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SUPERSTITION AND PRE-GAME ANXIETY AMONG MALE AND FEMALE SOCCER PLAYERS AT VARIOUS LEVELS OF PLAY

by
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ABSTRACT

This investigation examined the relationship between the superstition endorsement and pre-game anxiety among male and female soccer players at various levels of soccer play. The sample consisted of one hundred-and-one elite soccer players at professional, university, and under 15 year levels. A Soccer Behavior, Beliefs, and Preferences Questionnaire, developed by the investigator, and the Competitive State Anxiety Inventory-2 (Martens et al., 1990) were used to assess respectively soccer superstitions and pre-game anxiety. Pearson Correlations, ANOVAs, and t-tests were computed to test the study's hypotheses. A significant relationship was not found between superstition endorsement and pre-game anxiety for the group sampled. Superstitious practices were found to be significantly negatively related to age ($r = -.23$), teenagers being significantly higher in superstition scores than both professional and varsity groups ($H(2,98) = 6.72$, $p < .05$). Although superstition endorsement was not different between the genders at the same levels of play , both under 15 boys and girls were more superstitious than university women. Professional players exhibited significantly more state self-confidence than the teenage group ($t(66) = 2.03$, $p < .05$). The under 15 boys were significantly more cognitively anxious than the professional athletes ($T(45) = -2.52$, $p < .05$). At these levels of play, superstitious behavior was not in general related in males or females to pre-game anxiety.

RÉSUMÉ

Cette recherche a examiné la relation entre l'endossement des superstitions et l'anxiété d'avant match au niveau de joueurs des deux sexes à différentes catégories de jeu. Le groupe comprenait cent un joueurs de haut niveau, professionnels, universitaires et moins de quinze ans. Un questionnaire relié aux comportements, croyances et préférences en Football, développé par le chercheur, et l'instrument de mesure d'anxiété d'état compétitive-2 (Martens et al., 1990) furent utilisés pour mesurer respectivement les superstitions et l'anxiété d'avant match. Différentes analyses statistiques, corrélations Pearson, ANOVAS et tests t furent calculées pour vérifier les hypothèses de recherche. Aucune relation significative ne fut trouvée entre l'endossement des superstitions et l'anxiété d'avant match pour ce groupe spécifique. Les pratiques superstitieuses ont été reliées de manière significative et négative à l'âge ($r = -.23$), les adolescents étant plus superstitieux que les joueurs professionnels et universitaires ($H(2,98) = 6.72$, $p < .05$). Bien que l'endossement des superstitions ne fut pas différent entre les sexes au même niveau de jeu, les garçons et filles de moins de quinze ans étaient plus superstitieux que les athlètes féminines universitaires. Les joueurs professionnels ont démontré significativement plus de confiance en eux que le groupe des moins de quinze ans ($t(66) = 2.03$, $p < .05$). Les moins de quinze ans garçons ont démontré significativement plus d'anxiété cognitive que les athlètes professionnels ($T(45) = -2.52$, $p < .05$). A ces niveaux de jeu, les comportements superstitieux ne sont pas en général en relation avec l'anxiété d'avant match pour ces athlètes des deux sexes.

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TABLE OF CONTENTS

APPENDICES

LIST OF TABLES

LIST OF FIGURE

CHAPTER I
INTRODUCTION

In 1982 the people of six continents witnessed the biggest event held in the sportsworld. The World Cup of Soccer took place in Spain and a French paper described an anecdotal fact. The reporter defined this story as "the witch's war". A few days before the game between Peru and Cameroon, people found that witches on the two sides were using sorcery and magic to protect their national players, to allow them to have better fortune and to attain greater success (Mondial, 1982).

Many believe that success in sports, even in this era of high powered and scientific athletics, can never be reached with outstanding abilities and work alone. Other parameters are part of competitive settings, factors like chance, good fortune and sometimes supernatural beliefs (Snyder & Speitzer, 1978). The first study of superstition was published by Minot in 1887 after the annual meeting of the American Society for Physical Research. Subsequently for a number of years, superstition studies focused on social and educational factors (Emme, 1940). Malinowski (1948) studying the Trobriand Islanders stated that:

> We find magic wherever the elements of chance and accident and the emotional play between hope and fear have a wide and extensive range. We do not find magic wherever the pursuit is certain, reliable and well under control of rational methods and technological processes. Further, we find magic where the element of danger is conspicuous. We do not find magic it wherever absolute safety eliminates any elements of foreboding (p.116).

Jahoda (1969) defined superstition as follows: "It is the belief that one's fate is in hands of unknown externals powers governed by forces over which one has no control" (p. 149).

With the emergence of sport psychology in the seventies, studies began to be conducted by scientists on superstition in sport. Most of the studies were done on North-American sports like football, baseball, basket-ball or ice hockey. In identifying superstitious practices, scholars classified superstitions in sport. They categorised these practices by origin (Coffin, 1971), anthropological classification (Gmelch, 1972), by nature of the superstition (Gregory and Petrie, 1972) or by time before or during competition (Hahn, 1977; Womack, 1979). In general, the sport superstition construct embodies personal eccentricities, supernatural beliefs, taboos, fetishes, as well as rituals. Womack (1979) studied professional football and baseball players and described the rituals used by these athletes. She defined the ritual as an act which is repetitive, stylised, sequential, non-ordinary and potent. In fact she suggested that rituals are an important part of sport because they help the player focus his attention on the task at hand, and protect him from anxiety or excessive environmental stimuli, which may interrupt his concentration, such as may result from the chanting of the fans. At the same time, she suggested that the ritual act provides a means of coping with a high risk, high stress situation such as the professional athlete's environment which involves a lot of social complexity.

Other studies tried to assess gender differences or to distinguish superstitious practices among athletes in different sport settings (Gregory, 1973; Gregory & Petrie, 1972, 1975; Neil, Anderson & Sheppard, 1981; Buhrmann & Zaugg, 1981). Neil and colleagues (1975, 1980, 1981, 1982) examined hockey players' behavior and reported that many individual superstitions originate from repetition of acts associated with a previous success or avoidance of acts associated with a previous failure. They also found a greater number of superstitions among varsity ice hockey athletes than among intra-mural ice hockey players. This higher incidence

seemed to correspond with the higher level of experience and involvement of the varsity athletes.

