

EXPLORING THE EFFECTS OF ETHNICITY ON PRE-COMPETITION
ANXIETY AND SELF-CONFIDENCE IN COLLEGIATE
TRACK AND FIELD ATHLETES

By

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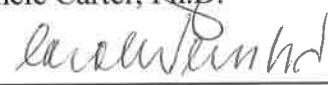
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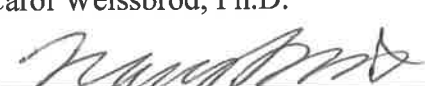
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ABSTRACT

Research has been conducted on the intensity and direction of competitive state anxiety (cognitive and somatic anxiety) and self-confidence and their effects on athletes' performance, however little attention has been given to possible ethnic differences in these areas. This study examined ethnic differences in the direction and intensity of pre-competition anxiety (cognitive and somatic anxiety) and self-confidence among collegiate track and field athletes. Within 48 hours after the conclusion of a track meet, participants were asked to recall their feelings prior to competition as they completed a series of questionnaires. Overall, African American athletes reported lower cognitive and somatic anxiety intensity scores, higher self-confidence intensity scores, and higher ethnic identity scores compared to their Caucasian counterparts. Significant ethnic differences were found among track athletes, field athletes, and between sprinters and distance runners. Ethnic differences in these areas could affect athletic performance and how sports psychologists treat athletes of diverse backgrounds.

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CHAPTER 1

INTRODUCTION

Given the increasing ethnic diversity of the United States, it is important for researchers to include and evaluate diverse populations within their studies. There is evidence that the rate of population growth is increasing at a disproportionately higher rate among minority groups as compared to Caucasians (U.S. Census Bureau, 2010). Between 2000 and 2008, the African American population has increased 9.1%, which is higher than the change in the overall U.S. population during that time (7.8%; U.S. Census Bureau, 2008). Furthermore, the African American population accounted for 14.8% of the total change in the U.S. and represents the highest percent change of any ethnic group during the same time period. Several areas of psychology have adjusted to this rise in the African American population by including more diverse samples and even conducting studies focusing specifically on this subgroup. Sport and exercise psychologists however, have failed to address issues of ethnicity in the existing literature. Therefore it is necessary to focus efforts on incorporating ethnically diverse samples as well as evaluating possible differences between ethnic groups.

Paucity of Diversity Research in Sports Psychology

Researchers have been calling for additional cultural diversity studies for over 20 years (Duda & Allison, 1990; Kamphoff, Gill, Araki, & Hammond, 2010; Ram, Starek, & Johnson, 2004), yet little progress has been made. Over two decades ago, Duda and

Allison (1990) postulated that race and ethnicity are vital concepts in the understanding of emotional processes in most areas of sports research. In their review of 199 publications from the *Journal of Sport and Exercise Psychology (JSEP)* between 1979 and 1987, it was found that only seven of 186 empirical papers (3.8%) reported the racial/ethnic composition of their sample and one of 13 theoretical papers (7.7%) addressed possible racial/ethnic effects (Duda & Allison, 1990). These results prompted a call for greater focus on the inclusion of ethnic minorities in research, both at the descriptive as well as the theoretical level.

Ram and colleagues (2004) replicated Duda and Allison (1990) to reassess the status of diversity research, with particular interest in race, ethnicity, and sexual orientation. Out of 982 publications found in *JSEP*, *Journal of Applied Sport Psychology (JASP)*, and *The Sport Psychologist (TSP)* between 1987 and 2000, 19.9% of manuscripts referenced race and ethnicity. While this is a significant increase in the number of references to race and ethnicity, less than 2% of these papers included an extensive discussion on the topic, indicating that sport and exercise psychologists have continued to ignore the influence of diversity on outcome. Similarly, Kamphoff and colleagues (2010) reviewed conference abstracts and reported that only 10.5% of 5,214 conference program abstracts in the Association for Applied Sport Psychology (AASP) between 1986 and 2007 addressed the issue of diversity. It was noted however, that although 31.9% of the abstracts included a diverse sample, most addressed gender (80%; $n = 1339$ of 1664) and disregarded race and ethnicity.

Considering the higher ethnic diversity in collegiate athletics compared to the general population, it is very surprising that few studies have focused on this issue. The

National Collegiate Athletic Association (NCAA, 2010) reported that out of all athletes in the 2009-10 academic year, 0.4% identified themselves as American Indian/Alaskan Native, 1.7% as Asian, 15.2% as Black/African American, 4.2% as Hispanic/Latino, 0.2% as Native Hawaiian/Pacific Islander, 74% as White/Non-Hispanic, and 3.7% as Other. The highest percentage of African Americans can be found in the following sports: basketball (39%), football (35%), and indoor and outdoor track and field (21%). It is clear from the above-mentioned reviews that sport and exercise psychologists have neglected ethnicity as a variable that might differentially impact research, despite the increased amount of ethnic diversity among collegiate athletes. The present study was conducted to begin to address the paucity of research on this topic in sports.

African Americans and Related Anxiety Constructs

Although no research is available regarding ethnic differences in reported pre-competition anxiety and self-confidence among athletes, a review of the literature on related anxiety constructs indicates that differences between African Americans and Caucasians exist and this difference may be present in sports anxiety as well. For example, studies have found that African Americans reported lower worry scores than Caucasians (Carter et al., 2004; Scott et al., 2002). Furthermore, Carter and colleagues' (2004) exploratory factor analysis found that the factor structure of the Penn State Worry Questionnaire differed between ethnic groups, with Caucasians displaying a two-factor structure of worry and African Americans displaying a three-factor structure.

Additionally, research has shown that African American children have higher levels of anxiety sensitivity than samples of Caucasian children (Lambert et al., 2004;

Rabian, Embry, & MacIntyre, 1999). For instance, ethnic minority children reported higher scores on the Childhood Anxiety Sensitivity Index compared to those in the ethnic majority (Caucasians; Rabian et al., 1999). It should also be noted that, similar to the factor structure of worry, there is evidence of differences in the factor structure of the original Anxiety Sensitivity Index (ASI) for African Americans (Carter et al., 1999).

Finally, one study found that African Americans reported lower levels of social anxiety compared to their Caucasian counterparts (Grant et al., 2005). However, recent studies have found conflicting results, with particular regard to the measurement of social anxiety assessment. Melka, Lancaster, Adams, Howarth, and Rodriguez (2010), for example, found different factor structures in both the Fear of Negativity Evaluation and Social Avoidance and Distress Scales among African American versus Caucasian samples. Conversely, Beard and colleagues (2011) found similar factor structures in the Liebowitz Social Anxiety Scale between these groups. If the assessment of social anxiety differs between ethnic groups, it is plausible that there will be reported differences in other anxiety constructs (e.g., pre-competition anxiety and self-confidence) as well.

Some research is available regarding African American athletes' experiences as minorities on various sports teams (Stratta, 1995), but studies concerning other ethnic issues are non-existent. Since ethnic differences have been found in other areas of psychology, such as the anxiety research described above, similar differences may be found in sports psychology. It is apparent that there is something specific to each ethnic group, perhaps cultural differences, that accounts for differential experiences of anxiety.

African Americans in Collegiate Sports

In the last decade, the percentage of African American athletes in the NCAA has steadily increased (NCAA, 2010). The percentage of Division I African American male student athletes increased from 22.9% in the 1999-00 academic year to 24.9% in 2009-10, while the percentage of Division I African American female student athletes increased from 13.8% to 16% during the same time period. In particular sports such as basketball, football, and indoor and outdoor track and field, African Americans make up a larger percentage of total athletes compared to other sports (NCAA, 2010). For instance, in indoor and outdoor track and field in 2009-10, African American males made up 27.3% and 27% of total athletes while African American females made up 29.2% and 29.1% of total athletes, respectively. This is an increase from the percentage of African Americans in indoor (26.9% male, 26.9% female) and outdoor (26.4% male, 26.8% female) track and field in 1999-00.

Competitive State Anxiety and Self-Confidence

Research on competitive state anxiety (cognitive and somatic anxiety) and self-confidence in sports has focused on the intensity and direction of these constructs and their impact on athletic performance. Jones, Swain, and Hardy (1993), for instance, studied a sample of high-school-aged female gymnasts who were divided into “good” and “poor” performance groups. No differences were found between the two performance groups regarding the intensity scores of cognitive and somatic anxiety and self-confidence; there were also no differences in the direction scores of somatic anxiety and self-confidence. The “good” performance group, however, *did* differ in their cognitive

anxiety direction—they viewed cognitive anxiety as more facilitative than debilitating compared to those in the “poor” performance group.

Another study examining basketball and volleyball players discovered that overall, the intensity and direction of cognitive and somatic anxiety and self-confidence were not related to performance (Kais & Raudsepp, 2005). The intensity of cognitive anxiety however, was somewhat positively related to performance. Chamberlain and Hale (2007) studied how the intensity and direction of competitive state anxiety and self-confidence may predict performance among a group of male golfers. Results showed that cognitive anxiety intensity and performance were significantly negatively correlated and somatic anxiety correlated in a curvilinear fashion, where higher levels of somatic anxiety intensity tended to be associated with poorer performance. This curvilinear trend is known as the inverted U-shape hypothesis, which originated from Yerkes & Dodson’s (1908) research on the effects of anxiety on performance. The idea is that anxiety is helpful to one’s performance until it reaches a certain level, where it then begins to decrease levels of performance. Furthermore, an increased level of self-confidence was found to be correlated with better performance, suggesting that self-confidence is a good predictor of performance. Similarly, the direction of cognitive anxiety was shown to be positively related to performance, indicating that the better an athlete’s perception is of cognitive anxiety, the better they performed in their golf putting task.

These studies have explored the effects of competitive state anxiety and self-confidence intensity and direction on athletic performance. To date however, only one unpublished study has mentioned ethnic variations in these areas. According to Powell (2009), African American track and field sprint athletes’ performance may not be

affected by the intensity and directional measures of cognitive and somatic anxiety and self-confidence. The small sample size of African American athletes ($n = 10$) used in the study however, makes it difficult to generalize from these findings. In this study, African American athletes also reported higher levels of competitiveness and desire to win than non-African American athletes. The current study sought to examine these areas among a larger sample of African American track and field athletes to determine whether Powell's findings can be replicated. If Powell's (2009) findings hold true in future studies, it would be suggestive of a difference in the way collegiate African American track and field athletes report pre-competition anxiety, self-confidence, and competitiveness compared to non-African American track and field athletes. Moreover, future researchers may further explore mechanisms underlying these differences so that sports psychology professionals may apply this information and treat individuals of diverse backgrounds more appropriately and effectively.

Variables that Might Influence Findings

It is important to recognize that certain variables, such as ethnic identity, may influence the findings in this study. Ethnic identity can be defined as a multidimensional construct which encompasses one's sense of belonging to an ethnic group as well as the thoughts, feelings, perceptions, and behavior associated with that ethnic group membership (Rotheram & Phinney, 1987). Some evidence has supported the relationship between ethnic identity and anxiety. Two studies found a correlation between anxiety and ethnic identity among African American adults – a higher level of ethnic identity was associated with less anxiety – however no such correlation was found among Caucasians

(Carter et al., 2001; 2005). Conversely, Gaylord-Harden and colleagues (2007) reported a lack of correlation between ethnic identity and anxiety symptoms among male African American adolescents, but it should be noted that this finding is inconsistent with previous research on this population. Since the present study utilizes an adult population, it is expected that results will align more closely with previous research on this sample (i.e. the findings from Carter et al., 2001; 2005).

There might also be other factors that contribute to athletes' responses to questions of pre-competition anxiety and self-confidence. Previous literature has shown that African Americans tend to report fewer experiences of psychological episodes (e.g., anxiety, depression, anger) compared to Caucasians (Harris, 2004). Furthermore, African Americans reported lower levels of hardiness (a combination of commitment, control, and challenge that allows an individual to manage adverse situations) as compared to Caucasians. Additionally, African Americans typically report a more external locus of control (Graham, 1994). Since African Americans reported experiencing psychological constructs differently than Caucasians, it is possible that certain attributes could differentially influence the outcome variables. In particular, one's level of competitiveness, desire to win, and goal orientation could affect an athlete's self-reported pre-competition anxiety and self-confidence. As such, these characteristics were measured in the present study.

The Present Study

The current study aimed to investigate the effects of ethnicity on perceived pre-competition anxiety (cognitive and somatic anxiety) and self-confidence in collegiate

track and field athletes. This exploratory study sought to address the following questions:

1) Are there differences in reported cognitive anxiety, somatic anxiety, and self-confidence among collegiate African American and Caucasian track and field athletes? It is hypothesized that African American track and field athletes report lower cognitive and somatic anxiety scores than Caucasian track and field athletes; 2) Do African American track and field athletes report different scores on competitiveness, desire to win, and ethnic identity measures than Caucasian track and field athletes? It is hypothesized that African American track and field athletes report higher scores on these subscales than Caucasian track and field athletes; 3) Are there ethnic differences among the above-mentioned dependent variables between track athletes and field athletes as well as sprinters and distance runners? There were no specific hypotheses for these comparisons; and 4) Are reported cognitive anxiety, somatic anxiety, and self-confidence scores correlated with perceived or actual performance among African American or Caucasian track and field athletes? There were no specific hypotheses for these relationships among either ethnic group.

CHAPTER 2

METHOD

Participants

Out of 460 surveys distributed, one-hundred and twenty-two (26.5%) track and field athletes (57 African Americans, 65 Caucasians) from seven Division I universities participated in the study (see Table 1 for complete demographic information). It should be noted that three of these universities are Historically Black Colleges or Universities. Participants competed in a regular season track meet in the one or more of the following events: 100-meter race, 100m hurdles, 110m hurdles, 200m, 400m, 400m hurdles, 800m, 1500m, 3000m steeple, 5000m, 10000m, long jump, high jump, triple jump, pole vault, discus, javelin, hammer, shot put, and weight throw.

Table 1. Demographic Characteristics of the Sample

	African Americans		Caucasians	
	M (n = 57)	SD	M (n = 65)	SD
Age	19.94	1.51	19.69	1.18
Gender	n	%	n	%
Male	22	38.6	23	35.4
Female	35	61.4	42	64.6
College Year	n	%	n	%
Freshman	16	28.1	21	32.3
Sophomore	11	19.3	15	23.1
Junior	14	24.6	16	24.6
Senior	16	28.1	13	20.0

Family Income (SES)	n	%	n	%
Below \$25,000	8	14.0	-	-
\$25,001-\$50,000	8	14.0	-	-
\$50,001-\$75,000	5	8.80	5	7.70
\$75,001-\$100,000	9	15.8	7	10.8
\$100,001-\$125,000	6	10.5	12	18.5
\$125,001-\$150,000	2	3.50	6	9.20
\$150,001-\$175,000	-	-	4	6.20
\$175,001-\$200,000	3	5.30	4	6.20
Above \$200,000	3	5.30	10	15.4
Did not report	13	22.8	17	26.2

Measures

Demographics

This initial demographics section was designed to obtain information about participants' sex, age, socio-economic status, year in college, years competing in track and field, and information regarding their primary event (see Appendix B for all measures).

Performance Rating

Participants were asked to rate their typical performance, best performance, and their performance at that day's meet on a scale from "1" indicating "very poor" to "7" indicating "excellent." Additionally, participants were asked to indicate their individual and team ranking for the current track meet as well as their main goal for this meet (e.g., "to win my individual event," "to gain enough points to help my team win today's meet," etc.). This information was used to evaluate possible relationships between competitive state anxiety and perceived and actual performance.

