The Relationship Between State-Trait Anxiety and the Use of Superstitious and/or Ritualistic Behaviors in Athletics: An Exploratory Study

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This research is a product of the graduate program in Clinical Psychology at Eastern Illinois University. Find out more about the program.

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The Relationship Between State-Trait Anxiety and the Use of Superstitious and/or Ritualistic Behaviors in Athletics: An Exploratory Study

BY

Jodie S. Hood

THESIS

SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF

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I HEREBY RECOMMEND THIS THESIS BE ACCEPTED AS FULFILLING THIS PART OF THE GRADUATE DEGREE CITED ABOVE

Date

Thesis Directors

Date

Department/School Head
Abstract

There is limited published research in the area of superstition in sports as it relates to an athlete's anxiety and performance. This study was designed to examine this relationship through the administration of a demographic questionnaire, a list of ritualistic and superstitious behavior and the State-Trait Anxiety Inventory. Participants were members of 5 Eastern Illinois University Varsity athletic teams. Results indicate several differences across gender when comparing five athletic teams (men's baseball, basketball, and track and women's track and softball) with their anxiety and superstitious behavior levels. Several significant correlations were found between: reported religious persuasion and frequency of religious practice, reported religious persuasion and the number of pre-game rituals. Lastly, the number of pre-game, during game, post-game, other behaviors were also significantly correlated with state-trait anxiety. Implications of the study and suggestions for future research are discussed.
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Sports psychology has emerged as a very popular specialization within psychology over the past quarter century (Williams & Straub, 1993, p. 1). The wide array of components studied within this specialty include motivation, aggression and violence, leadership, personality, group dynamics, exercise, psychological well being, thoughts and feelings of athletes, substance abuse of athletes, and competitive anxiety and fear (Williams and Straub, 1993). One specific area that is less represented in the research is the study of superstitious and ritualistic behaviors among athletes in different sports. Superstitious and ritualistic behaviors are well known and commonly observed among athletes, and their use is often thought to be related to the compulsive tendency to incorporate unique and individualistic behaviors which, as their target, have the purpose of either enhancing athletic performance and/or warding off some negative affect. It is believed that superstitions in general stem from fears and helplessness in difficult and overwhelming situations. Due to the competitive nature of sports, many moments within any given contest are charged with feelings of anxiety and fear, and athletes find many ways of addressing the anxiety or fear which can be enhancing or debilitating. Jackson (1995) discussed the idea that many rituals are performed as a method of focusing attention on a pre-competitive routine and “maintaining the appropriate focus” so as to continue their state of flow and control over the situation (p. 140). This pre-competitive routine was to ensure that they were mentally prepared and ready for any event in the competitive situation. In Jackson’s study, she found that “knowing everything was in place allowed the athlete to focus on the task” and therefore not worry excessively about not being prepared.
Within the broad discipline of psychology, increased attention has focused on the increased contributions of sport psychology issues applied in the field. No matter what sport, age, or level of competitiveness one considers, a common occurrence is the use of superstitious or ritualistic behaviors, according to the variety of literature on the subject as well as examples that can be viewed and discussed regarding some well-known professional athletes. Since sport is such a large part of our culture, this area of study is becoming increasingly popular. The phenomenon of superstition is almost as common in our society as involvement of sports. In this case, superstition can be described as “learned forms of behavior or dispositions about objects or situations that direct the holder toward some preferred response” (Hollander, 1971, in Buhrmann, Brown, & Zaugg, 1982, p. 175). Often, these superstitions stem from fears and helplessness in difficult or overwhelming situations. Many athletes engage in these pre-performance rituals to gain greater internal locus of control over performance outcomes.

The origin of superstition in sport is not well documented, but it is presumed that sport is encompassed by the idea of uncertainty. Jones (1995) notes that competitive anxiety is characterized by a combination of event importance and outcome uncertainty which combine to result in higher levels of anxiety. It is also true that the motivation to win or at least perform optimally in these situations is so great that it is not unlikely for an individual to rely on something almost supernatural to assist in altering the end results of these conditions. Whether it is a practice as revolting as forcing oneself to vomit before every game (as the NFL’s Buffalo Bills quarterback Jim Kelly professed he has done this since his high school playing days), (Sports Illustrated, 1988), or as mundane and common as carrying a particular good luck charm or eating the same pre-game meal
or snack before every game, superstition abides over many athletic events and pervades the lives of athletes.