At the present time athletes are better and better prepared. They practice a lot technically, physically, and their tactics are more elaborate. But sports psychologists studying superstitions believe that the psyche dimensions possess many unknown characteristics. It is suggested that athletes may use superstitious practices and rituals before competition because they feel they help provide partial control over the competitive environment (Neil, 1982). Some psychologists suggest that athletes sense a higher degree of confidence, and feel that they have better control of their anxiety in a kind of cathartic phenomenon, when they behave this way (Tanimomo, 1987). Sports competition naturally possess a high degree of uncertainty and superstitious acts may help athletes reduce the unpredictability of the result by controlling the situation a little more (Becker, 1975). She suggested in her study of Yale college players, that athletes are looking for reassurances for optimal function in their activities and superstitions contribute to a sort of equilibrium of the mind and the body. She said that being active in this way provides a sense of control, reducing the uncertainty of the competition and therefore produces a state of self confidence in the athlete (Becker, 1975).

Competitive settings provide intense pressure under which athletes are expected to perform at high levels. This natural sport environment has been employed to investigate a wide range of cognitions and emotions especially in the field of stress and anxiety. Refinement of the concept of anxiety involves the state and trait distinction (Spielberger, 1966, 1972). Spielberger described state anxiety as a transitory condition associated with a specific situation which may vary greatly in intensity and duration, and trait anxiety as a acquired behavior disposition, independent of time, causing an individual to perceive a wide range of objectively not very dangerous circumstances as threatening.

Patmore (1986) referred to the "Sport Experiment", which involves elite players. In this context, the skill level of the athletes is essentially controlled since there is little difference in the technical and physical ability of the athletes. Consequently, the parameter distinguishing the winner from the loser is psychological in essence, specifically the athletes' abilities to cope with anxiety. Many athletes appear to cope very well under these circumstances and some even thrive on them. For some others, however, it can be a very traumatic experience, characterised by anxiety.

In 1969, Martens initiated a research program on competitive anxiety. He suggested that the uncertainty and perceived importance of the competitive outcome are the two variables affecting a person's perception of threat and thus state anxiety. Based on the works of Liebert and Morris (1967) and Schwartz, Davidson and Goleman (1978), who demonstrated that state anxiety could be described as a multidimensional construct, comprising cognitive and somatic components, Martens, Burton, Vealey, Bump, and Smith (1990) developed the Competitive State Anxiety Inventory-2 (CSAI-2). The CSAI-2 is designed to measure three sub-constructs; cognitive anxiety, somatic anxiety and state self-confidence. This inventory has been the major measuring instrument in competitive sport state anxiety research since the mid-1980s.

Nature and Scope of the Study

In the nineteen eighties I played soccer with an African player from Senegal. This athlete always wore various fetishes on his waistband during games. One day, after inquiries and questions, he acknowledged that this belt was a superstitious outlet, protecting him from

bad luck and bad spirits. Superstitions are part of this game and are felt necessary for athletic performance. They help give the athlete a sense that he is in as much control of himself and the situation as possible. " It's impossible to have a team without superstition. It just goes hand in hand", said 1974-1975 Yale soccer captain H. Sherril (Becker, 1975, p.148).

Although numerous studies have been conducted on superstition in sport, very few have been performed on soccer. Tanimomo (1987) examined the cultural differences in superstitions before competition between soccer players from Benin and France. This investigation of magical practices among African players, and European players seems minimally relevant to the Canadian environment. Kouablan (1985) reported interesting results in the use of superstitions among Ivory Coast players, but the design, questions, and data collection methods are not compatible with soccer in North America. With the emergence of soccer in the United States, studies have begun to show that North American players, like other athletes exhibit superstitious practices (Johnson, 1979; Steffen, 1993; Eastman,1994). Johnson (1979) studied college players in their preparatory games and found that thirty-eight percent of the total behaviors recorded involved incidences of superstition, habit, and ritual. The purpose of Steffen's study (1993) was to examine the relationship between the abilities and experiences of soccer players and their endorsement of superstitions. His conclusion was:

> A coach who understands the relationship between superstitious behaviors and athletic performance can recognise and react correctly to superstition among team members. This will lead to improved understanding of the players and their emotional states, and increase communication and achievement across all levels of ability and experience (p.39).

Sports competition involves high pressure, and performance can be a stressful experience. Soccer as an open physical activity, can be characterised in its psychological aspects as debilitative for the athlete especially at a high level of competition. For many years

practitioners and researchers have suggested that anxiety impairs performance (Maynard, Smith, & Warwick-Evans, 1995a). The game of soccer provides a lot of unpredictability, and inevitably it leads to some anxiety. Some studies have investigated the sources of competitive stress among soccer players. Scanlan and Passer (1978, 1979) examined the intra-personal and situational factors related to stress experienced by 10 to 12 year old girls participating in competitive soccer. They reported that higher pre-game stress was related to high competitive trait anxiety, low self-esteem and team performance expectancies. They noted that their findings were quite similar to results with young male soccer players, and concluded that both sexes seem to share common sources of stress. Passer (1983) suggested that soccer can be stressful for young male soccer players because trait-anxious players consider fear of failure and fear of evaluation as sources of threat and anxiety. Maynard et al. (1995a) investigated competitive state anxiety in semi-professional players, and found both somatic and cognitive anxiety were exhibited during games. Rodrigo, Lusiardo and Pereira (1995) examined the relationship between anxiety and performance among Uruguayan professional players and reported results indicating a moderate relationship between cognitive worry and somatic anxiety.

For some time researchers have been interested in the possible relationship between superstition and anxiety. Soccer, as in any sport provides uncertainty, and superstitions arise in such situations in which the athlete feels a lack of control. Morris (1981), examining the behavior of English professional soccer players, reported that most superstitious practices arise in the tunnel leading to the field when the athletes feel the highest arousal and anxiety. Tanimomo (1987) and Steffen (1993) suggested that players may use superstitious acts as a form of coping strategy for anxiety. Steffen (1993) found that professional players were more superstitious before game time than recreational youth, elite youth, high school and college

players. No other studies have been found investigating the use of superstition among soccer players nor the possible influence of varying personal involvement at different levels of soccer play on superstitious behavior.

No study has been found investigating the relationship between superstition and pre-game anxiety in soccer or any other sport.