Modified Competitive State Anxiety Inventory-2

The modified Competitive State Anxiety Inventory-2 (CSAI-2; Martens, Burton, Vealey, Bump, & Smith, 1990) is used to measure reported pre-competition cognitive anxiety, somatic anxiety, and self-confidence. The CSAI-2 is made up of 27 statements, each followed by two rating scales. Each statement is followed by an intensity rating scale ranging from “1” indicating “not at all” to “4” indicating “very much so.” A second directional rating scale follows each statement: “I view this feeling as _____ to my performance.” In response to this statement, participants specify a rating from “-3” indicating “very harmful” to “3” indicating “very helpful.” Examples of statements measuring cognitive anxiety are “I am concerned about this competition” and “I have self-doubts.” Some items measuring somatic anxiety include “I feel nervous” and “I feel jittery.” Finally, statements aimed at measuring self-confidence include “I feel at ease” and “I feel comfortable.” The internal consistency for cognitive anxiety, somatic anxiety, and self-confidence has been found to be .81, .82, and .88, respectively (Martens et. al., 1990), whereas in the present study, the internal consistency among African American participants is .84, .60, and .86, respectively, and among Caucasian participants is .85, .70, and .87, respectively.

Sport Orientation Questionnaire

The Sport Orientation Questionnaire (SOQ; Gill & Deeter, 1988) measures three types of sport achievement orientation: competitiveness, win orientation, and goal orientation. The SOQ consists of 25 statements followed by a Likert scale specifying the extent to which one agrees with the given statement; the rating scale ranges from “A” indicating “Strongly Agree” to “E” indicating “Strongly Disagree.” The following

statements are examples of competitiveness, win orientation, and goal orientation, respectively: “I am a determined competitor,” “Winning is important,” and “I set goals for myself when I compete.” The internal consistency for competitiveness, win orientation, and goal orientation usually ranges from .94-.95, .85-.86, and .79-.82, respectively (Gill & Deeter, 1988); the current study reported internal consistencies among African American participants as .95, .80, and .91, respectively, and among Caucasian participants as .86, .79, and .71, respectively.

Hypercompetitive Attitude Scale

The Hypercompetitive Attitude Scale (HAS; Ryckman, Hammer, Kaczor, & Gold, 1990) measures hypercompetitiveness, which is defined as the need of an individual to win at any cost in order to enhance feelings of self-worth. The HAS asks respondents to indicate the extent to which a given statement is true of them by selecting a number on a scale ranging from “1” (“Never true of me”) to “5” (“Always true of me”). A sample of statements in this scale includes “Winning in competition makes me feel more powerful as a person,” “I feel really down when I lose in athletic competition,” and “Failure or loss in competition makes me feel less worthy as a person.” The internal consistency is typically .91 (Ryckman et. al., 1990), whereas the internal consistency for the current study among African American participants is .89 and for Caucasian participants is .51.

Multigroup Ethnic Identity Measure

The Multigroup Ethnic Identity Measure (MEIM; Phinney, 1992; Roberts et al. 1999) measures ethnic identity and includes two subscales: ethnic identity search and

affirmation, belonging, and commitment. The MEIM is comprised of 15 items, 12 of which are scored and three of which are used solely for identification and categorization of ethnicity. The 12 scored items are statements followed by a Likert rating scale ranging from “4” (“Strongly Agree”) to “1” (“Strongly Disagree”). An example of a statement in the ethnic identity search subscale is “I have spent time trying to find out more about my ethnic group, such as its history, traditions, and customs.” Additionally, an example of a statement in the affirmation, belonging, and commitment subscale is “I have a clear sense of my ethnic background and what it means for me.” The internal consistency for overall ethnic identity, ethnic identity search, and affirmation, belonging, and commitment are usually .90, .80, and .86 (Phinney, 1992), respectively, for a college sample; the internal consistency for the current study is .91, .73, and .92, respectively, for African American participants and .89, .78, and .87, respectively, for Caucasian participants.

Procedure

Upon receiving approval from each university’s Institutional Review Board (IRB) and corresponding track and field coaches, participants were given a copy of the survey at a regular season track meet. Directions clearly informed the track and field athletes that their participation was completely voluntary and that they would not be compensated, as it would be against NCAA rules. Because completing a study prior to competition could interfere with performance, participants were asked to complete the survey following the track meet. Research has shown that athletes may properly recall their perceived pre-competition anxiety within 48-hours after competition (Harger & Raglin, 1994). Thus, this time-restriction was applied in the current study in order to ensure an accurate recall

of perceived pre-competition anxiety. Athletes were asked to return the surveys via postal mail within 48 hours of the end of the meet. Upon signing the consent form, participants were asked to provide demographic information as well as answers to the various questionnaires described above.

CHAPTER 3

RESULTS

Prior to conducting the main analyses, participants were grouped by ethnicity (African American or Caucasian) and sport event (e.g., track or field, sprinter or distance). Those who reported one of the following events as their primary were classified as track athletes: 100m, 100m hurdles, 110m hurdles, 200m, 400m, 400m hurdles, 800m, 1500m, 3000m steeple, 5000m, or 10,000m. Participants reporting the one of following events as their primary event were categorized as field athletes: long jump, high jump, triple jump, pole vault, discus, javelin, hammer, shot put, or weight throw.

In order to evaluate demographic differences by ethnicity, several chi-square tests were conducted on categorical data. A chi-square test for gender and year-in-school differences by ethnicity was non-significant ($\chi^2(1) = .135, p = .714$ and $\chi^2(3) = 1.215, p = .749$, respectively), which can be seen in Table 1. Conversely, a significant difference for SES by ethnicity was found ($\chi^2(8) = 28.041, p < .001$), where African American track and field athletes reported significantly lower SES than Caucasian track and field athletes. This difference is apparent when looking at Table 1 – 28% of African American participants reported their SES at or below \$50,000, whereas no Caucasian participants reported their SES in this range. Furthermore, only about 10% of African American participants reported their SES above \$150,000, whereas 28% of Caucasian participants reported their SES in this range.

Additionally, correlations were run to identify any significant relationships between demographic and performance variables with outcome variables. Results showed several significant correlations for the overall sample as well as among African Americans and Caucasians, which can be seen in Tables A-C (see Appendix A). In the overall sample, SES was significantly negatively correlated with the ethnic identity subscales (MEIM). Moreover, SES was significantly correlated with the overall ethnic identity measure (MEIMtotal), ethnic belonging subscale (MEIMbelong), overall anxiety intensity, and cognitive intensity, among African American participants. Among the Caucasian sample, gender significantly correlated with each sport orientation subscale (competitiveness, win orientation, and goal orientation), overall anxiety direction, cognitive anxiety intensity, cognitive anxiety direction, and self-confidence intensity; therefore, gender was used as a covariate when analyzing the above-mentioned variables within the Caucasian sample.

Main Analyses

A series of one-way Analyses of Variance (ANOVAs) were conducted to address possible ethnic differences in reported cognitive anxiety, somatic anxiety, and self-confidence among sampled Division I collegiate track and field athletes.

Ethnic Identity Measures

One-way ANOVAs were conducted to compare all African American track and field athletes to all Caucasian track and field athletes in the above-mentioned dependent variables (see Table 2). The analyses showed significant differences between groups on the overall ethnic identity measure (MEIM Total; $F(1, 117) = 51.68, p < .01$), the ethnic

identity subscale (MEIM Identity; $F(1, 117) = 58.84, p < .01$), and the ethnic belonging subscale (MEIM Belonging; $F(1, 119) = 32.79, p < .01$), with African American athletes reporting higher scores on each compared to Caucasian athletes.

Table 2. Ethnic Differences Among all Track and Field Athletes

	African American (N = 56)		Caucasian (N = 64)		F ratio	p value
	Mean	SD	Mean	SD		
SOQ Competitiveness	58.13	9.04	57.10	7.74	.515	.475
SOQ Win Orientation	24.63	4.35	23.17	3.99	3.592	.061
SOQ Goal Orientation	27.17	4.11	27.97	2.18	1.806	.182
HAS Total	78.14	17.80	79.43	7.45	.273	.602
MEIM Total	39.67**	6.72	30.78**	6.69	51.679	.000
MEIM Identity	15.02**	3.11	10.70**	3.10	58.841	.000
MEIM Belonging	24.57**	4.00	20.19**	4.33	32.793	.000
Overall Anxiety Intensity	64.20	9.07	64.87	8.07	.166	.684
Overall Anxiety Direction	6.36	24.35	8.58	22.72	.225	.636
Cognitive Anx. Intensity	20.87*	6.00	23.11*	5.50	4.440	.037
Cognitive Anx. Direction	-1.32	10.88	-1.51	9.12	.010	.921
Somatic Anx. Intensity	17.78*	4.71	19.65*	4.76	4.493	.036
Somatic Anx. Direction	.66	8.37	.73	8.06	.002	.965
Self-Conf. Intensity	25.59**	5.47	22.02**	5.41	12.386	.001
Self-Conf. Direction	9.24	11.38	9.03	10.27	.011	.918

* $p < .05$, ** $p < .01$

Cognitive Anxiety, Somatic Anxiety, and Self-Confidence

Separate one-way ANOVAs on these variables revealed significant ethnic differences in competitive state anxiety and self-confidence responses (see Graphs 1-16 in Appendix A for scatterplots of the data). There were significant effects of reported cognitive anxiety intensity ($F(1, 116) = 4.44, p = .037$) and somatic anxiety intensity

($F(1, 115) = 4.49, p = .036$), such that African American track and field athletes reported lower levels of both types of anxiety compared to Caucasian track and field athletes. There was also a significant effect of reported self-confidence intensity ($F(1, 114) = 12.39, p < .01$) in which African American track and field athletes reported higher self-confidence scores compared to Caucasian track and field athletes. No ethnic differences were found regarding the reported direction (facilitation or debilitation) of cognitive anxiety, somatic anxiety, or self-confidence among the sampled track and field athletes (all p 's $> .018$; see Table 2).

Competitiveness and Sport Orientation

Overall, one-way ANOVAs revealed no significant ethnic differences for the SOQ measures of competitiveness, or goal orientation (p 's $> .182$), however the win orientation subscale approached significance ($F(1, 116) = 3.59, p = .061$), with African American athletes reported somewhat higher scores for win orientation than Caucasian athletes. No ethnic differences were found on the HAS ($F(1, 112) = .273, p = .60$; see Table 2).

Analyses by Sport Type

Track vs. Field Athletes

No significant differences were found between African American track athletes and African American field athletes (p 's $\geq .090$). Likewise, no significant differences were found between Caucasian track athletes and Caucasian field athletes (all p 's $\geq .077$).

Track Athletes

One-way ANOVAs examining ethnic differences among track athletes revealed several significant findings (see Table 3). There was an effect for reported self-confidence intensity ($F(1, 70) = 8.22, p < .01$), where African American track athletes reported significantly higher scores for self-confidence intensity than Caucasian track athletes. There was also an effect for win orientation ($F(1, 73) = 5.85, p = .018$) such that African American track athletes reported higher scores on the SOQ win orientation subscale compared to Caucasian track athletes. Finally, African American track athletes reported significantly higher scores than Caucasian track athletes on the overall ethnic identity measure ($F(1, 73) = 35.61, p < .01$), the ethnic identity subscale ($F(1, 73) = 38.43, p < .01$), and the ethnic belonging subscale ($F(1, 75) = 21.32, p < .01$).

Table 3. Ethnic Differences Among Track Athletes

	African American (N = 38)		Caucasian (N = 39)		F ratio	p value
	Mean	SD	Mean	SD		
SOQ Competitiveness	59.03	6.78	56.66	6.41	2.390	.126
SOQ Win Orientation	24.84*	3.72	22.74*	3.80	5.851	.018
SOQ Goal Orientation	27.64	3.00	28.03	2.05	.426	.516
HAS Total	75.68	20.01	79.05	7.33	.942	.335
MEIM Total	39.86**	6.32	30.87**	6.73	35.607	.000
MEIM Identity	15.16**	3.12	10.82**	2.95	38.429	.000
MEIM Belonging	24.58**	3.61	20.23**	4.59	21.319	.000
Overall Anxiety Intensity	64.61	9.93	64.89	8.38	.016	.898
Overall Anxiety Direction	5.86	24.00	11.46	25.29	.813	.371
Cognitive Anx. Intensity	20.86	6.14	22.81	5.65	2.014	.160
Cognitive Anx. Direction	-.029	10.29	-1.14	9.98	.210	.648
Somatic Anx. Intensity	18.34	4.89	20.56	4.97	3.575	.063
Somatic Anx. Direction	.55	7.81	1.24	9.00	.108	.744

Self-Conf. Intensity	25.28**	5.52	21.44**	5.82	8.221	.005
Self-Conf. Direction	7.67	10.67	10.59	11.24	1.242	.269

* $p < .05$, ** $p < .01$

Field Athletes

When investigating ethnic differences among field athletes, results indicated a significant effect of self-confidence intensity ($F(1, 39) = 4.84, p = .034$), in which African American field athletes reported higher scores than Caucasian field athletes. Similarly, an effect of self-confidence direction was found ($F(1, 37) = 4.85, p = .034$), such that African American field athletes reported their self-confidence as significantly more facilitative than Caucasian field athletes. Consistent with the overall ethnic differences, significant effects for overall ethnic identity scores ($F(1, 39) = 14.19, p < .01$), ethnic identity subscale ($F(1, 39) = 14.87, p < .01$), and ethnic belonging subscale ($F(1, 39) = 10.82, p < .01$) whereby African American field athletes reported higher scores on each of these scales compared to Caucasian field athletes (see Table 4).

Table 4. Ethnic Differences Among Field Athletes

	African American (N = 18)		Caucasian (N = 25)		F ratio	p value
	Mean	SD	Mean	SD		
SOQ Competitiveness	56.60	12.99	57.46	6.64	.095	.760
SOQ Win Orientation	24.00	5.74	23.84	4.34	.010	.920
SOQ Goal Orientation	26.18	5.89	27.79	2.43	1.466	.233
HAS Total	83.06	11.58	80.08	7.91	.938	.339
MEIM Total	39.24**	7.90	30.50**	6.88	14.189	.001
MEIM Identity	14.65**	3.24	10.54**	3.44	14.872	.000
MEIM Belonging	24.59**	5.00	19.96**	4.01	10.817	.002
Overall Anxiety Intensity	62.69	6.94	64.48	7.75	.549	.464

Overall Anxiety Direction	7.93	26.72	4.09	18.40	.269	.607
Cognitive Anx. Intensity	20.35	5.58	23.33	5.35	2.979	.092
Cognitive Anx. Direction	-4.13	12.32	-1.79	7.95	.523	.474
Somatic Anx. Intensity	16.50	4.27	18.36	4.30	1.968	.168
Somatic Anx. Direction	1.14	9.94	.28	6.59	.106	.746
Self-Conf. Intensity	26.35*	5.60	22.75*	4.84	4.842	.034
Self-Conf. Direction	13.00*	12.72	5.92*	7.43	4.849	.034

* $p < .05$, ** $p < .01$

Sprinters vs. Distance Runners

Additional one-way ANOVAs were performed to explore possible differences between sprinters and distance runners. The only significant difference found between Caucasian sprinters and Caucasian distance runners was in the ethnic belonging subscale scores ($F(1, 37) = 3.67, p = .042$), where Caucasian sprinters reported higher scores compared to Caucasian distance runners (all other p 's $\geq .07$). When comparing African American sprinters and African American distance runners, significant effects for overall ethnic identity ($F(1, 35) = 7.35, p = .011$) and ethnic belonging ($F(1, 36) = 9.44, p = .004$) was found; African American sprinters reported higher overall ethnic identity and ethnic belonging scores compared to African American distance runners.