In referring back to the issue of uncertainty, it seems that it pervades the thought of future outcomes and is a common source of anxiety that individuals experience, especially those involved in competition. The uncertainty that a demand will or will not be met and the success or failure being important and anticipated causes threats in competitive situations. In competition, uncertainty about the outcome is inevitable before the performance is even experienced. Whether the uncertainty is positive (a challenge) or negative (a threat) depends on how the situation is perceived by the individual. Threat, thus increased anxiety, is perceived when the outcome of the competition is perceived to be both highly uncertain and important. Anxiety, especially in athletes, is also caused by the perceived importance of an individual’s performance. Some are more in tune to how well they play, such that a poor performance brings about great discouragement while a good performance brings on elation and great satisfaction. Closely related is the idea that an individual’s feelings of self-worth and competence in all areas of his or her life is linked to how he or she play sports. Ntoumanis and Biddle (1998, p. 178) indicate that those who have perceptions of low competence seem to be more susceptible to the stress and anxiety of competition. Roberts (1992, in Ntoumanis & Biddle, 1998, p. 178) also indicated that outcomes in sports are unstable and relatively uncontrollable demands, thus creating negative affective states in athletes. This can cause great amounts of anxiety to occur when performance in a competition pervades much of one’s outlook on life.
Stress and anxiety can be an integral part of the success of an athlete. Martens (1977, p. 18) notes that one major reason that coaches and athletes are interested in anxiety is to understand how it affects performance. It can drive athletes in ways so that they perform better, or it may hinder athletic performance so greatly that these athletes cannot complete the most basic skills successfully. More recent literature has indicated that competitive anxiety can be “debilitative or facilitative” in nature, depending on the individual and on the extent of the anxiety levels, (Jones, 1995, p. 463). Jackson (1995) notes that “if the demands of an activity are greater than one’s skills, anxiety is the result” (p. 139). On the other side of this statement is the idea that “if skills are greater than the challenges of the situation, boredom results.” Superstitious or ritualistic behaviors can also be driven by anxiety. Rituals or superstitious behaviors can serve to alleviate some of the stress involved in performances and athletic events. Stress-like effects may occur from sensory deprivation, social isolation, or stimulus impoverishment, (Martens, Vealey, and Burton, 1990). Spielberger (1972b, p. 488, in Martens, Vealey, and Burton, 1990, p. 8) uses the term “stress” to describe the process of anxiety. Thus, he defines stress as “denoting environmental conditions or circumstances that are characterized by some degree of objective physical or psychological danger.” More simply, this can be described by discussing his model of the process of anxiety, which includes the components of stress, causing some type of threat to the individual, therefore causing a state anxiety reaction. The difference between the models proposed by McGrath and Spielberger is that McGrath calls it “stress” and Spielberger calls it “anxiety.” McGrath also proposes a four stage stress process involving: 1. Environmental demand, 2. Perception of demand, 3. Stress response, and 4. Behavioral consequence. The debate
whether anxiety is a general phenomenon or a learned response to situations can be described using several ideas. For example, one person may become anxious when taking a math test or giving a speech, but may not when they are competing in a sport, performing a piano recital, or taking an exam for a driver’s license. Possibly, we can better predict behavior when we know more about the specific situation and how an individual tends to respond to these types of situations. According to Gill (1986, p. 55), the same people who show symptoms of anxiety in some cases do not necessarily become as anxious in all situations.

It has also been found that some level of anxiety in sport is valuable to performance. This can be explained by discussing the various current theoretical approaches that have attempted to explain competitive anxiety and how it is of use to athletes. Each theory differs in how much and at what point anxiety is facilitative and when it becomes a hindrance as well as how performance differs across varying changes in cognitive and somatic anxiety. An early study by Mahoney and Avener (1977, in Jones & Swain, 1995) reported that “successful performers reported their anxiety as more facilitative than did less successful performers” (p. 207). An example related to this in Edwards and Hardy’s (1996) article explains how gymnasts in a study by Jones (1993) perceived their cognitive anxiety to be different depending on the success of their performance. Those gymnasts who performed well on the balance beam perceived their anxiety to be more facilitative than those who performed less well. According to the catastrophe theory of competitive anxiety, “once a certain level of arousal is reached beyond the optimum level, performance will drop off in a sudden and dramatic manner onto a lower performance curve,” (Jones, 1995). Edwards and Hardy (1996) expand on
this theory by proposing that "under high physiological arousal, increases in cognitive anxiety will be detrimental to performance, whereas under low physiological arousal, increases in cognitive anxiety will have a facilitative influence on performance" (Hardy, in press, in Edwards and Hardy, 1996, p. 305). Therefore, the amount of cognitive anxiety may be beneficial to a particular performance, depending on the physiological arousal level.

Hanin's Zones of Optimal Functioning theory states that "a person's zone of optimal functioning is not always the midpoint of the arousal continuum but rather it may be at the beginning, middle, or upper end of the arousal continuum" and that "levels of state anxiety vary among individuals, causing optimal performance levels to vary as well," (Cox, 1994, p. 126). The Multidimensional Theory of Anxiety in sports, proposed by Martens, Vealey, and Burton (1990) includes five different dimensions of anxiety: interpersonal ego-threat, physical danger, ambiguity, disruption of daily routines, and social evaluation. This finding has generated in the creation of several inventories to assess sport-specific cognitive and somatic state anxiety relative to competition (Martens Vealey & Burton, 1990). This theory "predicts that cognitive anxiety and self-confidence should remain stable in the period leading up to a competition, providing that expectations of success do not change during that time, whereas somatic anxiety is predicted to elevate rapidly as the event approaches" (Gould et al., 1984; Jones et al., 1988; in Swain & Jones, 1993, p. 534).

