among the variables under investigation. The maps are supported by text in the form of direct quotations from the interviews to describe the meaning of the connections amongst variables and explain relationships in a coherent manner (Miles & Huberman, 1994).

In line with the recommendations of Miles and Huberman (1994) a case-orientated approach was adopted within the analysis procedure. Specifically, each case was considered in its entirety and configurations, associations, causes, and within effects were elicited for each individual participant. Following this, comparative analysis was used to outline general explanations that were present across the two groups (facilitators and debilitators). The analysis was separated into eight stages. First, the researchers independently studied the individual transcripts to ensure familiarity. Second, causal streams were identified and encoded from each individual transcript in the form of raw quotations from the transcripts. Specifically, these were identified and coded by sentiments (raw quotations), such as: "Training on the Thursday (two days before competing) that is a big trigger for me, it causes the thoughts and feelings to kick in, they (the symptoms) get more intense more frequent.." Third, individual inductive causal networks were developed from the data for pre-competition preparation. Fourth, these individual causal networks were collapsed using comparative analysis within each of the two groups (facilitators and debilitators) with the frequency of each stream of data being recorded (number of respondents). Fifth, deductive analysis was conducted to ensure all themes included in the grouped causal networks were present in the individual causal networks and the raw individual interview transcripts. Sixth, the grouped causal networks were collapsed to form time-ordered composite sequence maps. Seventh, researcher bias was controlled through independent consensus validation; specifically, causal streams, causal networks, and composite sequence maps were independently identified following which discussion occurred until consensus was reached. Finally, all maps were sent out to the participants for confirmation of accuracy of content and relationships.

RESULTS

The inductive analysis produced three causal streams of temporal information that related to one distinct post-performance phase and two distinct pre-performance phases within the 7-day competitive cycle. These streams resulted in six causal networks depicting debilitators' and facilitators' psychological preparation for performance that were collapsed to form two composite sequence maps. The maps include: the temporal phase identified, the symptoms experienced (with triggers), the strategies employed to attain/maintain a positive psychological

state, and the strategies' perceived effectiveness on symptom responses and future preparation for performance (Figures 1–2). Each map consists of two major elements: (a) sets of variables linked together by a series of arrows showing the relationship and the direction of the relationship between the variables (b) an annotation to each arrow indicating the percentage of participants who identified the factor. Therefore, the maps should be read from top to bottom as a time-ordered sequence of preparation.

Time Phase I: Symptoms and Strategies Post-Performance

For both the debilitators and the facilitators, this phase was triggered by reflecting back to their match-day performance (83% of facilitators and 83% of debilitators; see Figures 1 and 2). This reflection created an increase in the intensity and frequency of several cognitive post-performance symptoms. For example one facilitator suggested: “My negative thoughts would be very high after the game, through Saturday evening, Saturday night, and Sunday. I know if I’ve done some bad things then after the game I’d definitely go over them.” For the facilitators, experience of these negative cognitive post-performance symptoms invoked the implementation of two psychological skills. Imagery-based skills were used to review and replace the naturally occurring negative post-performance images and cognitive symptoms experienced at this phase (83%). For example, one facilitator indicated:

If I’ve made some bad passes, or had a one-on-one with the keeper and screwed it up, I’d replay that naturally. But then if I did the same thing again later on in the game and did it well come Sunday I would be replaying that, seeing the negative less and the positive image more. Those images would take over.

Additionally, the facilitators used rationalization skills to overcome the experience of negative cognitive post-performance symptoms (50%). One facilitator described:

I tell myself there are other aspects of my game that I can do well in. After the game I’d think about those areas. I’d maybe think well, not every player can do everything and focus on those type of thoughts.