Within the sprinter group, ethnic differences were examined as well. Significant effects were found for overall ethnic identity ($F(1, 42) = 16.09, p < .01$), the ethnic identity subscale ($F(1, 42) = 19.59, p < .01$), and the ethnic belonging subscale ($F(1, 8.80, p < .01)$) where African American sprinters reported higher scores compared to Caucasian sprinters. No other significant differences were found (all p 's $\geq .252$). Within the distance runner group, no significant differences were found (all p 's $\geq .103$), though an effect for win orientation was close to significance ($F(1, 30) = 4.09, p = .053$), such that African

American distance runners reported higher scores for win orientation than Caucasian distance runners.

Gender Analyses

In order to examine possible gender differences by ethnicity, several independent-samples t-tests were conducted. Among African Americans, no gender differences were found (all p 's $\geq .097$), however several differences were found among the Caucasian sample (see Table 5). Caucasian males' scores were found to be significantly different from Caucasian females' scores in competitiveness ($t(1, 61) = 4.11, p < .01$), win orientation ($t(1, 62) = 2.63, p = .011$), and goal orientation ($t(1, 61) = 2.22, p = .029$), whereby Caucasian males reported higher scores compared to Caucasian females. Furthermore, Caucasian males' scores significantly differed from Caucasian females' scores in overall anxiety direction ($t(1, 57) = 2.18, p = .033$), cognitive anxiety intensity ($t(1, 60) = -2.25, p = .028$) and direction ($t(1, 59) = 2.51, p = .015$), and self-confidence intensity ($t(1, 59) = 3.09, p < .01$). Caucasian males reported higher scores than Caucasian females for overall anxiety direction, cognitive anxiety direction, and self-confidence intensity, but lower scores for cognitive anxiety intensity.

Table 5. Gender differences among Caucasian track and field athletes

	Caucasian Males (N = 23)		Caucasian Females (N = 42)		t value	p value
	Mean	SD	Mean	SD		
SOQ Competitiveness	61.33**	4.50	54.98**	6.32	4.11	.000
SOQ Win Orientation	24.91*	3.46	22.26*	3.99	2.63	.011
SOQ Goal Orientation	28.81*	1.57	27.55*	2.34	2.22	.029
HAS Total	81.43	8.19	78.43	6.95	1.52	.133
MEIM Total	32.14	5.07	30.10	7.33	1.15	.255

MEIM Identity	10.81	2.62	10.64	3.34	0.20	.842
MEIM Belonging	21.59	3.43	19.45	4.61	1.91	.060
Overall Anxiety Intensity	64.32	8.09	65.18	8.16	-0.40	.692
Overall Anxiety Direction	17.00*	22.20	3.92*	21.92	2.18	.033
Cognitive Anx. Intensity	21.13*	5.65	24.28*	5.13	-2.25	.028
Cognitive Anx. Direction	2.23*	10.10	-3.62*	7.89	2.51	.015
Somatic Anx. Intensity	18.35	3.98	20.41	5.05	-1.67	.099
Somatic Anx. Direction	2.00	8.52	0.00	7.80	0.95	.347
Self-Conf. Intensity	24.68**	5.36	20.51**	4.89	3.09	.003
Self-Conf. Direction	12.27	7.64	7.25	11.15	1.88	.065

* $p < .05$, ** $p < .01$

Within the sample of male track and field athletes, an independent-samples t-test showed gender differences appeared only with regard to the ethnic identity measures.

African American males significantly differed from Caucasian males, such that African American males reported higher scores on the overall ethnic identity measure ($t(1, 41) = 4.04, p < .01$), ethnic identity subscale ($t(1, 41) = 4.57, p < .01$), and ethnic belonging subscale ($t(1, 42) = 2.75, p < .01$) compared to Caucasian males. An additional

independent-samples t-test looking at ethnic differences among female track and field

athletes revealed significant differences in win orientation ($t(1, 72) = 2.60, p = .011$),

overall ethnic identity ($t(1, 73) = 5.86, p < .01$), ethnic identity subscale ($t(1, 73) = 5.90, p < .01$), ethnic belonging subscale ($t(1, 74) = 5.00, p < .01$), cognitive anxiety intensity ($t(1, 71) = -2.28, p = .025$), and self-confidence intensity ($t(1, 70) = 3.23, p < .01$).

African American females reported higher scores than Caucasian females for win orientation, overall ethnic identity, ethnic identity subscale, ethnic belonging subscale, and self-confidence intensity. Moreover, African American females reported lower scores for cognitive anxiety intensity than Caucasian females (see Table 6).

Table 6. Ethnic differences among female track and field athletes

	African Am. Females (N = 35)		Caucasian Females (N = 42)		t value	p value
	Mean	SD	Mean	SD		
SOQ Competitiveness	58.10	7.33	54.98	6.32	1.95	.055
SOQ Win Orientation	24.66*	3.82	22.26*	3.99	2.60	.011
SOQ Goal Orientation	27.28	3.21	27.55	2.34	-0.41	.681
HAS Total	77.23	19.13	78.43	6.95	-0.37	.710
MEIM Total	39.79**	6.83	30.10**	7.33	5.86	.000
MEIM Identity	15.03**	3.01	10.64**	3.34	5.90	.000
MEIM Belonging	24.62**	4.30	19.45**	4.61	5.00	.000
Overall Anxiety Intensity	63.81	10.04	65.18	8.16	-0.63	.531
Overall Anxiety Direction	6.72	28.11	3.92	21.92	0.46	.648
Cognitive Anx. Intensity	21.29*	6.06	24.28*	5.13	-2.28	.025
Cognitive Anx. Direction	-0.38	10.67	-3.62	7.89	1.47	.146
Somatic Anx. Intensity	18.10	5.40	20.41	5.05	-1.88	.064
Somatic Anx. Direction	1.24	8.65	0.00	7.80	0.62	.535
Self-Conf. Intensity	24.61**	5.85	20.51**	4.89	3.23	.002
Self-Conf. Direction	7.19	12.61	7.25	11.15	-0.02	.984

* $p < .05$, ** $p < .01$

African Americans from HBCUs vs. Non-HBCUs

An independent samples T-test was used to look at possible differences between African American track and field athletes from HBCUs ($n = 37$) and those from non-HBCUs ($n = 18$). These analyses revealed a significant difference regarding the ethnic identity subscale ($t(1, 53) = 2.03, p = .048$), whereby African Americans from HBCUs reported higher scores on the ethnic identity subscale compared to African Americans from non-HBCUs. No other significant differences were found (all p 's $\geq .146$).

Performance Analyses

Prior to conducting regression analyses to examine the relationship between perceived and actual performance on pre-competition anxiety and self-confidence, correlations were run to identify any correlations between perceived and actual performance with outcome variables. Overall significant correlations, as well as correlations by ethnic group, are available in Tables A-C (Appendix A).

A series of multiple regressions were conducted to examine the relationship between perceived and actual performance with each outcome variable. Results showed significant correlations between participants' self-report ratings of typical performance and overall anxiety intensity (adjusted $R^2 = .228$, $\beta = -.551$, $p = .032$), typical performance and cognitive anxiety intensity (adjusted $R^2 = .286$, $\beta = -.598$, $p = .016$), and typical performance and cognitive anxiety direction (adjusted $R^2 = .136$, $\beta = .587$, $p = .021$; see Table 7). No other significant relationships were found.

Table 7. Relationship between Perceived Performance and Outcome Variables

	Typical Performance			Best Performance		
	Adj. R^2	β	p value	Adj. R^2	β	p value
SOQ Competitiveness	.019	.075	.763	.019	.304	.188
SOQ Win Orientation	-.075	.051	.843	-.075	-.007	.977
SOQ Goal Orientation	.001	-.168	.502	.001	.350	.135
HAS Total	.097	-.190	.419	.097	.121	.577
MEIM Total	.067	.379	.118	.067	-.288	.196
MEIM Identity	.041	.455	.066	.041	-.266	.236
MEIM Belonging	.070	.288	.231	.070	-.276	.213
Overall Anxiety Intensity	.228*	-.551	.032	.228	.192	.423
Overall Anxiety Direction	.046	.567	.052	.046	-.240	.404
Cognitive Anx. Intensity	.286*	-.598	.016	.286	.262	.260

Cognitive Anx. Direction	.136*	.587	.021	.136	-.129	.616
Somatic Anx. Intensity	.097	-.471	.064	.097	.032	.894
Somatic Anx. Direction	.023	.475	.101	.023	-.136	.640
Self-Conf. Intensity	.167	.278	.246	.167	.038	.870
Self-Conf. Direction	.074	.283	.298	.074	-.143	.618

*p < .05

CHAPTER 4

DISCUSSION

This study examined the effects of ethnicity on reported pre-competition anxiety and self-confidence in collegiate track and field athletes, and found that there were significant differences in the way African American and Caucasian track and field athletes experienced these traits. Overall, African American track and field athletes reported significantly lower scores on cognitive and somatic anxiety intensity (but not direction) measures and higher self-confidence scores prior to competition compared to Caucasian track and field athletes. Furthermore, African American athletes reported significantly higher ethnic identity scores than Caucasian athletes. When data was analyzed by sport type, the ethnic differences were relatively consistent with the overall ethnic differences found. Additional performance analyses showed no relationship between actual performance and reported pre-competition anxiety or self-confidence, however one measure of perceived performance (perceived typical performance) was correlated with reported overall anxiety intensity, cognitive anxiety intensity and cognitive anxiety direction.

Overall Ethnic Differences

African American track and field athletes have higher ethnic identification, experience cognitive and somatic anxiety at lower intensities, and have higher levels of self-confidence than Caucasian track and field athletes; thus, our first hypothesis was

supported and our second hypothesis was partially supported. These findings were consistent with previous research which found that higher ethnic identity scores were correlated with lower reported anxiety scores among African Americans (Carter et. al., 2001; 2005). It appears that African American track and field athletes' high ethnic identification may reduce the extent to which cognitive and somatic anxiety are experienced. Conversely, the significantly lower ethnic identification found in Caucasian track and field athletes is related to an increased experience of cognitive and somatic anxiety symptoms. Moreover, the lower levels of reported cognitive and somatic anxiety scores among African American track and field athletes were consistent with previous literature regarding anxiety-related constructs such as worry and social anxiety, but inconsistent with findings for anxiety sensitivity. African Americans have reported lower worry (Carter et. al., 2004; Scott et. al., 2002) and social anxiety scores (Grant et. al., 2005) compared to Caucasians; the same trend between reported cognitive/somatic anxiety and ethnic identity was observed in the current sample of collegiate track and field athletes. Although previous findings have shown that African American children reported higher levels of anxiety sensitivity than Caucasian children (Lambert et. al., 2004; Rabian et. al., 1999), this is incongruent with the results of this study, suggesting that this previous research may not extend to a sample of adult collegiate track and field athletes.

The significant ethnic differences regarding reported pre-competition anxiety and self-confidence could be attributed to cultural differences between ethnic groups. For instance, researchers have hypothesized that African American men experience anxiety, however they may not associate these emotions and cognitions with anxiety, but instead

with anger or an experience that is part of life (Neal-Barnett & Smith, 1997). Conversely, a study of African American women showed that these individuals were aware of their anxious emotions, but chose not to acknowledge them because that would have prevented productivity. In a sense, these women were exhibiting an adaptive behavior (Neal-Barnett & Smith, 1997). A similar phenomenon could be occurring in the current study. It is possible that these African American track and field athletes are unable to conceptualize the experience of anxiety and therefore report feeling these emotions less than their Caucasian counterparts because of their lack of understanding of the trait. It could also be the case that these athletes are aware of their anxiety, but choose not to validate these emotions when asked about them. With regard to self-confidence, African American athletes could be reporting higher levels of self-confidence intensity prior to competition as compared to Caucasian athletes because they are attempting to be productive with their feelings and adapt to the competitive environment – positive thoughts and feelings could be more beneficial to one's performance.

Another possible explanation for the overall ethnic differences in reported pre-competition anxiety and self-confidence found could be the social support of the African American family (including immediate and extended family). African American culture tends to emphasize group/community cohesiveness or collectivism (Coon & Kemmelmeier, 2001; Komarraju & Cokley, 2008), and a strong social support system is available in the African American community (Collins, 1995). The social support from both family and peers has been found to be associated with lower rates of depression and anxiety among African American adolescents (Youngstrom, Weist, & Albus, 2003) as well as fewer internalizing symptoms, including anxiety and depression (Caldwell,

Antonucci, & Jackson, 1998; Youngstrom et. al., 2003). Although speculative, perhaps the significantly higher ethnic identification among African American track and field athletes as compared to Caucasian track and field athletes includes this increased level of social support. The presence of such a factor could contribute to African American athletes' lower scores of pre-competition cognitive and somatic anxiety intensity. Future studies could measure perceived social support, in addition to ethnic identity, in order to observe any significant relationships. Assuming that social support is a factor of African Americans' ethnic identity, it could also account for the increased reported self-confidence intensity among African American athletes as compared to Caucasian athletes. A strong sense of ethnic identity has been linked to higher self-esteem and self-confidence among adolescents of varying racial backgrounds (Martinez & Dukes, 1997); thus, African Americans' higher reported self-confidence could be, in part, a result of their higher ethnic identity (and possibly their level of social support).

Furthermore, the ethnic differences found in this study could be attributed to ethnic differences in locus of control and hardiness. The fact that African Americans have a more external locus of control as compared to Caucasians (Graham, 1994) could contribute to their lower levels of hardiness (Harris, 2004). If African Americans view their behavior and emotions as guided more by external circumstances rather than by their own decisions and efforts, they may be more likely to report low levels of commitment, control, and challenge in order to manage adverse circumstances (hardiness). Perhaps African Americans reported lower levels of anxiety and higher levels of self-confidence because if their behavior is something they cannot control, they may not worry about it as much and are therefore more confident.

Notably, there were no ethnic differences found regarding **reported** cognitive and somatic anxiety direction (i.e. whether anxiety was viewed as facilitative or debilitating), competitiveness, or sport orientation. African American track and field athletes tended to report experiencing less cognitive and somatic anxiety symptoms than Caucasian track and field athletes, but both ethnic groups viewed their anxiety as equally facilitative or debilitating to their performance. This pattern is suggestive of a true difference in the way anxiety is experienced in each ethnic group, but no difference in its perceived impact on performance. Furthermore, Powell's (2009) finding (which corresponds with the current study's hypothesis 2) that African American track and field athletes showed higher levels of competitiveness and win orientation than non-African American track and field athletes was not fully supported. The lack of ethnic differences in competitiveness and sport orientation suggests that these factors are not associated with self-reported pre-competition anxiety and self-confidence among collegiate track and field athletes. Drawing from the literature on African American culture described above, it may be that African American track and field athletes' increased ethnic identity and/or increased level of social support contributed to their higher **reported** scores on the self-confidence measure.