To manage the anxiety that accompanies competition, an athlete may engage in behaviors to control the anxiety, to reduce arousal, and to relax or calm him or her. Superstitions or ritualistic behavior are among those behaviors included in this particular
discussion that may deter the level of stress or anxiety so that worry may be decreased and performance is optimal. Such behaviors may serve as additional help to manage the perceived difficulty of the competition. Athletes may tend to rely on these superstitious or ritualistic behaviors as a source of assistance in an almost magical sense. The use of such superstitious behaviors may reduce arousal that is related to increased worry and this, in turn, is related to lower self-confidence and poorer performance. In such cases, the behaviors that have been discussed are used to distract the attention away from the intense stress they may experience. This allows the athlete to encounter a more reduced and comfortable level of anxiety so that performance is believed to be improved (or at least not hindered because of their superstitious behaviors). More simply stated, certain rituals serve to focus attention and reduce anxiety and allow the athlete to focus more on motor skill performance.

In the event that an athlete’s pre-competitive ritual or routine is disrupted or they are somehow distracted, the focus may be lost and the effectiveness of this routine or behavior could be reduced to some extent. Jackson (1995) notes this occurrence by stating “if an athlete’s routine was broken or there was a distraction of some sort, particularly as the time to compete approached, flow would be less likely to occur” (p. 153). This statement indicates that the athlete may not focus as directly if something were to come between the individual and their specific routine or behavior. These distractions could be daydreaming, worrying, or anything to hinder them from completing their activity to achieve appropriate focus. This may bring up the idea proposed by Jones (1991) as discussed in Swain and Jones’ (1993) article that “an athlete who is thinking frequently about an event is unlikely to be experiencing the same
cognitive state as an athlete whose mind is only occupied minimally by such thoughts” (p. 539).

Interestingly, there appears to be no known research that points to the benefits of increased arousal before sport performance. Therefore, sport performance has not been proven to be enhanced with increased arousal, which can become distracting. Keeping this distraction to a minimum to enhance focus can decrease the threat of failure or loss (Gill, 1986). The Zone of Optimal Functioning (Raglin & Turner, 1993) theory applies to this area in that it explains that the levels of state anxiety vary among individuals, causing optimal performance levels to vary also.

There is no documentation that supports any one specific technique that can be used to manage anxiety in competitive situations. The optimal state to enter a competitive environment and to perform sport tasks is noted by Gill (1986, p. 125) to be “relaxed concentration.” Athletes should be alert and attentive to the task, but free of excess muscle tension and worry. Superstitious behavior may serve its purpose in this sense when an athlete engages in these behaviors as a perceived necessary act to reduce tension and obsession.

State and trait anxiety, according to Spielberger (1983), is a construct used frequently in both the measurement of anxiety and reported in the literature. An in with trait anxiety is one who “is likely to perceive the environmental demand-response capability discrepancy” (trait anxiety), or the individual is more accurately represented by a “momentary anxiety state precipitated by the interaction between the person’s level of trait anxiety and the current discrepancy between environmental demands and response capabilities” (state anxiety). Along this line of research, Martens (1977) proposed the
idea of competitive trait anxiety, which describes a “tendency to perceive competitive situations as threatening and to respond to these feelings of apprehension and tension” (p. 31).

Previous research on the subject of superstition in sports has focused on ideas such as the prevalence of superstition in a comparison of males and females. Early research by Conklin (1919, in Buhrmann, Brown, & Zaugg, 1982, p. 177) found that over a four-year period, women were found to hold more superstitions than men. Later, Gregory (1973, in Buhrmann, Brown, & Zaugg, 1982, p. 177) conducted research to compare superstitions by sport. In this study, he also found information parallel to Conklin’s that noted that women had more superstitions than men. Gregory and Petrie (1975, in Buhrmann, Brown, & Zaugg, 1982, p. 177) elaborated on the previous research and found that the common female superstition is related to appearance and social functions while males indicated superstitions dealing with equipment, religious practices, and repetitive actions. They also found that in hockey, the superstitions often revolved around the goalie and his practices before and during the game. Burn (1975, in Buhrmann, Brown, & Zaugg, 1982, p. 177) found the importance of mascots common to females in sport but this was found to decrease slightly with the age of the athlete. More recently, Buhrmann and Zaugg (1981, p. 178) studied male and female basketball players in various skill levels (junior high through university levels). The main finding of this study was that “success breeds superstition.” This is through the idea that the “better” the player (i.e. starters, most playing time, etc...), the more superstitious the athlete tended to be. They found that teams were more superstitious when their win-loss record was better. Common practices to the sport of basketball were found to be free throw rituals and
practices in dressing. Females were found to dress well more often, while males tended
to dress less properly so as to feel more prepared for the athletic event. A similar study
by Buhrmann, Brown, and Zaugg (1982, p. 180) found more evidence pertaining to
gender differences in superstitious beliefs and behaviors. However, findings failed to
show females as more superstitious than males, as previously indicated by prior research.
No differences were found between the total number or the overall degree of superstition
was found, however, the findings related to clothing and appearance were found to be
accurate. Females in this study were also found to be more likely to engage in
appearance related superstitions of the “socially correct” nature, possible due to its
relation to successfulness and because of the “emphasis placed on personal appearance in
the socialization of females in our society.” They were also more likely to have good
luck markings on their shoes than their male counterparts.