Significance of the Study

Previous investigations of sport superstitious acts have been completed. However, very little good scientific research has been conducted on athletes, especially on soccer players. The works of Kouablan (1985) and Tanimomo (1987) had good study designs, but were transcultural in nature, dealing with players from Africa. These subjects functioned in an animist culture, quite different from that in most of North America. No one has attempted to examine whether or not there is a relationship between anxiety and superstitious behavior in sport. The literature suggests that sport superstition increases with level of play and involvement, but there is not, as yet, a good deal of empirical evidence of this.

This study is the first attempt to relate superstitious practices to pre-game anxiety among soccer players at various levels of play. It should lead to better knowledge of superstition endorsement and make progress in understanding athletes' stress coping strategies. It is known that athletic performance at high levels involves pressures and uncertainty. In this era of highly skilled athletics, it is believed that the use of superstitions helps athletes handle the pressure, unpredictability and anxiety of competition. It is hoped that the results of this research will help athletes and coaches in their competitive lives and careers.

Statement of the Problem

The purpose of this study is to investigate the relationship between superstitious behaviors and pre-game anxiety among soccer players of both genders at varying levels of play.

Hypotheses

1. Superstitious behaviours will be positively related to cognitive and somatic pre-game anxiety and level of soccer play regardless of age and sex.
2. Superstitious behaviours will be negatively related to self-confidence regardless of age and sex.
3. Professional players will report more superstitious soccer behaviours than players at other levels of play.
4. Female university and under 15 girl soccer players will demonstrate greater use of superstitious practices than male players at the university and under 15 levels.
5. Professional players will demonstrate higher cognitive and somatic pre-game anxiety and self-confidence than the under 15 boy and girl soccer players.

Assumption

Each player will respond as honestly as possible to the Competitive Sport Anxiety Inventory (CSAI-2) and the Soccer Behaviour, Beliefs and Preferences Questionnaire (SBBPQ).

Delimitations

1. The CSAI-2 was chosen to measure anxiety because this instrument is adapted to competition and measures three sub-scales of anxiety, somatic A-state, cognitive A-state and self-confidence (Martens, Burton, Vealey, Bump, & Smith, 1990).
2. This study and its implications are valid for the Canadian soccer setting.

Limitations

1. As Canada does not have a professional women's soccer league, the professional sample is limited to men.
2. The number of players in each group will be limited by the number of players on a soccer team and the accessibility of such teams.
3. The experimenter was not present during the data collection of either professional soccer player group as he was for all other groups.

Operational Definitions

Superstition: " is the belief that one's fate is in the hands of unknown external powers governed by forces over which one has no control" (Jahoda, 1969). Rituals, taboos, amulets, and fetishes are considered as superstitious practices.

Anxiety State: refers to an existing or immediate emotional state characterised by apprehension and tension (Spielberger, 1966).

Cognitive A-State: characterised by " conscious awareness of unpleasant feelings about one's self or external stimuli, worry, disturbing visual images" (Morris, Davis, & Hutchings, 1981).

Somatic A-State: refers to the physiological and affective elements of the anxiety experience that develop directly from autonomic arousal, reflected in such responses as rapid heart rate, shortness of breath, clammy hands, butterflies in the stomach, and tense muscles (Martens, et al., 1990).

Self-Confidence State: transitory and situational belief of degree of certainty at one particular moment about one's ability to be successful.

CHAPTER II
REVIEW OF LITERATURE

This chapter presents an overview of the relevant studies concerning the concepts of superstition and anxiety and their respective links in the fields of psychology and sport psychology. This review as much as possible respects a chronological order, from the earliest studies to the more recent research done on these two topics. Some tentative conclusions are drawn at the end of each section.

SUPERSTITION

Evolution of studies on Superstitious Behavior

Religious and superstitional beliefs have been part of human society since the beginning of the ages. On the other hand, scientific studies of superstition have stayed in the shadow of the main psychological theories of human behavior. Minot (1887) conducted the first investigation of superstitious behavior. During the annual meeting of the American Society for Physical Research he reported, on a three item questionnaire study with 500 respondents returned, that 10% of the men and 20% of the women exhibited superstitious practices. Minot also found that superstition was present among all social classes and to some extent among students of higher education.

Unfortunately there is not much clarity about the exact meaning of superstition in psychology. Maller and Lundeen (1933) said: "A superstitious belief is one that ascribes causal relationships to phenomena and objects which bear no such relationship to one another" (p.321). Heath (1948) supplied the following definition:

> If there is a evidence for a belief, if the probabilities are calculable and of reasonable amount, then there is nothing irrational in taking a chance in believing it. But if the odds can not be estimated, or if they are grossly weighted against what is believed, then the belief is a superstition (p.40).

Jahoda (1969) defined superstition as "a belief that one's fate is in the hands of unknown external powers governed by forces over which one has no control" (p.149).

Numerous research reports were published on the psychology of superstition during the period of 1920 to 1940. These studies focused on social and educational parameters. Emme (1940) provided a short, selective review of the early literature and concluded that: females endorse more superstitions than males; belief in superstition decreases with age as well as with increased educational attainment; specific instruction reduces belief in superstition; the main sources for these beliefs are the respondent's family and friends; and that superstitious beliefs are part of the tautological relationships characteristic of unfavorable socio-economic conditions, inadequate intellectual development, absence of personal compromise, and insufficient personality adjustment.

During the succeeding years not very much work was done on superstition. Skinner's research (1948, 1953) identified behaviors related to superstitions among pigeons. A behavior pattern is called superstitious if it is maintained despite being ineffective in attaining its intended objectives. Skinner drew his conclusions by measuring a variety of responses by pigeons in experiments on instrumental learning.

Determinants of Level and Nature of Superstitious Behavior

In the field of social sciences, superstition was often associated with notions like magic, rituals, fetishes and taboos. In the same way, superstitious practices are closely related

to uncertainty and insecurity. In his work about the Trobriand Islanders the anthropologist Malinowski (1948) wrote that:

> While in the villages of the inner lagoon fishing is done in an easy and absolutely reliable manner by the method of poisoning, yielding abundant results without danger and uncertainty, there are on the shores of the open sea dangerous modes of fishing and also certain types in which the yield greatly varies according to whether shoals of fish appear beforehand or not. It is most significant that in the lagoon fishing, where man can rely completely upon his knowledge and skill, magic does not exist, while in the open-sea fishing, full of danger and uncertainty, there is extensive magical ritual to secure safety and good results. (pp. 30-31).