Track Athletes and Field Athletes

African American track athletes reported similar scores for each dependent measure as African American field athletes, just as Caucasian track athletes reported similar scores for each dependent measure as Caucasian field athletes.

A comparison of African American and Caucasian track athletes revealed several significant differences. African American track athletes reported higher self-confidence intensity, win orientation, and ethnic identification scores compared to Caucasian track athletes. Similarly, African American field athletes reported higher self-confidence intensity and ethnic identification than Caucasian field athletes. Among the field athletes however, there were also ethnic differences with regard to self-confidence direction scores; African American field athletes reported their self-confidence as more facilitative than Caucasian field athletes. Based on these findings, there appear to be true ethnic differences in self-confidence intensity and ethnic identity, as these trends are consistent with the overall ethnic differences.

The difference in win orientation scores among track athletes may result from cultural differences as well as the nature of the type of sport. Perhaps African American communities value or endorse this desire to win more than Caucasian cultures do. The previous literature showing increased self-confidence levels associated with higher ethnic identity among African Americans (Martinez & Dukes, 1997) may also partially explain the higher win orientation scores among this population. However since there only appears to be an ethnic difference in win orientation when evaluating track athletes (as opposed to all athletes), it could be the nature of the sport (track) that influences African American athletes to exhibit a greater desire to win. Alternatively, it could be that African American athletes who already have a high drive to win are particularly attracted to track events.

While African American track athletes view self-confidence as equally helpful to their performance as Caucasian track athletes, African American field athletes view their

self-confidence as much more helpful to their performance than their Caucasian counterparts. Since this significant difference was found only among field athletes, it leads to a question of whether or not the nature of the sport (field) influences African American athletes' view on how self-confidence can affect their performance. It would be useful to examine whether the differences between team and individual sports affect self-reported self-confidence direction. Track events are typically conducted in a group environment (athletes are running alongside one another), whereas field events are more individualistic (one person competes at a time). Also, African American athletes' high ethnic identity may positively influence their view of the impact of self-confidence on their performance.

Sprinters and Distance Runners

Powell (2009) investigated possible differences in pre-competition anxiety and self-confidence among sprinters, mid-distance runners, and long-distance runners and found few differences. The current study resulted in similar findings when examining possible ethnic differences between sprinters and distance runners. There was a significant difference in ethnic belonging within each ethnic group – African American sprinters reported significantly higher scores than African American distance runners and Caucasian sprinters reported higher scores than Caucasian distance runners on the ethnic belonging subscale. Moreover, African American sprinters differed from Caucasian sprinters in ethnic identity, but no significant ethnic differences were found among distance runners. It is difficult to interpret these findings because there was a small sample size of Caucasian sprinters ($n = 13$) and African American distance runners ($n =$

6). Therefore, future research should look to include a larger sample of these athletes for better comparison.

Gender Analyses

There were no significant differences between African American male and African American female track and field athletes, however Caucasian male and Caucasian female track and field athletes differed in sport orientation and pre-competition anxiety variables. Consistent with previous research (Braathen & Svebak, 1992; Gill & Deeter, 1988), males reported higher scores for competitiveness, win orientation, and goal orientation as compared to females. Moreover, Caucasian males reported lower scores for cognitive anxiety intensity, but higher scores for self-confidence intensity, overall anxiety direction, and cognitive anxiety direction compared to Caucasian females. Research has shown that female athletes worry more about performing poorly (Grossbard et. al., 2009) and are more anxious than male athletes (Marcel & Paquet, 2010). Therefore these gender differences align appropriately with this literature. Caucasian females may be reporting higher levels of cognitive anxiety intensity and lower levels of self-confidence because of their tendency to worry and experience more anxiety. This research could also explain Caucasian females' reported overall and cognitive anxiety direction as being significantly more debilitating than Caucasian male athletes. If these female athletes are worrying about their performance, they may view their experience of anxiety as detrimental to their performance more so than male athletes. Additionally, this significant gender difference among the Caucasian sample of

track and field athletes, but not among the African American sample, could be an indicator that these variables are measured differently in each ethnic group.

When looking at ethnic difference among the subgroup of male track and field athletes, results showed significant differences in the ethnic identity subscales, which paralleled those found in the overall findings, as expected. Among the subgroup of females however, African American track and field athletes significantly differed from Caucasian track and field athletes in win orientation, ethnic identity subscales, cognitive anxiety intensity, and self-confidence intensity. The significantly lower cognitive anxiety intensity scores and higher self-confidence scores among African American female athletes corresponded with the overall ethnic group differences found. These results, as well as African American female athletes' higher win orientation, could be explained by the African American culture. As mentioned previously, the higher ethnic identity among these track and field athletes could include a higher level of social support, which could in turn affect how African American female athletes report their anxiety and sport orientation. Conversely, there could be something inherent in the Caucasian culture that influences female athletes to report higher levels of anxiety, lower levels of self-confidence, and a lower win orientation as compared to African American female athletes. Perhaps the common notion that African American athletes tend to be better at sports causes Caucasian females to respond more negatively in their reports of anxiety and sport orientation.

African American Athletes from HBCUs and Non-HBCUs

A comparison of African American athletes from HBCUs and non-HBCUs showed a difference only in the ethnic identity subscale, where African American track and field athletes from HBCUs reported significantly higher ethnic identity scores than African American athletes from non-HBCUs. Although this is the only variable with significant findings, these results suggest that perhaps HBCUs and non-HBCUs provide a different environment for track and field athletes, which facilitates the extent to which they identify with their ethnic group. Alternatively, it could be that African American track and field athletes with a higher ethnic identity are more likely to attend a HBCU as opposed to a non-HBCU. Additional research is warranted to examine the impact of HBCUs and non-HBCUs in a larger sample of track and field athletes.

Performance Analyses

Actual performance did not significantly correlate with responses on pre-competition anxiety, self-confidence, or other outcome variable measures. Thus, the common inverted U-shaped hypothesis regarding the effects of anxiety on performance is not supported. However, one out of three ratings measuring perceived performance (typical performance rating) was found to be significantly correlated with **reported** pre-competition anxiety. These results suggest that athletes' actual performance does not predict scores on outcome measures, but perceived typical performance predicts the extent to which track and field athletes experience overall anxiety intensity, cognitive anxiety intensity, and cognitive anxiety direction. A higher rating of perceived typical performance predicts lower overall anxiety and cognitive intensity, but increased

cognitive anxiety direction – that is, the higher the perceived performance rating, the more facilitative the participant viewed his cognitive anxiety to be to his performance.

Implications

The current study is among the first to investigate and demonstrate the presence of ethnic differences in reported pre-competition anxiety and self-confidence among Division I collegiate track and field athletes. Results show interesting initial findings which are important for various professionals, particularly sports psychologists. Sports psychology professionals should be aware of these ethnic differences so that future treatments may be tailored to each client. Moreover, it would be beneficial for coaches as well as athletes to become knowledgeable about such differences in order to appropriately manage relationships with athletes of various ethnic backgrounds. This research proved to be very insightful and should serve as a building block for future studies examining ethnic diversity issues in the sports psychology field.

Limitations

While this study gave us valuable insight into possible ethnic differences among collegiate track and field athletes, there were some aspects that could be improved in the future. For instance, out of 122 participants, only 92 (75%) reported their SES; it would have been helpful to obtain the SES of more participants since this was a factor that significantly correlated with several subscales. One issue with this response rate was participants' inability to estimate their parents' combined income, as indicated by their responses. In the future, it may be useful to ask for each parent's education level so that researchers can get a better account of participants' SES. Second, the timing of the

administration of the survey could be viewed as a concern, since the survey was administered after competition rather than before. However, research has shown that athletes can accurately recall their pre-competition anxiety within 48 hours of the end of competition (Harger & Raglin, 1994); thus, findings should be fairly accurate. In the future, it would be interesting to obtain participants' responses prior to competition, but it is not necessary. Third, there were some problems with the measurement of individuals' performance. Each participant was asked to indicate their final placement in their primary event at a given track meet, however due to discrepancies in self-reported performance rankings, the investigator retroactively found participants' placement in their primary event. A more reliable way of measuring an athlete's performance could be used in the future, such as an individual's national ranking for the season, or the average place over the course of several track meets.

Future Directions

As this is among the first studies to investigate ethnic differences in **reported** pre-competition anxiety and self-confidence among athletes, there is a great deal of additional research that is necessary to further our understanding of this area of sports psychology. First and foremost, the current study requires replication to reinforce the ethnic differences found. Researchers can expand their sample size and include athletes from other Division I universities. It would also be important to examine whether similar ethnic differences are present at varying levels of competition and age (e.g., high school level, Division II or Division III university level, professional level). Furthermore, it would be useful to determine if this study's results could be applied to athletes in other

sports. Investigators should also include sufficient data to identify participants' SES (e.g., parents' education, in addition to combined parents' income) so that a more comprehensive account of SES can be evaluated. Additional considerations regarding sampling would be to compare African American track and field athletes from HBCUs and non-HBCUs to see if the type of university influences their reports of pre-competition cognitive anxiety, somatic anxiety, and self-confidence. Would the varying environment make a difference in African American track and field athletes' responses to pre-competition anxiety and self-confidence measures?

Another consideration would be to find a more appropriate way to measure performance. While the current study was able to use rankings from one track meet, performance can vary from one meet to another and may also depend on the caliber of the opponents. Investigators could average rankings across several track meets or use an individual's national rank to look for possible relationships with outcome variables. Researchers may also be interested in whether there are similar ethnic differences in outcome variables among athletes participating in team versus individual sports. Finally, a physiological assessment of pre-competition anxiety could be conducted by using heart rate monitors. It would be beneficial to obtain a baseline heart rate as well as a heart rate prior to competition to observe whether these physiological changes correspond with reports of cognitive anxiety, somatic anxiety, and self-confidence intensity. Although several investigative suggestions were presented above, there is much room for methodological improvement and expansion in the area of ethnic diversity among athletes.

APPENDIX A CORRELATION TABLES AND SCATTERPLOTS

Table A. Correlations – All Participants

	School	Gender	Age	SES	Edu.	Typical Perf.	Best Perf.	Meet Perf.	Individ. Rank	SOQ Comp	SOQ Win	SOQ Goal	HAS Total
School Pearson Corr. Significance	--												
Gender Pearson Corr. Significance	-.089 .330	--											
Age Pearson Corr. Significance	-.210* .024	-.118 .206	--										
SES Pearson Corr. Significance	.138 .189	-.119 .257	-.108 .319	--									
Education Pearson Corr. Significance	-.113 .214	-.106 .245	.866** .000	-.131 .215	--								
Typical Perf. Pearson Corr. Significance	-.014 .877	.006 .944	.101 .283	-.030 .777	.108 .237	--							
Best Perf. Pearson Corr. Significance	-.067 .466	-.086 .347	.143 .128	.033 .754	.165 .070	.651** .000	--						
Meet Perf. Pearson Corr. Significance	.112 .465	-.322* .031	.255 .108	.055 .744	.198 .193	.576** .000	.360* .015	--					
Individ. Rank Pearson Corr. Significance	.391** .000	.008 .944	-.203 .065	-.121 .326	-.208 .050	-.132 .216	-.231* .030	-.106 .534	--				
SOQcomp Pearson Corr. Significance	-.242** .009	-.214* .021	.164 .087	.024 .822	.069 .461	.226* .015	.297** .001	.125 .420	-.108 .326	--			
SOQwin Pearson Corr. Significance	-.290** .001	-.168 .070	.218* .021	.004 .970	.092 .320	.098 .294	.094 .312	-.115 .456	-.023 .835	.656** .000	--		

	School	Gender	Age	SES	Edu.	Typical Perf.	Best Perf.	Meet Perf.	Individ. Rank	SOQ Comp	SOQ Win	SOQ Goal	HAS Total
SOQgoal													
Pearson Corr.	-.218**	-.068	.050	.052	-.011	.100	.205*	-.041	-.068	.743**	.468**	--	
Significance	.018	.468	.604	.628	.906	.287	.027	.790	.534	.000	.000		
HAStotal													
Pearson Corr.	-.288**	-.093	.115	.035	.146	-.138	.043	-.359*	-.193	.258**	.251**	.264**	--
Significance	.002	.327	.238	.745	.121	.146	.650	.016	.075	.007	.007	.005	
MEIMtotal													
Pearson Corr.	-.050	-.093	-.018	-.305**	-.036	.164	.068	.295*	.088	.140	.008	.049	.017
Significance	.589	.316	.854	.004	.702	.077	.468	.049	.410	.138	.931	.605	.858
MEIMidentity													
Pearson Corr.	-.011	-.049	-.013	-.304**	-.029	.180	.063	.235	.094	.049	-.051	-.019	.043
Significance	.908	.601	.895	.004	.759	.053	.498	.120	.379	.608	.589	.838	.650
MEIMbelong													
Pearson Corr.	-.078	-.132	-.006	-.271**	-.028	.143	.074	.313*	.074	.208*	.064	.103	-.005
Significance	.400	.151	.951	.010	.762	.121	.426	.036	.490	.025	.493	.271	.955
Anxiety Intensity													
Pearson Corr.	-.166	.000	.052	.162	.066	-.131	.122	-.286	-.229*	.184	.321**	.221*	.393**
Significance	.083	.998	.595	.142	.494	.173	.205	.074	.039	.059	.001	.023	.000
Anxiety Direction													
Pearson Corr.	-.196*	-.147	-.003	.070	-.035	.291**	.276**	.041	-.008	.281**	.008	.049	.083
Significance	.047	.139	.974	.551	.725	.003	.005	.816	.946	.005	.940	.630	.417
Cog. Intensity													
Pearson Corr.	-.161	.184*	.017	.140	-.010	-.382**	-.131	-.431**	-.129	.008	.198*	.106	.275**
Significance	.082	.046	.862	.190	.914	.000	.160	.004	.238	.930	.036	.266	.004
Cog. Direction													
Pearson Corr.	-.162	-.099	.005	-.049	-.049	.351**	.307**	.023	.005	.188	.044	.022	.027
Significance	.090	.302	.956	.660	.607	.000	.001	.892	.962	.055	.663	.824	.787
Som. Intensity													
Pearson Corr.	.018	.153	-.084	-.040	-.091	-.157	.006	-.258	-.037	-.057	.145	.112	.188*
Significance	.851	.102	.381	.710	.332	.094	.949	.099	.733	.551	.126	.239	.049
Som. Direction													
Pearson Corr.	-.139	-.030	.023	.092	-.001	.164	.061	.064	.121	.080	-.047	-.144	.035
Significance	.154	.761	.822	.421	.988	.091	.534	.716	.287	.424	.637	.147	.732
SC Intensity													
Pearson Corr.	-.111	-.298**	.168	.050	.181	.356**	.318**	.289	-.189	.369**	.162	.142	.155
Significance	.236	.001	.082	.644	.053	.000	.001	.067	.085	.000	.088	.137	.107
SC Direction													
Pearson Corr.	-.076	-.237*	-.013	.048	-.031	.250**	.275**	.058	-.060	.402**	.066	.171	.134
Significance	.428	.012	.894	.667	.743	.008	.004	.725	.595	.000	.500	.077	.171