In contrast, males were more likely to feel ready for the game if they were dressed
more sloppily. Therefore, most of the significant gender differences were related to
clothing and appearance. On the same token, this could also be due to the nature of the
athletic event and its relevance to judging the athlete’s physique, making the actual
appearance of the athlete an important part of the event or performance. According to
this study, females were also more likely to believe in the importance of team mascots for
luck. It is also an interesting note that this study found that males were more likely than
females to discard a lucky charm if they felt it did not bring them luck. This indicates
that males may place a greater emphasis on winning and on a successful performance
when using a superstition to aid in their luck during competition. Results indicated that
the differences between males and females was the “types of superstitions to which they
ascribed, differences which can at least be accounted for in part by differential socialization processes."

Many human superstitions have origins in a coincidence of a response and reinforcement when there is actually no causal relationship. When looking at the mannerisms of performers such as athletes, the non-functional aspects of skills are not important in the determination of the level of their skill, but it may not be the case in terms of the actual total response with the help of a superstitious behavior (Gill, 1986).

A study by Bleak and Frederick (1998) yields information pertaining to many different aspects of superstitious behavior in sport. Bleak and Frederick attempted to study the use of superstitious behaviors as well as the athletes’ perceived effectiveness, the importance of an athlete’s success in their particular sport, sport anxiety, locus of control, and religiosity. They presented 107 participants (87 males and 20 females) in the NCAA Division I sports of football, gymnastics, and track with measures of demographics, religiosity, locus of control, sport anxiety, and superstitious beliefs to examine the usage of superstitious behaviors in the three sports that were intended to be different in terms of sex, and team versus individual athlete sports. They hypothesized that “superstitious behaviors would vary among athletes within the groups studied” (p. 7). They found that some differences do exist and noted that overall, gymnasts reported more superstitious ritual use than football players or track athletes. They explained this as possibly being because of the more individual performances in gymnastics than in the other sports. When looking at the issue of gender, they found this to be consistent with Buhrmann and Zaugg’s (1981) study that found female basketball players higher in ritual use than male basketball players.
Summarily, the literature suggests that competition tends to generate anxiety among performers. To alleviate anxiety, competitors often engage in both superstitious rituals and acts. While the relationship between anxiety and sports performance is well documented, less research focus has been paid to the relationship between state (or temporary) anxiety and trait (or more enduring) anxiety and the use of superstitious behaviors. This study assessed the relationship between state anxiety and trait anxiety and superstitious behaviors among certain female and male college athletes.

In the present study, both males and females will be used in an attempt to further assess gender similarities or differences of the use of superstition in sport. This study will also examine sport-specific differences in superstitious behavior by the use of various athletic teams. The primary goal of this research is to attempt to explore the possible relationships between state and trait anxiety and the use of ritualistic or superstitious behaviors reported by athletes in multiple sports (in athletic events and the severity and frequency of its use). In an attempt to broaden the range of knowledge about types of sports and competitors, this study will also assess different sport teams whose since superstitious behaviors have been reported to vary among different sports. Since the present study is an exploratory study, no formal hypotheses will be tested.

Method

Participants

The participants of this study were volunteer athletes representing three sports and enrolled at Eastern Illinois University, an NCAA, Division I university. Participants were recruited from a total of five teams. Two sports were selected in which there were both men's and women's teams so as to ensure gender equality and one team representing
men only. The teams involved in this study were the spring sports of women's softball, men's baseball, women's track and field, men's track and field, and the winter sport of men's basketball. There were a total of 85 student-athletes comprised of 38 females and 47 males participating in this study. All participants were tested either during or after their competitive season, occurring during the final week of the spring semester. Individuals were asked to participate on a voluntary basis and participants were not offered monetary, academic, or athletic compensation for their assistance in this research.

Measures

Demographic information. Each participant was provided with a sheet to complete requesting information relating to sex, age, sport, years of playing organized sports, years played in college, years of eligibility left in college, and awards received. In addition, participants were asked how effective they perceive themselves as being within their sport (measured on a Likert-type scale ranging from 1 = extremely effective to 5 = ineffective) and the importance of success in the athlete's particular sport (measured on a Likert-type scale ranging from 1 = extremely important to 5 = unimportant). Goals for the future of playing of the particular sport was measured by multiple choices categorized with such answers as "will not continue after college," "will continue only for leisure/recreational purposes," and "plan to try out for professional league." Also addressed in this demographic measure was the issue of religious persuasion and whether it is practiced to a certain degree or not (measured by a series of multiple choice answers ranging from "regularly and frequently" to "infrequently") (see Appendix B).

State-Trait Anxiety Inventory (STAI). The State-Trait Anxiety Inventory (Spielberger, 1983) is a 40-item, self-report and evaluation questionnaire used to measure
levels of state and trait anxiety. State anxiety is an existing or immediate emotional state characterized by apprehension and tension while trait anxiety is a predisposition to perceive certain situations as threatening and to respond to these situations with varying levels of state anxiety (Martens, Vealey, & Burton, 1990). Individuals high in trait anxiety either perceive more situations as threatening, respond to threatening situations with more intense levels of state anxiety, or both. In simpler terms, “trait anxiety is the tendency or predisposition to become anxious in stressful situations,” while “state anxiety is the actual feeling or state of apprehension and tension at any given moment” (Gill, 1986).

List of Superstitious and/or Ritualistic Behaviors. This measure was developed by the investigator with the assistance of NCAA Division I varsity athletic coaches and assistant coaches who were asked to complete and make additions to a list of superstitious or ritualistic behaviors that they felt applied to their particular sport. With the help of a measure from the study by Buhrmann and Zaugg (1981), a list was compiled consisting of several behaviors categorized into the categories of “pre-game,” “during game,” “post game,” and “other.” This measure is a result of the information gathered from this request (see Appendix C).