Oto (1963) refers to Malinowski's anxiety-ritual proposition mentioning that fishermen with equal skills, boats, place and weather will catch different amounts of fish and consequently will use a vast number of taboos and practice many forms of rituals to bring them luck. Unpredictable circumstances produce high levels of anxiety. This holds true not only for fishermen but also for people in other risky or uncertain situations and occupations, such as soldiers in combat, miners, hunters and gamblers. Poggie and Pollnac (1988) mentioned that magic, taboos, amulets, and the like may help people cope by providing them a subjective feeling of control and predictability.

In the seventies a re-emergence of interest in supernatural and occult phenomena occurred. This revival was obvious with numerous newspaper articles, books and TV programs. Following the works of Adorno, Frenkel-Brunswik, Levinson, and Sanford (1950) and Rotter (1966), sociologists and psychologists were interested in superstition in relation to locus of control. Adorno et al. (1950) defined superstition as "the belief in mystical or fantastic external determinants of the individual's fate" explaining that "superstitiousness indicates a tendency to shift responsibility from within the individual onto outside forces beyond one's control" (p.236). Rotter's formulation (1966) implies that an individual exhibits a belief in external control if reinforcement is perceived as due to fate, chance, or to events

external to himself. Jahoda (1970) found a positive relation between the internal-external variable and beliefs in supernatural phenomena among male Ghanaian students, externals being more favorably disposed to such belief content. For many psychologists it seems a scientific fact that there is a close relationship between insecurity, anxiety and superstitious behavior.

The prevalence of superstition is a common fact in our society. Under the impact of stress people often search for emotional balance through irrational belief. Gregory (1975) investigated the superstitious beliefs of 348 students of the University of Western Ontario. She found that superstitions were more prevalent than in the past, and suggested that this could be due to cultural changes and belief structures influenced by the media. Superstitions are part of a socialization process in that they can be transmitted or they can be created by individuals. People don't become less superstitious with time, but rather the nature of their beliefs change with the times.

Plug (1976), from his meta-analysis, drew some conclusions concerning the superstition construct, although he mentioned that some research findings could be questioned due to the limitations of the measurements involved. He described his conclusions on superstitious practices as follows: Specific courses of education to eradicate superstitions have enjoyed some success. Superstitions seem to be less prevalent in people of higher socio-economic status and higher intelligence. Superstitions are more prevalent in situations of emotional stress. There seems to be a correlation between superstitious acts and emotional unbalance. Superstitious beliefs seem to be more endorsed by females than males, and superstitions may be learned among friends and at home.

Neil (1982) suggested that superstition as a psychological concept needed much better understanding and research focusing on measurement and definitional problems.

Superstitions in Sport

Gregory (1975) has suggested that the origin of superstitions are related to fears encountered by persons individually and collectively and transmitted as part of experience. Maller and Lundeen (1934) had earlier put forward the idea that most irrational beliefs have been associated with human difficulties to cope with insolvable situations. Competitive settings provide a lot of uncertainty and it is not surprising to find superstitious acts in athletes' behavior. Mathewson, a college baseball player, in his 1912 book *Pitching in a Pinch* wrote: "A jinx can make a bad pitcher out of a good one and a blind batter out of a three hundred hitter". Gardiner (1925) described athletes as a superstitious class. Maller and Lundeen (1934) demonstrated that superstitions should be most present in activities which provide a higher level of chance or unpredictability. Samuelsen (1957) indicated that divers are more superstitious than other aquatic athletes, but he provided very little evidence to support his judgment.

With the emergence of sport psychology in the seventies, an interest in the analysis of superstitious practices in sports occurred. The prevalence of superstitions in sport was evident in the numerous articles and stories which were published in magazines, papers and journals. Superstitious practices were found in sports such as football, basketball, golf, boxing, harness racing, tennis, diving and bowling (Samuelsen, 1957). Superstitious acts were also associated with baseball (Daniel, 1962; Seymour, 1971; Gmelch, 1972; Womack, 1979; McCallum, 1988). Gregory and Petrie (1972) in their work found superstitions amongst curlers, volleyball and basketball players and jockeys. These behaviors are also present in ice-hockey (O'Brien, 1971; Miller, 1972; Becker, 1975; Neil, 1975, 1981 and 1982) and track and field (Lightfoot, 1984; Kleinmann, 1988). In studying the superstitions

among college athletes at Yale University, Becker (1975) reported such practices in lacrosse, soccer, track and field, football, tennis and rowing. Similarly Buhrmann and Zaugg (1981) examined the superstitious beliefs amongst college basketball players.

In identifying these superstitions in sport, researchers were interested in classifying such acts for a better understanding of the construct. Using the existing literature and relevant studies concerning the subject, some main classifications were: Categorization by origin (Coffin, 1971), anthropological classifications (Gmelch,1972; Eitzen & Sage, 1978), grouping by nature of the superstition (Gregory & Petrie, 1972; Becker, 1975; Buhrmann & Zaugg, 1981, 1982), classification by time before or during a competition (Hahn, 1977; Womack, 1979; Morris, 1981, Tanimomo, 1987).

Coffin (1971) in his classification mentioned that an athlete knows three types of superstitions: the beliefs and acts he brings from his main culture, the long-standing superstitions of his sport, and his personal superstitions or eccentricities. Many athletes have a tendency to refuse to wear the number 13, or they keep a lucky penny. These superstitions are part of the main culture, but may also be very important symbols for some players. Gregory and Petrie (1972) reported that non-athletes listed more general superstitions than athletes, while athletes were more aware of such beliefs during their sport activities.

Gmelch in his 1972 book *Magic in Professional Baseball* classified superstition behaviors in three different ways: rituals, taboos, and fetishes. McCallum (1988) described the following acts of Boston Red Sox player, W. Boggs in his preparation before a game:

> Just before infield practice: Stand or sit in runway between clubhouse and dugout and toss ball against wall, 7:17: Do wind sprints, while in on-deck circle: Arrange pine tar, weighted doughnut and resin in a precise way and apply them in that order, upon stepping into batter's box: Draw a chai, the Hebrew symbol for life.(p.206).

Durkheim (1969), from an anthropological perspective, defined ritual as a set of practices through which participants regulate their relationship to the sacred. Womack (1979) described rituals as repetitive, stylized, sequential, non ordinary and potent, and suggested that these behaviors can be regimented or exaggerated until they take on ritualistic characteristics.