The use of these psychological skills by the facilitators was suggested to “replace” the negative post-performance cognitive symptoms and images with “positive” ones (83%). This led to the facilitators being able to “internally control” their negative cognitive symptoms and then re-interpret these symptoms as positive towards future performance preparation (83%). In comparison, the debilitators only replayed negative post-performance images (66%) and cognitively de-structured the symptoms they experienced at this phase (66%). The debilitators described: “All the negative images come in, the ones where I didn’t do very well. I’ll replay a bad pass or a tackle I missed and that will be it.” or, “I’ll replay the shot that I missed, the one where it was saved, I’ll only see the ones I’ve missed.” This focus on negative images combined with cognitive de-structuring led to an ongoing stimulation of negative symptoms, a lack of “internal control” and the continued “negative” influence of the symptoms’ effect on performance preparation (83%).

Time Phase II: Symptoms and Strategies Two Days to One Day Pre-Performance

Both the debilitators and the facilitators indicated that this temporal phase related to two days and one day prior to performance (100%; see Figures 1 and 2). The primary trigger that increased the intensity and frequency of symptoms was involvement in squad-based training

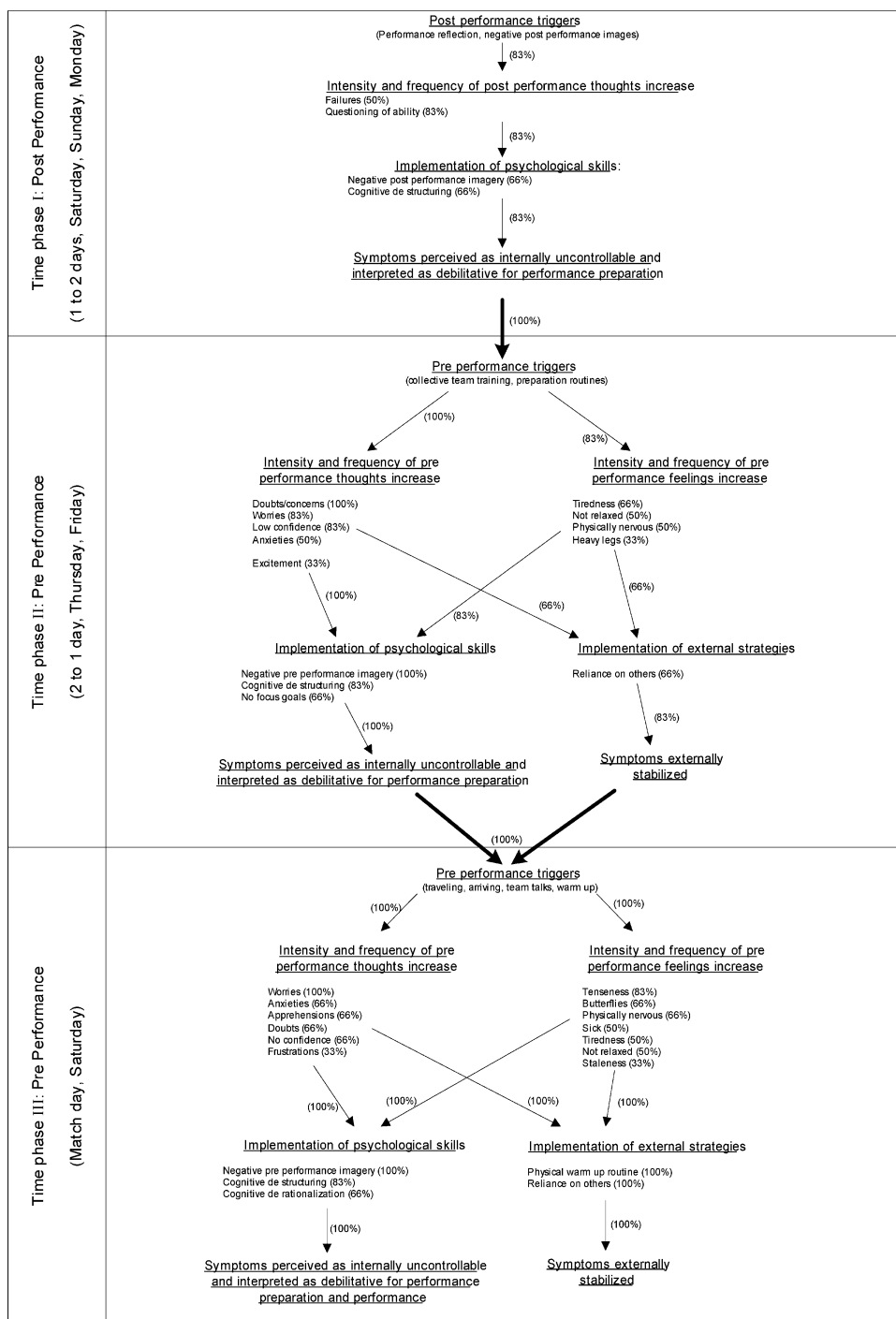


Figure 1. Composite Sequence Map: Debilitators

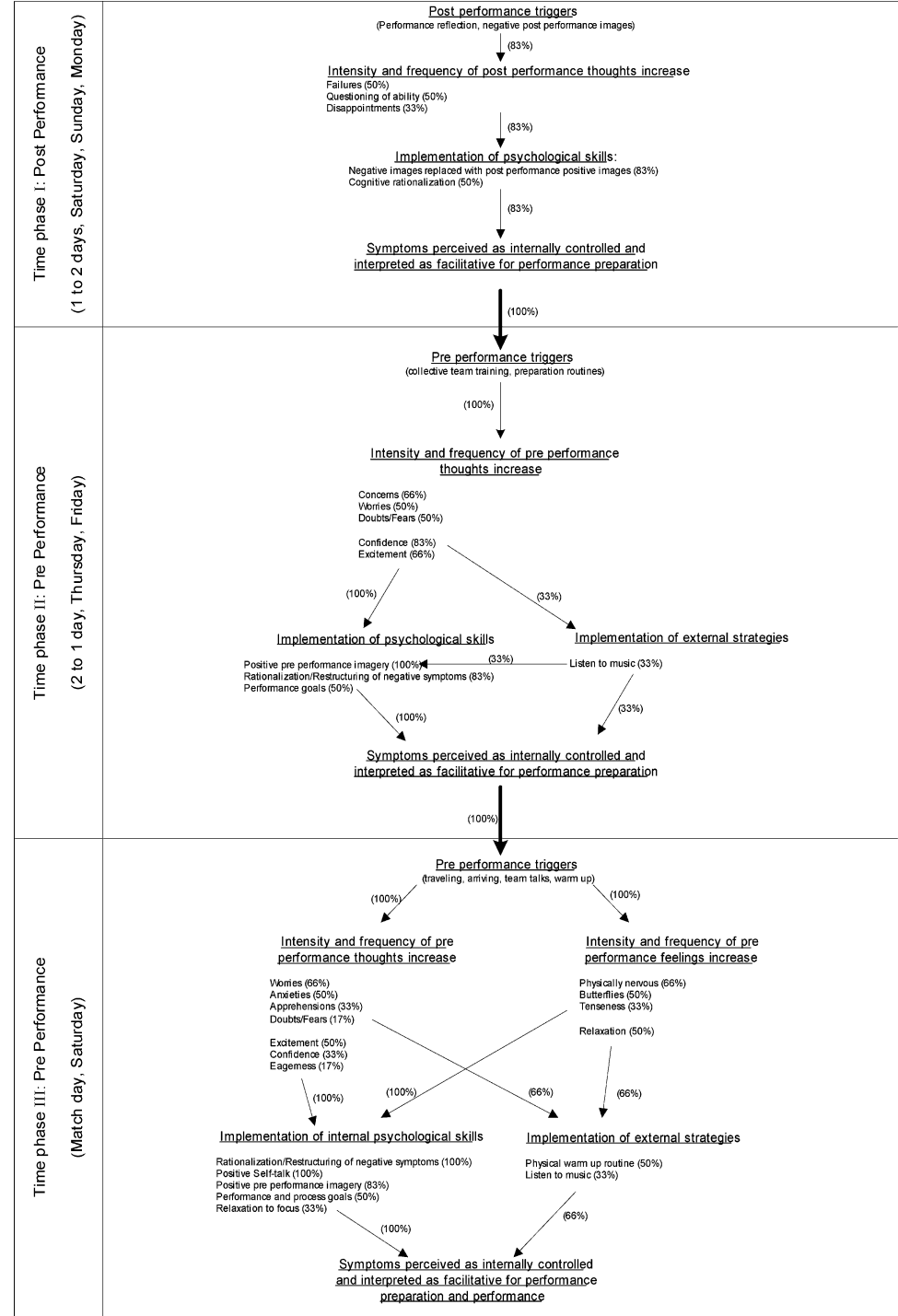


Figure 2. Composite Sequence Map: Facilitators

sessions (100%). For example, one facilitator suggested: "Prior to competition Thursday night is really my big trigger. I think because it's training and I'm together with all the girls and we are all working together that's when I get those thoughts." Whereas, one debilitator indicated: "Thursday nights for me is a trigger, training