Procedure

Survey packets including the demographics sheet, State-Trait Anxiety Inventory (STAI), and Superstitious Beliefs Measure were distributed to a selected team member who was also majoring in psychology while also participating in the chosen team sports. These data collectors were briefed on the procedure of instructions, prebriefing, debriefing, completing the packets, and providing debriefing statements (Appendix B).
Data collection was completed toward the end of the spring semester so as to ensure that the participants’ seasons would be either just completed or completed so that their superstitious or ritualistic behaviors would be more apparent to them as they have already been established and had been recently used. Informed consent was obtained (see Appendix A) and participants were told that the survey they were asked to complete was part of a research project towards a Master’s level thesis and were given a general overview of the research in which they participated. Confidentiality was assured and, after the surveys were returned, participants received a printed debriefing statement (see Appendix B) that explained the study more thoroughly.

Results

The average age of the athletes participating in this study was near 20 years of age ($M = 19.91, SD = 1.31$) playing college sports for an average of two years ($M = 2.10, SD = 1.12$) and had two years left of eligibility in their sport on average ($M = 2.02, SD = 1.12$). The amount of subjective playing time was in the “sometimes” category ($M = 3.11, SD = 1.09$). Other demographic variables were calculated including: the age that the athlete began playing sports ($M = 7.84, SD = 3.24$), athletic awards received ($M = 1.51, SD = 2.05$), the athletes’ perceived effectiveness in their sport (“effective”) ($M = 3.34, SD = .98$), the importance of success to the athlete (“very important”) ($M = 4.55, SD = .82$), and their goals for the future in their sport (play for “leisure”) ($M = 3.09, SD = 1.37$).

The means and standard deviation of the ritualistic behaviors are: pre-game ($M = 5.61, SD = 2.82$), during game ($M = 1.88, SD = 1.13$), post-game ritualistic behaviors ($M = 1.09, SD = 1.54$), and “other” behaviors ($M = 1.04, SD = 1.13$). Overall,
the mean and standard deviation scores for all athletes for both trait \((M = 38.11, SD = 11.20)\) and state anxiety \((M = 39.34, SD = 8.89)\) indicate that the majority of the athletes participating in this study had a slightly higher but not significant trait anxiety level.

Analysis of the optional question addressing religiosity and the frequency of their particular religious persuasion being practiced found that out of 85 participants, nine did not answer the first of these questions and 16 did not answer the second question. Regarding religious persuasion, many of the athletes did, in fact, have a persuasion \((M = 1.80, SD = .40)\); but, most of them only practiced it occasionally \((M = 2.39, SD = 1.04), r = .48, p < .01\).

State and trait anxiety were significantly related \((r = .73, p < .01)\). The mean scores show that the majority of the athletes participating in this study had high levels of anxiety. The two measures of anxiety were correlated (separately) with the background variables as well as those measuring religion and ritualistic behavior. State anxiety was significantly related \((p < .05)\) to awards received \((r = -.25)\) and playing time \((r = -.31)\); trait anxiety and playing time were also related \((r = -.26)\). Neither measure of anxiety was significantly related to any of the religious or ritualistic behaviors \((all \ p > .05)\). One-way analyses of variance revealed no differences between males and females on the anxiety measures nor were there any differences based on sport.

The two religious variables and four ritualistic variables were inter-correlated. Seven of the 15 pairings were significant at the .05 level. Religious persuasion and practice correlated at \(r = .48\), persuasion was also related to pre-game rituals, \(r = .24\). Engaging in pre-game rituals was related to engaging in rituals during \((r = .50)\), and after
(r = .53) an event as well as using other rituals (r = .34). Ritualistic behavior during an event was also related to such behavior afterwards (r = .45) and “others” (r = .27).

The religious and ritualistic measures were correlated with age and the background variables; four of the 36 correlations were significant at the .05 level. Religious persuasion was negatively related to years played (r = -.27) and years left to play (r = .29); religious practice was negatively related to player effectiveness (r = -.25). Age was negatively related to use of other rituals (r = -.30).

Because there were no participants from women’s basketball, it was not possible to conduct sex by sport analyses. A series of one-way ANOVAs were conducted on the background variables for the 5 sports represented: men’s baseball, track, and basketball and women’s track and softball. The analysis and range test subsequent to ANOVA revealed that male baseball players (M = 6.0) began playing earlier than women in track (M = 9.05), F(4, 80) = 2.63. These males (M = 2.74) had also played longer than the track females (M = 1.80), F(4, 80) = 2.69. Males in track had more years left (M = 2.59) than males in baseball (1.4), F(4, 80) = 3.64. Females in track viewed themselves as more effective than participants in the other sports (M = 2.6 vs. grand mean of 3.34), F(4, 80) = 5.49, but, women in track viewed success as more important (M = 4.05) than men in track (M = 4.71) or in baseball (M = 4.79), F(4,80) = 2.93.