Gmelch's category of taboos contains two actions in baseball which were to be avoided. They were : referring of a no-hitter when it was in progress, and placing bats where they were crossed. If a player says the word no-hitter, and if the pitcher hears it, then the team will lose its no-hitter game. In the same way, crossing baseball bats during a practice or a game will bring bad fortune to the players. Gmelch (1972) described taboos as of many kinds. They can be associated with a tradition or be more personal and can grow after exceptionally bad performances. Fetishes are standard equipment used by athletes. They include a variety of objects such as coins, bobby pins, protective cups, dolls, crucifixes, and medals. These personal mascots contain a sense of magical power for players. Hahn (1977) mentioned that these charms are part of the magical thinking which helps the athlete to perform better.

Other researchers have viewed the typology of superstition differently, grouping these practices by their nature. Gregory (1975) found that women's support for superstitions related to hair styles, uniforms, pre-game sexual activities, and team parties mirrored their concern for personal appearance and social functions characteristic of their general beliefs. Neil (1975) reported that while the majority of superstitions are individualized, certain rituals can be operated by entire teams. One of the most famous rituals occurs before the beginning of a hockey game when all the players of a team tap their goalie on the pads to wish him "good luck" (p.26). Becker (1975) categorized sport superstitions into the following:

clothing, manner of dressing, numbers, practices to prevent or cure injury, equipment care and use, practices before and during contests, omens, premonitions and beliefs about the result of a contest. She reported that the most common superstition used by Yale's University athletes was the possession of lucky charms. Speaking of the dressing aspect, some athletes have a tendency to dress in the order in which they dressed before a winning competition. They dress a certain part of the body first or put on a certain piece of equipment before others. Concerning numbers, she found, that they have a certain significance for athletes because some famous players wore them before or because a particular number evokes a particular event of their own lives. Analyzing the practices to prevent or cure injury, she mentioned that some athletes demand to be taped in a certain way to prevent a new injury or to protect them against an old one (Becker, 1975). Equipment care and use give rise to numerous superstitions. Some players need to play with their sports equipment in perfect condition in order to perform efficiently. They have to use their own equipment, such as bats, hockey and lacrosse sticks. Breaking their favorite sports implement is a bad omen for many athletes. Neil (1980) reported that Gordie Howe, one of most famous hockey players of all time, borrowed a hockey stick of one of his teammates who was on a scoring streak.

Among the practices before and during games, Becker (1975) reported an athlete not shaving until the next contest because he had performed well at the previous one. Concerning omens, premonitions and beliefs, Becker described them as sentences or aphorisms about the conditions evoking wins or losses.

Buhrmann and Zaugg (1981, 1982) examined the use of superstitions among basketball players in southern Alberta. Their Likert-type questions on superstitious beliefs and behavior were divided into seven categories: team ritual, game, pre-game, prayer, coach, clothing and appearance, and fetishes.

Sport superstitions were also categorized by time: before or during a competition. Womack (1979) in her work on rituals in professional athletes classified these acts as follows: preparatory rites, and rites of protection. Preparatory rites are rituals which occur before the competition. Womack categorized them as day-of-the-game rituals, pre-game rituals, and activity-specific rituals. They are supposed to influence the outcome of a scheduled event. Concerning the rites of protection, Womack (1979) wrote that they are different than the others in the way that they are directed toward undefined and uncontrollable events or situations. They also are specific to the game. Gmelch (1978) supported Malinowski's theory saying that these rituals are used in risky situations. In this case he identified pitchers and hitters as more superstitious than fielders, pitchers being the most superstitious.

All these different categorizations provide examples of the use of superstitions in sport, but what are the reasons or the explanations of such behavior in the competitive setting?

Superstitions are believed to be closely related to fears existing in the sport event. Athletes know that there are a host of factors over which they have no control. They feel a fear of the unexplained, unpredictable and destructive forces of man's environment. Zimmer (1984) wrote that superstitious behavior is usually based on uncertainty and that it is associated with coping strategies to handle anxiety. It also helps the athlete to reduce the tension and fear of failure and gives him a sense of confidence (Wrigley, 1970). Becker (1975) reported that confidence, together with training and physical conditioning, is crucial to top athletic performance. It is important that the athlete feel he is in as much control of himself and the situation as possible. She suggested that superstitious beliefs provide the means for this control. Before the competition, the athlete is all alone and the superstitious

act protects him and gives him the reassurance he needs to compete. Martine Rottier, a French judo athlete said she was more confident when she wore her fight kimono during practices and when she was competing in Germany (Lahmy, 1985). Turos (1977) explained the presence of mascots by the fact that they help the athlete to cope with stress and reach an emotional balance before and during the competition. In the fact that the athlete can see and touch this symbolic object, he or she feels more secure and may believe in their ability to be successful. He also suggested that fetishes can be seen not so much as personal eccentricities as a psychotherapeutic means. Hahn (1977) in his work on magical thinking drew the following conclusions concerning sport superstition's use: Superstition is used as a defense mechanism, as a security mechanism, as a factor of motivation, and can be seen as a cathartic mechanism. Burn (1975) examined the use of fetishes among German athletes during the 1972 Olympic games in Munich and found that 57% had at least one, 72% of the women wore them and 16% had mascots.

Neil (1981) reported that magic may also be a "rationalizing mechanism" for defeat. In this case a loss or a bad performance can be due to a ritual that was ignored or not well performed. Lack of success may be attributed to misfortune or the unknowing omission of some "seemingly irrelevant act".

Athletes, like other individuals, tend to use superstitious practices in risky situations. These practices provide them a better sense of control and confidence. Thus researches have reported various forms such as fetishes, taboos and mascots. The aim of these objects and omens is to help the athlete to perform better and protect them from dangers in the competitive setting.