is the point where everything kicks in and the thoughts and feelings get more intense more often. I'm just thinking about them for more of the time." The previous quotes also highlight a difference in the symptoms responses of the facilitators and debilitators during this phase. The facilitators indicated only experiencing increases in cognitive symptoms at this phase (100%); whereas, the debilitators experienced increases in both cognitive (100%) and somatic symptoms (100%).

The facilitators used the psychological skills of imagery (100%), rationalization and/or restructuring (83%) and performance goals (50%) as mechanisms to "overcome" and "internally control" the negative pre-performance cognitions they experienced (100%). The following provides an example of the imagery skills used by a facilitator:

I tend to focus on the goals I've scored. I have a favorite, reverse stick shot to the right-hand top corner from the top of the D (a player must be inside the D in order to take a legal shot on goal). I visualize the build-up play, when I got the ball, the run up to the goal, when I got in the D, the body position, and the feeling. I remember the connection with the ball which was a good one and seeing the shot fly in. I replay things like that a lot on the Friday night.

The following provides evidence of the rationalization and/or restructuring skills used by the facilitators:

Because I know I've still got a day and a half before we play I can deal with it. I say to myself 'if I get in a certain frame of mind on a Thursday night or a Friday does that mean I'm still going to be like that on Saturday?' And the answer is no it doesn't. I've got the whole of Friday to get through, to distract me.