	MEIM Total	MEIM Identity	MEIM Belong	Anx. Int.	Anx. Direct.	Cog. Int.	Cog. Direct.	Som. Int.	Som. Direct.	SC. Int.	SC. Direct
MEIM Total Pearson Corr. Significance	--										
MEIM Identity Pearson Corr. Significance	.930** .000	--									
MEIM Belong Pearson Corr. Significance	.956** .000	.781** .000	--								
Anxiety Intensity Pearson Corr. Significance	-.088 .369	-.064 .513	-.101 .299	--							
Anxiety Direction Pearson Corr. Significance	.110 .278	.162 .108	.088 .380	.027 .790	--						
Cog. Intensity Pearson Corr. Significance	-.277** .003	-.256** .006	-.269** .004	.710** .000	-.306** .002	--					
Cog. Direction Pearson Corr. Significance	.116 .233	.179 .065	.078 .418	.046 .644	.842** .000	-.221* .022	--				
Som. Intensity Pearson Corr. Significance	-.187* .049	-.139 .144	-.208* .027	.715** .000	-.260** .009	.576** .000	-.149 .127	--			
Som. Direction Pearson Corr. Significance	.084 .398	.141 .157	.063 .526	-.034 .736	.836** .000	-.208* .035	.699** .000	-.293** .002	--		
SC. Intensity Pearson Corr. Significance	.346** .000	.321** .001	.337** .000	.157 .103	.574** .000	-.461** .000	.429** .000	-.361** .000	.387** .000	--	
SC. Direction Pearson Corr. Significance	.150 .124	.142 .143	.154 .109	.044 .657	.763** .000	-.332** .000	.398** .000	-.249** .009	.415** .000	.617** .000	--

Table B. Correlations – African American Participants

	School	Gender	Age	SES	Edu.	Typical Perf.	Best Perf.	Meet Perf.	Individ. Rank	SOQ Comp	SOQ Win	SOQ Goal	HAS Total
School Pearson Corr. Significance	--												
Gender Pearson Corr. Significance	-.172 .200	--											
Age Pearson Corr. Significance	-.225 .102	-.028 .838	--										
SES Pearson Corr. Significance	.121 .433	-.203 .185	-.101 .531	--									
Education Pearson Corr. Significance	-.121 .371	-.044 .747	.842** .000	-.141 .363	--								
Typical Perf. Pearson Corr. Significance	.023 .865	.100 .466	.185 .184	-.123 .432	.225 .095	--							
Best Perf. Pearson Corr. Significance	-.106 .438	.123 .365	.210 .132	-.029 .852	.317* .017	.720** .000	--						
Meet Perf. Pearson Corr. Significance	.119 .617	-.065 .784	.158 .518	.029 .908	.060 .803	.574** .008	.294 .208	--					
Individ. Rank Pearson Corr. Significance	.411** .008	-.055 .735	-.205 .217	-.184 .305	-.322* .040	-.210 .187	-.413** .008	.071 .793	--				
SOQcomp Pearson Corr. Significance	-.249 .072	-.005 .973	.202 .159	-.064 .688	.096 .496	.069 .627	.282* .043	-.172 .469	-.135 .412	--			
SOQwin Pearson Corr. Significance	-.275* .044	.007 .957	.201 .158	-.005 .974	-.037 .791	.015 .918	.066 .641	-.266 .257	.076 .642	.715** .000	--		
SOQgoal Pearson Corr. Significance	-.259 .059	.034 .807	.140 .329	-.056 .724	.075 .588	.012 .930	.207 .138	-.130 .586	-.053 .748	.905** .000	.681** .000	--	
HAStotal Pearson Corr. Significance	-.333* .017	-.061 .669	.087 .555	.036 .823	.166 .244	-.125 .388	.077 .594	-.503* .024	-.359* .025	.306* .032	.284* .044	.328* .020	--

	School	Gender	Age	SES	Edu.	Typical Perf.	Best Perf.	Meet Perf.	Individ. Rank	SOQ Comp	SOQ Win	SOQ Goal	HAS Total
MEIMtotal													
Pearson Corr.	-.046	.021	-.058	-.317*	-.048	.177	.152	.261	-.087	.136	-.053	.107	.066
Significance	.741	.878	.681	.039	.726	.199	.273	.266	.587	.338	.708	.446	.647
MEIMidentity													
Pearson Corr.	-.060	.005	-.013	-.275	-.038	.217	.143	.338	-.042	.065	-.048	.036	.099
Significance	.662	.972	.926	.075	.781	.115	.302	.145	.792	.647	.732	.796	.490
MEIMbelong													
Pearson Corr.	-.027	.014	-.057	-.322*	-.023	.118	.132	.156	-.114	.204	-.037	.144	.034
Significance	.843	.916	.687	.035	.865	.391	.337	.511	.478	.143	.789	.298	.814
Anxiety Intensity													
Pearson Corr.	-.225	-.056	.070	.424**	.048	-.275	.003	-.255	-.257	.296*	.281	.280	.530**
Significance	.115	.699	.635	.007	.742	.056	.985	.307	.120	.041	.053	.054	.000
Anxiety Direction													
Pearson Corr.	-.395**	.021	.156	.042	.096	.190	.182	.242	-.263	.225	-.015	-.049	.178
Significance	.008	.893	.325	.818	.534	.217	.243	.449	.133	.157	.926	.758	.273
Cog. Intensity													
Pearson Corr.	-.248	.090	.106	.314*	.053	-.490**	-.208	-.298	-.095	.142	.189	.152	.331*
Significance	.068	.512	.451	.043	.699	.000	.132	.216	.561	.321	.179	.283	.020
Cog. Direction													
Pearson Corr.	-.224	.117	.066	-.056	-.021	.345*	.320*	.218	-.038	.075	-.005	-.120	.013
Significance	.117	.418	.654	.741	.883	.015	.025	.418	.825	.619	.974	.421	.930
Som. Intensity													
Pearson Corr.	.001	.084	-.104	-.016	-.183	-.189	-.036	-.002	-.036	.082	.206	.128	.211
Significance	.996	.545	.467	.918	.186	.175	.798	.993	.832	.566	.142	.368	.142
Som. Direction													
Pearson Corr.	-.301*	.098	.110	.110	.061	.034	.013	.227	-.038	-.065	-.154	-.256	.089
Significance	.047	.527	.487	.549	.659	.829	.935	.478	.832	.685	.685	.101	.587
SC Intensity													
Pearson Corr.	-.121	-.228	.151	.165	.156	.301*	.330*	-.063	-.344*	.329*	.086	.188	.321*
Significance	.383	.097	.290	.291	.260	.029	.016	.797	.030	.017	.546	.182	.025
SC Direction													
Pearson Corr.	-.157	-.239	.125	-.010	.083	.172	.120	-.277	-.283	.472**	.153	.213	.305*
Significance	.282	.098	.402	.954	.570	.243	.415	.299	.095	.001	.306	.150	.041

	MEIM Total	MEIM Identity	MEIM Belong	Anx. Int.	Anx. Direct.	Cog. Int.	Cog. Direct.	Som. Int.	Som. Direct.	SC. Int.	SC. Direct
MEIM Total Pearson Corr. Significance	--										
MEIM Identity Pearson Corr. Significance	.931** .000	--									
MEIM Belong Pearson Corr. Significance	.958** .000	.788** .000	--								
Anxiety Intensity Pearson Corr. Significance	.187 .202	.169 .251	.198 .173	--							
Anxiety Direction Pearson Corr. Significance	.013 .933	.072 .650	-.023 .884	-.032 .849	--						
Cog. Intensity Pearson Corr. Significance	-.063 .655	-.047 .740	-.044 .751	.721** .000	-.266 .089	--					
Cog. Direction Pearson Corr. Significance	.096 .517	.171 .245	.026 .860	-.056 .717	.842** .000	-.187 .203	--				
Som. Intensity Pearson Corr. Significance	.172 .224	.178 .207	.142 .312	.687** .000	-.397** .008	.506** .000	-.247 .090	--			
Som. Direction Pearson Corr. Significance	-.081 .612	-.029 .856	-.108 .490	-.051 .759	.827** .000	-.093 .557	.739** .000	-.366* .016	--		
SC. Intensity Pearson Corr. Significance	.271 .052	.258 .065	.268 .053	.270 .058	.568** .000	-.342* .013	.351* .016	-.238 .090	.267 .088	--	
SC. Direction Pearson Corr. Significance	.058 .698	.042 .779	.086 .563	.016 .919	.730** .000	-.352* .015	.362* .011	-.350* .015	.336* .026	.715** .000	--

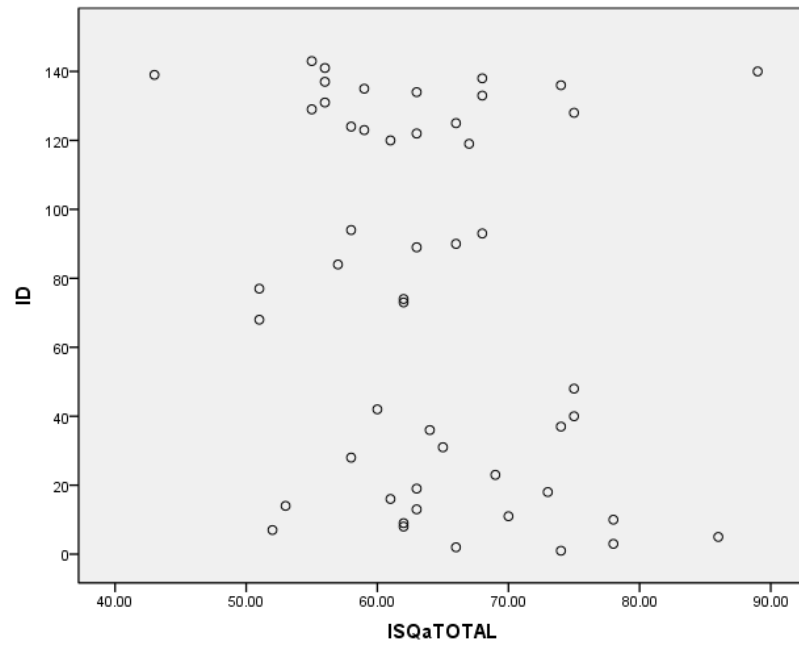
Table C. Correlations – Caucasian Participants

	School	Gender	Age	SES	Edu.	Typical Perf.	Best Perf.	Meet Perf.	Individ. Rank	SOQ Comp	SOQ Win	SOQ Goal	HAS Total
School Pearson Corr. Significance	--												
Gender Pearson Corr. Significance	.046 .714	--											
Age Pearson Corr. Significance	-.178 .166	-.216 .091	--										
SES Pearson Corr. Significance	.183 .212	-.075 .612	-.123 .417	--									
Education Pearson Corr. Significance	-.095 .453	-.159 .205	.901** .000	-.070 .636	--								
Typical Perf. Pearson Corr. Significance	-.088 .488	-.100 .426	-.039 .766	.225 .124	-.048 .702	--							
Best Perf. Pearson Corr. Significance	-.035 .781	-.282* .023	.097 .455	-.016 .915	.045 .722	.607** .000	--						
Meet Perf. Pearson Corr. Significance	-.187 .370	-.479* .015	.231 .301	.379 .110	.228 .273	.540** .005	.404* .045	--					
Individ. Rank Pearson Corr. Significance	.421** .003	.066 .654	-.198 .187	-.016 .925	-.098 .508	-.019 .899	-.055 .713	-.207 .368	--				
SOQcomp Pearson Corr. Significance	-.230 .069	-.466** .000	.102 .437	.171 .256	.025 .848	.465** .000	.338** .007	.544** .006	-.062 .684	--			
SOQwin Pearson Corr. Significance	-.348** .005	-.317* .011	.217 .094	.098 .511	.180 .156	.166 .190	.146 .249	-.033 .877	-.121 .417	.592** .000	--		
SOQgoal Pearson Corr. Significance	-.123 .338	-.274* .029	-.095 .471	.057 .707	-.128 .318	.344** .006	.209 .100	.291 .168	-.146 .332	.457** .000	.239 .059	--	
HAStotal Pearson Corr. Significance	-.113 .378	-.191 .133	.233 .073	-.145 .336	.166 .193	-.171 .181	-.021 .868	-.039 .853	.139 .352	.174 .180	.277* .029	.005 .971	--

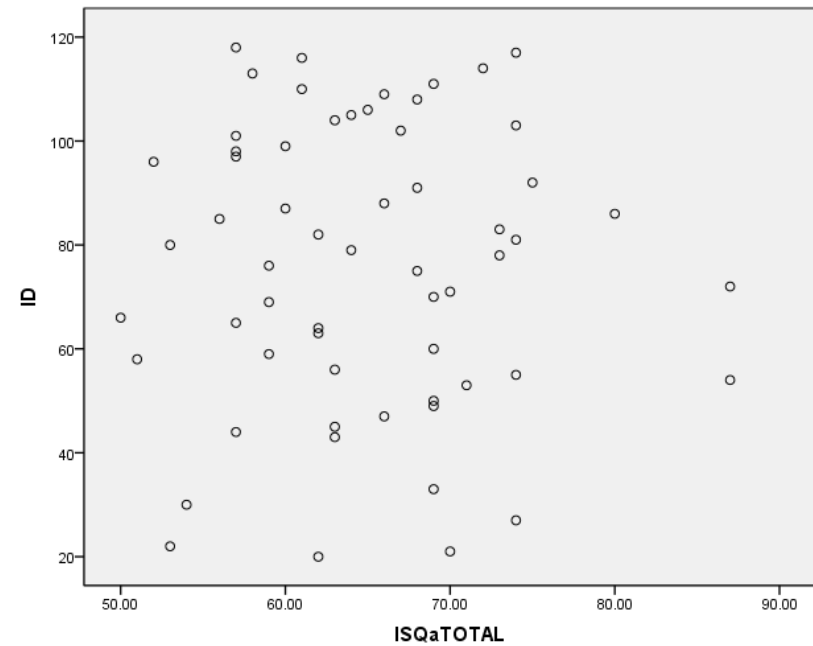
	School	Gender	Age	SES	Edu.	Typical Perf.	Best Perf.	Meet Perf.	Individ. Rank	SOQ Comp	SOQ Win	SOQ Goal	HAS Total
MEIMtotal													
Pearson Corr.	.109	-.145	-.143	.142	-.173	.082	.110	.226	.311*	.067	-.186	.198	.061
Significance	.395	.255	.276	.347	.175	.524	.392	.278	.032	.607	.149	.126	.639
MEIMidentity													
Pearson Corr.	.300*	-.026	-.185	.125	-.173	.076	.114	.030	.298*	-.096	-.344**	.097	.105
Significance	.017	.842	.157	.406	.174	.553	.373	.888	.039	.460	.006	.457	.417
MEIMbelong													
Pearson Corr.	-.061	-.236	-.055	.109	-.126	.115	.118	.340	.271	.197	-.008	.257*	.019
Significance	.631	.060	.676	.466	.322	.364	.352	.096	.062	.125	.948	.044	.885
Anxiety Intensity													
Pearson Corr.	-.079	.052	.042	-.126	.092	.055	.234	-.317	-.184	.060	.386**	.128	.169
Significance	.549	.692	.758	.411	.486	.677	.071	.151	.232	.652	.003	.337	.201
Anxiety Direction													
Pearson Corr.	.071	-.278*	-.152	.091	-.137	.395**	.349**	-.010	.201	.330*	.028	.137	-.049
Significance	.596	.033	.262	.555	.300	.002	.007	.965	.195	.012	.836	.309	.714
Cog. Intensity													
Pearson Corr.	-.083	.279*	-.060	-.224	-.048	-.222	-.093	-.524*	-.171	-.105	.293*	-.032	.177
Significance	.521	.028	.654	.130	.712	.082	.472	.010	.256	.423	.022	.807	.176
Cog. Direction													
Pearson Corr.	-.049	-.310*	-.069	-.026	-.079	.360**	.300*	-.142	.049	-.289*	.071	.191	.055
Significance	.708	.015	.607	.864	.544	.004	.019	.518	.749	.027	.588	.148	.680
Som. Intensity													
Pearson Corr.	.021	.211	-.029	-.245	.022	-.101	.014	-.446*	-.024	-.196	.160	.030	.168
Significance	.869	.099	.825	.100	.863	.436	.915	.037	.877	.134	.218	.823	.200
Som. Direction													
Pearson Corr.	.079	-.120	-.055	.101	-.048	.290*	.097	.025	.237	.185	.015	-.047	-.043
Significance	.540	.347	.678	.506	.708	.021	.450	.909	.112	.154	.909	.719	.744
SC Intensity													
Pearson Corr.	-.058	-.373**	.144	.286	.152	.436**	.391**	.466*	-.058	.432**	.152	.208	-.063
Significance	.657	.003	.282	.057	.243	.000	.002	.029	.709	.001	.247	.115	.633
SC Direction													
Pearson Corr.	.070	-.236	-.160	.161	-.136	.343**	.419**	.271	.152	.342**	.000	.143	-.099
Significance	.590	.065	.227	.292	.290	.006	.001	.211	.320	.007	.998	.277	.449

