OH, EUNGWANG, M.S. The Relationship of Team Cohesion to Individual Anxiety among Recreational Soccer Players. (2014)
Directed by Dr. Diane L. Gill. 94 pp.

Cohesion is the most often studied group dynamics factor in sport and exercise psychology (Brawley, Carron, & Widmeyer, 1987; Carron, 1982; Carron, Widmeyer, & Brawley, 1985). The group dynamics research has focused on the relationship between cohesion and performance. Relatively little is known about how cohesion may be related to individual factors such as anxiety. Previous studies revealed that cohesiveness provides psychological benefits to participants (Eys, Hardy, Carron, & Beauchamp, 2003; Prapavessis & Carron, 1996). However, there is no research exploring the relationship between cohesion and competitive anxiety at the recreational sport level. The purpose of this study was to examine the relationship between multi-constructs of cohesiveness, assessed with the Group Environment Questionnaire (GEQ; Carron, Widmeyer, & Brawley, 1985), and multidimensions of competitive state anxiety, assessed with the Competitive State Anxiety Inventory-2 (CSAI-2; Martens et al., 1990) at the recreational sport level. In addition, the contribution of cohesion to the prediction of competitive state anxiety beyond the contribution of competitive trait anxiety assessed by the Sport Competition Anxiety Test (SCAT; Martens, 1977) was examined. A hypothetical soccer competition scenario was used to measure competitive state anxiety in the present study. The results of Pearson's correlation analysis revealed a negative relationship between three dimensions of cohesion (individual attraction to the group-task; ATG-T, group integration-task; GI-T, and group integration-social; GI-S) and subdimensions of competitive A-state (cognitive and somatic state anxiety). The findings of stepwise and

hierarchical multiple regression analyses also demonstrated the significant contribution of the individual attraction to the group-task (ATG-T) in predicting competitive state anxiety. It is suggested that recreational soccer participants with high scores on ATG-T are likely to have low competitive state anxiety. It is also suggested that future research examine if cohesion helps recreational athletes stick to sports through diminished competitive state anxiety.

THE RELATIONSHIP OF TEAM COHESION TO INDIVIDUAL ANXIETY AMONG RECREATIONAL SOCCER PLAYERS

by

Eungwang Oh

A Thesis Submitted to
the Faculty of the Graduate School at
The University of North Carolina at Greensboro
in Partial Fulfillment
of the Requirements for the Degree
Master of Science

Greensboro
2014

Approved by

_____
Committee Chair

For the LORD gives wisdom, and from his mouth comes knowledge and understanding.

Proverbs 2:6

Above all, I would express my gratitude to God for his constant encouragement.

I also like to thank my family for their immense support throughout my graduate studies.

APPROVAL PAGE

This thesis has been approved by the following committee of the Faculty of The Graduate School at The University of North Carolina at Greensboro.

Committee Chair _____

Committee Members _____

_____

_____
Date of Acceptance by Committee

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Date of Final Oral Examination

ACKNOWLEDGMENTS

I would like to thank Dr. Diane L. Gill for serving as my advisor through this long process. I am grateful for her guidance and support. I would also like to thank my committee members, Dr. Jennifer L. Etnier and Dr. Christopher Rhea, for serving on my committee; their insight and advice greatly enhanced this work. I would like to thank Dr. Jeffrey Labban and Dr. Jungyun Jang for their assistance with the statistical analyses.

Additionally, I would like to thank Tim Nash, General Manager of Greensboro United Soccer Association and Gary Gartner, Tournament Director of Greensboro Sportsplex, for their help in recruiting participants.

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CHAPTER I

INTRODUCTION

Cohesion has been extensively studied as part of an attempt to develop an in-depth understanding of group dynamics in sport and exercise psychology (Brawley, Carron, & Widmeyer, 1987; Carron, 1982; Carron, Widmeyer, & Brawley, 1985). Carron, Shapcott and Burke (2007) noted that "cohesion is considered a distinguishing attribute of successful groups, whether it be in the domain of work, military, sport, or exercise" (p. 118). Most of the research pertaining to group dynamics in sport has focused on the relationship between cohesion and team performance. That is, studies often examine if high levels of team cohesion are closely linked to performance success (Carron, Brawley & Widmeyer, 2002). Relatively few studies have examined individual factors related to cohesion, which may themselves affect overall group performance or otherwise affect participants' experience and behavior.

More research is needed to further investigate intrapersonal or individual factors associated with cohesion, such as competitive trait/state anxiety. Experiencing competitive state anxiety (A-state) is common even among elite athletes and it has a variety of negative psychological consequences such as poor performance. However, research has shown that cohesiveness provides psychological benefits with athletes, which may in turn enhance sport performance (Eys, Carron, Bray, & Beauchamp, 2003;

Prapavessis & Carron, 1996; Terry, Carron, Pink, et al., 2000). Prapavessis and Carron (1996) stated that cohesion may reduce individual competitive A-state. The notion that decreased levels of competitive A-state benefit athletes' performance has been supported by a growing body of research (Krane, Williams, & Feltz, 1992; Martens et al., 1990).

The most accepted definition of cohesion is described as "a dynamic process which is reflected in the tendency for a group to stick together and remain united in the pursuit of its instrumental objectives and/or for the satisfaction of member affective needs" (Carron et al., 1998, p. 213). This definition is based on a multifaceted conceptual model proposed by Carron et al. (1985). Carron et al. (1985) not only took into consideration the group, but also the individual aspect of cohesion. Further, the instrumental (task) factor and the interpersonal (social) factor were included in the cohesion model. Subsequently, four dimensions are identified in Carron et al.'s (1985) cohesion model: Group Integration-Task (GI-T), Group Integration-Social (GI-S), Individual Attractions to the Group-Task (ATG-T), and Individual Attractions to the Group-Social (ATG-S).

Cohesion has been studied in relation to psychological states, and it has been suggested that cohesion is related to psychological benefits. Positive experiences in groups have a positive influence on individual psychological states (Baumeister & Leary, 1995). Cohesion has been associated with improved mood (Lowther & Lane., 2002), and with group unity to resist disruption (Brawley, Carron, & Widmeyer, 1987, 1988), whereas cohesion has shown a negative relation with negative mood (Terry et al., 2000). In particular, the influence of cohesiveness on competitive A-state has been explored and

results suggest that cohesion ameliorates precompetition anxiety symptoms (Prapavessis & Carron, 1996).

Competitive A-state is a multidimensional construct that involves immediate responses with situational evaluations (Martens et al., 1990). Competitive A-state includes cognitive (cognitive A-state) and somatic anxiety (somatic A-state). Cognitive A-state is described as worry reflecting negative outcomes while somatic A-state refers to physiological arousal in response to evaluative situations. Competitive trait anxiety (A-trait) is a personality disposition, in which one tends to perceive competitive situations as threatening.

To understand individual anxiety, competitive A-state has been often studied along with competitive A-trait. It has been found that competitive A-state could be predicted by competitive A-trait (Gill & Martens, 1977; Martens et al, 1990). Smith, Smoll and Wiechman (1998) concluded that in competitive sport situations competitive A-trait can predict competitive A- state better than any other factors.

Two studies have been conducted in examining the relationship between cohesion and competitive A-state. In the study conducted by Prapavessis and Carron (1996), 110 athletes in the sport of rugby, basketball, hockey and soccer were recruited to examine the interrelationship between cohesion and competitive A-state. Their results showed that ATG-T and competitive A-state were negatively related and that highly task-cohesive team members tend to perceive less cognitive A-state. It was also found that psychological costs (e.g., psychological stress experienced in sport teams) mediated the relationship between cohesion and competitive A-state. In other words, highly cohesive

team members may experience less psychological stress, which may lead to less competitive A-state. Eys et al. (2003) further examined the relationship by using the CSAI-2d (Jones & Swain, 1992), which is the Competitive State Anxiety Inventory-2 (CSAI-2; Martens et al., 1990) with a direction scale. Eys et al. (2003) reported that highly task-cohesive athletes positively interpreted their competitive A-state. Specifically, task cohesion distinguished athletes with positive perceptions of their competitive A-state from athletes with negative interpretations of their competitive A-state.

To date, cohesion and competitive anxiety have only been examined at the elite sport level. Two previous studies (Prapavessis & Carron , 1996; Eyes et al., 2003) on the relation of competitive A-state with team cohesion recruited athletes from interactive team sports at club/intercollegiate/school sport levels. Cohesion-competitive A-state relationships found in previous literature should not be generalized to recreational populations. Cohesiveness in the recreational sport population should be highlighted as cohesion is closely associated with individual adherence to sports (Spink & Carron, 1993). Investigating which cohesion dimensions predict competitive A-state at the recreational level extends previous research. Also, no attempt has been made in previous research to include competitive A-trait along with cohesion in relation to competitive A-state. Little is known about the additional contribution of cohesion over and above the contribution of competitive A-trait to the prediction of competitive A-state. Specifically, no studies have included the Sport Competition Anxiety Test (SCAT; Martens, 1977), a measure of competitive A-trait, to look at the contribution of cohesion in predicting competitive A-state beyond the contribution of the SCAT despite the importance of

competitive A-trait as a major predictor of individual anxiety. In the present study, the contribution of cohesion toward the prediction of competitive A-state was explored in addition to the expected contribution of competitive A-trait in predicting competitive A-state.

Importantly, a hypothetical scenario was employed in the present study. Using a hypothetical scenario or recall based on personal experience to assess emotion appraisal has been often adopted by researchers inside and outside the field of sport and exercise psychology (Jones & Uphill, 2004; Levine, 1996). In a hypothetical scenario, participants are asked to imagine how they would react in a certain situation that researchers designed. Participants are asked to recall their personal experience in a particular event. Parkinson and Manstead (1992) questioned the validity of scenarios and difficulty in capturing the real ongoing events in a hypothetical scenario. However, Levine (1996) argued that scenarios successfully demonstrated applicability to real events. In support of his argument, competitive anxiety was reported to show the similar high intensity in real and hypothetical scenarios (Hanin, 2007).

The purpose of this study was to examine the relationship of team cohesion with competitive A-state experienced by individuals before competition, with a focus on the recreational sport population. The present study was expected to broaden the understanding of team cohesion by extending previous studies. This study could shed light on the relationship between multi-constructs of cohesiveness and multidimensions of competitive A-state at the recreational sport level. Additionally, this study further

investigated the relation of cohesion with competitive A-state beyond the influence of competitive A-trait.

In research by Prapavessis and Carron (1996), the specific cohesion and competitive A-state factors contributing to the overall relationship between cohesion and competitive A-state were individual attraction to the group-task (ATG-T) and cognitive A-state, but no strong relationships of social cohesion with sub-dimensions of competitive A-state were found. Also, Eys et al. (2003) found that group integration-task (GI-T) was a stronger predictor of the degree to which precompetition anxiety was viewed as facilitative or debilitative than ATG-T, although ATG-T was still positively associated with positive interpretation of precompetition anxiety. In the pilot study conducted by the author, it was found that ATG-T predicted somatic A-state, irrespective of the contribution of competitive A-trait in the regression analysis (see appendix E). Considering all the studies reviewed, it was found that ATG-T was the strongest contributor to competitive A-state.

The present study was designed to examine how cohesion is associated with individual anxiety experienced by individuals before competition. Specifically, the correlation of each dimension (Individual Attraction to the Group-Task, ATG-T; Individual Attraction to the Group-Social, ATG-S; Group Integration-Task GI-T; Group Integration-Social, GI-S) of the Group Environment Questionnaire (GEQ; Carron et al., 1985) was examined in relation to each component (cognitive A-state and somatic A-state) of the CSAI-2. Based on findings from previous research, it was hypothesized that individual attraction to the group-task (ATG-T) and group integration-task (GI-T) would

be negatively related to cognitive A-state and somatic A-state. Furthermore, it was predicted that the four constructs of cohesion would contribute to the prediction of competitive A-state in addition to competitive A-trait. Given that previous research supported individual attraction to the group-task (ATG-T) and group integration-task (GI-T) as predictors of competitive A-state and the pilot study supported individual attraction to the group-task (ATG-T) as a predictor, it was hypothesized that individual attraction to the group-task (ATG-T) and group integration-task (GI-T) would predict competitive A-state in the present study. More specifically, it was expected that individual attraction to the group-task (ATG-T) would be a stronger predictor than group integration-task (GI-T). Although competitive A-trait was expected to be the strongest predictor, it was hypothesized that individual attraction to the group-task (ATG-T) and group integration-task (GI-T) would contribute to the prediction of competitive A-state beyond the prediction of competitive A-trait.

CHAPTER II

REVIEW OF LITERATURE

Cohesion

This chapter reviews the literature in cohesion and competitive anxiety. First, cohesion models and sport psychology research are reviewed. Nature of cohesion and cohesion subcomponents are reviewed. Then, research on competitive anxiety is examined. Specifically, Martens's competitive anxiety model is reviewed with a significant body of research that provides support the model. Finally, the chapter ends with the research specifically looking at the relationship between cohesion and competitive anxiety.

Definition of Cohesion

Cohesion is one of the attributes that characterizes a group and thus, we must first understand a group (or a team) to improve our understanding of cohesion. As the interest in group dynamics has increased, numerous ways to describe a group have been introduced. Bass defined a group as a "collection of individuals whose existence as a collection is rewarding to the individuals" (Bass, 1960, p.39). Baumeister and Leary (1995) suggested that a group offers a venue where individuals have a sense of belonging. They proposed that human's prime desire to belong to a group can be fulfilled by successful interactions with amiable others and stability of a group in which social

bonds take place. In particular, social interactions predominantly occur in sport teams, and sport teams seem to be stable units that encompass affective concerns among group members (Terry et al. 2000). In this sense, sport settings afford the appropriate conditions to explore group dynamics.

Within sport and exercise psychology, Carron, Hausenblas, and Eys (2005) defined a team as "a collection of two or more individuals who possess a common identity, have common goals and objectives, share a common fate, exhibit structured patterns of interaction and modes of communication, hold common perceptions about group structure, are personally and instrumentally interdependent, reciprocate interpersonal attraction, and consider themselves to be a group" (p.13). This definition provides guidance for understanding characteristics of a sport team; members in teams stick together for both task and social purposes. Members mentally and emotionally influence, and are influenced by, other members in teams.

There are a number of definitions of cohesiveness discussed by researchers, recognizing the importance of cohesion as an integral part of group dynamics. Cohesiveness is perhaps best described as some degree of unification such as affiliation, basic bond, or harmony within a group. Although these simple definitions provide a rough idea of what cohesion is, they do not offer explicitly sufficient explanations (Carron, 1982; Piper, Marrache, Lacroix, Richardsen, & Jones; 1983). In the early group dynamics literature, Festinger, Shachter, and Back (1950) defined cohesion as "the total field of forces that act on members to remain in the group" (p.164). Since Back (1951) proposed that cohesiveness is "the attraction of membership in a group for its members"

(p.9), many researchers have adopted his notion of the attraction to group in their studies on cohesiveness (Mudrack, 1989). Later, Gross and Martin (1952) reconceptualized cohesion as a resistant drive against unsettling forces to dissolve a group.

In his review pertaining to defining group cohesiveness, Mudrack (1989) argued that these definitions with a sole focus on one dimension of cohesion did not take into account multidimensions in the operationalization of cohesion. Accordingly, it is argued that none of these definitions are adequate. Eventually, it was suggested that the definition should precisely reflect the characteristics of cohesiveness and should be viewed as multi-constructs (Carron, Brawley, & Widmeyer, 1998).

The most widely-cited definition is Carron et al.'s (1998) definition of cohesion. They defined cohesion as "a dynamic process which is reflected in the tendency for a group to stick together and remain united in the pursuit of its instrumental objectives and/or for the satisfaction of member affective needs" (p. 213). Carron (1982) and Carron et al. (1985) noted that this definition shows the essence of cohesion with the consideration of a group as both a social unit and as an instrumental unit. Carron (1982) also proposed that individual's perception of individual connections to the group and individual's perception of how the group functions to meet its objectives as a whole "are intimately interwoven into the development of the group" (p.124). Carron et al.'s (1998) definition is the basis for the operationalization and measurement of cohesion in most sport psychology research, and in the current study.