In comparison, the debilitators attempted to implement psychological skills but did not maintain control over the use and function of these skills. This led to the debilitators having little "internal control" over the accumulation of negative cognitive and somatic symptoms and a continued debilitating interpretation of their perceived effect on performance preparation (100%). The following outlines an example of how the debilitators would cognitively de-structure their pre-performance symptoms (83%):

I tend to think negatively. I tend to think I'm tired and worried so I become tired, my legs end up feeling heavy. I'm not saying that they're not heavy but I tend to convince myself that I'm tired which is not good, and then I worry about that.

The debilitators also described initiating imagery routines that started as positive routines but tended to drift into negative routines underpinned by a lack of control (100%). For example:

I start by seeing the things that I've done well in previous games, the passes and tackles I've made when I'm playing well. But it still doesn't work for me. I lose control and the negatives push the positives away. I go back to 'will I be able to do that this weekend?' and it pushes that good image away because although I did it last weekend it doesn't mean that I'll do it this weekend. Then those negative ones come in, the passes I've missed. The bad ones come in and take over and I'll play those images and see all those.

However, the debilitators did outline the use of an external strategy (i.e., a strategy that involved direct inclusion of an outside party) through a reliance on others as a mechanism to “stabilize” the occurrence of negative symptoms at this phase (66%). For example, one debilitator indicated:

I rely a lot on teammates whose opinions I value and respect. I need them almost to say ‘well done’ to me. I’m quicker to pick up on the negatives so I almost need other people to highlight the positives for me. So if that’s done in training I’ll feel more confident, more positive. That helps me to get over the negative thoughts.