	MEIM Total	MEIM Identity	MEIM Belong	Anx. Int.	Anx. Direct.	Cog. Int.	Cog. Direct.	Som. Int.	Som. Direct.	SC. Int.	SC. Direct
MEIM Total Pearson Corr. Significance	--										
MEIM Identity Pearson Corr. Significance	.869** .000	--									
MEIM Belong Pearson Corr. Significance	.934** .000	.634** .000	--								
Anxiety Intensity Pearson Corr. Significance	-.287 .029	-.231 .081	-.297* .023	--							
Anxiety Direction Pearson Corr. Significance	.204 .127	.267* .044	.195 .143	.082 .542	--						
Cog. Intensity Pearson Corr. Significance	-.284* .028	-.251 .053	-.300* .019	.713** .000	-.354** .006	--					
Cog. Direction Pearson Corr. Significance	.097 .466	.174 .188	.104 .431	.155 .247	.843** .000	-.262* .043	--				
Som. Intensity Pearson Corr. Significance	-.303* .018	-.188 .151	-.341** .007	.756** .000	-.167 .211	.614** .000	-.058 .660	--			
Som. Direction Pearson Corr. Significance	.202 .119	.278* .030	.184 .153	-.022 .869	.844** .000	-.298* .020	.668** .000	-.242 .058	--		
SC. Intensity Pearson Corr. Significance	.113 .393	.054 .684	.163 .215	.088 .503	.644** .000	-.507** .000	.561** .000	-.392** .002	.503** .000	--	
SC. Direction Pearson Corr. Significance	.198 .129	.195 .136	.199 .124	.070 .595	.793** .000	-.314* .015	.437** .001	-.164 .205	.480** .000	.572** .000	--

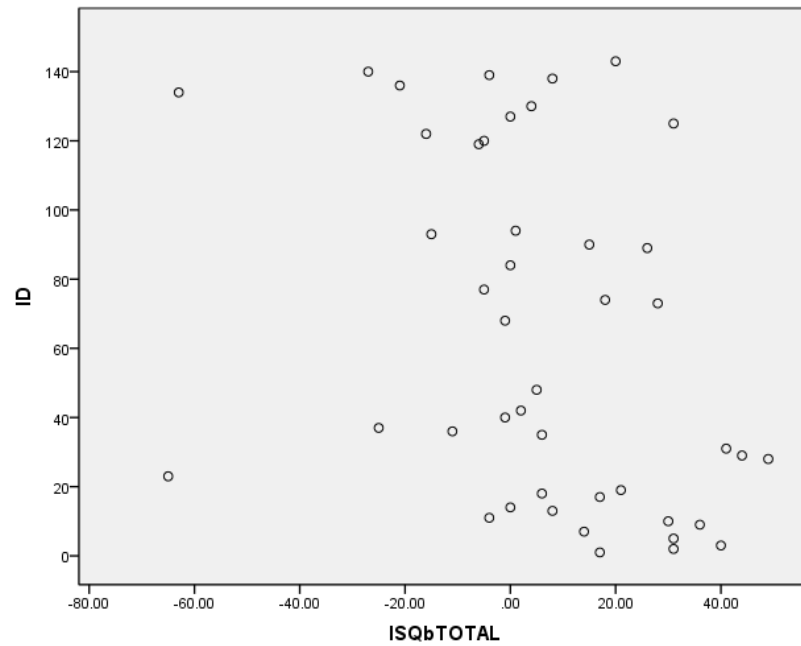
Graph 1. Scatterplot of overall anxiety intensity scores for African American track and field athletes.



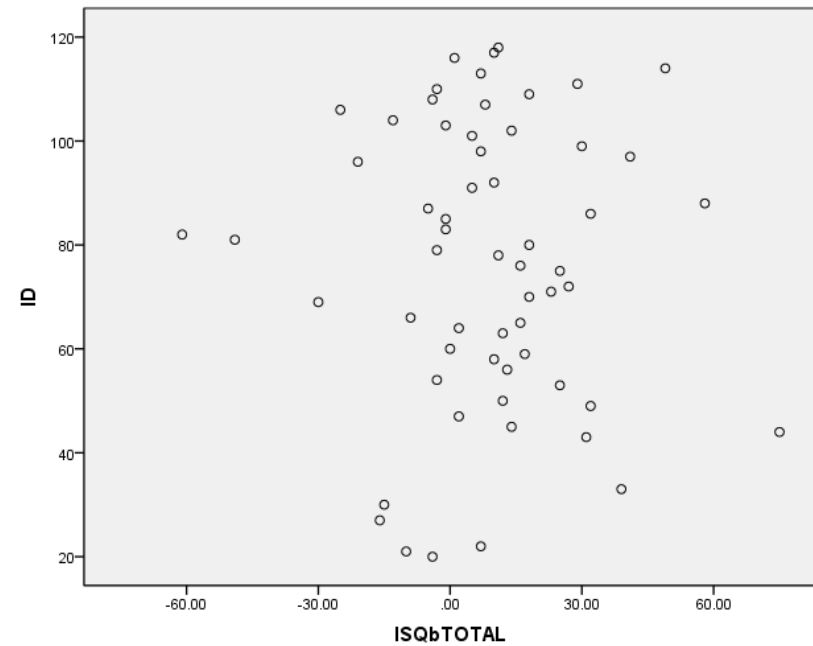
Graph 2. Scatterplot of overall anxiety intensity scores for Caucasian track and field athletes.



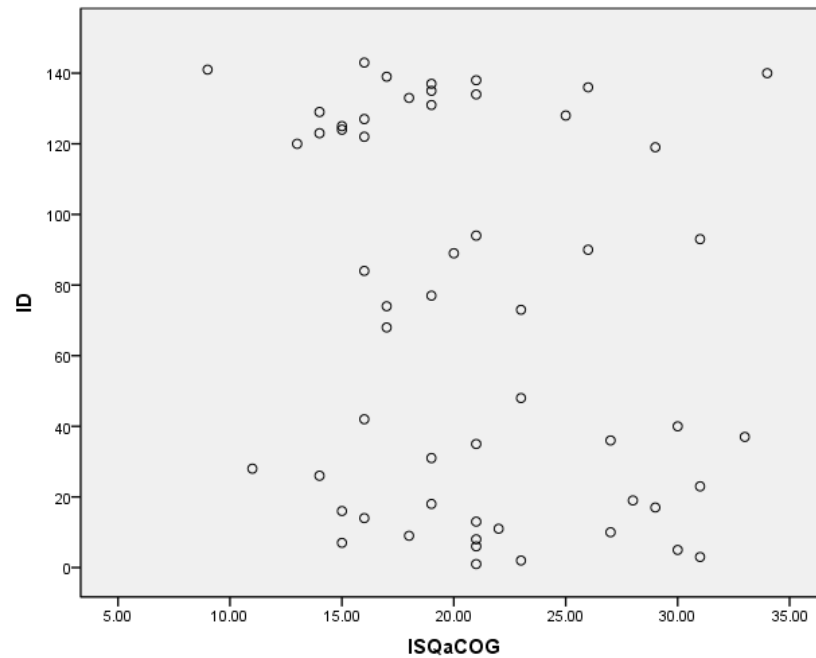
Graph 3. Scatterplot of overall anxiety direction scores for African American track and field athletes.



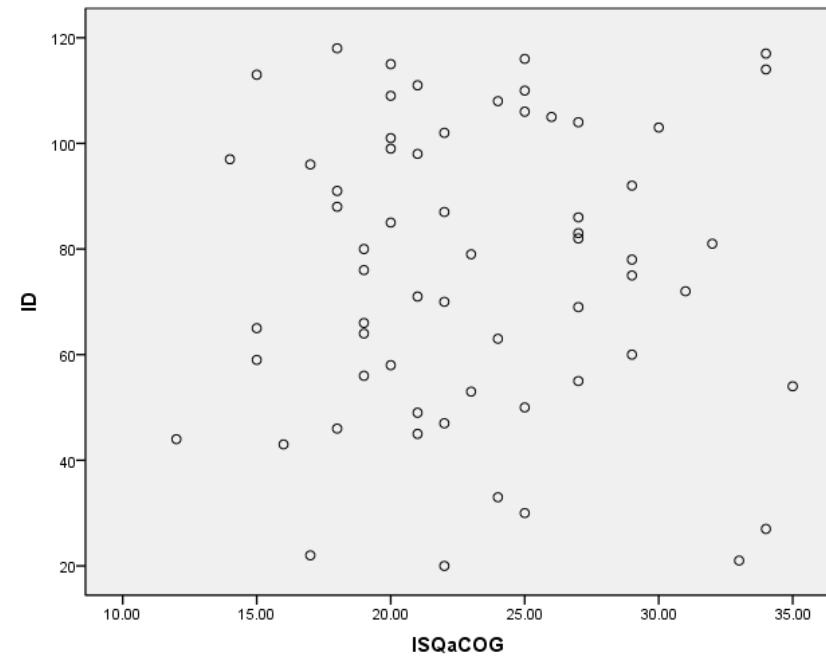
Graph 4. Scatterplot of overall anxiety direction scores for Caucasian track and field athletes.



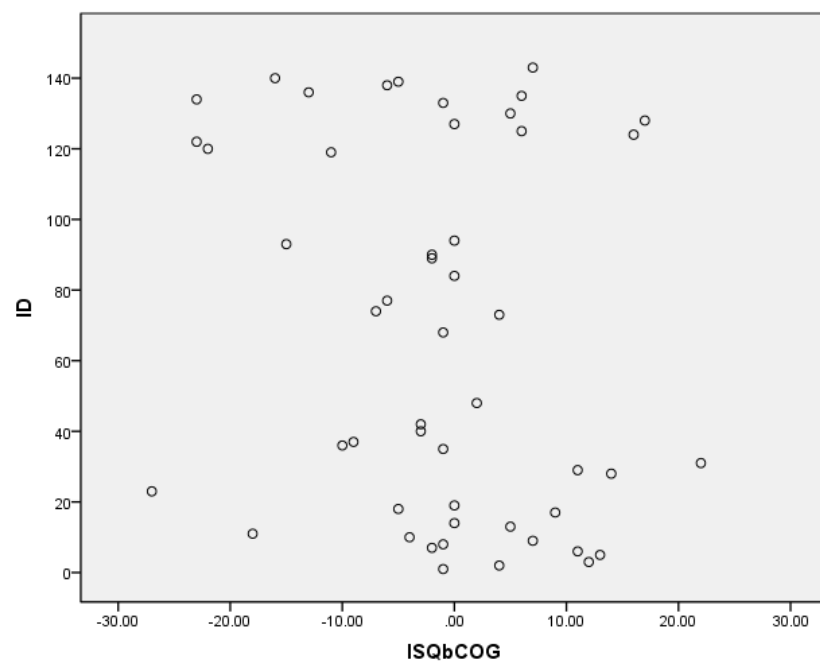
Graph 5. Scatterplot of cognitive anxiety intensity scores for African American track and field athletes.



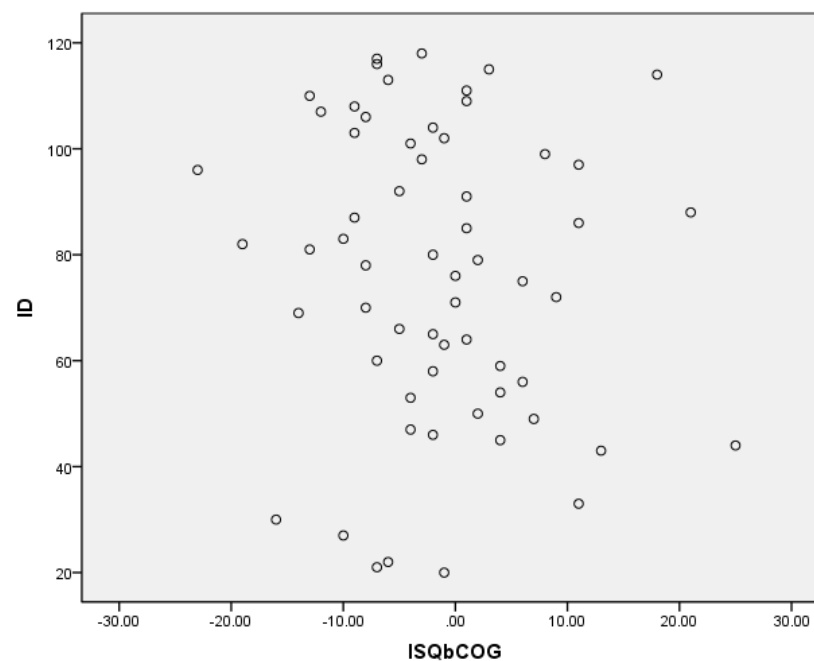
Graph 6. Scatterplot of cognitive anxiety intensity scores for Caucasian track and field athletes.



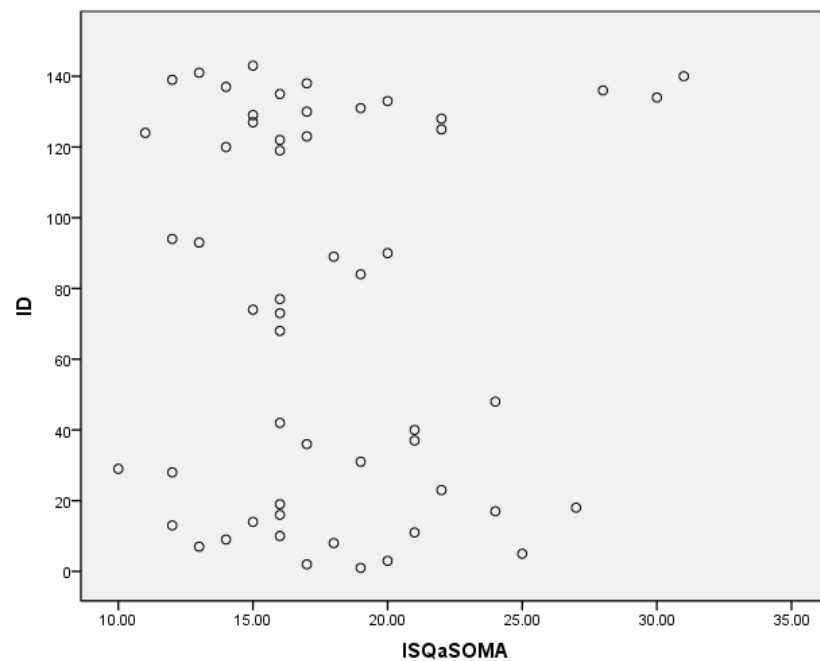
Graph 7. Scatterplot of cognitive anxiety direction scores for African American track and field athletes.