Nature of Cohesion

Carron et al.'s (1998) definition puts emphasis on four predominant aspects of cohesiveness: *multidimensional, dynamic, instrumental, and affective*. M*ultidimensional* suggests that individuals have different motives to become involved in groups and these reasons can vary from group to group. That is, individuals have different reasons to join a group and stay in a group. One amateur soccer player may show high cohesion for the purpose of winning a game while social interaction with others is relatively low. Another member from the same team may be socially united at a high level, but not greatly focused on performance in competition.

Dynamic suggests that individual's perceptions and motives to stay in groups can fluctuate over time. Contributors to group cohesion can change depending on the stage of development of the group. In the forming stage of a group, social concerns (e.g., interaction and communication among group members) can be predominant whereas task-related perspectives may become more important factor to cohesion in later stages.

Instrumental is also considered as a predominant aspect of cohesiveness. Individuals in groups share a fundamental interest in the group's development and maintenance. Not only do task-oriented groups such as sport groups and work groups have an instrumental basis for the formation and maintenance of the groups, but also social groups such as fraternities, have instrumental reasons that may provide a motivational base for group members.

Affective relates to the social interactions among individuals in groups. The extent to which group members feel united from a social perspective can evolve or regress over

time. Group members dynamically interact with one another even when they focus on a task in the group (Carron, Brawley & Widmeyer, 1998; Carron, Hausenblas & Eys, 2005; Carron, Shapcott, & Burke, 2007).

Early Research on Cohesion in Sport Groups

Much research in the earliest group dynamics literature was not well-conducted and is regarded as inconsistent and confounded. Accordingly, many researchers criticized research in the area of cohesiveness as being done with no widely accepted operationalization and measurement, and that ambiguous conceptualization was passed down (Carron, 1982; Carron et al., 1985; Goodman, Ravlin, & Schminke, 1987; Mudrack, 1989).

This critique is two-fold. Firstly, constructs of cohesion were hard to operationalize. This confusion arose from Back's (1951) unidimensional viewpoint and his operational definition of cohesiveness as "attraction to the group". Subsequent research implemented this unidimensional approach to cohesion, which is problematic because other aspects of cohesiveness may play a role in a group. Some individuals join a group in hope of social interaction while others stay in a group to achieve the group's common objectives. For example, on a professional soccer team athletes put their efforts together to reach the goals related to the performance for the team, which reflects a distinct aspect of cohesiveness other than attraction to the group. Individuals may have different reasons to join and stick to the group and different types of cohesiveness may be manifested by different types of groups (Carron, 1982).

Secondly, use of inconsistent measures with low psychometric properties made the research on group dynamics uninterpretable. Researchers employed different instruments (Fiedler, Hartman, & Rudin, 1952; Martens & Peterson, 1971) and examined different aspects of cohesion (Martens & Peterson, 1971). Most measurements were unidimensional and developed independently by researchers. For example, the Sport Cohesiveness Questionnaire (SCQ) developed by Martens, Landers, and Loy (1972) focused on attraction to the group; it may fail to reflect the other constructs of cohesiveness. In addition, seldom did they establish the psychometric properties. These difficulties prompted researchers to develop a sounder conceptual model of cohesiveness.

A Conceptual Framework for Cohesion

A distinction concerning cohesiveness should be made between the group and the individual (Carron, 1982; Mudrack; 1989; Zander, 1971). An effort to establish a clear distinction between the group and the individual was prompted by the recognition that cohesiveness cannot be thoroughly explained by individual attraction to the group. As Gross and Martin (1952) argued, the group as a whole should be considered an important factor of cohesion. In accordance with these arguments, Van Bergen and Koekebakker (1959) separately conceptualized the group property and individual property of cohesion.

It has been also stressed that cohesion should be subdivided into task-related cohesion and social-related cohesion (Carron et al., 1985; Mikalachki, 1969). Mikalachkii (1969) noted that different types of cohesion are present depending on the focus of the group, and suggested the need to distinguish social orientation and task orientation. Festinger et al. (1950) suggested that there are two constructs: attractiveness of the group

(individual's perception of incentives to belong to the group) and means control (individual's perception of how the group functions for its objectives as a whole). Additionally, Carron and Chelladurai (1981) made a distinction between group processes as an interpersonal construct and group processes as a goal-oriented construct.

Carron et al.'s (1985) Conceptual Model of Cohesion

The need to distinguish between the group and the individual and between task-based and social-based dimensions of cohesion was established in the literature, as discussed in the previous section. Subsequently, a multifaceted conceptual model of cohesion was developed by Carron et al. (1985) to address the need for a clear conceptualization of cohesion.

The basis for the development of this conceptual definition, related conceptual framework and measure of cohesiveness (Carron et al., 1985) evolves from three assumptions. First, "social cognitions about cohesion (cf. Bandura, 1986; Zander, 1971) can be evaluated through the perception of individual group members". It is assumed that social cognitions that reflect perceptions of the group through personal information processing are a reasonable estimate of various aspects of unity characteristics of the group (Carron et al., 2002, p. 9). The second assumption is that "social cognitions about cohesion are related to the group as a totality and how the group can help individuals achieve personal needs and objectives" (Carron et al., 2002, p. 9). These social cognitions reflect different aspects of individual perceptions pertaining to the group. The third assumption is the consideration of two major types of cohesion; task cohesion and social

cohesion. These assumptions constitutively represent important characteristics of cohesion.

The resulting conceptual model of cohesion includes two constructs: group integration, which represents how individuals in the group perceive the group as a whole, and individual attractions to the group, which shows what led individuals to the group (Carron, 1982; Carron et al., 1985). Task and social cohesion are also considered in the model and thus both group and individual attraction categories can be divided into task and social aspects. Task cohesion is the focus on achieving the group's goals while social cohesion is the orientation to social relationships in the group.

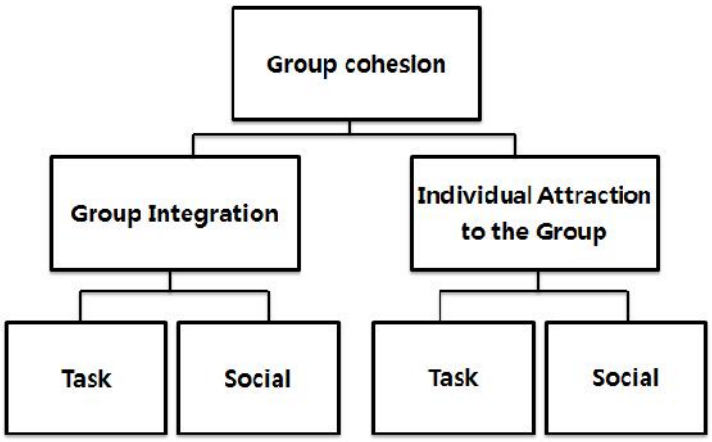

Figure 1. Carron et al.'s Model for Group Cohesiveness
Sources: Brawley, Carron, and Widmeyer, 1987; Carron, Widmeyer, and Brawley, 1985; Widmeyer, Brawley, and Carron, 1985.

Accordingly, four dimensions associated with cohesion within sport contexts are identified (see Figure 1):

- *Group integration-task* (GI-T): individual group member's perception about the similarity, closeness, and bonding with the group as a whole around task aspects (e.g., taking responsibility when failing to achieve the performance goals in the team).
- *Group integration-social* (GI-S): individual group member's perception about the similarity, closeness, and bonding with the group as a whole around social aspects (e.g., building up fellowship away from sport).
- *Individual attractions to the group-task* (ATG-T): individual group member's perception about personal involvement with the group task, productivity, and goals and objectives. (e.g., liking performance related aspects of the team).
- *Individual attractions to the group-social* (ATG-S): individual group member's perception about personal involvement, acceptance, and social interaction with the group (e.g., liking social interaction in the team) (see Martin, Paradis, Eys & Evans, 2013; Carron et al., 1998)

The model constructs, and related measures have helped researchers examine cohesiveness and group dynamics in sport teams.

Any conceptualization of a model may not completely explicate the phenomena that occur in group dynamics. Thus, it is still worth noting the limitations of Carron et al.'s cohesion model. The measurement of cohesion based on Carron et al.'s model does

not include direct observations of the group. In this sense, the assessment of cohesiveness is centered on individual perceptions with less consideration of total group cohesion as a unit. In addition, the perspective of an outsider of the group was not considered in their model and thus the model may not include the relevant dimensions of cohesion (Brawley et al., 1987; Carron et al., 1985).

Despite those limitations, the conceptual model of Carron et al. is the most widely cited and used in the literature. Dion and Evans (1992) proposed the model can be applied to different areas due to a clear conceptualization of constructs of cohesion. This group cohesion model facilitates the investigation of different constructs of cohesion separately such that the relationships among variables within a group become clearer. It is applicable to various fields, and guides the development of cohesion measurement.

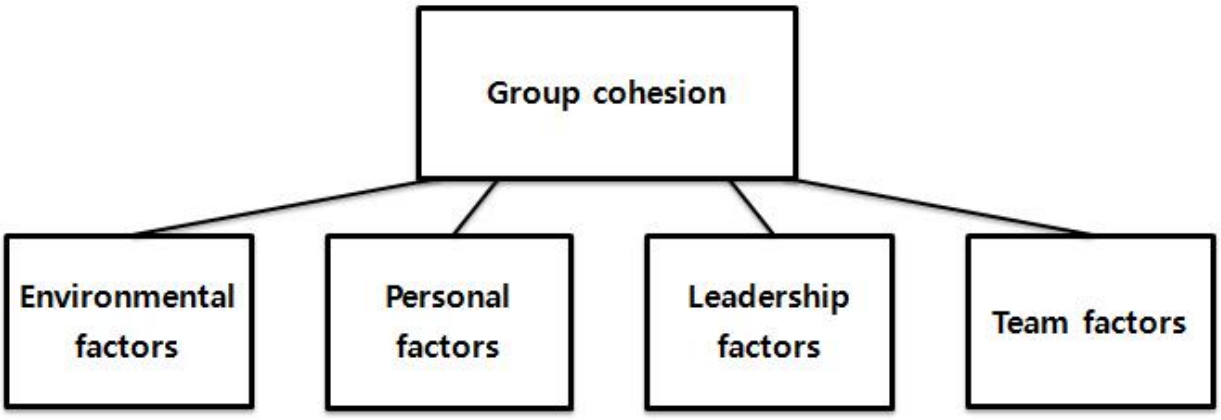

Figure 2. General Framework for Antecedent Factors of Cohesion in Sport and Exercise Groups.
Source: Carron, 1982

The antecedent factors can be categorized into four sections: environmental, personal, leadership, and team (see Figure 2). Environmental factors broadly can be divided into contractual responsibility and organizational orientation (Carron, 1982). Contractual responsibility pertains to "the eligibility and/or transfer rules, geographical restrictions for amateur participation, and the contractual obligations which exist in professional as well as amateur sport" (Carron, 1982, p. 130). Importantly, this environmental factor differentiates a recreational sport team from a professional sport team. Recreational sport players have the freedom to join and leave (absence is common at recreational sport level) while professional players are restricted based on stricter contractual responsibilities. Organizational orientation relates to the purpose of the group and various underlying characteristics such as gender, skill level, and so forth. It also provides a way to distinguish recreational sport teams and professional sport teams because skill levels, goals, and other underlying bases between two teams are different. Other environmental factors associated with cohesion are proximity (e.g., physical closeness; staying together in a training camp), distinctiveness (e.g., perception of standing out as a team; team mottos), competition level (Gruber & Grey, 1982) and team size (Widmeyer, Brawley, & Carron, 1990).

The second major antecedent factor is personal factors. Cohesion in sport teams is also linked with several characteristics of individual group members. Cohesion is correlated with individual satisfaction (Martens & Peterson, 1971; Widmeyer & Williams, 1991). Cohesion produces team success and increases individual satisfaction in the group, which in turn contributes to cohesion (Martens & Peterson, 1971). Additionally, cohesion

has been shown to be related to competitive state anxiety (Eys et al., 2003; Prapavessis & Carron, 1996), social loafing (Carron et al., 2005) and individual sacrifice (Prapavessis & Carron, 1997).

The third major factor, leadership, represents the relationship between the team leader and members. The relationship between coach and athlete influences the development of cohesion (Carron & Chelladurai, 1981). The coach's style of decision making and behavior has an impact on athletes, which subsequently influences team cohesion (Westre & Weiss, 1991). Gardner, Shields, Bredemeier and Bostrom (1996) also reported that "coaches' high levels of instruction, democratic behavior, social support, and positive feedback, and low levels of autocratic behavior are positively related to team cohesion level" (p.378).

The last major factor is the dimension related to the team. Carron et al. (2007) suggested that group cohesiveness is associated with a number of structural characteristics. One of the important team factors is the group norms. The relationship of cohesion with the group norm is circular. Group norms enhance group cohesiveness and increased group cohesiveness will improve group norms (Carron, 1982; Gammage, Carron, & Estabrooks, 2001). Team stability is another factor contributing to cohesiveness (Zander, 1976). When the team members spend more time in the group, they have more chances to develop group cohesion. Role involvement (e.g., role ambiguity and role clarity) plays an essential part in promoting cohesion (Beauchamp, Bray, Eys, & Carron, 2003). It has been found that collective efficacy (e.g., aggregate of group member's competence to meet situational demands) is associated with cohesion

(Kozub & McDonnell, 2000). Further, it was found that collective efficacy performs an important role in the relationship between performance and cohesion (Heuze, Raimbault, & Fontayne, 2006). Finally, the development of cohesion is connected to the performance outcome. Carron et al. (2002) suggested the relationship between cohesion and performance works in a circular manner. The development of cohesion improves performance. In turn, improved performance enhances cohesion. From a meta analysis, Carron et al. (2002) found that both task and social cohesion have a positive relationship with performance outcome. Carron et al. (2002) also reported that the overall effect size of the relationship between cohesion and performance in sport teams was significantly moderate to large (ES= .655). Thus, it can be pointed out that performance outcome is closely related to team cohesion.

Measurement of Cohesion

An adequate measure of cohesion is necessary to better understand what impacts group membership and how groups function in group dynamics. With the lack of a psychometrically-sound assessment tool for cohesion, many researchers called for the need to develop a valid and reliable measure of cohesiveness. Using the four constructs of the model as a basis, an instrument to assess the perceived cohesion of sport teams was constructed (Brawley et al., 1987; Carron et al., 1985; Carron et al., 2002). The instrument is called the Group Environment Questionnaire (GEQ).

Carron et al. conducted various analytic procedures for item development and reliability assessment. To begin with, responses of students and athletes from a variety of sports at different levels were used to develop items for the GEQ and to form the

response pool that includes the four constructs of cohesion. Five experts used this information to individually examine item content to ensure that the response pool properly grouped items into the four constructs. Through item development, refinement and selection, content validation was established. After the item development, intrascale equivalence and interscale equivalence were examined with heterogeneous samples from a variety of sport teams to confirm internal consistency. It was found that consistency was replicated across different samples such that the items of the GEQ demonstrated good internal consistency. Although the factor analysis indicated that the factor structure fairly represented constructs in the conceptual model, it was decided that the elimination of particular items would improve internal consistency. Subsequently, further item analyses were carried out to screen problem items and to eliminate them. Several item analysis techniques resulted in total 18-items in four scales that reflect each dimension of cohesion. Thus, the GEQ offers high applicability, content validity, internal consistency, and factorial validity (Brawley, Carron & Widmeyer, 1987; Carron, Brawley & Widmeyer, 2002; Carron, Widmeyer & Brawley., 1985).