Superstitions and Age

In an early study by Conklin (1919), a group of 557 students, aged between 16 and 25 years, were asked to list the superstitions in which they believed, or which they thought had an influence on their conduct. These findings seemed to indicate a decline in superstition with age, and further analysis showed that the beliefs were characteristic of the group as a whole and not of a particular age. Conklin finally reported that the age between 12 and 16 years is critical concerning the acquisition of superstitions. Garret and Fisher (1926), after comparing their results with those of Nixon (1925), concluded that high school students were more superstitious than adults. Wagner (1928) examining the responses of 168 subjects noticed a decrease in superstition scores with age which could have been caused by the fact that the subjects did not want to speak voluntarily about these practices. Maller and Lundeen (1933) compared the number of superstitions which were endorsed by junior and senior high school boys. They found a negative correlation between age and superstition scores. Thowsless and Brown (1964), analyzing the superstitions of 181 Australian secondary school girls aged 12 to 17 years, also reported a decline of superstitions with age. Plug (1976) has suggested that adolescents and young adults show a decrease in superstitious beliefs with age although the decline can be different according to the sort of belief. This decline can be parallel and be explained by further education. On the other hand a study by Ramamurti and Jamuna (1987) on superstitious beliefs across the age span of 20 to 70 years found an increase in superstitions among the older age groups. The results showed that elderly persons endorsed more superstitious behaviors than younger individuals. Burn (1975) found that athletes with mascots decreased with age. Gregory (1975) found that the main period of acquisition of superstitious practices in sports was between 9 and 13 years, and that parents,

peers and the media played important roles in the transmission of these beliefs. Hahn (1977) reported that magical thinking was more common among young athletes than older ones.

Research concerning superstition and age show some controversy due to the fact that some psychologists suggested that superstitious behavior decreases with age and others indicate a higher superstitiousness related to increasing age.

Superstitions and Gender

Like Conklin (1919), many believed that women were more inclined to report on their superstitious beliefs than were men. Studies about superstitions in general support this conclusion (Garret & Fisher, 1926; Nixon 1925; Wagner 1928; Lundeen & Caldwell 1930; Maller & Lundeen 1933; Salter & Routledge, 1971).

Scheidt (1973) assessing introductory psychology students at the University of Nebraska-Lincoln on superstitions in relation to locus of control found that females contributed more to the internal-external group differences than did males. Blum et al. (1974) studying groups of professional people from New York, using a "Do's and Don't" superstition questionnaire, found a statistical difference between the women and the men in their total scores of superstition.

Gregory (1973, 1975) conducted a study of superstitions of Canadian intercollegiate athletes and made comparisons among athletes in various activities. Her findings showed that female college students endorsed more superstitions than did males. In contrast with Conklin's much earlier results, she found women to be aware of many superstitions in sport. She explained this change as due to an increase in mass media exposure to sport and to the increase of women's participation in sport. Gregory also found, comparing females and males in different sports, that the greatest similarity between the sexes in sport superstitions

occurred among intercollegiate ice hockey players. Neil et al. (1981) reported more superstitions in ice hockey among the male players than among female players at both the intercollegiate and intramural playing levels, but attributed this more to their respective involvements in sport than simply to gender differences.

Hahn (1977) reported a strong endorsement for fetishes and amulets by female athletes. Superstitions are closely related to sport practices among men (equipment, bib numbers, repetitive rituals). Buhrmann et al. (1982), identifying the different kinds of superstitious beliefs and practices among male and female basketball players of various ages and athletic involvement, found that females were more likely than males to subscribe to superstitions. Buhrmann et al. found that superstitions of females were more frequently concentrated in concerns regarding clothing and appearance. Similar to Gregory's (1972) findings, these differences tended to be related to female social functions.

In summary, women tend to subscribe more to superstitious practices than do men. Superstitions are used differently by men and women, men regarding superstition more as a matter of equipment and involvement, whereas women subscribed more to acts related to social and personal factors.

Superstitions in Soccer

Soccer, or what is known in many places as football, holds a position of considerable importance in the world community. It is the most widespread of modern ball games. As already discussed, very few researchers have examined superstition in soccer although it is one of the oldest sports in the world. Morris (1981) reported games similar to soccer in the Greek and Roman times. Primitive cultures rarely had a word for sport in our sense, but activities of that nature were frequently related to rituals concerning fertility ceremonies

(Guttmann, 1985). Most of these sports were religious or simply rituals. One of the most studied games was the Mayan-Aztec court ball game in Mexico. Behind this game was the myth of twin brothers who left their mother to challenge the gods of the underworld in a game of football. They lost and paid the mythical price for defeat : death. The heads of the two brothers rose to the heaven and became the sun and the moon. Many ritual games represent the duality of the sun and the moon which constitute an important facet of *La Pensée Sauvage* for many anthropologists like Levi-Strauss (1962).

A second example of cult practice in soccer is drawn from soccer players of Durban in South Africa. These players are members of a transitional culture between tribal and modern social organization. Scotch (1961) reported that there is a pre-season and a post season sacrifice of a goat. He wrote of their pre-game ritual:

> All the football teams have their own inyangas (witchs) who doctors them all for each match. The night before the match the players, coaches and dedicated supporters must camp together around a fire. They all sleep together, they must stay naked and they are given umuthi and other medicines by the inyanga. Incisions are made on their knees, elbows, and joints. In the morning they are made to vomit. They all must go together on the same bus to the match, and they must enter the playing ground together. Almost every team I know has a inyanga and does this, it is necessary to win. (p.72).

Numerous examples of superstition show its universality in soccer. In South America, Leonidas, a famous Brazilian player competing for the national team, was known to practice Macumba sessions, categorized as magical and transcendental, before competition, and he always wore an amulet, known as a "Figa" during games (De Ryswick, 1962). Odjo (1984) reported that Brazilian teams, where the pagan rituals were brought by the African slaves, have a "Pai Santos" similar to a witch doctor. Santana, from the Vasco de Gama soccer club, known to be both a trainer and a Macumba sorcerer, uses prayer and animal sacrifices. When the team plays a critical game, Santana goes into the dressing room early for an inspection,

lights up candles in strategic places and chants magical invocations. Finally he inspects the tunnel leading to the pitch and the goals for toads. Odjo also reported that Uruguayan players during a qualifying game for the 1982 World Cup against Peru, were told by their coach, Roque Maspoli, to throw garlic cloves with pins on the field. In the Caribbean, witches use voodoo, a animist rite which confers a soul to every natural phenomenon to provide good fortune to the team. Players use the help of witches or exorcists (Odjo, 1984).