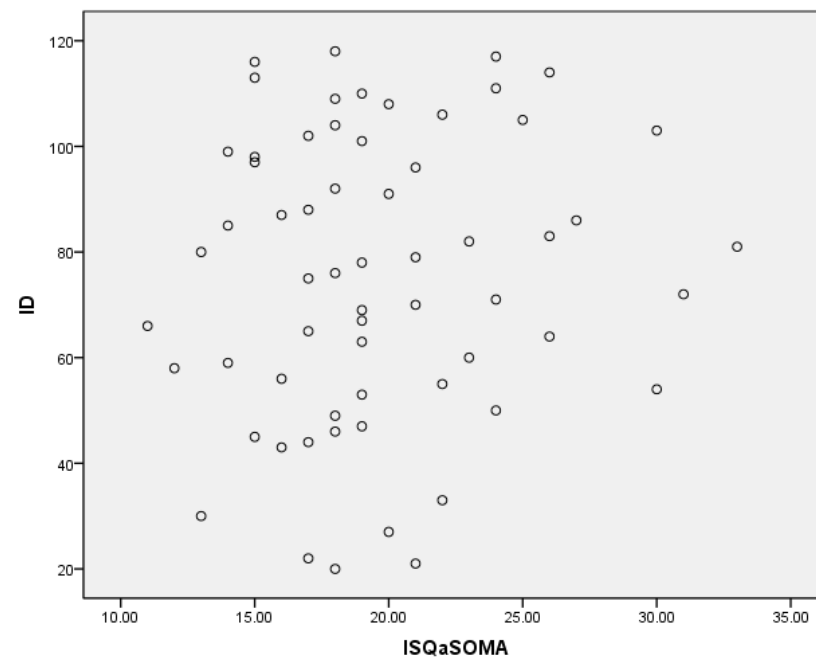
Graph 8. Scatterplot of cognitive anxiety direction scores for Caucasian track and field athletes.



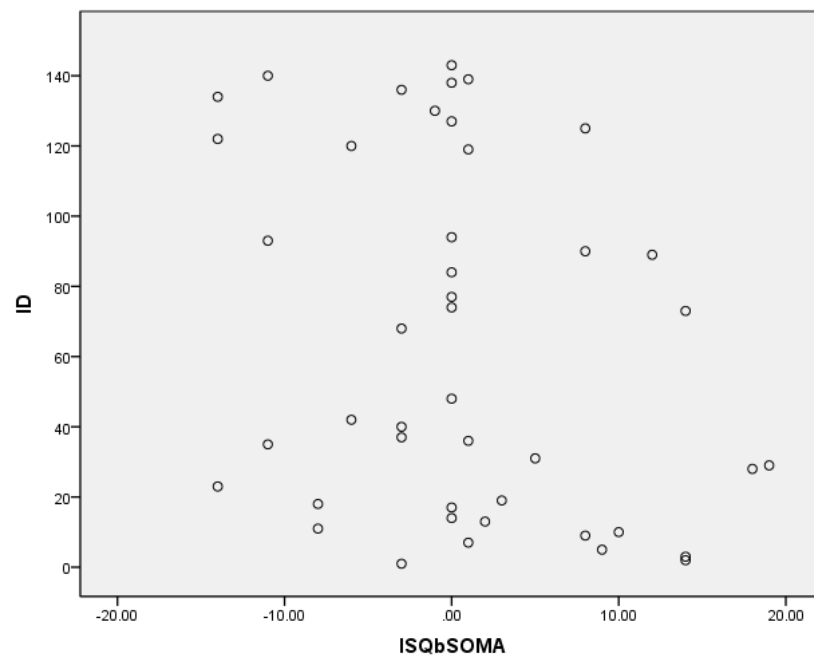
Graph 9. Scatterplot of somatic anxiety intensity scores for African American track and field athletes.



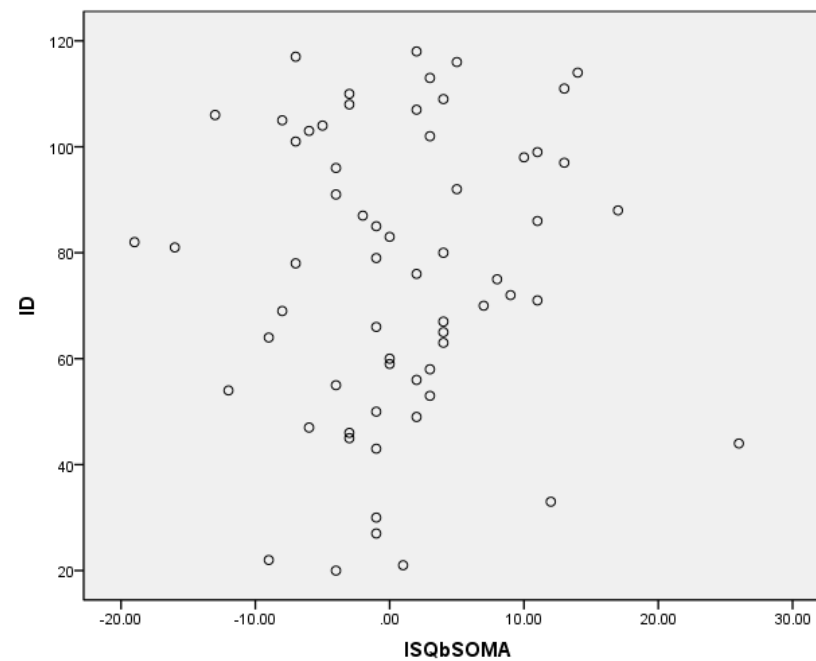
Graph 10. Scatterplot of somatic anxiety intensity scores for Caucasian track and field athletes.



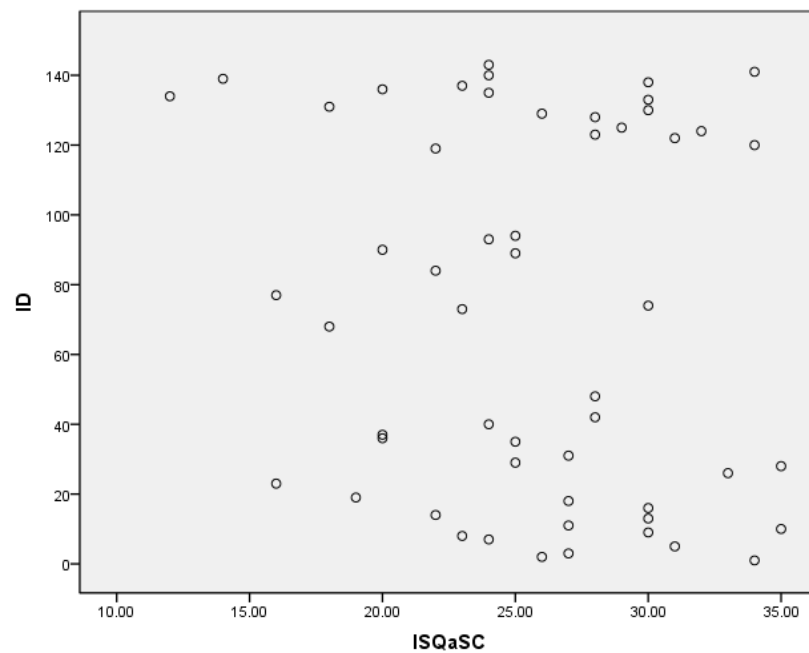
Graph 11. Scatterplot of somatic anxiety direction scores for African American track and field athletes.



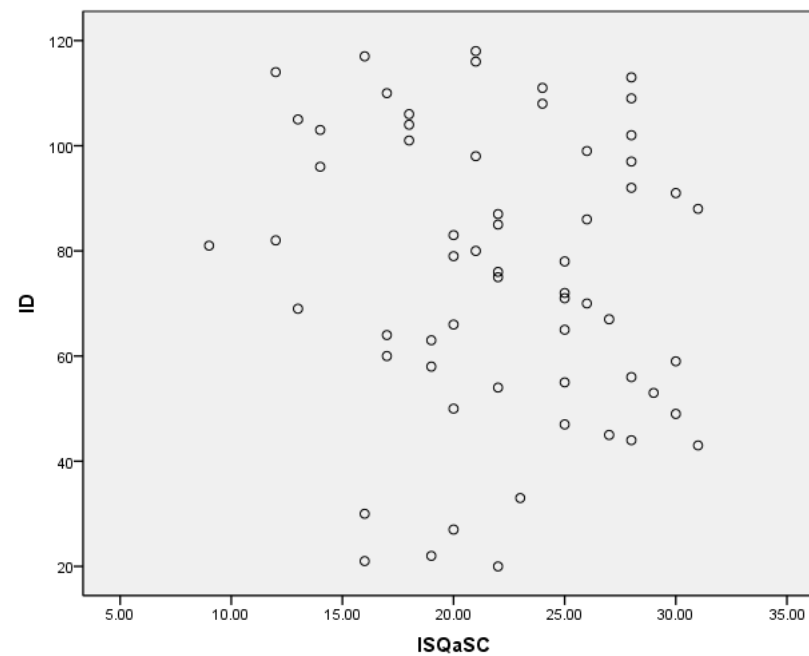
Graph 12. Scatterplot of somatic anxiety direction scores for Caucasian track and field athletes.



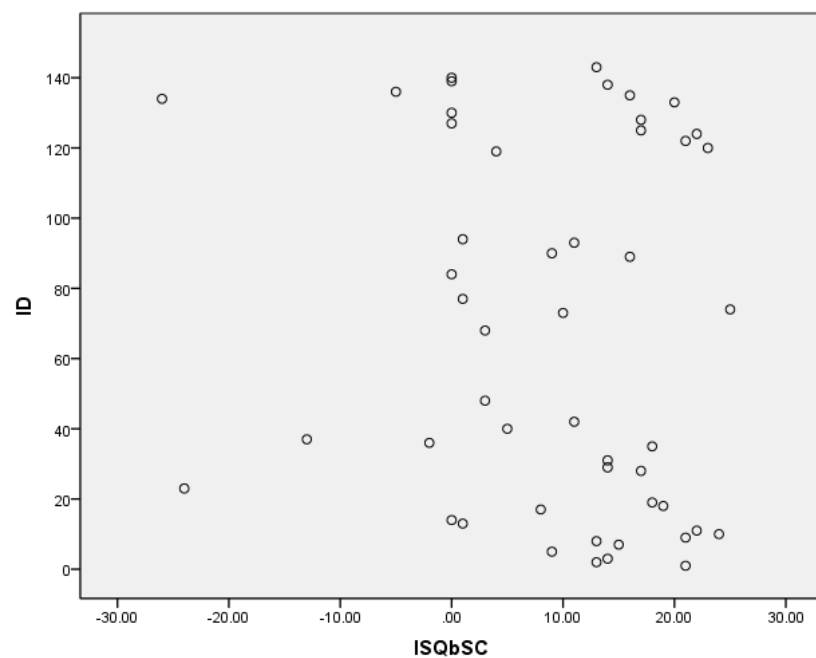
Graph 13. Scatterplot of self-confidence intensity scores for African American track and field athletes.



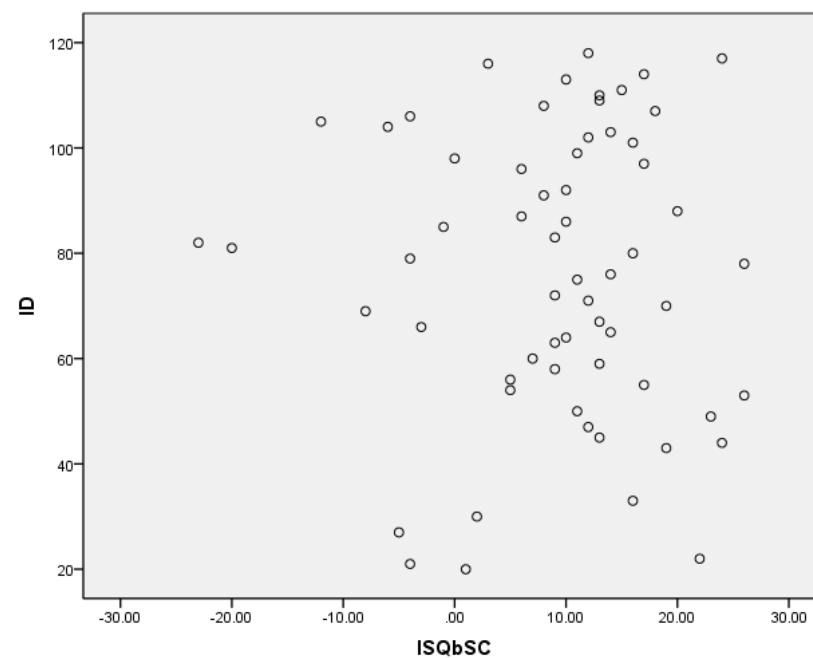
Graph 14. Scatterplot of self-confidence intensity scores for Caucasian track and field athletes.



Graph 15. Scatterplot of self-confidence direction scores for African American track and field athletes.



Graph 16. Scatterplot of self-confidence direction scores for Caucasian track and field athletes.



APPENDIX B
SURVEY MEASURES

Background questions

Please indicate your:

Sex:

Male

Female

Age: _____

Combined Parents' Income:

Below \$25,000

\$25,001-\$50,000

\$50,001-\$75,000

\$75,001-\$100,000

\$100,001-\$125,000

\$125,001-\$150,000

\$150,001-\$175,000

\$175,000-\$200,000

Above \$200,000

Current Year in College:

Freshman

Sophomore

Junior

Senior

Grad student

Years Competing in Track and Field: _____

Primary Event (please select one)

100m
 100m hurdles
 110m hurdles
 200m
 400m
 400m hurdles
 800m
 1500m
 3000m steeple
 5000m
 10,000m
 Long Jump
 High Jump
 Triple Jump
 Pole Vault
 Discus
 Javelin
 Hammer
 Shot put
 Weight Throw

Please enter the times, heights or distances of your last 3 performances in this event and the dates

Time, height or distance	Date of performance
1.	
2.	
3.	

Please enter the time, height or distance you would say is consistent with your typical performance

What is your personal best in this event?

When did you set your personal best?