Brawley et al. (1987) further examined various aspects of the GEQ′s validity. Several sport-related instruments were chosen for comparison and association with the GEQ as relevant criteria to establish concurrent validity: the Sport Cohesiveness Questionnaire (SCQ: Martens, Landers, & Loy, 1972) and the sport-modified Bass Orientation Inventory (SBOI: Ball & Carron, 1976), and the Team Climate Questionnaire (TCQ: Grand & Carron, 1982). The results showed that the GEQ demonstrated significant correspondence with similar measures and little or no correspondence with the

measures of different constructs. Brawley et al. also conducted studies to establish criterion-related validity. Two different groups (individual sport and team sport) were assessed to verify different levels of cohesion. Task-related scales in the GEQ successfully differentiated team sport athletes and individual sport athletes. Group integration-social (GI-S) also discriminated old members and new members in the individual sport teams. Construct validity was examined as well. Mean scores of the GEQ scales from two extreme groups were compared. The extreme groups were different in group integration-task (GI-T) and individual attraction to the group-task (ATG-T). Furthermore, the mean scores of self-responsibility attributions from the extreme samples were compared. The results showed that athletes who possess a high perception of cohesion assumed greater responsibility for a loss than athletes who are relatively low on cohesion.

These results provide evidence for validity and reliability of the GEQ. The GEQ "operationalizes constructs, separates previously confounded perceptions, is generalizable to a large cross-section of sports, shows reliability consistently across samples, and satisfies more than one form of validity" (Carron et al., 1985, p. 264). Furthermore, Slater and Sewell (1994) suggested, "the GEQ holds great potential for furthering the establishment of a more complete picture of team cohesion in sport" (p.424). Demonstration of consistency and accuracy of items and successful validity assessment allowed the GEQ to be widely used as the dominant measure of cohesion in sports.

Cohesion-Team Success Relationship

Considerable research has examined the relationship between cohesion and performance outcome in sports. In other words, a major question is whether team cohesiveness leads to team success.

Several studies confirmed the positive relationship between cohesion and team success (Landers, Wilkinson, Hatfield, & Barber, 1982; Williams & Widmeyer, 1991). In contrast, Melnick and Chemers (1974) found no relationship, and another study by Landers and Lueschen (1974) showed negative relationships. Although it seems that research on the cohesion-team success relationship produced equivocal findings, more recent research suggests a positive relationship.

In their meta-analysis on research from various areas of psychology, Mullen and Copper (1994) found a small to moderate relationship of cohesion and team success in sport groups, which was stronger than relationships in non-sport groups. In a more recent meta-analysis, Carron, Colman, Wheeler and Stevens (2002) reported a significant moderate to large relationship between cohesion and team success. In addition, Carron, Bray and Eys (2002) examined the relation of task cohesion with team success and they found that task cohesion has a strong relationship. In particular, individual attraction to the group-task had a stronger association with team success than group integration-task.

Surprisingly, both task and social cohesion were positively related to performance outcome in Carron et al.'s (2002) meta-analysis. The results of their study indicated no significant difference between the strengths of the task cohesion-team success relationship and the social cohesion-team success relationship. It is interesting that the

relationship between social-oriented cohesion and successful performance is significantly positive because sport groups are often viewed as goal-oriented toward team success. In addition, Mullen and Copper's meta-analysis only showed a significant relationship between task-related cohesion and team success. Thus, Carron's findings that social-oriented cohesion is strongly associated with team performance outcome indicate the importance of the development of social cohesion to team performance outcome. It also should be noted that cohesiveness is related to performance outcome in both coactive sports and interactive sports, suggesting the type of task does not play a role in influencing the relationship between cohesion and performance outcome. Cohesiveness in coactive sports should not be neglected.

The relationships between cohesion and performance are still ongoing issues. Mediating variables should be examined regarding cohesion and performance outcome. When their roles associated with cohesion and performance outcome are clearly identified, a better understanding of cohesion and group dynamics in sport can be established.

Relationship between Cohesion and Psychological States

Research addressing psychological benefits from cohesive groups has found that cohesion is positively related to positive mood states (Lowther & Lane., 2002), increased confidence in the group's ability to resist the disruptive forces (Brawley, Carron, & Widmeyer, 1988), diffusion of the responsibility for failure (Brawley, Carron, & Widmeyer, 1987) whereas cohesion is negatively related to precompetition state anxiety (Eys et al., 2003; Prapavessis & Carron, 1996), and tension and depression (Terry et al.,

2000). In particular, Baumeister and Leary (1995) argued that positive social interaction accounts for positive mood states. Prapavessis and Carron (1996) suggested that "improving the dynamics of the team could enhance the psychological state of the individual" (p. 72)

Competitive Anxiety

Research on competitive anxiety has gained the attention of researchers in sport and exercise psychology. Specifically, the relationship of competitive anxiety to performance is one of the most extensively researched areas in sport and exercise psychology (Jones & Swain, 1995; Martens et al., 1990). Competitive anxiety has been considered to be a factor that can facilitate or debilitate sport performance. In addition, it has been reported that competitive anxiety is associated with various factors that may influence an athlete's performance. It has been documented that competitive trait anxiety (A-trait) is related to self-worth (Brustad & Weiss, 1987), sport confidence (Gould, Horn, & Spreeman, 1983a; Vealey, 1986), experience (Gould et al., 1983a), and participation in future sport competition (Gould, Feltz, Horn, & Weiss, 1982). Moreover, it has been reported that competitive state anxiety (A-state) is associated with importance of competition (Hackfort & Schulz, 1989), sport type (Martens et al., 1990), experience (Gould et al.'s, 1984) and team cohesion (Eyes et al., 2003; Prapavessis & Carron, 1996).

The investigation of antecedents and consequences of competitive anxiety in sport settings enables researchers to further understand competitive anxiety. In the present study, the relationship of competitive trait/state anxiety with cohesion will be addressed

to contribute to understanding the dynamics of a cohesion-anxiety relationship in recreational sport settings.

Arousal, Stress and Anxiety

The description and distinction of related terms such as arousal, stress and anxiety should help readers to understand the anxiety literature. These concepts are distinct, but the terms have been used in a similar fashion. First, arousal is defined as the degree of physiological and emotional activation in response to stimulating situations (Cannon, 1927). It is often described as the intensity of activation. For example, high arousal is related to a panic or extreme thrill whereas relaxation or calmness can be viewed as low intensity of arousal. Arousal does not account for the direction (e.g., positive vs. negative).

Stress is described as the relationship between environmental challenges and a person's ability to cope with these challenges. Environmental stimuli are appraised in relation to resources that athletes possess (Lazarus, 1993). Two features are salient in Lazarus's (1993) definition of stress; stress involves perceived environmental factors and follows athlete's appraisal. When tasks/ stimuli are perceived as overwhelming based on the cognitive appraisal by athletes, these situations are interpreted as threatening and harmful. But, when athletes perceive that they have enough resources to cope with such situations, no or little stress is experienced. Thus, stress can be differently perceived from individual to individual even in the same circumstances.

Anxiety is generally referred to as negative feelings/perceptions in the stress response, which is characterized by cognitive, physiological, and behavioral symptoms

(Lazarus, 1991; Martens et al., 1990). Anxiety involves an aversive emotional response and an avoidance motive. Unpleasant feelings, worries, and apprehension are manifested with increased physiological arousal after the appraisal of stress.

Distinction between Trait and State Anxiety

It is important to note the conceptual distinction between state anxiety (A-state) and trait anxiety (A-trait). In Spielberger's (1973) trait-state theory of anxiety, A-state is existing or immediate emotional state characterized by apprehension and tension in a particular situation. On the other hand, A-trait is the individual's typical level of anxiety when situational factors are not taken into account. A-trait is an acquired behavioral disposition to perceive non-dangerous situations as threatening with different levels of state anxiety. "Thus, A-trait reflects an individual susceptibility, or likelihood, to feel anxious in a given situation" (Smith et al., 1998, p. 201) whereas A-state is an instantaneous response accompanied by arousal of the autonomic nervous system.

It has been suggested that A-trait and A-state show different patterns. While A-trait is a relatively permanent state, A-state lasts for short period of time. Specifically, A-trait is a relatively constant predisposition and is not easily changed. On the contrary, A-state is constantly impacted by situational variables (Eysenck, 1992; Spielberger, 1973). For example, perceived A-state by a soccer player may be at a low level before the soccer season starts, but the level of A-state may begin to go up as a sport competition comes close. A-state experienced by the athlete may come to a climax just before a competition. A-state may dissipate substantially after a competition is finished. Such changes are

determined by situational variables (e.g., the proximity of competition, competition level, and outcome uncertainty).

Distinction between General Anxiety and Sport-specific Anxiety

Researchers have viewed anxiety as a global trait until the late 1970s (Smith et al., 1998). However, a global trait anxiety measure showed limited usefulness in sport-specific settings. Inconsistent findings indicated that global A-trait should not be generalized to all types of situations. Rather, anxiety is manifested differently, depending on the nature of situations. Martens (1977) contended that specific trait anxiety predict better in stress situations than do general A-trait measures. More specifically, it is difficult to measure a person's tendency to become anxious in sport competition with a general A-trait instrument.

The development of sport-specific A-trait was spurred by the interactional paradigm that considers behavior to be a product of the interaction between a person and environment. That is, not only do individual differences (personality traits) influence behaviors, but also the environment exerts considerable impact on behaviors. More specifically, a high score on general A-trait may not generalize to the tendency to be anxious in the context of sport competition. For example, a recreational softball player may have low sport-specific A- trait and not experience high levels of anxiety during softball, but may have higher general A-trait and become relatively anxious during public speaking in class. The development of the sport competitive anxiety measure was called for to have a greater understanding of sport-specific anxiety.

Martens's (1975) Competitive Process

To understand competitive anxiety in the context of sport, we should understand the competitive process. Martens (1975) developed a model of the competitive process that has four components, and this model was altered by Martens and his colleagues based on supportive research (Bandura 1978; Martens 1975; Martens et al., 1977, 1990; Vealey 1986). The expanded conceptualization of the competitive process is presented in Figure 3. Initially, the objective competitive situation (OCS) is described as objective stimuli in the competitive process. The OCS is environmental factors present in competition such as the type of sports, the level of competition, the ability of opponents, the playing conditions, and the presence of significant others. Social evaluation of an individual's performance with a particular standard is the noticeable attribute in the OCS. It is important to know whether a person evaluates situations as threatening.

The next step is the subjective competitive situation (SCS). It is the individual's perception of the OCS. Martens et al. (1990) pointed out that "the SCS is mediated by such factors as personality dispositions, attitudes and abilities, and other intrapersonal factors" (p.17). Individuals have different ways of interpreting and accepting the OCS because they have different intrapersonal characteristics. In this sense, competitive A-trait is a personality disposition that indicates how a person interprets the OCS. The response to environmental demands depends on how a person appraises the OCS. Based on the SCS, individuals show different responses; those who tend to get anxious in sports may find local softball leagues threatening, whereas individuals with low competitive A-trait

may view local softball leagues as entertaining. Martens (1975) indicated that behavioral, physiological, and psychological responses are based on the perception of the SCS.

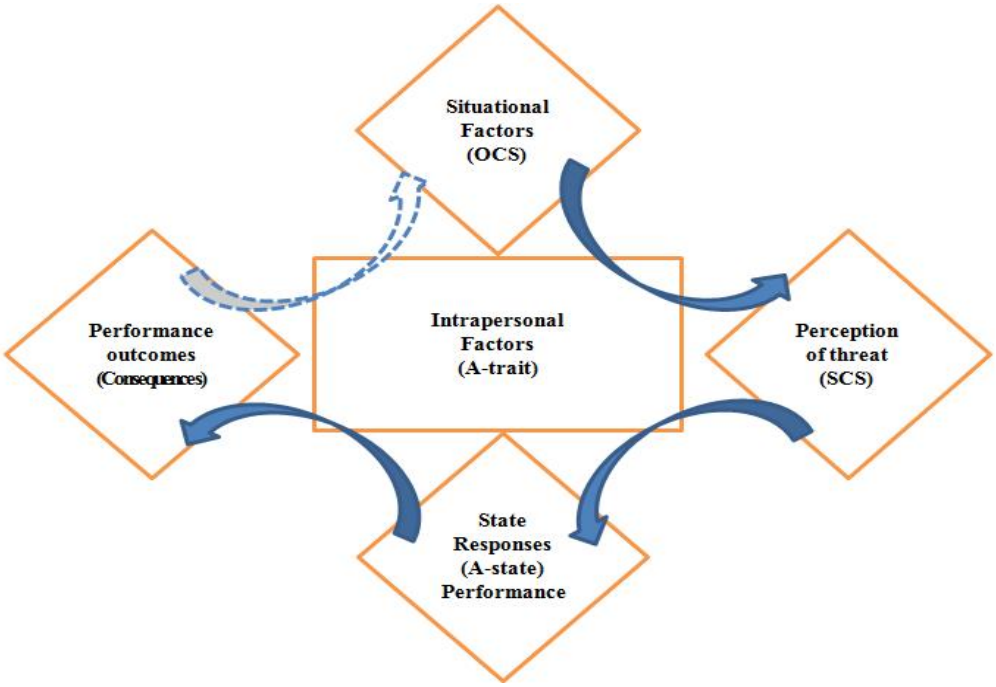

Figure 3. Competitive A-trait as a Mediator between Competitive Stimulus and Response Source: Martens, 1977.

Lastly, the performance outcome may alter the SCS. The consequences of participation in competition can be viewed as success or failure. The determinant of success and failure can be the outcome of the competition (win-loss), achievement of personal standards or other's evaluation of individual's performance. In particular, it should be noted that the consequences of competition may influence individual's competitive A-trait, and thus determine whether or not a person participates in the subsequent competitions (Martens, 1977).

Competitive Anxiety Model

Martens's (1977) competitive anxiety model emphasizes individual's interpretation as a mediator between environmental demands and responses. In this model, competitive A-trait plays a role as a mediator between OCS and A-state response in relation to perception of threat (see Figure 4). Thus, it was hypothesized that high competitive A-trait athletes perceive higher A-state than low competitive A-trait athletes do. This model is supported by considerable research that shows reliable differences in A-state between high competitive A-trait athletes and low competitive A-trait athletes (Gould et al., 1983a; Scanlan, 1977).

Also, competitive situations are necessary to differentiate high and low competitive A-trait athletes. That is, competitive A-trait should act as a mediator only in competitive situations. It is confirmed by many researchers that competitive A-trait was found to function as a mediator in competitive settings but not in noncompetitive settings (Fisher & Zwart, 1982; Gould et al., 1983a; Martens et al., 1990).

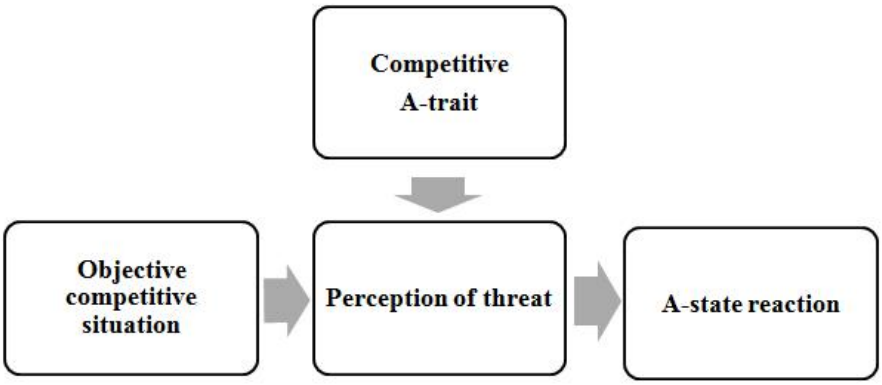

Figure 4. Martens's Model of Competitive Anxiety
Source: Martens, Burton, et al, 1990

Perception of threat is the result of the interaction between the competitive situation and competitive A-trait. Fisher and Zwart (1982) revealed three major sources of perception of threat; ego threat from poor performance, outcome uncertainty, and negative outcome certainty. In addition, Passer (1983) and Rainey and Cunningham (1988) reported fear of failure and fear of negative evaluation by others as the main sources of perception of threat. Gould, Horn, and Spreeman (1983b) found that fear of failure/feelings of inadequacy and social evaluations were significantly associated with competitive A-trait.