A series of one-tailed (p < .05) analyses of variance were conducted to examine whether there were differences between participants in men’s and women’s track on the various measures. A similar series of analyses compared players in men’s baseball and women’s softball. Participants in track did not differ as a function of sex in any measure. However, players in men’s baseball and women’s softball differed on five measures (see
Table 1). Females began at a later age and engaged in more pre, during, and post game rituals; they scored lower in state anxiety.

A separate series of one-tailed ANOVAs compared women participants in their two sports of softball and track. The analyses revealed that women in softball considered themselves less effective (M = 3.56) than those in track (M = 2.6), F(1,37) = 10.65. Women in softball engaged in more pre-game rituals than women in track (M = 6.8 vs. 5.1), F(1,36) = 3.34; they also engaged in more rituals during the event (2.50 vs. 1.65), F(1,36) = 5.72.

Discussion

The relationship between awards received and the amount of playing time may indicate the higher chance an athlete may have to receive an award when given more playing time. However, it may also mean that the more awards an individual receives, the more playing time he/she will get. The information in this section also indicates that the more playing time an individual has, the lower his or her trait anxiety level. It could be that in this case, the more playing time one has, the more comfortable the athlete is in the competitive situation, therefore lowering his/her anxiety level in that situation.

It is interesting that the more "pre-game" ritualistic behaviors an athlete reports, the more likely it is that they will also engage in other behaviors in the categories of "during game," "post game," and "other." An athlete who feels the need to participate in several pre-game behaviors will be more likely to engage in other behaviors in the "other" category that was in the checklist. An example of this would be the use of a lucky charm or relying on a coach’s superstitions. This could mean that behaviors are likely to carry over from the pre-game time to other time frames of the sporting event. The results
indicate a significance between the athletes' perceived effectiveness and the frequency of practiced religious persuasion. Could this mean that people who go to church more often feel more effective in their lives outside of church and therefore in sports as well?

Athletes who had lower state and trait anxiety had more playing time. However, the cause for this is not determined, as it could be the lower the anxiety, the more playing time the individual received (less nervous therefore making the performance better) or the more playing time, the lower the anxiety the athlete had (more playing time equals more practice; therefore lowering the anxiety level).

It was noted that a majority of the athletes had a slightly higher, but not significantly higher trait anxiety level than state anxiety level. It is important to note that trait anxiety is how anxious someone is in a stressful situation and state anxiety is the actual feeling of anxiety at any given moment. It is possible that someone who is not anxious by nature may still experience anxiety in a competitive situation.

It is also interesting that more athletes engaged in pre-game superstitious behavior than all other forms combined. One explanation is that before the game, anxiety levels are higher and can be managed with superstitious/ritualistic behaviors. On the other hand, there may simply be more time to engage in the behaviors before the game than at any other time during the competition.

It is not surprising to find a significant correlation between reported religious persuasion and frequency of religious practice. This might indicate that these athletes simply are more likely to attend religious services than those who did not indicate their religious persuasion at all. However, this may suggest that athletes who report a religious persuasion are significantly more likely to engage in superstitious rituals as well. On the
other hand, superstitious people may be more likely to be religious. Since this is a correlative relationship, nothing can be said about the possible cause and effect relationship between religious practice and superstitious behavior among athletes. This is an avenue that could be available for further study.

Interestingly, female athletes were more likely to engage in superstitious/ritualistic behaviors across all categories than male athletes. Women in general are reportedly more superstitious and, perhaps willing to accept the fact that there are other variables than their own skill that could play a part in the competitive field.

The negative significant correlation between religiosity and the number of years played could be seen in the perspective that the more reportedly religious the athlete is, the less years they’ve played. Also this could indicate that the less time they spend on sports, the more time they have to devote to religious activities. The significant correlation between religiosity and the number of years left to play was also found and could indicate simply that the individual is younger and hasn’t experienced that much, or could they be religious because of their age and inexperienced in other aspects of life other than the religion in which they were raised?

An interesting negative correlation was found between how often one’s religion is practiced and how effective an athlete views oneself. Typically, we would think that people who are religious would have high self-esteem and would find themselves more effective in various aspects of their life, including sports. A significant negative correlation was found between “other” behaviors and the age the athlete began playing sports, possibly meaning that the younger the player started, the more likely they rely on superstitious behavior. Also, the less superstitious behavior one engages in, the older
they were when they started playing sports. The negative significant correlation found between awards received and state anxiety could indicate that the more state anxiety the athlete has, the less awards they could have received. Conversely, the more awards received, the less anxiety a person may experience during competition. The negative significant correlations between both state anxiety and trait anxiety with the amount of reported playing time indicates the more they play, the less likely the athlete is to be anxious or a less anxious person is more likely to get playing time.

With regard to specific sport differences, the women's softball players were found to engage in significantly more pre-game superstitious/ritualistic behaviors, during game superstitious/ritualistic behaviors, and post game superstitious/ritualistic behaviors than the men's baseball team. These figures indicate that male baseball players had a significantly higher level of state anxiety than the female softball players. Female softball players were also found to begin playing sports significantly later than male baseball players (i.e. males were younger when they started participating in sports). This may demonstrate the emphasis that is placed on men's sports as opposed to women's sports. Recently, women's sports have come into the spotlight and have begun to branch out to give women athletes more opportunity to play when young and also to continue playing after college. Lastly, there could be specific differences between the two sports that could account for the significance.