Time Phase III: Symptoms and Strategies on Match Day

For both the debilitators and the facilitators this temporal phase centered on the day of performance. Several triggers such as “travelling to the match venue,” “arriving at the match venue,” “team talks,” and “warm ups” were suggested to cause an increase in the intensity and frequency of both cognitive and somatic symptoms (100% for both groups). The following quote from one debilitator reinforces several of these issues:

Only when the coach comes up to talk to us do I start to think about them (the symptoms). We have that sort of silence in that only he is talking, there’s not a lot of banter going on in the changing room. I start to get butterflies because of what we’re about to do, and when he focuses on my area of the game, on forward play, that really brings it home to me. So I think in the changing rooms, in the team talk, that quiet time, that’s when the worries and butterflies increase.

In response to these symptoms, the facilitators implemented several psychological skills to “overcome” negative pre-performance symptoms. The skills used included the use of rationalization/restructuring (100%), positive self-talk (100%), positive pre-performance imagery (83%), performance and process goals (50%), and relaxation (33%). Additionally, the facilitators used the external strategies of physical warm-up routines (50%) and music (33%) to help overcome the effects of the negative pre-performance symptoms. The following provides an example of the rationalization/restructuring skills used by the facilitators:

The nerves and anxiety are actually positive because if I’m nervous and anxious I become more focused. It’s a way of helping that nervousness, because if I’m anxious I feel focused, and if I’m focused the nerves are controlled. So it’s important for me to feel nervous because then there is a point behind why I’m doing it.

The facilitators also indicated how the use of positive self-talk was integrated into this rationalization and restructuring process:

Just little key words like ‘come on,’ ‘think head down,’ ‘stay low and hard.’ I’m saying things like that to myself when warming up. That’s all it needs, just some key words, something positive just to get me focused and overcome the negative thoughts.

Positive pre-performance imagery was also outlined as a key psychological skill within this temporal phase. Interestingly, the facilitators suggested the use of this skill was most efficient when used in certain environments, or at specific times on match day. For example:

I wouldn't use imagery when I'm physically warming up, it's hard to do it then. But take last Saturday as an example, when the coach said thirty minutes before the game just spend thirty seconds thinking about what you're going to do. That's an ideal opportunity to just sit and think, shut my eyes, and visualize a pass I might make across the pitch, or up the line, or a shot on goal, a shot going in past the keeper, and I can actually sit down and control that. Just quickly get in there see a snap shot of performance and then come out of it. It's at those quiet times when imagery works best, is easiest to control.

The facilitators also highlighted a focus on performance and process goals during this temporal phase. For example, one facilitator suggested:

My goal is to keep possession, not to give it away cheaply. I'm a defender and it's crucial to have the confidence to hit around the back because in this League you get really pressed in as a left defender. I always tell myself, 'have the confidence to hit around the back and get it across to the right,' because obviously our right side is our most attacking side. That's my major goal.

The combined outcome of these internal and external routines enabled the facilitators to "internally control" and "replace" the negative pre-performance symptoms experienced during this temporal phase. This resulted in a "positive interpretation" of the symptoms' perceived impact on performance preparation and subsequent performance (100%).

In comparison, the debilitators attempted to implement psychological skills but failed to attain control over the use and function of the skills. The results of these implementations realized negative pre-performance imagery (100%), cognitive de-structuring (83%), and cognitive de-rationalization (66%). The following quote from a debilitator illustrates the use of negative imagery routines within this preparation phase:

In the changing rooms I'll try to replay a shot but I can't control it. There is too much pressure; I'm so nervous and apprehensive that I can't go through it (the image). The shot won't go in, I'll shoot and it's saved, or I miss the target just because I'm nervous and apprehensive.

This routine was combined with the two processes of cognitive de-structuring and cognitive de-rationalization as mechanisms that convinced the debilitators of the negative aspects of performance preparation. For example, one debilitator described how her cognitive symptoms would de-structure during this phase:

I feel that the warm-up, and the stick and ball stuff are a massive time for me. I think how I feel in my warm up is massive for how I'll do in the game. So, if I'm not striking it properly, or hitting it solid, if I don't feel comfortable then my mind starts telling my body that things aren't clicking today. That's when the nerves come on and take over, and then I worry about that too. I'm completely focused on the nerves and worrying about those, rather than focusing on my game.