Situational and intra-personal factors should be taken into consideration along with competitive A-trait. Research has demonstrated that a variety of personal and situational factors have been found to influence the competitive process. Specifically, the interaction of situational (e.g., type of sports or level of competition) and intra-personal factors (e.g., competitive A-trait, ability, and experience) influences perception of threat.

This interaction creates differential perceptions of threat which elicit varying levels of competitive A-state. Martens et al. (1990) and Gould et al. (1984) argued that situational factors played a vital role between antecedents and competitive A-state. Understanding underlying characteristics that influence perception of threat is essential to competitive anxiety.

Martens's (1977) competitive anxiety model formed the theoretical steppingstone for further research relating to competitive anxiety. The development of Martens's competitive anxiety model enabled abundant research on competitive anxiety in sport settings.

Measurement of A-trait

Martens' conceptual model led to the development of sport-specific instrumentation, the Sport Competition Anxiety Test (SCAT; Martens, 1977). Equivocal findings in the previous literature were evident and thus the need for a competitive A-trait measure was recognized by researchers. Subsequently, Martens developed the competitive A-trait tool that applies to sports, based on his competitive anxiety model. The SCAT is a unidimensional measure that taps competitive A-trait. The SCAT is a self-report measure that has strong validity and reliability based on rigorous scientific methodology.

Item development was conducted by including modified items from existing A-trait measurements such as the Manifest Anxiety Scale (Taylor, 1953), the State-Trait Anxiety Inventory for Children (Spielberger, 1973), and the General Anxiety Scales (Sarason, Davidson, Lighthall, Waite, & Ruebush, 1960) and by developing new items.

Item analyses were conducted through the difference between extreme groups, triserial correlations and a discriminant analysis (Martens, 1977). A child version of SCAT (SCAT-C) was developed and an adult version of SCAT (SCAT-A) was subsequently designed with changes of wording on instructions and one item. Ten items and 5 spurious items were developed, and 10 items had acceptable psychometric properties. To establish internal consistency, Kuder-Richardson formula 20 (KR-20) coefficients were calculated. Item discriminability was confirmed with the KR-20 from .95 to .97 for both versions. Ostrow and Ziegler (1978) further supported the high internal consistency. Test-retest reliability was also examined with various samples. Test-retest reliability indicated satisfying acceptable criteria with the range from .57 to .93. Using ANOVA reliability estimates, the ANOVA reliability coefficients were found to be .81.

Concurrent validity of the SCAT was established by assessing the correlation with the measures that tap general A-trait and sport-specific measures of A-trait. Low-moderate correlations of the SCAT with general A-trait measures were found while high correlations with situation-specific and sport-specific measures were obtained.

Construct validity was also demonstrated by investigating the conceptual model of competition and constructs related to competitive A-trait. Research has shown that perception of threat is critical to the interaction of situational factors with competitive A-trait as discussed previously (Fisher & Zwart, 1982; Rainey & Cunningham, 1988). It was also found that a significant difference in A-trait led to differential perceptions of threat (Scanlan, 1977). The ability of the SCAT to predict competitive A-state was confirmed by examining the correlation of the SCAT to competitive A-state measures

such as the State-Trait Anxiety Inventory-State anxiety (STAI-S; Spielberger et al., 1970) and the Competitive State Anxiety Inventory-2 (CSAI-2; Martens et al., 1990) (Gill & Martens, 1977; Martens et al 1990; Scanlan 1977). Therefore, SCAT has been accepted as a valid instrument to assess competitive A-trait and supported the model of the competitive process proposed by Martens.

SCAT's Ability to Predict Competitive A-state

Most importantly, it has been documented that competitive A-state is predicted by competitive A-trait (Gill & Martens, 1977; Gould et al., 1984; Martens et al 1990; Scanlan 1977). The SCAT predicted A-state better than any other factors (e.g., perceived skill level, sport type, or experience) in the context of competition (Smith et al, 1998). High competitive A-trait in athletes predicted higher A-state before and during competition in comparison with athletes low in competitive A-trait. Specifically, competitive A-trait has been supported as a significant predictor of cognitive and somatic A-state. It is also vital to note that the SCAT's ability to predict competitive A-state is better in competitive situations than noncompetitive conditions (Martens et al., 1990).

Multidimensional Competitive A-state

A multidimensional conceptualization of A-state was pursued by anxiety researchers suggesting that A-state has separate components rather than being a unidimensional construct (Davidson & Schwartz, 1976; Martens et al., 1990). By identifying different components of state anxiety, competitive state anxiety was reconceptualized and thus, the multidimensional constructs were developed. In particular, factor analytic studies confirmed the separate dimensions as cognitive (*cognitive A-state*)

and somatic anxiety (*somatic A-state*) (Morris, Davis & Hutchings, 1981; Smith, Smoll, & Schutz, 1990).

Cognitive A-state is the mental component of anxiety. Cognitive A-state is worry about negative outcomes/performance along with negative self-evaluation in a given situation (Morris, Davis & Hutchings, 1981). Martens et al. (1990) and Smith et al. (1998) characterized cognitive A-state as involving worry or negative self-evaluation, disturbing visual evaluation, concentration problems, and control problems. *Somatic A-state* refers to the physiological and affective component of anxiety. Somatic A-state is directly related to autonomic arousal. Somatic A-state shows noticeable responses in body systems such as heavy feelings in the stomach, stiffness of muscles, sweating, shivering in the limbs, and difficulty breathing.

It is assumed that cognitive and somatic A-state may be induced by different types of antecedents and may elicit different sorts of consequences (Davidson & Schwartz, 1976; Martens et al., 1990). Individuals have differential patterns of response to environmental stimuli, which may lead to different manifestations of somatic A-state and cognitive A-state. One may perceive high levels of somatic A-state in certain situations but cognitive A-state in different conditions. It should be noted that although cognitive and somatic A-state may be related, they are constitutively independent. Substantial research has demonstrated the need to distinguish between somatic and cognitive A-state.

The multidimensional nature of A-state leads to two conceptual predictions (Morris, Davis, & Hutchings, 1981). First, different antecedents of cognitive and somatic

A-state were identified; changes in autonomic arousal are the sources of somatic A-state whereas cognitive A-state is associated with performance expectancies (Martens et al., 1990). Second, differential temporal patterns of cognitive and somatic A-state provide more compelling evidence of the conceptual independence of these two types of A-state. The pattern of changes in cognitive A-state is exclusively influenced by self-evaluation of success. For somatic A-state, it is dependent on the time of competition.

It is proposed that the impact of the two components of A-state on performance differ. Somatic A-state peaks immediately prior to competition and drops drastically at the onset of competition. Cognitive A-state is relatively stable unless some major events change the expectancies of performance outcome. When performance expectancies become negative, cognitive A-state increases. Conversely, when athletes have positive expectations of successful performance, cognitive A-state is low. Considerable research has shown the independent relations between cognitive A-state and somatic A-state with performance. It has been shown that the relations depend on the nature of task (Martens et al., 1990; Morris, Davis, & Hutchings, 1981; Smith et al., 1998).

Measurement of A-state

Initially, Martens et al. (1990) developed Competitive State Anxiety Inventory-1 (CSAI-1) by modifying some items in Spielberger et al.'s (1970) State Anxiety Inventory (SAI). Martens and his colleagues demonstrated the predictions of the competitive anxiety model with CSAI-1; predicted relationships between SCAT and CSAI-1 were confirmed. However, multidimensional conceptualizations of A-state drew the attention of anxiety researchers, and Martens et al. revised CSAI-1 through a systematic process.

Items were developed by adding items from the CSAI-1 and other multidimensional A-state measures (Schwartz, Davidson , & Goleman, 1978), and by generating new items. Through face validity analysis, item-to-subscale correlations, factor analysis, and discriminant analysis, 27 items were identified. Internal consistency was confirmed with reliability coefficients ranging from .79 to .90 with three different samples. Internal consistency was further supported by subsequent research that demonstrated reliability coefficients ranging from .76 to .91 (Martens et al., 1990; Smith et al., 1998). Construct validity was also established by demonstrating the conceptual predictions about key variables influencing sub-dimensions of A-state (see Martens et al., 1990).

Directional Approach to A-state Symptoms

Recently, some researchers (Jones & Hanton, 1996; Jones, Hanton, & Swain, 1994; Jones & Swain, 1992) contended that the CSAI-2 may not be the appropriate measures of A-state. The underlying rationale is that the CSAI-2 solely reflects the intensity, but does not encompass the direction of A-state symptoms. Items reflected in the CSAI-2 are perceptions or feelings that indicate negative A-state symptoms. When only intensity is tapped in the measurement of A-state, important information of how a person interprets A-state symptoms is excluded. Thus, Jones and his colleagues proposed that measuring direction of A-state in addition to the intensity is needed, and thus interpretation of anxiety (debilitative vs. facilitative) should be incorporated in measures of A-state.

Accordingly, a direction scale was added to the CSAI-2 in the measure, Directional Modification of the Competitive State Anxiety Inventory-2 (DM-CSAI-2; Jones & Swain, 1992). Interpretation of A-state symptoms (e.g., if A-state is viewed as either facilitative or debilitative) with intensity is measured in DM-CSAI-2. It was demonstrated that direction of A-state subcomponents is more directly related to performance than the intensity dimension (Jones & Hanton, 1996). Also, Jones et al. (1994) successfully distinguished good performers and poor performers, and elite athletes and non-elite athletes based on interpretation of A-state. Specifically, good performers and elite athletes interpreted A-state symptoms as more facilitative than poor performers and non-elite athletes.

Relationship between Competitive Anxiety and Performance

According to the theoretical model of competitive anxiety, SCAT is not predicted to influence performance directly. Rather, a measure of A-state, CSAI-2 should be the better predictor of performance because state responses directly account for the interaction of intrapersonal and situational factors (Martens et al., 1990). Research has confirmed such notions by finding no significant relation between competitive A-trait and performance (Martens, Gill, & Scanlan, 1976). When qualitative measures of performance such as efficiency of movement were employed, Weinberg (1978) found that high SCAT participants used more EMG energy in competition-related situations, which explains the ineffective use of energy from high A-trait anxiety athletes. However, Weinberg and Genuchi (1980) noted that the relation between A-state and performance was stronger than the relation between competitive A-trait and performance.

In general, it has also been demonstrated that relations of cognitive and somatic A-state with performance have different types of manifestation. Martens et al. (1990) reported cognitive A-state showed stronger correlations with performance than somatic A-state. Whereas cognitive A-state was negatively related to performance, somatic A-state showed a curvilinear shape (i.e., an inverted U-shape) in regard to performance. Gould, Petlichkoff, Simons, and Vevera (1987) found an inverted-U shape in the relationship between somatic state anxiety scores and pistol shooting performance. Whereas some researchers (Krane, William, & Feltz, 1992) found support for the anxiety-performance relationship when intraindividual measures were used, other researchers (Gould et al., 1984; Krane & Williams, 1987) failed to support the relationship. Overall results that tested the relationship between A-state components and performance were equivocal. It thus should be concluded that cognitive and somatic anxiety are differentially related to performance with the different forms of manifestation, depending on the nature of the task and performance measurements (intraindividual vs. performance outcome).

Relationship between Competitive Anxiety and Experience

Situational factors must be accounted for in examining the relationship between competitive A-trait and multidimensional anxiety states. A plethora of research on influencing these factors in sport has been documented. Particularly, many studies indicated that competitive anxiety is influenced by athletes' experience. Fenz (1975) examined the patterns of precompetitive anxiety between experienced and inexperienced parachutists, and found explicit differences and different coping skills. Gould et al.

(1983a) found that wrestlers who had lower A-trait had more experience compared to those who had higher A-trait. They also found that more experienced wrestlers perceived their wrestling ability as higher than less experienced wrestlers. In another study conducted by Gould et al. (1983b), wrestling experience predicted sources of threat labeled as fear of failure and feelings of inadequacy. Finally, in Gould et al.'s (1984) research, experience was found to be the best predictor of cognitive A-state.

Relationship between Competitive Anxiety and Perceived Ability

Regarding the relationship between competitive anxiety and perceived ability in sport, no differences between skilled players and less skilled players were found (Brustad & Weiss, 1987; Gould et al., 1983a). Martens et al. (1990) suggested that although research is equivocal, athletes with higher sport competence tend to show lower A-state in more structured situations that facilitates high competitiveness (Brustad & Weiss, 1987; Gould et al., 1983a). Gould et al. (1984) reported a significant relationship between perceived ability and self-confidence in relation to A-state. Martens et al. suggested that the equivocal findings in the relationship between A-state and perceived ability may be attributed to differences in age, experience or both.

Importance of Competition regarding Competitive Anxiety

Based on Spielberger's (1973) trait-state theory of anxiety, Martens et al.'s (1990) competitive anxiety model, it is suggested that the importance of competition may cause athletes to perceive higher levels of threat and the increase of perceived threat may elicit intense A-state. When athletes have strong feelings that the sport competition is crucial, athletes may interpret the competitive situation as highly meaningful, which may be

accompanied by acute physiological and psychological symptoms. In accordance with this, Lewthwaite (1986) proposed that when personally meaningful goals in competitive sport are threatened, athletes may feel the perception of threat. Some research also suggested that perceived importance of sport competition led to perceived threat to athletes (Fisher & Zwart, 1982; Rainey & Cunningham, 1988). Finally, the importance of competition in terms of competitive anxiety is supported by Hackfort and Schulz (1989) and Gould et al (1983a).

Relationship between Competitive Anxiety and Sport Type

Research indicates that sport type is an important situational factor in regard to competitive anxiety (Martens et al., 1990). Competitive A-trait was higher for individual athletes than for team sport athletes (Martens, 1977). Athletes in team sports perceive lower levels of competitive A-state than those in individual sports (Simon & Martens, 1979). In particular, individual sport athletes experience significantly higher symptoms of cognitive A-state and somatic A-state and significantly lower self-confidence levels when compared to team sport athletes (Martens et al, 1990). Martens et al. advocated Scanlan's (1977) proposition that the experience of competitive state anxiety by athletes is expected to be lower in team sports than in individual sports, due to the diffusion of pressure. However, Martens et al. (1990) also suggested that the significant differences in somatic A-state displayed between team sports and individual sports may be due to physiological differences demanded in certain sports rather than differences between sport types. Therefore, sport type should be taken into account when variables of competitive state anxiety are examined.

Simon and Martens (1979) and Martens et al. found significant differences between contact sport athletes and noncontact sport athletes in competitive state anxiety. Contact sport athletes experienced higher cognitive A-state and somatic A-state and lower self-confidence than noncontact sports. In their discussion, it was suggested that contact sport athletes would have greater competitive anxiety "due to the increased threat arising from personal confrontation" (Martens et al., 1990, p. 143). Additionally, Hammermeister and Burton (1995) found that athletes showed different A-state manifestation according to sport type. Krane and Williams (1987) demonstrated that different patterns of A-state subcomponents were found between golfers and gymnasts.

As reflected in research, it is necessary to specify the type of sport to understand individual anxiety related to cohesion. Soccer is an open skilled invasion sport that requires constant communication and interaction with teammates. Because contact with opponents frequently occurs in soccer, physiological demands may be high, which may increase competitive anxiety.