Month:_____ year:_____

<u>How do you rate your TYPICAL performance?</u>						
Please select the number corresponding to your TYPICAL level of performance.						
<u>1= very poor</u>		<u>4= good</u>		<u>7= excellent</u>		
<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>6</u>	<u>7</u>

<u>How do you rate your BEST performance?</u>						
Please select the number corresponding to your BEST level of performance.						
<u>1= very poor</u>		<u>4= good</u>		<u>7= excellent</u>		
<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>6</u>	<u>7</u>

<u>How would you rate your performance in TODAY'S MEET?</u>						
<u>Please select the number corresponding to your level of performance in TODAY'S MEET.</u>						
<u>1= very poor</u>		<u>4= good</u>		<u>7= excellent</u>		
<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>6</u>	<u>7</u>

Where did **you** place in your primary event in today's meet? (ex. 1st, 2nd, etc.)

Where did **your team** place in today's meet? (ex. 1st, 2nd, etc.) _____

Please indicate your **main** goal at today's meet (choose one):

_____ To win my individual event

_____ To gain enough points to help my team win today's meet

_____ To earn enough points to qualify for a future regional or national meet
(individually)

_____ To earn enough points for my team to qualify for a future regional or national meet

_____ Other (Specify: _____)

When did you complete this survey?

Date: _____ Time: _____

Competitive State Anxiety Inventory –2 (CSAI-2)

Illinois Self-Evaluation Questionnaire

Directions: A number of statements that athletes have used to describe their feelings before competition are given below. Read each statement and then **select** the appropriate number to the right of the statement to indicate ***how you typically feel just prior your competition***. There are no right or wrong answers. Do *not* spend too much time on any one statement, but choose the answer, which describes your typical feelings ***just prior to your competition***. On the right side, below the statement, please select the number that best describes how much this feeling is typically helpful or harmful to your athletic performance in the competition. **Remember, when you read these statements picture how you feel right before you race.**

1. I am concerned about this competition

Not At All	Somewhat	Moderately so	Very Much So		I view this feeling as _____ to my performance:						
1	2	3	4		Very Harmful						Very Helpful
					-3	-2	-1	0	+1	+2	+3

2. I feel nervous

Not At All	Somewhat	Moderately so	Very Much So		I view this feeling as _____ to my performance:						
1	2	3	4		Very Harmful						Very Helpful
					-3	-2	-1	0	+1	+2	+3

3. I feel at ease

Not At All	Somewhat	Moderately so	Very Much So		I view this feeling as _____ to my performance:						
1	2	3	4		Very Harmful						Very Helpful
					-3	-2	-1	0	+1	+2	+3

4. I have self-doubts

Not At All	Somewhat	Moderately so	Very Much So		I view this feeling as _____ to my performance:						
1	2	3	4		Very Harmful						Very Helpful
					-3	-2	-1	0	+1	+2	+3

5. I feel jittery

				I view this feeling as _____ to my performance:							
Not At All	Somewhat	Moderately so	Very Much So		Very Harmful						Very Helpful
1	2	3	4		-3	-2	-1	0	+1	+2	+3

6. I feel comfortable

				I view this feeling as _____ to my performance:							
Not At All	Somewhat	Moderately so	Very Much So		Very Harmful						Very Helpful
1	2	3	4		-3	-2	-1	0	+1	+2	+3

7. I am concerned that I may not do as well in this competition as I could

				I view this feeling as _____ to my performance:							
Not At All	Somewhat	Moderately so	Very Much So		Very Harmful						Very Helpful
1	2	3	4		-3	-2	-1	0	+1	+2	+3

8. My body feels tense

				I view this feeling as _____ to my performance:							
Not At All	Somewhat	Moderately so	Very Much So		Very Harmful						Very Helpful
1	2	3	4		-3	-2	-1	0	+1	+2	+3

9. I feel self-confident

				I view this feeling as _____ to my performance:							
Not At All	Somewhat	Moderately so	Very Much So		Very Harmful						Very Helpful
1	2	3	4		-3	-2	-1	0	+1	+2	+3

10. I am concerned about losing

				I view this feeling as _____ to my performance:							
Not At All	Somewhat	Moderately so	Very Much So		Very Harmful						Very Helpful
1	2	3	4		-3	-2	-1	0	+1	+2	+3

11. I feel tense in my stomach

				I view this feeling as _____ to my performance:							
Not At All	Somewhat	Moderately so	Very Much So		Very Harmful						Very Helpful
1	2	3	4		-3	-2	-1	0	+1	+2	+3

12. I feel secure

				I view this feeling as _____ to my performance:							
Not At All	Somewhat	Moderately so	Very Much So		Very Harmful						Very Helpful
1	2	3	4		-3	-2	-1	0	+1	+2	+3

13. I am concerned about choking under pressure

				I view this feeling as _____ to my performance:							
Not At All	Somewhat	Moderately so	Very Much So		Very Harmful						Very Helpful
1	2	3	4		-3	-2	-1	0	+1	+2	+3

14. My body feels relaxed

				I view this feeling as _____ to my performance:							
Not At All	Somewhat	Moderately so	Very Much So		Very Harmful						Very Helpful
1	2	3	4		-3	-2	-1	0	+1	+2	+3

15. I'm confident I can meet the challenge

				I view this feeling as _____ to my performance:							
Not At All	Somewhat	Moderately so	Very Much So		Very Harmful						Very Helpful
1	2	3	4		-3	-2	-1	0	+1	+2	+3

16. I'm concerned about performing poorly

				I view this feeling as _____ to my performance:							
Not At All	Somewhat	Moderately so	Very Much So		Very Harmful						Very Helpful
1	2	3	4		-3	-2	-1	0	+1	+2	+3

17. My heart is racing

				I view this feeling as _____ to my performance:							
Not At All	Somewhat	Moderately so	Very Much So		Very Harmful						Very Helpful
1	2	3	4		-3	-2	-1	0	+1	+2	+3

18. I'm confident about performing well.

				I view this feeling as _____ to my performance:							
Not At All	Somewhat	Moderately so	Very Much So		Very Harmful						Very Helpful
1	2	3	4		-3	-2	-1	0	+1	+2	+3

19. I'm concerned about reaching my goal

Not At All	Somewhat	Moderately so	Very Much So		I view this feeling as _____ to my performance:						
					Very Harmful						Very Helpful
1	2	3	4		-3	-2	-1	0	+1	+2	+3

20. I feel my stomach sinking

Not At All	Somewhat	Moderately so	Very Much So		I view this feeling as _____ to my performance:						
					Very Harmful						Very Helpful
1	2	3	4		-3	-2	-1	0	+1	+2	+3

21. I feel mentally relaxed

Not At All	Somewhat	Moderately so	Very Much So		I view this feeling as _____ to my performance:						
					Very Harmful						Very Helpful
1	2	3	4		-3	-2	-1	0	+1	+2	+3

22. I'm concerned that others will be disappointed with my performance

Not At All	Somewhat	Moderately so	Very Much So		I view this feeling as _____ to my performance:						
					Very Harmful						Very Helpful
1	2	3	4		-3	-2	-1	0	+1	+2	+3

23. My hands are clammy

Not At All	Somewhat	Moderately so	Very Much So		I view this feeling as _____ to my performance:						
					Very Harmful						Very Helpful
1	2	3	4		-3	-2	-1	0	+1	+2	+3

24. I'm confident because I mentally picture myself reaching my goal

Not At All	Somewhat	Moderately so	Very Much So		I view this feeling as _____ to my performance:						
					Very Harmful						Very Helpful
1	2	3	4		-3	-2	-1	0	+1	+2	+3

25. I'm concerned I won't be able to concentrate

Not At All	Somewhat	Moderately so	Very Much So		I view this feeling as _____ to my performance:						
					Very Harmful						Very Helpful
1	2	3	4		-3	-2	-1	0	+1	+2	+3

26. My body feels tight

				I view this feeling as _____ to my performance:							
Not At All	Somewhat	Moderately so	Very Much So		Very Harmful						Very Helpful
1	2	3	4		-3	-2	-1	0	+1	+2	+3

27. I'm confident of coming through under pressure

				I view this feeling as _____ to my performance:							
Not At All	Somewhat	Moderately so	Very Much So		Very Harmful						Very Helpful
1	2	3	4		-3	-2	-1	0	+1	+2	+3

Sport Orientation Questionnaire - Form B

The following statements describe reactions to sport situations. We want to know how you usually feel about sports and competition. Read each statement and select the letter that indicates how much you agree or disagree with each statement on the scale: A, B, C, D or E. There are no right or wrong answers; simply answer as you honestly feel. Do not spend too much time on any one statement. Remember, choose the letter that describes how you usually feel about sports and competition.

	Strongly Agree =A	Slightly Agree =B	Neither Agree Nor Disagree =C	Slightly Disagree =D	Strongly Disagree =E
1. I am a determined competitor.	A	B	C	D	E
2. Winning is important.	A	B	C	D	E
3. I am a competitive person.	A	B	C	D	E
4. I set goals for myself when I compete.	A	B	C	D	E
5. I try my hardest to win.	A	B	C	D	E
6. Scoring more points than my opponent is very important to me.	A	B	C	D	E
7. I look forward to competing.	A	B	C	D	E
8. I am most competitive when I try to achieve personal goals.	A	B	C	D	E
9. I enjoy competing against others.	A	B	C	D	E
10. I hate to lose.	A	B	C	D	E
11. I thrive on competition.	A	B	C	D	E
12. I try hardest when I have a specific goal.	A	B	C	D	E
13. My goal is to be the best athlete possible.	A	B	C	D	E
14. The only time I am satisfied is when I win.	A	B	C	D	E
15. I want to be successful in sports.	A	B	C	D	E
16. Performing to the best of my ability is very important to me.	A	B	C	D	E
17. I work hard to be successful in sports.	A	B	C	D	E

18. Losing upsets me.	A	B	C	D	E
19. The best test of my ability is competing against others.	A	B	C	D	E
20. Reaching personal performance goals is very important to me.	A	B	C	D	E
21. I look forward to the opportunity to test my skills in competition.	A	B	C	D	E
22. I have the most fun when I win.	A	B	C	D	E
23. I perform my best when I am competing against an opponent.	A	B	C	D	E
24. The best way to determine my ability is to set a goal and try to reach it.	A	B	C	D	E
25. I want to be the best every time I compete.	A	B	C	D	E

Hypercompetitive Attitude Scale Items

- (1)- Never True of Me
- (2)- Seldom True of Me
- (3)- Sometimes True of Me
- (4)- Often True of Me
- (5)- Always True of Me

Please rate the following statements using the response scale above.

1. Winning in competition makes me feel more powerful as a person.

1 2 3 4 5

2. I find myself being competitive even in situations which do not call for competition.

1 2 3 4 5

3. I do not see my opponents in competition as my enemies.

1 2 3 4 5

4. I compete with others even if they are not competing with me.

1 2 3 4 5

5. Success in athletic competition does not make me feel superior to others.

1 2 3 4 5

6. Winning in competition does not give me a greater sense of worth.

1 2 3 4 5

7. When my competitors receive rewards for their accomplishments, I feel envy.

1 2 3 4 5

8. I find myself turning a friendly game or activity into a serious contest or conflict.

1 2 3 4 5

- (1)- Never True of Me
- (2)- Seldom True of Me
- (3)- Sometimes True of Me
- (4)- Often True of Me
- (5)- Always True of Me

9. It's a dog-eat-dog world. If you don't get the better of others, they will surely get the better of you.

1 2 3 4 5

10. I do not mind giving credit to someone for doing something that I could have done just as well or better.

1 2 3 4 5

11. If I can disturb my opponent in some way in order to get the edge in competition, I will do so.

1 2 3 4 5

12. I really feel down when I lose in athletic competition.

1 2 3 4 5

13. Gaining praise from others is not an important reason why I enter competitive situations.

1 2 3 4 5

14. I like the challenge of getting someone to like me who is already going with someone else.

1 2 3 4 5

15. I do not view my relationships in competitive terms.

1 2 3 4 5

16. It does not bother me to be passed by someone when I am driving on the roads.

1 2 3 4 5

17. I can't stand to lose an argument.

1 2 3 4 5

- (1)- Never True of Me
- (2)- Seldom True of Me
- (3)- Sometimes True of Me
- (4)- Often True of Me
- (5)- Always True of Me

18. In school, I do not feel superior whenever I do better on tests than other students.

1 2 3 4 5

19. I feel no need to get even with a person who criticizes or makes me look bad in front of others.

1 2 3 4 5

20. Losing in competition has little effect on me.

1 2 3 4 5

21. Failure or loss in competition makes me feel less worthy as a person.

1 2 3 4 5

22. People who quit during competition are weak.

1 2 3 4 5

23. Competition inspires me to excel.

1 2 3 4 5

24. I do not try to win arguments with members of my family.

1 2 3 4 5

25. I believe that you can be a nice guy and still win or be successful in competition.

1 2 3 4 5

26. I do not find it difficult to be fully satisfied with my performance in a competitive situation.

1 2 3 4 5

Multigroup Ethnic Identity Measure

In this country, people come from many different countries and cultures, and there are many different words to describe the different backgrounds or ethnic groups that people come from. Some examples of the names of ethnic groups are Hispanic or Latino, Black or African American, Asian American, Chinese, Filipino, American Indian, Mexican American, Caucasian or White, Italian American, and many others. These questions are about your ethnicity or your ethnic group and how you feel about it or react to it.

Please fill in:

In terms of ethnic group, I consider myself to be _____

Use the numbers below to indicate how much you agree or disagree with each statement.

(4) Strongly agree (3) Agree (2) Disagree (1) Strongly disagree

1- I have spent time trying to find out more about my ethnic group, such as its history, traditions, and customs.

4 3 2 1

2- I am active in organizations or social groups that include mostly members of my own ethnic group.

4 3 2 1

3- I have a clear sense of my ethnic background and what it means for me.

4 3 2 1

4- I think a lot about how my life will be affected by my ethnic group membership.

4 3 2 1

5- I am happy that I am a member of the group I belong to.

4 3 2 1

6- I have a strong sense of belonging to my own ethnic group.

4 3 2 1

7- I understand pretty well what my ethnic group membership means to me.

4 3 2 1

(4) Strongly agree (3) Agree (2) Disagree (1) Strongly disagree

8- In order to learn more about my ethnic background, I have often talked to other people about my ethnic group.

4 3 2 1

9- I have a lot of pride in my ethnic group.

4 3 2 1

10- I participate in cultural practices of my own group, such as special food, music, or customs.

4 3 2 1

11- I feel a strong attachment towards my own ethnic group.

4 3 2 1

12- I feel good about my cultural or ethnic background.

4 3 2 1

13- My ethnicity is

(1) Asian or Asian American, including Chinese, Japanese, and others

(2) Black or African American

(3) Hispanic or Latino, including Mexican American, Central American, and others

(4) White, Caucasian, Anglo, European American; not Hispanic

(5) American Indian/Native American

(6) Mixed; Parents are from two different groups

(7) Other (write in): _____

14- My father's ethnicity is:

- (1) Asian or Asian American, including Chinese, Japanese, and others
- (2) Black or African American
- (3) Hispanic or Latino, including Mexican American, Central American, and others
- (4) White, Caucasian, Anglo, European American; not Hispanic
- (5) American Indian/Native American
- (6) Mixed; Parents are from two different groups
- (7) Other (write in): _____

15- My mother's ethnicity is:

- (1) Asian or Asian American, including Chinese, Japanese, and others
- (2) Black or African American
- (3) Hispanic or Latino, including Mexican American, Central American, and others
- (4) White, Caucasian, Anglo, European American; not Hispanic
- (5) American Indian/Native American
- (6) Mixed; Parents are from two different groups
- (7) Other (write in): _____

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