In addition, the following extract details how a debilitator de-rationalized her thoughts during this phase:

I'm not sure how much I really believe what I'm trying to say to myself. I know that what I feel is negative and that it's not going to help, so I try to reinforce things. I tell myself 'come on,' 'I've done it before,' and 'I am good enough.' But then I have this big question: 'just because I did it then does it mean that I'll be able to do it today?' And the answer is 'no', just because I did it then it doesn't mean it will happen for me today, and then I worry about that.

However, the debilitators used the external strategies of physical warm-up routines (100%) and a reliance on others (100%) as mechanisms to “stabilize” the negative symptoms experienced at this phase. For example:

Something like feeling sick or being apprehensive and worried I can't control. I think other people can because if I get a bit of encouragement from someone else then that boosts me, helps to control things, makes me feel more positive than anything I can do myself internally. I don't think I can purposely sit down beforehand and control them (the symptoms), control the pressure, the thoughts and the apprehension, I'm not going to be like this, I just can't do that.

For the debilitators, the unsuccessful implementation of psychological skills resulted in them having “no internal control” over the accumulation of these symptoms and a continued debilitating interpretation of their effect on performance preparation (100%). However, use of the external strategies was suggested to “stabilize” the negative symptoms experienced resulting in an external control of the initial negative cognitive and somatic symptoms experienced.

DISCUSSION

This study aimed to provide a detailed examination of debilitators' and facilitators' anxiety responses during a 7-day competitive cycle to elicit the perceived temporal triggers that cause the intensity and frequency of negative symptoms to initiate and increase during preparation time for performance. This aim was supplemented with the goal of establishing the perceived causal mechanisms that enable facilitators to maintain a positive psychological state during the preparation time for performance in an attempt to provide an empirical base for the structure, timing, and content of temporal psychological skills programs (cf. Thomas et al., 2004).

Inductive analysis indicated that elite female hockey players separated their 7-day competitive cycle into one post-competition temporal phase and two pre-competition temporal phases. Within these time periods several triggers led to increases in the intensity and frequency of several cognitive and somatic symptoms for both groups. These results provided support for quantitative findings that have indicated the intensity and frequency of cognitive and somatic symptoms fluctuate during the seven days preceding competition (Cerin et al., 2000; Hanton et al., 2004; Thomas et al., 2004). However, an interesting difference emerged within Phase II of the 7-day competitive cycle regarding the manifestation of negative somatic symptoms. Specifically, the intensity and frequency of negative somatic symptoms increased for the debilitators during this phase, a finding not replicated by the facilitators. The facilitators only reported experiencing increases in the intensity and frequency of negative somatic symptoms during the final phase of the 7-day competitive cycle (i.e., Phase III). These findings suggest greater susceptibility to these symptoms within the debilitating group, and may provide some explanation for the equivocal results observed in the somatic anxiety construct in early intensity-based temporal research (cf. Cerin et al., 2000).

There were similarities in the negative cognitive and somatic symptoms reported by the facilitators and debilitators throughout the seven days preceding competition. However, the facilitators experienced several positive cognitive and somatic symptoms during Phase II and Phase III, and the debilitators experienced a wider variety of somatic symptoms during the second and third phase of the preparation period. These findings support recent emotional labeling research that has indicated facilitators label their emotional experience as significantly more positive at times immediately prior to performance (Jones & Hanton, 2001; Mellalieu et al., 2003).

With regard to the central focus of the investigation, clear differences exist in the psychological skills used by the debilitators and facilitators during the temporal periods preceding competition. Although the triggers and symptoms experienced by both groups were comparable, the psychological skills and mechanisms used to cope with the accumulation of negative cognitive and somatic symptoms differed between the two groups.