Relationship between Competitive Anxiety and Cohesion

Cohesion has been explored specifically in terms of competitive state anxiety. Prapavessis and Carron (1996) examined the relationship between particular components of cohesion and A-state by assessing how group perceptions of cohesion influence competitive A-state. They also examined whether perceptions of psychological benefits or psychological costs of cohesiveness served to mediate the relationship between cohesion and A-state with a sample of interactive sport-team athletes (rugby, basketball, hockey, and soccer). They pointed out that research on cohesion has shown not only

psychological benefits of cohesion (Brawley et al., 1987), but also psychological costs such as increased perception of pressure (Zander, 1982). Therefore, they hypothesized that in highly cohesive groups, competitive A-state would be reduced because the threat of evaluation is minimized through responsibility diffusion of performance, and that in low-cohesion groups, competitive A-state would be decreased, because the pressure of responsibility for keeping up with teammates' expectations is decreased.

Prapavessis and Carron's (1996) research shows that athletes in interactive sport teams who perceived their teams as higher in task cohesion as reflected in ATG-T experienced less cognitive A-state. The strongest relationship was found between individual attraction to the group-task (ATG-T) and cognitive A-state. It was also found that psychological costs functioned as a mediator of the relationship with ATG-T, cognitive A-state, somatic A-state and self-confidence. To be more specific, psychological costs showed the negative relationship with ATG-T and self-confidence but positive relationship with cognitive and somatic A-state. Their research shows that individuals with high perceptions of ATG-T suffered less cognitive A-state. They suggested that in highly cohesive groups, competitive state anxiety would be reduced because members of more cohesive teams could experience less pressure to carry out the responsibilities of the group and satisfy other members' expectations of themselves.

Eys, Hardy, Carron, and Beauchamp (2003) extended the above work by examining athletes from sports of soccer, rugby, and field hockey. They examined the association between athlete perceptions of task cohesiveness (Individual Attractions to the Group-Task, ATG-T, and Group Integration-Task, GI-T) and the degree of one's

perceptions of anxiety symptoms as facilitative (or debilitative) for performance. Based on Jones and Swain's (1992) proposition that directional interpretations of precompetitive anxiety should be considered, Eys et al. included the interpretation of precompetitive anxiety (e.g., facilitative or debilitative) in the measure of competitive feeling states.

Their results showed that those athletes who perceived greater task cohesion (both ATG-T and GI-T) were more likely to view their symptoms of cognitive anxiety as facilitative and necessary for their competition. Also, athletes who viewed their somatic symptoms as facilitative had more positive perceptions of GI-T. Both GI-T and ATG-T were related to precompetition anxiety. In particular, findings from discriminant function analyses suggest that GI-T was a more important predictor of the degree as to how athletes interpret precompetition anxiety. They found that when athletes perceive more task cohesion, athletes' perception of A-state as facilitative increases. Thus, their findings support those of Prapavessis and Carron (1996) in that different levels of competitive state anxiety are found, depending on levels of task cohesiveness.

However, research in cohesion-anxiety relationship has solely focused on elite athlete levels (Prapavessis & Carron, 1996; Eys et al., 2003). Moritz and Watson (1998) identified potential biases in group research, and contended over-generalization should be avoided. It is suggested that certain relationships at one level of sport competition not be considered analogous to those of a seemingly similar concept at another level. Carron (1982) also argued that teams can differently function depending on the structure, intragroup processes, cohesiveness, or a combination of these, and the degree of impact on groups can differ. Professional teams are very likely to have different group

characteristics as compared to college teams or recreational youth teams. Although Carron et al. (2002) reported that skill and experience level of the competition was not a significant moderator on the relationship between cohesion and performance, they found different cohesion-performance relationships at different levels of competition.

CHAPTER III

METHODS

The present study was conducted to examine the cohesion-anxiety relationships as well as to examine the contribution of cohesion in predicting individual anxiety among recreational soccer players. The present study is descriptive research in nature, and an online survey design was used to investigate the relationship between cohesion and individual anxiety. The demographic and soccer background questionnaire, the Group Environment Questionnaire (GEQ; Carron et al., 1985), the Sport Competition Anxiety Test (SCAT; Martens, 1977), and the Competitive State Anxiety Inventory-2 (CSAI-2; Martens et al., 1990) with a role play scenario were completed by recreational soccer players who participated in community adult soccer leagues.

Participants

In the present study, the competition standard was recreational or non-elite, defined by the competition level. Only those who participated in amateur leagues/competitions mainly for recreation, without formal contract or compensation were recruited for this study. Adults (above 18 years of age) who participated in recreational soccer leagues in Greensboro were recruited for the present study. Of the 114 who completed the survey, 26 participants were excluded due to the incomplete surveys.

Therefore, only data of 88 participants were used for the analyses in the present study. Further information on the sample is included in the results.

Procedures

Managers and competition organizers from the targeted amateur soccer leagues were contacted to request their cooperation for the present study. After obtaining permission of the study by Institutional Review Board (IRB) of the University of North Carolina at Greensboro and pertinent competition organizers or managers, individuals over 18 years old participating in the league were contacted via e-mail or at a team meeting to recruit participants. All who agreed to participate were sent an e-mail that included an explanation of the study and informed consent and a hyperlink to electronic survey (Qualtrics). The survey included a demographic and soccer background questionnaire, the GEQ, the CSAI-2, and the SCAT. Reminder e-mails were sent twice to those who did not respond to the initial e-mail. It was emphasized that participation in the study was voluntary and confidential. All procedures were in accordance with the Institutional Review Board at the University of North Carolina at Greensboro.

Measures

Demographic and Soccer Background Questionnaire

Demographic information on participants was collected by using the demographic questionnaire. Demographic items include gender, age, race/ethnicity and the current team on which they participate on (see Appendix A). The soccer-related items included years of experience, years on the current team, perceived skill level, and importance of the competition for the current team. Frequency of practice for the current team and the

most important reason for participating on the current team were asked as well. Demographic and soccer-related information were used to better understand the individuals and teams in the present study.

Group Environment Questionnaire

Cohesion was assessed by means of the Group Environment Questionnaire (GEQ; Carron et al., 1985). The GEQ consists of four dimensions of cohesion: Group Integration-Task (GI-T; 5 items), Group Integration-Social (GI-S; 4 items), Individual Attractions to the Group-Task (ATG-T; 4 items), Individual Attractions to the Group-Social (ATG-S; 5 items).

Participants were asked to mark a 9-point Likert scale anchored at the extremes by strongly agree (9) and strongly disagree (1). In this measure, higher scores indicate higher perceptions of cohesion. Previous research has supported its validity and internal consistency (Brawley, Carron, & Widmeyer, 1987; Carron, Brawley, & Widmeyer, 2002; Carron, Widmeyer, & Brawley, 1985; see chapter 2 for details).

Sport Competition Anxiety Test

Competitive trait anxiety was assessed by the Sport Competition Anxiety Test (SCAT; Martens, 1977). The SCAT was developed to measure the predisposition to become anxious in sport competition. The SCAT has 15 items overall, but only 10 items were scored; 5 items (1, 4, 7, 10, and 13) are not scored as they were included to diminish the possibility of response bias.

For each item, participants were asked to mark the response (hardly ever, sometimes, or often) that indicates how they usually feel when in sport competitions. The

possible range of scores on the measure is from 10 indicating the lowest competitive A-trait to 30 reflecting the highest competitive A-trait. Research supports the concurrent, predictive, and construct validity of the SCAT as a measure of competitive A-trait (Martens, 1977; Ostrow & Ziegler, 1978; see chapter 2 for details).

Competitive State Anxiety Inventory-2

The Competitive State Anxiety Inventory-2 (CSAI-2; Martens et al., 1990) was used to assess competitive state anxiety levels of participants (how participants feel at the moment). The CSAI-2 consists of three dimensions: cognitive anxiety, which measures conscious awareness of unpleasant feelings about oneself or the situation, somatic anxiety, which measures awareness of bodily symptoms of the autonomic nervous system, and self-confidence which measures the degree of certainty that athletes feel about their ability to be successful. The CSAI-2 has 27 items presented on a 4-point scale anchored at extremes by not at all (1) and extremely (4). Higher scores represent higher levels of cognitive anxiety, somatic anxiety, and self-confidence. Previous research supports validity and reliability through correlations between the CSAI-2 subcomponents and other anxiety measures (Martens et al., 1990, see chapter 2 for details). In the present study, self-confidence was not used for the analyses. The scale is not considered a dimension of A-state.

Role play scenario. The role play scenario for the CSAI-2 in the present study asked participants to think about a situation when they are about to compete in the competition with their teams. The rationale for a role play scenario stems from the unique features of recreational sport teams, based on the pilot study. First, many participants

come to the competition individually, which hinders recruiting them for the survey before competition. Second, it was found that many participants completed the questionnaires in a sloppy manner when asked to participate in the study before competition, which may lead to erroneous results.

A role play scenario has often been implemented as a useful method in a variety of fields including sport and exercise psychology (e.g., Levine, 1996; Ntoumanis & Biddle, 2000; Jones & Uphill, 2004), and a high correlation between recalled and actual perceived intensity of competitive A-state after a long period has been documented (Hanin, 2007). In the current study, a brief description of soccer competition followed by specific instructions was provided to help the participants to visualize the most recent important game of the league and elicit thoughts and feelings in that situation at that moment. This hypothetical scenario design was laid out according to instructions used by Ntoumanis and Biddle (2000) and Jones and Uphill (2004). Then, participants were asked to complete the CSAI-2 based on their feelings in the scenario. The GEQ and the SCAT were completed first, and then the CSAI-2 was completed with the role play scenario.

Statistical Analysis

Reliability analyses of the GEQ, the CSAI-2, and the SCAT were conducted first with coefficients alpha and item–total correlations examined to determine whether measures were reliable. Descriptive analysis provided information on participants' gender, age, race/ethnicity, sport experience, soccer skill level, and importance of competition as well as information of frequency of practice and the most important reason to play on the current team.

Pearson's correlation analysis was conducted to determine whether correlations existed among the sub-components of the GEQ and the CSAI-2 and the SCAT. It was hypothesized that individual attraction to the group-task (ATG-T) and group integration-task (GI-T) would be negatively related to cognitive and somatic A-state.

Next, stepwise multiple regression analyses were used to determine whether the sub-constructs of the GEQ predicted each component (cognitive A-state and somatic A-state) of the CSAI-2. It was hypothesized that individual attraction to the group-task (ATG-T) and group integration-task (GI-T) would predict cognitive and somatic A-state.

Hierarchical multiple regression analyses were conducted as the main analysis in the present study. In hierarchical regression analyses, predictor variables were entered into the regression model in order based on theory and previous research. Hierarchical regression with the A-trait entered in the first step, and with the GEQ sub-components entered in the second step was used to determine if constructs of the GEQ predicted each dimension of competitive A-state beyond the prediction of competitive A-trait reflected by the SCAT scores. It was hypothesized that ATG-T and GI-T would contribute to the prediction of competitive A-state beyond that of the SCAT scores.

CHAPTER IV

RESULTS

The aim of this study was to examine how cohesion variables are associated with sub-dimensions of competitive A-state in the recreational sport population. Descriptive results are presented first with information on demographics and soccer background, followed by reliability analyses for all scales used in this study. Bivariate correlations were used to determine the relationship between cohesion and competitive A-state. Additionally, stepwise multiple regressions and hierarchical multiple regressions were performed to examine the main predictions of the study. Specifically the relationships of cohesion dimensions to subcomponents of competitive A-state were examined. Finally, the results of hierarchical regression with competitive A-trait and cohesion dimensions as predictors of competitive A-state are presented.

Demographics and Soccer Background Characteristics

Participants in the present study were 79 male (89.8%) and 9 female (10.2%) recreational soccer players who participate in local amateur soccer leagues and completed the online survey. The leagues were co-ed, but with no minimum number of female players and the large majority are male participants. Thus, the sample is representative of the leagues. A majority of the participants identified as White/European (77.3%) and

others as Asian (12.5%), Black or African American (4.5%), Native Hawaiian or Other Pacific Islander (3.4%), American Indian or Alaska Native (1.1%) and other (1.1%). The average age of participants was 36.17 years old (*SD* = 11.78; range = 20 - 66). Power analysis based on data from the pilot study showed that the sample size of 80 was adequate.

The average years of experience was 22.9 (*SD* = 12.17; range = 1 - 60), while years on the current team was 3.8 (*SD* = 4.05; range = 0 - 22). On average, the perceived individual soccer skill was 4.0, and their mean team skill level was 3.8 on a 5-point Likert scale. Their perceived importance of the competition that they participated was 3.9 on a 5-point Likert scale. In terms of team practice other than scheduled league matches, 72.7% answered 'never' and 14.8% answered 'less than once a week' while 12.5% indicated that they practice once or more than once a week. Concerning the most important reason to participate on the current soccer team, more than half of the participants (54.5%) answered 'to have fun'. The other reasons were 'for the competition' (19.3%), 'to socialize with others' (10.2%), and 'to improve soccer skills and move to higher levels' (3.4%) as their reason to participate. Interestingly, several participants chose other (12.5%), reporting that fitness or combination of fitness, fun and socialization were the reason to participate on the current soccer team.

Cohesion, A-trait and A-state

Initially, internal consistency was examined for all scales (see Table 1). All internal consistency values were acceptable except for ATG-S that has substantially low internal consistency ($\alpha = .32$). Thus, ATG-S was excluded for further analyses. The

Cronbach's Alpha results in the present study were similar to those reported by Prapavessis and Carron (1996). Cronbach's Alpha of ATG-S ($\alpha = .40$) was lower than adequate and removed from further analyses in Prapavessis and Carron's (1996) study.

Correlation analysis was performed to determine the relationship between sub-components of competitive A-state and sub-dimensions of cohesion. The results of correlation analyses are presented in Table 1. As expected, it was found that ATG-T, GI-T and GI-S were negatively correlated with cognitive and somatic A-state, indicating that higher scores on these variables were associated with lower levels of cognitive and somatic A-state. However, only ATG-T and GI-T, which are task oriented cohesion were significantly correlated with cognitive and somatic A-state. The relationship between GI-S and competitive A-state was weak and not statistically significant.

Two separate stepwise multiple regression analyses were conducted to examine the contribution of ATG-T, GI-T and GI-S in predicting cognitive and somatic A-state; cognitive and somatic A-state were the criterion variables, while three GEQ sub-components (ATG-T, GI-T and GI-S) were entered in the multiple regression model as the predictor variables. The stepwise multiple regression model with cognitive A-state as the criterion variable was significant, $R^2 = .12$, $F\ (1, 87) = 12.12$, $p < .001$. The results of the analysis revealed that the multiple correlation coefficient was .35 and approximately 12% of the variance in cognitive A-state can be accounted for by ATG-T only. The contribution of ATG-T in predicting cognitive A-state can be found in Table 2. ATG-T was the only predictor that accounted for a significant amount of variance in cognitive A-state, indicating that recreational soccer players with higher ATG-T have lower cognitive

A-state. GI-T and GI-S did not significantly contribute to the prediction of cognitive A-state.

Table 1. Pearson Correlation among the Variables of Interest

	ATG-T	GI-T	GI-S	Cognitive A-state	Somatic A-state	A-trait
ATG-T	.758	.562**	.219*	-.351**	-.288**	-.169
GI-T		.637	.343**	-.225*	-.244*	-.240*
GI-S			.669	-.049	-.045	-.005
Cognitive A-state				.885	.722**	.610**
Somatic A-state					.919	.765**
A-trait						.791

**. Correlation is significant at the .01 level (2-tailed).

*. Correlation is significant at the .05 level (2-tailed).

Internal consistency (α) on diagonal

The stepwise multiple regression model with somatic A-state as the criterion variable produced significant results, $R^2 = .08$, $F\ (1, 87) = 7.81$, $p < .01$. The results of the analysis indicated that the multiple correlation coefficient was .29 and approximately 8% of the variance in somatic A-state can be accounted for by ATG-T. Although ATG-T accounted for a significant proportion of variance in somatic A-state, no significant regression coefficients emerged from GI-T and GI-S. Based on these results, no

individual dimension of cohesion except for ATG-T had a unique contribution to the prediction of somatic A-state.