It may be possible that female softball players' rituals and superstitious behaviors may be helpful in alleviating anxiety as indicated by the male baseball players' lower number of superstitious/ritualistic behaviors and women's higher level of state anxiety. Neither group (male baseball or female softball) had significantly high levels of trait
anxiety, therefore indicating that the use of more rituals could have helped the female athletes in this sport with managing anxiety. However, the scope of this study did not include any determination of whether these rituals proved to be effective or distracting, thus they simply suggest a gender difference. Similar findings in studies by Conklin (1919, in Buhrmann, Brown, & Zaugg, 1982, p. 177), Gregory, Gregory and Petrie (1975, in Buhrmann, Brown & Zaugg, 1982, p. 177) paralleled some of the findings in this study when discussing the gender differences, in that women are found to have more superstitious behaviors than men.

As in all psychological research studies there are bound to be limitations. This study shows room for potential improvement with reliability as well as internal and external validity. Reliability is a concern because a study with these measures and population has not yet been replicated and research is limited to these findings. Further replication would potentially remedy this concern.

Regarding internal validity, the experimental measures created for this study could be a weakness. The operational definition of state and trait anxiety would be an exception to this as they were taken from the definition used by the State-Trait Anxiety Inventory. Extraneous variables could interfere, such as the outcome of the previous game and its effect on the players’ or team’s morale. Different class and age levels across the subjects could also affect internal validity. However, were this true randomization, this would benefit external validity. The subjects were not randomly selected from the population and therefore the subject pool does not represent the population as a whole. The fact that the setting for completing the measures was not standardized could easily have affected the subjects’ anxiety levels. Due to the subjects
being drawn from Eastern Illinois University alone, external validity is not strong.

Finally, the various sports and their corresponding seasons made it difficult to account for all sports in order to generalize these findings to all sports.

Certainly, implications of this study include additional research on this area to further understand the relationship between anxiety and the use of superstition in sport. The use of more specific measures regarding competitive anxiety might help to clarify many aspects of superstition's role and prevalence in sports. Psychometric development of a ritualistic scale would also be beneficial in future research. Due to the fact that there was no pre-existing measure for researching superstition in sport, the measures used here could be questioned on their reliability and validities. Increasing the subject pool size would also be beneficial to similar studies. Utilization of other measures available and using them in conjunction with the measures used in this study would hopefully increase the internal and external validity.
References


Raglin, J.S, & Turner, P.E. “Anxiety and performance in track and field athletes: A comparison of the inverted-U hypothesis with zone of optimal function theory.”


Appendix A

You are participating in a research project concerning the superstitious and ritualistic behaviors in athletes. Previous research has shown that there is great superstitiousness involved in the realm of athletics and being a former college athlete myself, the subject superstitious behaviors in college sports is of great interest to me. This experiment is designed to investigate specific behaviors common among athletes and their relationship of those behaviors to stress.

You have been asked to fill out the following questionnaires to the best of your ability and as truthfully as you possibly can. Your help is greatly appreciated and I would be pleased to share the results with you and your teammates as soon as the data is collected and examined. Thank you again for your time and cooperation.

If, at any time during this experiment and for any reason, you feel the need to discontinue, you may do so. In this event, please turn the incomplete survey packet into the experimenter.

If you have any further questions regarding this matter, please feel free to contact me, Jodie Hood, by e-mail at cgish@pen.eiu.edu or my thesis advisor, Dr. Bill Kirk, at cfwgk@eiu.edu. You may also contact us by phone in the Psychology Department at 581-6415.

I give my consent and agree that I am aware of the basic concept of this study and any stipulations that it entails. I also agree to answer the following questionnaires thoroughly and correctly to the best of my knowledge.
Appendix B

INSTRUCTIONS: Please answer all questions as truthfully and accurately as possible. Thank you.

1. AGE:
2. SEX:
3. SPORT:
4. AGE YOU BEGAN PLAYING ORGANIZED SPORTS:
5. YEARS PLAYED IN COLLEGE:
6. YEARS LEFT TO PLAY (YEARS OF ELIGIBILITY LEFT):
7. AWARDS RECEIVED: (i.e. camp awards, team awards, end-of-season awards, broken records, special titles such as captain, co-captain, etc...)
8. HOW EFFECTIVE DO YOU PERCEIVE YOURSELF TO BE IN YOUR SPORT? 
   1. EXTREMELY EFFECTIVE
   2. VERY EFFECTIVE
   3. EFFECTIVE
   4. SOMEWHAT EFFECTIVE
   5. INEFFECTIVE
9. AMOUNT OF PLAYING TIME: 
   1. ALMOST 100% (starters)
   2. OFTEN, BUT NOT ALL OF THE TIME (subs, second string)
   3. SOMETIMES BUT NOT REGULARLY (only used when a need arises)
   4. NEVER (red shirts, ineligible, injured)
10. HOW IMPORTANT IS SUCCESS IN YOUR SPORT TO YOU? 
    1. EXTREMELY IMPORTANT
    2. VERY IMPORTANT
    3. IMPORTANT
    4. SOMEWHAT IMPORTANT
    5. UNIMPORTANT
11. **GOALS FOR THE FUTURE IN YOUR PARTICULAR SPORT:**
   1. WILL NOT CONTINUE AFTER COLLEGE
   2. WILL CONTINUE ONLY FOR LEISURE/RECREATIONAL PURPOSES
   3. WILL ATTEMPT TO PLAY IN SEMI-PROFESSIONAL ENVIRONMENT
   4. PLAN TO TRY OUT FOR PROFESSIONAL LEAGUE
   5. UNCERTAIN

   YOU MAY PREFER NOT TO ANSWER THE FOLLOWING QUESTIONS. IF YOU FEEL THAT IT IS NOT IN YOUR BEST INTEREST TO ANSWER, YOU MAY OMIT THESE.