The use of imagery skills was fundamental to the refined psychological skills routines used by the facilitators. However, and critically, the form and function of these imagery skills varied within the temporal phases identified. Specifically, during Phase I, the facilitators used imagery skills to replace the naturally occurring negative images that were experienced as a result of reflecting back to mistakes made in performance. The form of these positive restructured images provided evidence of similar in-game performances where the negative skills were performed successfully. For example, if a player replayed a negative pass to a particular teammate, she would use refined imagery skills to provide a restructured example of a positive experience of that same skill. This positive experience was either derived from the game just completed, or from earlier experiences within her career. Previous research has suggested athletes utilize imagery as a corrective mechanism. White and Hardy (1998) for example, noted that elite canoeists were replaying mistakes made in the first run of a slalom event and replacing these with restructured positive performance images of the skill in the short time prior to their second run. The facilitators in this study appeared to be using post-performance imagery skills in a similar fashion.

During Phase II of the 7-day competitive cycle, the facilitators used best performance imagery routines that comprised detail about specific skills and patterns of play associated with field hockey. These functions of imagery correspond closely to the cognitive-specific (i.e., imaging specific skills being executed correctly), and cognitive-general (i.e., imaging performance plans being executed correctly) functions described within Pavo (1985) and Hall's (2001) functional framework of imagery and highlight the importance of mastery over these skills. Finally, during Phase III of the preparation period, the facilitators described using snap-shot imagery routines to review the successful performance of specific skills (i.e., cognitive-specific imagery functions). Interestingly, the facilitators suggested that control over these was most efficient during quiet times associated with match day preparation (i.e., at times in the changing room or in the team talk).

Throughout the 7-day competitive cycle, facilitators used rationalization and restructuring skills to internally control the negative cognitive and somatic symptoms experienced; skills that during Phase III of the preparation period were underpinned by positive self-talk. The form of rationalization and restructuring was relatively consistent across the temporal phases of the 7-day competitive cycle in response to increases in the intensity and frequency of negative symptoms experienced. Specifically, the facilitators would question the negative cognitive and somatic symptoms they were experiencing and restructure their interpretation to attain/maintain a positive psychological state (cf. Hanton & Connaughton, 2002; Hanton et al., 2002; Hanton & Jones, 1999a). Additionally, the facilitators used performance and process goals during Phases II and III as further skills to help control the negative cognitive and somatic symptoms they experienced. Interestingly, the facilitators appeared to utilize positive self-talk to emphasize these performance and process goals during Phase III of the preparation period in key times such as the warm-up. In comparison, the debilitators appeared to lack the cognitive control to engage the psychological skills of rationalization and restructuring and did not appear to use goal-setting skills, or a focus on particular goal types during the time preceding competition.

The use of external strategies was also cited by both groups as important to help them maintain an optimal psychological state during performance preparation. These strategies

included a reliance on others and the use of physical warm-up routines by the debilitators, and the use of physical warm-up routines and listening to music by the facilitators. For the debilitators, during Phase II and Phase III the use of these strategies formed the only mechanisms available to stabilize the accumulation of negative cognitive and somatic symptoms. The use of significant others as a support mechanism by the debilitators provides conceptual links to self-efficacy theory and the source of verbal persuasion (Bandura, 1977). Interestingly, the debilitators noted that respect, and opinions of others who they valued were critical within this process; a standpoint that has clear links to the notion of credibility and expertise of the external persuasive source. Further, conceptual links for the use of significant others also provides links to the social support literature and the use of external individuals for emotional support in relation to the stressful demands of performance (cf. Holt & Hoar, 2006; Rees & Hardy, 2000).