Subsequently, two sets of hierarchical multiple regression analyses were carried out with competitive A-state as the dependent variable to test the hypothesis that the three GEQ sub-components (ATG-T, GI-T and GI-S) add to the prediction of cognitive and somatic A-state beyond the contribution of competitive A-trait.

Table 2. Summary of Stepwise Multiple Regression Model for the Variables of Interest

Predictor variable	B	Standard error	β	t
Regression model 1: cognitive A-state				
ATG-T	-.312	.92	-.351	-3.48
Regression model 2: somatic A-state				
ATG-T	-.269	.096	-.288	-2.79

Independent variables: ATG-T, GI-T and GI-S

Competitive A-trait was the first variable entered to control for competitive A-trait, followed by the three GEQ subcomponents with the stepwise method. Results of hierarchical regression analyses are reported in Table 3. The first set of hierarchical multiple regression model with cognitive A-state as the dependent variable revealed that competitive A-trait contributed significantly to the regression model, $R^2 = .37$, F (1, 87) = 51.05, $p < .001$, indicating competitive A-trait explained approximately 37% of the

variation in cognitive A-state. Including the three GEQ subcomponents entered in the second step showed that the only predictor of cognitive A-state among cohesion sub-dimensions was ATG-T, β = -.23, t = -3.09, p < .005. The analysis shows that R^2 change associated with ATG-T was significant, ΔR^2 = .06. That is, ATG-T explained an additional 6% of variation in cognitive A-state beyond the contribution of competitive A-trait. The prediction of cognitive A-state was significantly improved by adding ATG-T beyond the contribution of competitive A-trait.

The second hierarchical multiple regression model with somatic A-state as the dependent variable shows that competitive A-trait contributed significantly to the regression model, R^2 = .59, F (1, 87) = 121.71, p < .001, indicating competitive A-trait explained 59% of the variation in somatic A-state. ATG-T alone was significantly associated with somatic A-state, β = -.15, t = -2.39, p < .05, showing that ATG-T significantly contributed to predicting somatic A-state beyond the association between competitive A-trait and somatic A-state. R^2 (ΔR^2 = .03) was significantly changed by ATG-T. However, GI-T and GI-S did not significantly contribute to the relationship with somatic A-state.

Table 3. Summary of Hierarchical Multiple Regression Model for the Variables of Interest

Predictor variable	B	Standard error	β	t
Regression model 1: cognitive A-state				
Step 1				
A-trait	.717	.10	.61	7.15
Step 2				
ATG-T	-.227	.73	-.256	-3.09
Regression model 2: somatic A-state				
Step 1				
A-trait	.944	.085	.738	10.76
Step 2				
ATG-T	-.153	.064	-.164	-2.39

Independent variables: ATG-T, GI-T and GI-S

Summary

In summary, correlation results showed that cohesion variables (ATG-T, GI-T, and GI-S) had negative relationships with competitive A-state variables; in particular, the negative relationship of ATG-T and GI-T with cognitive and somatic A-state were significant. The results of the stepwise multiple regression analyses revealed that ATG-T was a significant predictor of cognitive and somatic A-state. The hierarchical multiple

regression analyses revealed that competitive A-trait was a strong predictor of competitive A-state, as predicted. The results also showed a significant contribution of ATG-T to cognitive and somatic A-state beyond the contribution of competitive A-trait. However, GI-T and GI-S did not significantly account for variance in competitive A-state.

CHAPTER V

DISCUSSION

The aim of the present study was to determine the relationship between cohesion and competitive A-state among amateur soccer players. Particularly, the contribution of cohesion variables to the prediction of competitive A-state variables was examined. In addition, the relationship between cohesion variables and competitive A-state variables was investigated beyond the variance of competitive A-state accounted for by competitive A-trait. The findings of this study are discussed in this section.

The major goal of this study was to examine the relationship of each dimensions of cohesion with each subcomponent of competitive A-state. It was hypothesized that ATG-T and GI-T would be negatively associated with cognitive and somatic A-state. The results of Pearson's correlation analysis support this hypothesis; the findings indicate that all three cohesion variables (ATG-T, GI-T, and GI-S) were negatively related to cognitive and somatic A-state. However, it was revealed that only ATG-T and GI-T had significant relationships with cognitive and somatic A-state. Also, the relation of ATG-T with competitive A-state responses was stronger than that of GI-T with competitive A-state responses. The findings suggest that when task cohesion is high in sport teams, team members may have low precompetition anxiety. Prapavessis and Carron (1996) and Eys

et al. (2003) showed similar findings for the correlation between cohesion variables and competitive A-state variables.

The results of descriptive analysis provide information on participants' demographics and soccer background. It is meaningful to note that most participants (87.5%) in the present study reported that they never practice or practice less than once a week as a team. Only 12.5% of the participants reported that they practice more than once a week. The findings suggest that participants' team practice is very low. This comes as no surprise in that more than half of the participants (54.5%) indicated that their primary reason to play for their current team was to have fun. The other reasons to participate on their current team were the competition, social interaction, fitness, and combination of theses. Only 3.4% of participants reported that their main reason to play for their team is to improve their soccer skills and move to higher levels.

The prediction of cohesion variables on competitive A-state variables was assessed, using the stepwise multiple regression analyses. The results provide partial support for the hypothesis that ATG-T and GI-T would be predictive of respective components of competitive A-state. ATG-T accounted for significant variance in cognitive (approximately 12%) and somatic A-state (approximately 8%). However, GI-T was not a significant predictor of competitive A-state. The findings were consistent with Prapavessis and Carron's (1996) proposal that ATG-T and cognitive A-state had the strongest relationship among cohesion variables and competitive A-state variables.

The findings from the hierarchical multiple regression analyses showed that A-trait was a strong predictor of A-state. This finding supports the proposition that

competitive A-trait is the best predictor of A-state (Gill & Martens, 1977; Martens et al., 1990; Smith et al., 1998). Further, ATG-T contributed to the prediction of cognitive and somatic A-state beyond the variance in those anxiety responses explained by competitive A-trait. Again, it was found that competitive A-state was not predicted by any other variables of cohesion. That is, ATG-T is the most important cohesion component for the relationship between cohesion and competitive A-state.

ATG-T was observed as a main cohesion attribute to influence the relationship between cohesion and competitive A-state in the present study and the findings are in line with previous research (Eys et al., 2003; Prapavessis & Carron, 1996). One possible reason for this can be found from participants' soccer background. Primary motivation to participate on the current team was apparently pertinent to task-related characteristics (e.g., enjoying the game and participation in competition). ATG-T items such as "I do not like the style of play on this team" or "I'm not happy with the amount of playing time I get" reflect these motives among recreational soccer players. Perception of anxiety results from interpretation of a disparity between environmental demands and intrapersonal characteristics (Lazarus, 1991; Martens et al., 1990). It is probable that when high task cohesion indicated by ATG-T is present, the intrinsic motivation for participation in sport competition may be satisfied so that little anxiety is perceived by recreational soccer participants. On the other hand, when this motivation is not met (e.g., few opportunities to play), it may increase the possibility of negative feelings. Another possible explanation for this finding can be attributed to the proposition that psychological costs (e.g., psychological stress experienced from sport teams) may be diminished when individuals

hold high levels of task cohesion (Prapavessis & Carron, 1996). Specifically, the perceived pressure of responsibility may be reduced in highly task cohesive sport teams. Further, Eys et al. (2002) viewed "the pressure to carry out responsibilities and satisfy the expectations of others as task oriented activities" (p.68).

In contrast to the hypothesis, the lack of a significant prediction of GI-T to competitive A-state was evident. It is difficult to understand the reason that competitive A-state was not predicted by GI-T. One possible explanation for this may be that GI-T was highly correlated with ATG-T and moderately correlated with competitive A-trait. Possibly, shared variance of GI-T with ATG-T and competitive A-trait prevented the significant contribution of GI-T to the regression model. Also, it may be that the GI-T scale is not very accurate for recreational soccer players. For instance, Cronbach's Alpha of GI-T was fairly low ($\alpha = .637$). In particular, participants had divergent responses to some items about practice. Because it was found that the majority of participants have no or little practice, these items might not be pertinent.

As expected, social cohesion did not contribute to the relationship between cohesion and competitive A-state. That is, social cohesion does not increase nor decrease competitive A-state. This result is in keeping with Prapavessis and Carron's (1996) findings of no relationship between social aspects of cohesion and competitive A-state variables. One possible explanation for this may be that social cohesion is an irrelevant factor to conditions that elicit stress. In the case of social cohesion, most recreational soccer players did not participate in the competition for the social purposes and may not perceive social cohesion as relevant to A-state responses. In support of this, only

approximately 10.2% of the participants reported that they play for the current team to socialize. Another possible explanation may be due to an indirect link of social cohesion with sport competition. For instance, GI-S items do not imply any sport competition context (e.g., our team members rarely party together), while ATG-T items have more direct relevance for sport competition (e.g., I'm not happy with the amount of playing time I get). Therefore, the context of items might impact the extent to which cohesion and competitive A-state are related. It is not unreasonable to assume that adding the context of sport competition in social cohesion items might influence the extent of the relationship of social cohesion with competitive A-state.

In spite of the findings of this study demonstrating the significant association between task cohesion and competitive A-state as well as the contribution of ATG-T in predicting competitive A-state, this study has several limitations. First, most participants were male (89.8%) with only 10.2% female participants. However, it should be noted that no significant difference in cohesion and anxiety was found between male and female participants. When correlation, stepwise and hierarchical multiple regression analyses were performed without female participants, the same results were found; ATG-T was the main predictor of competitive A-state and no other cohesion variables added a unique contribution of prediction. Although this study renders better understanding of a specific sport group of people and the sample used in this study was purposefully chosen, the findings of this study might not generalize to a population from different sport backgrounds, which may possess distinct perceptions of cohesion and competitive A-state.

Second, there were some potential confounding variables for the relationship of cohesion to competitive anxiety. Specifically, experience and age were found to be correlated to competitive A-state. The finding that experience was related to competitive A-state was consistent with Gould et al.'s (1984) findings. It is suggested that experienced participants may have less competitive A-state at recreational competitive level. Thus, it is suggested that experience and age be controlled in future research.

Third, it is obvious that the present study cannot infer any causal relationship between cohesion and competitive A-state. Despite the clear association between cohesion and competitive A-state found, it did not address how cohesion variables impact subcomponents of competitive A-state. Therefore, future research should employ experimental designs to examine whether manipulated team cohesion influences subsequent levels of competitive A-state. For instance, it is possible that a cohesion intervention could be employed to lower competitive A-state, and in turn, foster continual participation in sport. Moreover, longitudinal designs may help researchers find out the effects of cohesion on individual anxiety, and potential mechanisms.

Future research may further explore the complex relationships of cohesion and a wider range of affect states. Terry et al. (2000) found a positive association between cohesion and vigor and a negative association between cohesion and depression, anger, and tension. Also, Eys et al. (2003) found that high task cohesion is associated with negative interpretation of precompetition symptoms.

Despite the limitations, the findings from this study have important implications. Cohesion was related to competitive state anxiety beyond the prediction of competitive

trait anxiety. The results of this study show that task cohesion has a negative relationship with competitive A-state in recreational sport level participants. Additionally, ATG-T predicted a significant proportion of competitive A-state beyond the contribution of competitive A-trait, indicating that ATG-T was the only relevant variable to competitive A-state at a recreational competition level. The findings of this study suggest that amateur soccer players who possess high ATG-T experience lower competitive A-state. Additionally, demographic and soccer background information about participants added to our understanding of the relationship between cohesion and competitive anxiety in recreational soccer athletes. Most recreational soccer athletes participated in the competition for fun, competition, and social interaction. It is likely that individual goals are satisfied with high perception of ATG-T, which may reduce competitive A-state.

The findings provide an important stepping stone for research on recreational athletes. Research on cohesion and anxiety often pertained to athletes' performance. However, with a growing number of people engaging in recreational sport, more attention should be placed on recreational sports. Cohesion was found to be associated with adherence behavior in sports (Spink & Carron, 1993). It is also found that negative affects lead to drop out or burn out (Smith, 1986). Thus, if competitive anxiety diminishes fun, which in turn results in drop out, then cohesion may help recreational athletes have fun and stick to sports. Future research on the relationship of cohesion interventions to competitive A-state may help clarify models and potential mechanisms for the correlation of cohesion with precompetition anxiety responses, and thus offer better understanding of group dynamics in sport.

REFERENCES

Back, K.W. (1951). Influence through social communication. *The Journal of Abnormal and Social Psychology*, *46*(1), 9.

Ball, J. R., & Carron, A. V. (1976). The influence of team cohesion and participation motivation upon performance success in intercollegiate ice hockey. *Canadian Journal of Applied Sport Sciences*, *1*(4), 271-275.

Bandura, A. (1978). The self system in reciprocal determinism. *American psychologist*,*33*(4), 344.

Bandura, A., & Cervone, D. (1986). Differential engagement of self-reactive influences in cognitive motivation. *Organizational behavior and human decision processes*, *38*(1), 92-113.

Bass, B.M. (1960). *Leadership, psychology, and organizational behavior*. Oxford, England: Harper.

Baumeister, R.F., & Leary, M.R. (1995). The need to belong: desire for interpersonal attachments as a fundamental human motivation. *Psychological bulletin, 117*(3), 497.

Beauchamp, M.R., Bray, S.R., Eys, M.A., & Carron, A.V. (2003). The effect of role ambiguity on competitive state anxiety. *Journal of Sport and Exercise Psychology*,*25*(1), 77-92.

Brawley, L.R., Carron, A.V., & Widmeyer, W.N. (1987). Assessing the cohesion of teams: Validity of the Group Environment Questionnaire. *Journal of Sport Psychology, 9*(3), 275-294.

Brawley, L. R., Carron, A. V., & Widmeyer, W. N. (1988). Exploring the relationship between cohesion and group resistance to disruption. *Journal of Sport and ExercisePsychology*, *10*(2), 199-213.

Brustad, R., & Weiss, M.R. (1987). Competence perceptions and sources of worry in high, medium, and low competitive trait-anxious young athletes. *Journal of Sport Psychology, 9*(2), 97-105.

Cannon, W.B. (1927). The James-Lange theory of emotions: A critical examination and an alternative theory. *The American Journal of Psychology, 39*(1/4), 106-124.

Carron, A.V. (1982). Cohesiveness in sport groups: Interpretations and considerations. *Journal of Sport Psychology, 4*(2), 123-138.

Carron, A.V., Brawley, L.R., & Widmeyer, W.N. (1998). The measurement of cohesiveness in sport groups. In J. L. Duda (Ed.), *Advances in sport and exercise psychology measurement* (pp. 213-226). Morgantown, WV: Fitness Information Technology.

Carron, A.V., Brawley, L.R., & Widmeyer, W.N. (2002). *The group environment questionnaire test manual*. Morgantown, WV: Fitness Information Technology.

Carron, A.V., Bray, S.R., & Eys, M.A. (2002). Team cohesion and team success in sport. *Journal of sports sciences, 20*(2), 119-126.

Carron, A.V., & Chelladurai, P. (1981). The dynamics of group cohesion in sport. *Journal of Sport Psychology, 3*, 123-139.

Carron, A.V., Colman, M.M., Wheeler J., & Stevens, C. (2002). Cohesion and Performance in Sport. *Journal of Sport and Exercise Psychology, 24*, 168-188.

Carron, A.V., Hausenblas, H.A., & Eys, M.A. (2005). *Group dynamics in sport*. Morgantown, WV: Fitness Information Technology.

Carron, A.V., Shapcott, K.M., & Burke, S.M. (2007). Group cohesion in sport and exercise: Past, present and future. In M.R. Beauchamp & M.A. Eys (Eds.), *Group dynamics in exercise and sport psychology: Contemporary themes* (pp. 117-139). New York: Routledge.