African society is based on polytheist religions and animist cultures, so African clubs and players do not hesitate to use witch doctors. Tanzania's president, Julius Nyrere, told his players to abandon the doctors and to focus on the ball game (Stratte-McClure, 1974). Stratte McClure reported that the most popular team doctor was Kenyan, Shariff Omar Abubakar, who relies on holy books, prayers and dreams to achieve his results. Before a decisive match he fasts, abstains from sex and intones chants. Asking for a lot of incentives, he says he can guarantee the issue of the soccer game. He insists: "I can make the ball fall short of the goal no matter how hard it's kicked or make it travel the length of the field like a rocket" (p.57). In the Ivory Coast and Senegal, where mysticism is common, superstition is an important part of soccer life. Team managers require the presence of witch doctor for critical games. They are supposed to hold magical powers like neutralizing or exhausting the opponents. Players are victims of the practices, if playing without their fetishes or amulets, they feel they will lose their physical abilities and talents (Atta, 1983). Odjo (1984) reported that players need their "Djigbo" or "Gbass" to be able to perform during a soccer competition. These amulets are offered by the witch doctors, who are paid well by sport administrators or politicians because soccer has political connotations or implications. In 1983 in Lagos, Nigeria, a game between the Stationary Stores and the Abidjan ASEC was interrupted because fans invaded the field when they realized that the opposing goalkeeper, who was

unbeatable, had an amulet in his goal. Kouablan (1985), in his study among players from the Ivory Coast, described the fetish as a psychological assurance as it helped the players to be more confident.

In the Far East researchers also mention superstitious behavior in soccer. During the 1978 World Cup, Iranian players associated their success to their god. They entered the pitch running under a Koran held by the trainer. (Odjo, 1984).

European players use superstitious behavior, but these practices are more related to personal rituals or habits. Tanimomo (1987) found a difference in the superstitious practices among players from France and Benin. Examining 42 French players and 40 players from Benin, he found that African players were more aware of psychological preparation than French players. It seemed due to the fact that they were afraid of the magical powers used by team doctors. He also found that African players had a tendency to act collectively concerning superstitious practices, whereas French players acted more individually. Le Blé (1995) described the superstitious practices of professional French players. He interviewed more than 50 players and supported the findings of Tanimomo concerning the individual practices. His different categorizations of practices were related to: clothing, equipment, pre-game rituals, fetishes, coaches and trainers, personal preferences.

Because they are involved in a risky occupation, soccer players are highly superstitious (injuries, coaching decisions, weather changes, chance, ball bounces). Facing these different fears they look for reassurances and, therefore, for any kind of supernatural aid (Morris, 1981). Morris, examining professional English players, wrote: "They know that no amount of coaching, training, skill or fitness will protect them completely from these hazards" (p.150). He categorized soccer superstitious practices in chronological order as follows: before match day, match day morning, on way to match, dressing room, tunnel,

pitch. He also reported that 40% of the superstitious practices occurred in the dressing room and that the most critical moment was on the way to the field through the tunnel. His findings supported those of Tanimomo (1987) and Le Blé (1995) in the sense that European players act individually. Morris (1981) reported one personal case: "He insists that his wife must accompany him, not for sexual reasons, but because he has always had bad luck when she is away from him. He is outraged, when, on a long foreign trip, this request is refused, and his game suffers for it" (p.151).

Surprisingly soccer has not been a very popular sport in North America until recent years. Very little research has tried to relate superstitious practices to soccer. Related research has only been found examining college and professional players' preparation for games. Johnson (1989) studied American college players and found a thirty eight percent incidence of superstition and rituals. These varied from religious gestures, to equipment, music, and exercises. The purpose of Steffen's study (1993) was to determine if there was a relationship between the abilities and experiences of soccer players and the amount of superstition observed in these players. He listed the behaviors of 18 recreational youth players, 16 elite youth players, 25 high school players, 20 college players, and 16 professional players. Steffen considered a player as superstitious if he exhibited at least one identifiable superstitious act. He found that the number of superstitions endorsed by the players increased with ability and experience. Consequently the professional players were more superstitious than the others. Eighty-one percent of individual acts were related to superstitions for professional players, 30 % among college players, 28 % among high school players, 25 % among elite youth, 16.7 % among for recreational players. His findings supported those of Gregory (1972) and Neil (1981,1982), in that professional players were

more subjected to the sub-culture of their sport, so that the number of superstitions endorsed increased with the level of involvement and experience.

Eastman (1994) considered that superstitions were part of the game. She suggested that they can have a negative effect on the faithful player if not followed. Eastman reported "Rather than providing athletes with greater skills or luck, pre-game rituals often just enhance concentration and mental focus for players" (p.44).

Soccer is played all over the world, and some of the various soccer superstitions are endorsed by its players on the six continents. These practices can be individual or collective depending upon the type of society in which they occur, but they seem to have the same role and importance, such as giving a better sense of control by the individual and thus providing confidence before and during performance. Because of the relatively recent emergence of soccer in North America, very little work has been done on the topic in this setting. It seems that further research could help in developing a better understanding of this particular behavior.

Superstitions Overview

Superstitions have been a part of our cultural heritage. Their origins can be traced to fears encountered by persons individually or collectively. They find their roots in primitive religious rites (Maller & Lundeen, 1934). Superstitions are understood to be closely related to uncertain and stressful situations, providing people a subjective feeling of control (Poggie & Pollnac, 1988).

Today numerous articles or reports in periodicals show the prevalence of superstitions in various sports such as baseball, football, ice-hockey, basketball, tennis, track and field, boxing, wrestling and soccer. Superstitious practices are related mainly to pre-

game and game rituals, clothing, appearance, fetishes and sometimes magical and occult practices (Buhrmann & al., 1982). Superstitions seem to be related to sport involvement, experience, and reinforcement (Gmelch, 1972; Neil, 1975). It also seems that some differences appear in superstitious practices related to age and gender.

Like so many athletes, soccer players are said to use superstition because it gives them a sense of partial control over the outcome of the game and causes them to experience less anxiety than if they did nothing (Tanimomo, 1987).

ANXIETY

In every day life a distinction is made between so-called negative emotions such as anger, anxiety and jealousy, and positive emotions such as happiness, pride and love. Every one has experienced anxiety. However, this concept seems very difficult to describe. The effects of anxiety on athletic performance are among the major concerns of sport psychologists. An important part of sport psychology research on anxiety has been involved in finding an operational definition and developing instruments to assess anxiety.

Theoretical Approaches

Anxiety was a main concept in Freud's early work on the elaboration of psychoanalytic theory. In his theory, Freud (1952) characterized anxiety as a dynamic concept. In Mowrer's (1960) learning theory approach, anxiety is acquired and maintained by means of two successive principles of learning. These are: the normal conditioning of the anxiety reaction, and by subsequent instrumental reinforcement of the motor reaction of avoidance.

Cognitive researchers described anxiety as an emotion triggered by a person's communicative relationship with the environment. Anxiety is the result of certain expectations (Epstein, 1972, 1976). The control of anxiety is related to cognitive processes involving decision making which leads to actions to control the anxiety by escaping or modifying the context.