12. **DO YOU HAVE A RELIGIOUS PERSUASION?**
    - YES
    - NO

13. **HOW OFTEN DO YOU PRACTICE THIS PERSUASION?**
    1. FREQUENTLY
    2. REGULARLY
    3. OCCASIONALLY
    4. INFREQUENTLY
Appendix C

LIST OF RITUALISTIC AND SUPERSTITIOUS BEHAVIORS

SPORT: ________________________________

Instructions: Please check any and all behaviors that apply to you in preparing for or going through an athletic event.

Pre-game:

___ Pre-game meal
___ Individual prayer
___ Team prayer
___ Checking appearance
___ Same sequence of getting dressed (i.e. left shoe on first, equipment on at certain time, etc...) or wearing the same clothing under equipment, uniform, etc...
___ Warm-up sequence
___ Team cheer
___ Success in final activity of warm-up, prior to game time (i.e. making the last basket of a drill; ending on a good pitch, throw or hit; etc...) 
___ Listening to music (i.e. same CD, song, etc...)
___ Looking for 'signs' (good/bad weather, tokens, etc...)
___ Ending warm up on a "good note"
___ Mental visualization

OTHER (explain): ________________________________

__________________________

During game:

___ Motions preceding competitive situation (i.e. same sequence of motions preceding free throw, participation in race, at-bat, etc...)
___ Team cheers (specifically, when and what is said being of importance)
___ Chewing gum
___ Being careful not to say certain things (i.e. saying "no-hitter" in the dugout of a baseball game or the discussion of a shutout, discussing possibilities of advancing to championship play before season or game is over, etc...)
___ Self-talk (positive sayings, repetitive statements, etc...)

OTHER (explain): ________________________________

__________________________
Post-game:

___ Same sequence of removing or washing equipment, uniform, etc...
___ Method of celebration or reflection on game
___ Prayer
___ Team cheer
___ Post-game meal

OTHER (explain): __________________________


Other:

___ Use of lucky charm or token
___ Lucky piece of clothing or equipment
___ Good luck marking on clothing or shoes
___ Depending on coach's superstitions
___ Body taping, whether injured or not

OTHER (explain): __________________________
Appendix D

You have participated in a research project toward completing a Master's level thesis of a Graduate Student in Clinical Psychology.

The information you were asked to provide is related to your use (or lack of use) of superstitious and/or ritualistic behavior in sports. There were three sections that you completed. One was a general information sheet to identify your gender, sport, and other related information to help with data collection. The second was a measure of superstitious behavior to observe your use of this in athletics. The final inventory you completed was a measure of anxiety that will aid in the research of relationships between anxiety and the use of superstitious behavior in the realm of athletics.

Notice that you were not asked to give your name. This is unnecessary in this research and it is to ensure that your information and responses on the questionnaires will be kept confidential throughout the study.

Thank you for your time and assistance in participating in this study. Your help is greatly appreciated. Your coach will receive a summary of the results of the information you and other participants have enabled me to collect when all of it is collected and categorized.

If you have any further questions or concerns regarding this matter, please feel free to contact me by e-mail at cgish@pen.eiu.edu or my thesis advisor, Dr. Kirk, at cfwgk@eiu.edu. You may also contact us by phone in the Psychology Department at 581-6415.
### Table 1

**MEASURES IN WHICH MEN BASEBALL PLAYERS AND WOMEN SOFTBALL PLAYERS DIFFER AT P<.05**

<table>
<thead>
<tr>
<th>Item</th>
<th>Gender</th>
<th>M (SD)</th>
<th>F</th>
<th>Df</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age Began</td>
<td>Female</td>
<td>7.78 (2.78)</td>
<td>5.64</td>
<td>1.35</td>
</tr>
<tr>
<td></td>
<td>Male</td>
<td>6.00 (1.67)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ritualistic Pre-Game</td>
<td>Female</td>
<td>6.83 (2.31)</td>
<td>13.35</td>
<td>1.35</td>
</tr>
<tr>
<td></td>
<td>Male</td>
<td>4.11 (2.23)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>During Game</td>
<td>Female</td>
<td>2.50 (1.15)</td>
<td>3.92</td>
<td>1.35</td>
</tr>
<tr>
<td></td>
<td>Male</td>
<td>1.75 (1.03)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Post-Game</td>
<td>Female</td>
<td>1.72 (2.94)</td>
<td>3.91</td>
<td>1.35</td>
</tr>
<tr>
<td></td>
<td>Male</td>
<td>0.53 (0.70)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>State Anxiety</td>
<td>Female</td>
<td>36.56 (9.39)</td>
<td>3.32</td>
<td>1.34</td>
</tr>
<tr>
<td></td>
<td>Male</td>
<td>43.06 (11.88)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>