Carron, AV., Widmeyer, W.N., & Brawley, L.R. (1985). The development of an instrument to assess cohesion in sport teams: the group environment questionnaire. *Journal of Sport Psychology, 7*, 244-266.

Davidson, R.J., & Schwartz, G.E. (1976). The psychobiology of relaxation and related states: A multi-process theory. In D. Mostofsky (Ed.), *Behavior control and modification of physiological activity* (pp. 399-442). Englewood Cliffs, NJ: Prentice-Hall.

Dion, K.L., & Evans, C.R. (1992). On cohesiveness: Reply to Keyton and other critics of the construct. Small Group Research, 23(2), 242-250.

Eys, M.A., Hardy, J., Carron, A.V., & Beauchamp, M.R. (2003). The relationship between task cohesion and competitive state anxiety. *Journal of Sport and Exercise Psychology, 25*(1), 66-76.

Eysenck, M. W. (1992). The appraisal process: Exploring the role of meaning, importance, control and coping in work stress. *Anxiety, Stress, and Coping, 5*, 95-109.

Fenz, W. D. (1975). Coping mechanisms and performance under stress. In D.M. Landers (Ed.), *Psychology of sport and motor behavior-2* (pp. 3-24). University Park: Pennsylvania State University, College of Health, Physical Education, and Recreation.

Festinger, L., Shachter, S., & Back, K. (1950). *Social pressures in informal groups: A study of a housing project*. New York: Harper.

Fiedler, F. E., Hartmann, W., & Rudin, S. A. (1952). Social perception measures as predictors of effectiveness in basketball teams. *American Psychologist, 7*, 313.

Fisher, A.C., & Zwart, E.F. (1982). Psychological analysis of athletes' anxiety responses. *Journal of Sport Psychology, 4*, 139-158.

Gammage, K.L., Carron, A.V., & Estabrooks, P.A. (2001). Team cohesion and individual productivity the influence of the norm for productivity and the identifiability of individual effort. *Small Group Research, 32*(1), 3-18.

Gardner, D.E., Shields, D.L., Bredemeier, B.J.L., & Bostrom, A. (1996). The relationship between perceived coaching behaviors and team cohesion among baseball and softball players. *The Sport Psychologist, 10*(4), 367-381.

Gill, D L., & Martens, R. (1977). The role of task type and success-failure in group competition. *International Journal of Sport Psychology, 8*, 160-177.

Goodman, P.S., Ravlin, E.C., & Schminke, M. (1987). Understanding groups in organizations. In L.L. Cummings & B.M. Staw (Eds.), *Research in Organizational Behavior* (Vol.9; pp. 121-173).

Gould, D., Feltz, D., Horn, T., & Weiss, M.R. (1982). Reasons for attrition in competitive youth swimming. *Journal of Sport Behavior, 5*(3), 155-165.

Gould, D., Horn, T., & Spreemann, J. (1983a). Competitive anxiety in junior elite wrestlers. *Journal of Sport Psychology, 5*(1), 58-71.

Gould, D., Horn, T., & Spreeman, J. (1983b). Sources of stress in junior elite wrestlers. *Journal of Sport Psychology*, *5*(2), 159-171.

Gould, D., Petlichkoff, L., Simons, J., & Vevera, M. (1987). Relationship between Competitive State Anxiety Inventory-2 subscale scores and pistol shooting performance. *Journal of Sport Psychology, 9*(1), 33-42.

Gould, D., Petlichkoff, L., & Weinberg, R.S. (1984). Antecedents of, temporal changes in, and relationships between CSAI-2 subcomponents. *Journal of Sport Psychology*, *6*(3), 289-304.

Grand, R.R., & Carron, A.V. (1982). Development of a team climate questionnaire. In L.M. Wankel & R.B. Wilberg (Eds.), *Psychology of sport and motor behavior: Research and practice* (pp. 217-229). Edmonton: University of Alberta, Department of Recreation and Leisure Studies.

Gross, N., & Martin, W. E. (1952). On group cohesiveness. *American Journal of Sociology, 52*, 546-554.

Gruber, J. J., & Grey G. R. (1982). Response to forces influencing cohesion as a function of player status and level of male varsity basketball competition. *Research Quarterly for Sport and Exercise, 53*, 27-36.

Hackfort, D., & Schulz, P. (1989). Competence and valence as determinants of anxiety. In D. Hackfort & C.D. Spielberger (Eds.), *Anxiety in sports: An international perspective* (pp. 29-38). New York: Hemisphere.

Hammermeister, J., & Burton, D. (1995). Anxiety and the Ironman: Investigating the antecedents and consequences of endurance athletes' state anxiety. *Sport Psychologist*, *9*, 29-29.

Hanin, Y. L. (2007). Emotions and athletic performance: Individual zones of optimal functioning model. *Essential readings in sport and exercise psychology*, 55-73.

Heuzé, J.P., Raimbault, N., & Fontayne, P. (2006). Relationships between cohesion, collective efficacy and performance in professional basketball teams: An examination of mediating effects. *Journal of Sports Sciences, 24*(1), 59-68.

Jones, G., & Hanton, S. (1996). Interpretation of competitive anxiety symptoms and goal attainment expectancies. *Journal of Sport and Exercise Psychology*,*18*, 144-157.

Jones, G., Hanton, S., & Swain, A. (1994). Intensity and interpretation of anxiety symptoms in elite and non-elite sports performers. *Personality and Individual Differences*, *17*(5), 657-663.

Jones, J.G., & Swain, A. (1995). Predispositions to experience debilitative and facilitative anxiety in elite and nonelite performers. *The Sport Psychologist, 9*, 201-211.

Jones, J.G., & Swain, A. (1992). Intensity and direction as dimensions of competitive state anxiety and relationships with competitiveness. *Perceptual and Motor Differences, 17*, 657-663.

Jones, M. V., & Uphill, M. (2004). Responses to the Competitive State Anxiety Inventory-2 (d) by athletes in anxious and excited scenarios. *Psychology of Sport and Exercise*, *5*(2), 201-212.

Krane, V., & Williams, J. (1987). Performance and somatic anxiety, cognitive anxiety, and confidence changes prior to competition. *Journal of Sport Behavior, 10*(1), 47-56.

Krane, V., Williams, J., & Feltz, D.L. (1992). Path analysis examining relationships among cognitive anxiety, somatic anxiety, state confidence, performance expectations, and golf performance. *Journal of Sport Behavior, 15*(4), 279-295.

Kozub, S., & McDonnell, J. (2000). Exploring the relationship between cohesion and collective efficacy in rugby teams. *Journal of Sport Behavior, 23*(2), 120-129.

Landers, D. M., & Lüschen, G. (1974). Team performance outcome and the cohesiveness of competitive coacting groups. *International Review for the Sociology of Sport, 9*(2), 57-71.

Landers, D. M., Wilkinson, M. O., Hatfield, B. D., & Barber, H. (1982). Causality and the cohesion–performance relationship. *Journal of Sport Psychology, 4*(2), 170-183.

Lazarus, R. (1991). *Emotion and adaptation*. New York: Oxford University Press.

Lazarus, R. (1993). From psychological stress to the emotions: A history of changing outlooks. *Annual Review of Psychology, 44*, 1-21.

Levine, L. J. (1996). The anatomy of disappointment: A naturalistic test of appraisal models of sadness, anger, and hope. *Cognition & Emotion*, *10*(4), 337-360.

Lewthwaite, R. (1986). The nature of threat perception in competitive trait anxiety: The endangerment of important goals (Doctoral dissertation, University of California, Los Angeles, 1985). *Dissertation Abstracts, 46*, 4453-4454B.

Lowther, J., & Lane, A. (2002). Relationships between mood, cohesion and satisfaction with performance among soccer players. *Athletic Insight, 4*(3), 57-69.

Martens, R. (1975). Social psychology and physical activity. New York: Harper & Row.

Martens, R. (1977). *Sport competition anxiety test*. Champaign, IL: Human Kinetics.

Martens, R., Gill, D.L., & Scanlan, T.K. (1976). Competitive trait anxiety, success-Failure and sex as determinants of motor performance. *Perceptual and Motor Skills, 43*, 1199-1208.

Martens, R., Landers, D.M., & Loy, J.W. (1972). *Sport cohesiveness questionnaire*. Unpublished manuscript, University of Illinois, Champaign.

Martens, R., & Peterson, J. (1971). Group cohesiveness as a determinant of success and member satisfaction in team performance. *International Review of Sport Sociology, 6*, 49-61.

Martens, R., Vealey, R.S., & Burton, D. (1990). *Competitive anxiety in sport*. Champaign, IL: Human Kinetics.

Martin, L. J., Paradis, K. F., Eys, M. A., & Evans, B. (2013). Cohesion in Sport: New Directions for Practitioners. *Journal of Sport Psychology in Action*, *4*(1), 14-25.

Melnick, M.J., & Chemers, M.M. (1974). Effects of group social structure on the success of basketball teams. *Research Quarterly. American Alliance for Health, Physical Education and Recreation*, *45*(1), 1-8.

Mikalachki, A. (1969). *Group cohesion reconsidered: A study of blue collar work groups*. London, Ontario: University of Western Ontario, School of Business Administration.

Moritz, S. E., & Watson, C. B. (1998). Levels of analysis issues in group psychology: Using efficacy as an example of a multilevel model. *Group Dynamics: Theory, Research, and Practice*, *2*(4), 285.

Morris, L.W., Davis, M.A., & Hutchings, C.H. (1981). Cognitive and emotional components of anxiety: Literature review and a revised worry–emotionality scale. *Journal of educational psychology*, *73*(4), 541.

Mudrack, P.E. (1989). Defining Group Cohesiveness A Legacy of Confusion?. *Small Group Research, 20*(1), 37-49.

Mullen, B., & Copper, C. (1994). The relation between group cohesiveness and performance: An integration. *Psychological bulletin, 115*(2), 210.

Ntoumanis, N., & Biddle, S. J. (2000). Relationship of intensity and direction of competitive anxiety with coping strategies. *Sport psychologist,14*(4), 360-371.

Ostrow, A.C., & Ziegler, S.G. (1978). Psychometric properties of the sport competition anxiety test. In B. Kerr (Ed.), *Human performance and behavior* (pp. 139-142). Calgary, AB: University of Calgary

Parkinson, B., & Manstead, A. S. (1992). Appraisal as a cause of emotion. In M.S. Clark (Ed.), *Emotion. Review of personality and social psychology* (pp. 122-149). Thousand Oaks, CA:Sage Publications

Passer, M.W. (1983). Fear of failure, fear of evaluation, perceived competence, and self-esteem in competitive-trait-anxious children. *Journal of sport psychology, 5*, 172-188.

Piper, W.E., Marrache, M., Lacroix, R., Richardsen, A.M., & Jones, B.D. (1983). Cohesion as a basic bond in groups. *Human Relations, 36*(2), 93-108.

Prapavessis, H., & Carron, A.V. (1996). The effect of group cohesion on competitive state anxiety. *Journal of Sport and Exercise Psychology, 18*(1), 64-74.

Prapavessis, H., & Carron, A.V. (1997). Sacrifice, cohesion, and conformity to norms in sport teams. *Group Dynamics: Theory, Research, and Practice, 1*(3), 231.

Rainey, D.W., & Cunningham, H. (1988). Competitive trait anxiety in male and female college athletes. *Research Quarterly for Exercise and Sport, 59*(3), 244-247.

Sarason, S.B., Davidson, K.S., Lighthall, F.F., Waite, R.R., & Ruebush, B.K. (1960). *Anxiety in elementary school children*. Oxford, England: John Wiley.

Scanlan, T.K. (1977). The effects of success–failure on the perception of threat in a competitive situation. *Research quarterly, 48*(1), 144-153.

Schwartz, G.E., Davidson, R.J., & Goleman, D.J. (1978). Patterning of cognitive and somatic processes in the self-regulation of anxiety: effects of meditation versus exercise. *Psychosomatic medicine, 40*(4), 321-328.

Simon, J.A., & Martens, R. (1979). Children's anxiety in sport and nonsport evaluative activities. *Journal of Sport Psychology*, *1*(2), 1979, 160-169.

Slater, M. R., & Sewell, D. F. (1994). An examination of the cohesion-performance relationship in university hockey teams. *Journal of sports sciences*, *12*(5), 423-431.

Smith, R. E. (1986). Toward a cognitive-affective model of athletic burnout. Journal of sport psychology, 8(1), 36-50.

Smith, R.E., Smoll, F.L., & Schutz, R.W. (1990). Measurement and correlates of sport-specific cognitive and somatic trait anxiety: The Sport Anxiety Scale. *Anxiety research*, *2*(4), 263-280.

Smith, R.E., Smoll, F.L., & Wiechman, S.A. (1998). Measuring trait anxiety in sport. Advances in sport and exercise psychology measurement. In J.L. Duda (Ed.), *Advances in sport and exercise psychology measurement* (pp. 105-127). Morgantown, WV: Fitness Information Technology.

Spielberger, C.D. (1973). *Preliminary test manual for the State-Trait Anxiety Inventory for Children*. Palo Alto, CA: Consulting Psychologists.

Spielberger, C.D., Gorsuch, R., & Lushene, R.E. (1970). *Manual for the state-trait inventory*. Palo Alto, CA: Consulting Psychologists.

Spink, K. S., & Carron, A. V. (1993). The effects of team building on the adherence patterns of female exercise participants. *Journal of Sport & Exercise Psychology*, *15*(1).

Taylor, J.A. (1953). A personality scale of manifest anxiety. *The Journal of Abnormal and Social Psychology, 48*(2), 285-290

Terry, P.C., Carron, A.V., Pink, M.J., Lane, A.M., Jones, G.J., & Hall, M.P. (2000). Perceptions of group cohesion and mood in sport teams. *Group Dynamics: Theory, Research, and Practice*, *4*(3), 244.

Van Bergen, A., & Koekebakker, J. (1959). "Group cohesiveness" in laboratory experiments. *Acta Psychologica*, *16*, 81-98.

Vealey, R.S. (1986). Conceptualization of sport-confidence and competitive orientation: Preliminary investigation and instrument development. *Journal of Sport Psychology*, *8*(3), 221-246.

Weinberg, R.S. (1978). The effects of success and failure on the patterning of neuromuscular energy. *Journal of motor behavior*, *10*(1), 53-61.

Weinberg, R.S., & Genuchi, M. (1980). Relationship between competitive trait anxiety, state anxiety, and golf performance: A field study. *Journal of Sport Psychology*. *2*(2), 148-154.

Westre, K.R., & Weiss, M.R. (1991). The relationship between perceived coaching behaviors and group cohesion in high school football teams. *The Sport Psychologist. 5*(1), 41-54.

Widmeyer, W.N., Brawley, L.R., & Carron, A.V. (1990). The effects of group size in sport. *Journal of Sport and Exercise Psychology. 12*(2), 177-190

Widmeyer, W.N., & Williams, J.M. (1991). Predicting cohesion in a coacting sport. *Small Group Research, 22*(4), 548-570.

Zander, A. (1971). *Motives and goals in groups*. New York: Academic Press.

Zander, A. (1976). The psychology of removing group members and recruiting new ones. *Human Relations, 29*(10), 969-987.

Zander, A. F. (1982). *Making groups effective*. San Francisco: Jossey-Bass.

APPENDIX A

DEMOGRAPHIC QUESTIONNAIRE

Please provide (or check) the appropriate answers on your survey.

1. Your gender _____Male _____Female

2. Your age _____

3. Please specify your race/ethnicity.
_____ American Indian or Alaska Native
_____ Asian
_____ Black or African American
_____ Hispanic/Latino
_____ Native Hawaiian or Other Pacific Islander
_____ White/European
_____ Other:

4. In what team are you playing? (*Write the name of your team*) _____

Soccer Experience questionnaire

Please provide (choose or write in) the appropriate answers to describe your soccer experience.