From an applied perspective, these findings have clear implications for practitioners who work with sports which function through an on-season 7-day competitive cycle. Collectively, the findings suggest that facilitators possess a refined repertoire of psychological skills that they can draw upon during the time preceding performance. Further, it appears that the specific form and function of certain psychological skills varies within the 7-day cycle and that the facilitators increase the range and scope of psychological skills used as competition moves closer. The utilization of this refined repertoire of skills enabled the facilitators to attain and then maintain a positive pre-performance psychological state and re-interpret negative cognitive and somatic symptoms as facilitative towards performance preparation (Hanton & Connaughton, 2002; Hanton et al., 2002; Hanton & Jones, 1999a). In comparison, the debilitators attempted to implement several psychological skills but did not adopt refined internal control over the form and function of these skills. This lack of control over the negative cognitive and somatic symptoms experienced led to an inability to attain a positive pre-performance psychological state and an on-going debilitative interpretation of the symptoms effect on performance preparation (cf. Hanton et al., 2005). However, the debilitative group did utilize several external strategies to stabilize the negative cognitive and somatic symptoms experienced during the 7-day competitive cycle. Although a stabilizing mechanism, the issue here for the practitioner remains the desire for athletes to become non-dependent on others for control of pre-performance psychological states. Therefore, it appears that performers who interpret the cognitive and somatic symptoms they experience during performance preparation as debilitative require cognitive intervention strategies to attain internal control over these symptoms. The repertoire of skills adopted by the facilitators has the potential to provide an empirical framework for the structure, timing, and content of such intervention programs.

Although the current study considerably advances our understanding of psychological preparation for performance, the authors recognize some possible issues in the interpretation of the findings. The retrospective nature of the design challenged the performers to recall information about the cognitive and somatic symptoms, and the mechanisms applied to counter these symptoms during their 7-day competitive cycle. Issues of memory disturbance and recall concerns within retrospective designs can be an issue. However, considerable evidence supports the use of these designs and the accuracy of memory recall when using these methods (Brewer, Van-Raalte, Linder, & Van-Raalte, 1991; Christianson, 1992). Further, the authors point to the integration of the ESM procedure to help underpin the use of salient probes within the interview (Hormouth, 1986; Larson & Csikszentmihalyi, 1983; Voelkl & Nicholson, 1992). Second, Phase II of the preparation period has the potential to be an artifact of the population used. The primary trigger for the accumulation of negative symptoms during Phase II was collective squad training times. Although this is likely to remain a trigger for many other sports teams, logistical issues, and the geographical spread of the player base for the squad

used in this study enforces a situation where team members take individual responsibility for adherence to their physical training programs (i.e., train on an individual basis), and only train once as a collective squad during the 7-day competitive cycle (i.e., 2 days before competing). Therefore, the temporal phases identified in the inductive analysis have the potential to be artifacts of the organization from within which they were collected. However, this does not limit the mechanisms which both groups implemented to deal with negative symptoms during the 7-day competitive cycle. Finally, the authors recognize potential issues of generalization from the findings. This study utilized a group of elite female players from one team sport, although these findings are potentially generalizable across other sport and athlete groups, further research should be conducted for corroboration. Additionally, it may be interesting to examine anxiety responses and psychological skill usage following specific conditions of adversity (i.e., individual successful or unsuccessful performance); this would advance the generic approach taken to examining preparation for performance in the current study.

In summary, this study provides unique findings and a wealth of information regarding competitive anxiety responses and the use of psychological skills during the temporal periods preceding competition. The elite performers separated the 7-day competitive cycle associated with their team sport environment into three distinct temporal phases. Further, the facilitators were able to attain/maintain a positive pre-performance psychological state through the use of a refined repertoire of psychological skills within each of the temporal phases identified. This enabled the facilitators to internally control increases in the intensity and frequency of negative cognitive and somatic symptoms and subsequently interpret these symptoms as positive towards preparation for performance. In comparison, the debilitators highlighted an attempted implementation of several psychological skills but did not possess the refined internal control over the form and function of these skills. This led to an ongoing debilitative effect of the symptoms during the time preceding competition and a reliance on external strategies to stabilize the negative cognitive and somatic symptoms experienced. These findings have important implications for practitioners in relation to their design, timing, and content of interventions that they may seek to construct during the 7-day competitive cycle commonly associated with elite team sports. Further, the findings provide specific information to assist performers who are debilitated by their pre-performance symptoms.

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