



A cluster analysis of precompetitive anxiety: Relationship with perfectionism and trait anxiety

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Abstract

The purpose of this study was to examine whether athletes of different sports clustered in meaningful ways, based upon their intensity, direction and frequency of cognitive and somatic anxiety using hierarchical cluster analysis, and to compare the subgroups of athletes on trait anxiety, perfectionism and self-confidence. One hundred and sixty six male and female athletes completed the Sport-Multidimensional Perfectionism Scale, the Sport Anxiety Scale and the Competitive State Anxiety Inventory-2 Revised including direction and frequency scales. Results revealed five-clusters labelled “anxious facilitators”, “anxious debilitators”, “low anxious facilitators”, “low anxious debilitators” and “ruminator debilitators”. Clusters differed significantly on concentration disruptions, trait somatic anxiety, worry, concern over mistakes, perceived parental pressure, and intensity and frequency of self-confidence. The importance of considering all dimensions of anxiety simultaneously when examining the functional nature of the construct and the five-clusters are discussed.

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1. Introduction

The stressful nature of sport and the competitive environment place many demands on athletes (Jones, 1995). Accordingly, an area of research in sport psychology has been directed towards the emotional responses to such stressors and in particular the study of competitive anxiety (Martens, Vealey, & Burton, 1990; Woodman & Hardy, 2001). A considerable amount of research has studied levels (i.e. intensity) of competitive anxiety, investigating the antecedents, the temporal patterning of the subcomponents (i.e. cognitive and somatic) and the anxiety performance relationship (Jones, 1995; Woodman & Hardy, 2001).

Although research on intensity has contributed to our understanding of competitive anxiety, additional dimensions have been proposed, such as directional perceptions (i.e. interpretation of the symptoms associated with competitive anxiety as being facilitative or debilitating towards performance; Jones & Swain, 1992). Support for the differentiation between intensity and direction of competitive anxiety has been provided in many studies examining a range of dispositional and situational variables (Jones, 1995; Woodman & Hardy, 2001). In particular, elite performers interpret their anxiety symptoms as more facilitative than their non-elite counterparts (Jones, Hanton, & Swain, 1994).

In addition to examining anxiety intensity and direction, several researchers (Cerin, Szabo, Hunt, & Williams, 2000; Hanton, Thomas, & Maynard, 2004) suggest including a frequency component to the anxiety response (i.e. the amount of time spent attending to anxiety symptoms experienced concerning competition; Swain & Jones, 1993). Although the intensity of the anxiety symptoms may not change, a state in which worries (i.e. intensity) are occurring 5% of the time is very different from one in which they are occurring 90% of the time (Jones, 1995). The distinction between intensity and frequency has been provided in studies showing that the frequency of cognitive and somatic anxiety was more sensitive to changes over time than the intensity in the week leading up to competition (Hanton et al., 2004; Thomas, Maynard, & Hanton, 2004).

Despite their respective strengths and weaknesses, previous studies investigated the *bivariate* relationships between anxiety responses and some other variables. Such an approach has neglected the *multivariate* nature of anxiety. It would be fruitful to provide new insights in the relationships between the three dimensions of anxiety by identifying subgroups of performers with unique or unexpected anxiety response patterns. The possibility of identifying different profiles of athletes based on the three dimensions of anxiety may provide a deeper understanding of athlete anxiety leading to implementation of more effective interventions to manage precompetitive anxiety. This is why the first aim of this study was to identify meaningful clusters of athletes based on their precompetitive intensity, direction and frequency of cognitive and somatic anxiety. A method that has been widely used to classify participants is cluster analysis (Hair, Anderson, Tatham, & Black, 1998). Cluster analysis is a statistical process that uses multivariate techniques to group participants based on their characteristics (i.e. anxiety scores) by maximizing both the homogeneity of cases within a group and the heterogeneity between the clusters (Aldenderfer et al., 1984; Hair et al., 1998). In cluster analysis, using another variable than the one used to create the groups has proven an efficient technique for validating this type of analysis (Aldenderfer et al., 1984). Thus, the second purpose of this study was to investigate whether the subgroups of athletes differ on trait anxiety, perfectionism and self-confidence.

According to the interactional model of competitive stress, state competitive anxiety is thought to be determined by personal (trait anxiety, perfectionism) and situational factors (state self-con-

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