- How many years have you played soccer? _____

- How many years have you been on the current team? _____

	Very poor					Very Good
-How would you rate your soccer skill level?	1	2	3	4	5	6
-How would you rate your team's soccer skill level?	1	2	3	4	5	6
	Not at all					Very important
-How important is the competition to your team?	1	2	3	4	5	6

-How often does your team practice (or play) as a team other than scheduled league matches?
①Never ②Less than once a week ③Once a week ④More than once a week

-What is your most important reason for participating on this soccer team?
①To have fun ②To socialize with others ③To improve soccer skills and move to higher levels ④For the competition. ⑤Other

APPENDIX B

GROUP ENVIRONMENT QUESTIONNAIRE (GEQ)

The following questions are designed to assess your perceptions about **YOUR PERSONAL INVOLVEMENT** with your soccer team. Please **CIRCLE** a number from 1 to 9 to indicate your level of agreement with each of the statements.

1. I do not enjoy being a part of the social activities of this team.

1 2 3 4 5 6 7 8 9

2. I'm not happy with the amount of playing time I get.

1 2 3 4 5 6 7 8 9

3. I am going to miss the members of this team when the season ends.

1 2 3 4 5 6 7 8 9

4. I'm unhappy with my team's level of desire to win

1 2 3 4 5 6 7 8 9

5. Some of my best friends are on this team.

1 2 3 4 5 6 7 8 9

6. This team does not give me enough opportunities to improve my personal performance.

1 2 3 4 5 6 7 8 9

7. I enjoy other parties more than team parties.

1 2 3 4 5 6 7 8 9

8. I do not like the style of play on this team.

1 2 3 4 5 6 7 8 9

9. For me, this team is one of the most important social groups to which I belong.

1 2 3 4 5 6 7 8 9

The following questions are designed to assess your perceptions of **YOUR TEAM AS A WHOLE.** Please CIRCLE a number from 1 to 9 that best indicates your level of agreement with each of the statements.

10. Our team is united in trying to reach its goals for performance.

1 2 3 4 5 6 7 8 9

11. Members of our team would rather go out on their own than get together as a team.

1 2 3 4 5 6 7 8 9

12. We all take responsibility for any loss or poor performance by our team.

1 2 3 4 5 6 7 8 9

13. Our team members rarely party together.

1 2 3 4 5 6 7 8 9

14. Our team members have conflicting aspirations for the team's performance.

1 2 3 4 5 6 7 8 9

15. Our team would like to spend time together in the off season.

1 2 3 4 5 6 7 8 9

16. If members of our team have problems in practice, everyone wants to help them so we can get back together again.

1 2 3 4 5 6 7 8 9

17. Members of our team do not stick together outside of practices or games.

1 2 3 4 5 6 7 8 9

18. Members of our team do not communicate freely about each athlete's responsibilities during competition or practice.

1 2 3 4 5 6 7 8 9

APPENDIX C

SPORT COMPETITION ANXIETY TEST (SCAT)

Below are some statements about how persons feel when they compete in sports and games. Read each statement and decide if you HARDLY-EVER(A), or SOMETIMES(B), or OFTEN(C) feel this way when you compete in sports and games. There are no right or wrong answers. Do not spend too much time on any one statement. *Remember* to choose the word that describes **how you usually feel** when competing in *sports and games.*

	Hardly-ever	Sometimes	Often
1. Competing against others is socially enjoyable.	A ☐	B ☐	C ☐
2. Before I compete, I feel uneasy.	A ☐	B ☐	C ☐
3. Before I compete, I worry about not performing well.	A ☐	B ☐	C ☐
4. I am a good sport person when I compete.	A ☐	B ☐	C ☐
5. When I compete, I worry about making mistakes.	A ☐	B ☐	C ☐
6. Before I compete I am calm.	A ☐	B ☐	C ☐
7. Setting a goal is important when competing.	A ☐	B ☐	C ☐
8. Before I compete I get a queasy feeling in my stomach.	A ☐	B ☐	C ☐
9. Just before competing, I notice that my heart beats faster than usual.	A ☐	B ☐	C ☐
10. I like to compete in games that demand considerable physical energy.	A ☐	B ☐	C ☐
11. Before I compete I feel relaxed.	A ☐	B ☐	C ☐
12. Before I compete I am nervous.	A ☐	B ☐	C ☐
13. Team sports are more exciting than individual sports.	A ☐	B ☐	C ☐
14. I get nervous wanting to start the game.	A ☐	B ☐	C ☐
15. Before I compete I usually get uptight.	A ☐	B ☐	C ☐

APPENDIX D

MODIFIED COMPETITIVE STATE ANXIETY INVENTORY-2 (CSAI-2)

Instructions: Please read the scenario below. **Use this scenario and try to put yourself into the situation** to answer the following questions.

Soccer competition scenario
Now imagine you and your teammates are getting ready for the most important competition. You look around the field and see that some of your teammates are wearing soccer cleats while others are passing the ball around. The opponent team players are warming up at the opposite half of the field. While you are warming up, one of your teammates asks "Are you ready for the game?" The referees are walking to the center circle and the opponent team is gathering to the center of the field. The game is now about to start. Think about **how you feel in that situation, right at that moment.**

Instructions: A number of statements that athlete use to describe their feelings before competition are given below. Read each statement and then circle the appropriate number to indicate how you feel ***in the above situation right at that moment, in the most important game.*** There are no right or wrong answers. Do not spend too much time on any one statement, but choose the answer that best describes how you feel *right at that moment*.

	Not at all	**Somewhat**	**Moderately**	**Very much**
1. I am concerned about this competition.	1	2	3	4
2. I feel nervous.	1	2	3	4
3. I feel at ease.	1	2	3	4
4. I have self-doubts.	1	2	3	4
5. I feel jittery.	1	2	3	4
6. I feel comfortable.	1	2	3	4
7. I am concerned I may not do as well in this competition as I could.	1	2	3	4
8. My body feels tense.	1	2	3	4
9. I feel self-confident.	1	2	3	4
10. I am concerned about losing.	1	2	3	4

11. I feel tense in my stomach.	1	2	3	4
12. I feel secure.	1	2	3	4
13. I am concerned about choking under pressure.	1	2	3	4
14. My body feels relaxed.	1	2	3	4
15. I'm confident I can meet the challenge.	1	2	3	4
16. I'm concerned about performing poorly.	1	2	3	4
17. My heart is racing.	1	2	3	4
18. I'm confident about performing well.	1	2	3	4
19. I'm worried about reaching my goal.	1	2	3	4
20. I feel my stomach sinking.	1	2	3	4
21. I feel mentally relaxed.	1	2	3	4
22. I'm concerned that others will be disappointed with my performance.	1	2	3	4
23. My hands are clammy.	1	2	3	4
24. I'm confident because I mentally picture myself reaching my goal.	1	2	3	4
25. I'm concerned I won't be able to concentrate.	1	2	3	4
26. My body feels tight.	1	2	3	4
27. I'm confident of coming through under pressure.	1	2	3	4

APPENDIX E

CONSENT FORM

Project Title: The Relationship of Team Cohesion to Individual Anxiety among Recreational Soccer Players

Project Director: Eungwang Oh, Diane. L. Gill

What is the study about?
The purpose of the present study is to investigate the impact of team cohesion on individual anxiety among recreational soccer players. Your participation is voluntary. In order to participate in the present study, you must be 18 or older and have participated (or are participating) in recreational soccer competitions.

Why are you asking me?
We are asking you to participate in completing electronic questionnaires intended to examine the impact of team cohesion on individual anxiety among recreational soccer players.

What will you ask me to do if I agree to be in the study?
You will be informed of the nature of the study, and if you agree to participate, you will complete the consent form, and the survey with questions about demographics, soccer experience and the measures of cohesion, competitive trait and state anxiety. Completing questionnaires will take time 20 minutes. Participation is completely voluntary and you may withdraw at any time. There is no reward for participating or consequence for not participating. The participation of this study should not cause any unpleasant stress.

Is there any audio/video recording?
Audio/video recording will not be used in this study.

What are the dangers to me?
The Institutional Review Board at the University of North Carolina at Greensboro has determined that participation in this study poses minimal risk to participants.
If you have questions, want more information or have suggestions, please contact Eungwang Oh or Diane L. Gill who may be reached at e_oh@uncg.edu or dlgill@uncg.edu.
If you have any concerns about your rights, how you are being treated, concerns or complaints about this project or benefits or risks associated with being in this study please contact the Office of Research Integrity at UNCG toll-free at (855)-251-2351.

Are there any benefits to society as a result of me taking part in this research?

The research will add to our understanding of the relationships between team cohesion and competitive anxiety among recreational soccer players and may suggest that promoting cohesion in groups may help to alleviate anxiety. The findings will add to our understanding of recreational soccer players.

Are there any benefits to me for taking part in this research study?
There are no direct benefits to participants in this study.

Will I get paid for being in the study? Will it cost me anything?
There are no costs to you or payments made for participating in this study.

How will you keep my information confidential?
No names or identifying information will be collected with the surveys. All data will be stored in a locked file cabinet in the primary investigator's office on campus and computer-based data will also be stored on the primary investigator's computer protected with a secure password. Absolute confidentiality of data provided through the Internet cannot be guaranteed due to the limited protections of Internet access. Please be sure to close your browser when finished so no one will be able to see what you have been doing. All information obtained in this study is strictly confidential unless disclosure is required by law.

What if I want to leave the study?
You have the right to refuse to participate or to withdraw at any time, without penalty. If you do withdraw, it will not affect you in any way. If you choose to withdraw, you may request that any of your data which has been collected be destroyed unless it is in a de-identifiable state.

What about new information/changes in the study?
If significant new information relating to the study becomes available which may relate to your willingness to continue to participate, this information will be provided to you.

Voluntary Consent by Participant:
By checking the box below you are agreeing that you read, or it has been read to you, and you fully understand the contents of this document and are openly willing consent to take part in this study. All of your questions concerning this study have been answered. By checking the box below, you are agreeing that you are 18 years of age or older and are agreeing to participate, or have the individual specified above as a participant participate, in this study described to you by Eungwang Oh.

APPENDIX F

PILOT STUDY

A pilot study was conducted in a soccer competition of the 33rd Korean American Southeastern Summer Olympics in 2013. The soccer competition was a one-day tournament. A manager from the competition was contacted for permission to conduct the pilot study. After receiving approval by Institutional Review Board (IRB) of the University of North Carolina at Greensboro and permission of the competition organizer, teams participating in the competition were met by the primary researcher. They were asked to voluntarily participate, and 6 of the 8 teams participated, which consisted of 55 participants.

The participants were all male soccer players. There were 2 Caucasians, 1 African American, 45 Asians (dominantly Koreans) regarding race/ethnicity. Because it was assumed that there would be many participants whose primary language is not English, primary language and fluency of English were examined. It was found that 22 participants used English as their primary language, 24 participants used Korean and 2 participants used other languages as their primary language. The ages of participants ranged from 18 to 51 years old (M= 27.19; SD=7.51). Years of experience varied from 2 to 40 years (M= 13.71; SD=8.01), while years on the current team ranged from 0 to 16 years (M= 4.69; SD=4.01). On average, the perceived individual soccer skill was 4.1, and their mean team skill level was 4.33 on a 6-point Likert scale.

It is important to note that data of 7 participants were excluded due to the incomplete questionnaires, and data of 2 participants were excluded due to lack of English fluency (i.e. less than 4 point [good] on a 6-point Likert scale [from poor to excellent] for those whose primary language is not English) from subsequent statistical analyses. Therefore, only data of 46 participants were used for further analyses.

Correlations of sub-dimensions of the GEQ (ATG-T, ATG-S, GI-T, and GI-S) with sub-components of the CSAI-2 (cognitive A-state and somatic A-state) were examined. It was found that somatic A-state was negatively related to ATG-T (r = -3.75) and GI-S (r = -3.46). There was no relationship between any sub-dimension of cohesion and cognitive A-state (see Table 1).

Multiple regression analysis revealed that 4 GEQ subcomponents did not predict cognitive A-state (see Table 2), but 4 GEQ subcomponents predicted somatic A-state (see Table 3). In particular, ATG-T was the only contributor that showed a significant influence on somatic A-state (β = -.39, p >.05).

Subsequently, hierarchical regression analysis was employed to examine whether 4 GEQ subcomponents would add to the prediction of cognitive and somatic A-state beyond the contribution of the SCAT. The SCAT was entered in the first block, as a predictor of cognitive and somatic A-state and then 4 GEQ subcomponents were entered in the second block using stepwise method. The SCAT predicted cognitive A-state, and ATG-T was still related to cognitive A-state in addition to the SCAT (see Table 4-1). More specifically, ATG-T made a significant contribution to somatic A-state (β= -.31, p >.05), but none of subcomponent of GEQ showed a significant influence on somatic A-

state. It was also reveled that the SCAT predicted somatic A-state, and ATG-T predicted somatic A-state beyond the contribution of the SCAT (see Table 5). Although ATG-T showed a significant contribution to predicting somatic A-state (β= -.42, p >.01), other subcomponent of GEQ showed no significant influence on somatic A-state.

Results of the pilot study were partially consistent with previous research (Eys et al., 2003; Prapavessis & Carron, 1996) in that previous research showed that cognitive A-state was related to cohesion (particularly GI-T and ATG-T). However, the pilot study showed that ATG-T was significantly related to both A-state. The prediction of cohesion on competitive A-state was confirmed.

Table 4. Pearson correlation among the variables of interest

Correlations

	ATG_T	ATG_S	GI_T	GI_S	Cog_ anxiety	Som_ anxiety	A_Trait
ATG_T		.425**	.589**	.457**	-.284	-.375**	.091
ATG_S			.322*	.512**	-.104	-.099	.202
GI_T				.475**	-.123	-.182	.234
GI_S					-.251	-.346*	.102
Cog_anxiety						.675**	.305*
Som_anxiety							.419**
A_Trait							

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

Table 5. Multiple regression among the variables of interest

Model		Standardized Coefficients Beta	t	Sig.
1	(Constant)		4.922	.000
	ATG_T	-.297	-1.578	.122
	ATG_S	.097	.562	.577
	GI_T	.128	.690	.494
	GI_S	-.226	-1.241	.221

a. Dependent variable: cognitive A-state
$R=.34$, $R^2=.16$, $F(4,43) = 1.4$, $p > .05$

Table 6. Multiple regression among the variables of interest

Model		Standardized Coefficients Beta	t	Sig.
1	(Constant)		5.852	.000
	ATG_T	-.388	-2.192	.034
	ATG_S	.191	1.180	.245
	GI_T	.145	.830	.411
	GI_S	-.336	-1.958	.057

a. Dependent variable: somatic A-state
$R=.47$, $R^2=.22$, $F(4,43) = 2.98$, $p < .05$

Table 7. Multiple hierarchical regression among the variables of interest

Model		Standardized Coefficients Beta	t	Sig.
1	(Constant)		2.982	.005
	A_Trait	.305	2.173	.035
2	(Constant)		3.885	.000
	A_Trait	.334	2.478	.017
	ATG_T	-.314	-2.333	.024

a. Predictors: (constant), A-trait
b. Predictors: (constant), A-trait, ATG_T
c. Dependent variable: cognitive A-state
$R=.44$, $R^2=.19$, $F(2,45) = 5.31$, $p < .01$

Table 8. Multiple hierarchical regression among the variables of interest

Model		Standardized Coefficients Beta	t	Sig.
1	(Constant)		2.516	.014
	A_Trait	.419	3.126	.003
2	(Constant)		4.416	.000
	A_Trait	.457	3.775	.000
	ATG_T	-.417	-3.446	.001

a. Predictors: (constant), A-trait
b. Predictors: (constant), A-trait, ATG_T
c. Dependent variable: somatic A-state
$R=.59$, $R^2=.35$, $F(2,45) = 11.98$, $p < .01$