Psychologists have referred to anxiety according to various theories. They distinguished anxiety based upon psychoanalytic, learning, and cognitive approaches, demonstrating the complexity of this construct.

Differentiation Among Anxiety, Emotion, Fear and Stress

From a general, as well as from a scientific perspective, anxiety is described as a fundamental emotion (Plutchick, 1962; Izard, 1977). In the same way the differentiation between anxiety and fear can be seen from two perspectives. It was identified in psychological theories (Catell & Scheier, 1961; Freud, 1952) and from phenomenological analyses attempting to distinguish physiological patterns in psychological experiments (Hackfort & Schenkmegzger, 1985). Catell and Scheier (1961) indicate that the degree of recognizability is an important factor in the distinction between anxiety and fear. They consider uncertainty as the main characteristic of anxiety. Plutchick (1962) identified fear as an unconditioned reaction with a self protective function and anxiety as a product of the learning process. Fear will be stimuli specific, whereas anxiety is caused by anticipatory and imaginative processes.

Some evolutionary theoreticians describe fear as a specific defense and protective reaction in both animals and humans (Costello, 1976). In contrast, anxiety is characterized as a complex emotional state related to the development of higher nervous system functions. In

this sense Pongratz (1973) conceptualized fear as biological, protective, adaptive mechanism. In contrast anxiety is related to learning and the socialization processes.

Stress has historically been one of the most ambiguous psychological constructs in the behavioral sciences. McGrath (1970) defined stress as an imbalance between the perceived environmental demand and perceived response capability of the organism. Selye (1956) based his physiological stress theory on the concept that the human organism can be seen as a system following the homeostatic principle. In this view, if our equilibrium is disturbed, our system through a self regulation process readjusts. This self regulation can be seen as a feed-back control system.

In the psychological field, the distinction between anxiety and stress is not clear. Levitt (1979) proposed the following meaning for stress : "a combination of stimuli or a situation which comprises the circumstances a person subjectively experiences as threatening and which can cause anxiety" (p. 148). These stimuli are called stressor agents and according to Janke (1976) may be categorized as follows : External stressors, stimuli leading to deprivation of the primary needs, stressors of performance, social stressors, and other stressors.

Spielberger (1972) defined stress as closely related to state and trait anxiety. He used the term stress somewhat differently to describe a stimulus event in an overall process that he termed state anxiety. In his model a certain level of stress is perceived to involve a certain level of danger or threat providing a state of anxiety reaction of measurable intensity. Thus Spielberger's model is limited to " denoting environmental conditions or circumstances that are characterized by some degree of objective physical or psychological danger" (p.448). According to Spielberger the connection between stress and anxiety can be represented as follows:

STRESS ⇒ THREAT ⇒ STATE ANXIETY

(objective stimulus) (subjective stimulus) (response)

Figure 1: Spielberger's Model of State Anxiety.

Catell and Scheier (1961) and Spielberger (1966, 1972) distinguished trait anxiety and state anxiety. Trait anxiety is described as an acquired behavior disposition, independent of time, causing an individual to perceive a wide range of objectively not very dangerous circumstances as threatening. State anxiety reactions can be defined as subjective, consciously perceived feelings of inadequacy and tension accompanied by an increased arousal in the autonomic nervous system.

In the past, scholars have suggested that fear, stress, and anxiety have to be differentiated. Anxiety can be seen as closely related to the socialization processes. Spielberger's model tried to connect stress and anxiety. Furthermore he developed a theory defining trait anxiety as a constant behavior and state anxiety as an immediate emotional state.

Anxiety Measurements in Sport

Competitive settings especially at a high skill level are characterized by an intense pressure under which athletes are expected to perform effectively. Thus, the competitive sport environment provides an ideal situation in which to study human behavior and constructs such as anxiety. One of the early approaches was to adopt Spielberger's State-

Trait paradigm (1966) and his corresponding inventory (STAI; Spielberger, 1966; Gorsuch & Lushene, 1970) to assess anxiety in sports.

Martens (1977) was the first to develop his own state-trait approach related to anxiety in the competitive sport's field. He theorized that during early competitive experiences, athletes develop tendencies to react with certain amounts of anxiety in competitive settings. Consequently, in 1977 he developed the Sport Competitive Anxiety Test (SCAT) which assessed trait anxiety in sport related situations. This instrument demonstrated impressive properties in both laboratory and field studies. However, it became obvious to some researchers that a sport-specific state anxiety scale was also required. Martens, Burton, Rivkin, and Simon (1980) developed the Competitive State Anxiety Inventory (CSAI). Subsequent studies by Scanlan and Leuthwaite (1984) found a significant relationship between trait and state anxiety in competitive situations.

Thus sport psychologists distinguished trait and state anxiety and, therefore, developed inventories to assess anxiety for a better understanding of this construct in competitive situations.

Anxiety as a Multidimensional Construct

Liebert and Morris (1967) and Davidson and Shwartz (1976) demonstrated that anxiety can be seen and divided as a multidimensional construct, comprising cognitive and somatic factors. Further studies provided supportive evidence of the multidimensionality of anxiety (Barett, 1972; Morris, Davis & Hutchings, 1981; Morris, Harris & Rovins, 1981; Morris & Liebert, 1973; Schwartz, Davidson & Goleman, 1978). Consequently multidimensional scales were developed such as the Worry-Emotionality Inventory (Morris et al., 1981) and the Cognitive Somatic Anxiety Questionnaire (Schwartz et al., 1978).

Following the same way of thinking Martens, Burton, Vealey, Bump and Smith (1990) developed the Competitive Sport Anxiety Inventory-2 (CSAI-2) which was designed to assess cognitive and somatic anxiety separately. During the validation of this multidimensional instrument, they reported the existence of a third component described as self-confidence. Since the mid nineteen eighties the CSAI-2 has been used extensively by sport psychologists in studies of anxiety in competitive situations. The work of Martens and his colleagues advanced the knowledge of competitive anxiety and its relationship to performance.

Past studies demonstrated that anxiety can be seen as a multidimensional construct. Earlier work and different assessments of anxiety have lead to the development of the CSAI-2 (Martens et al., 1990) which distinguished three anxiety sub-scales.

Anxiety in Sport

There has been concern about arousal and anxiety in sport since at least 1932, Coleman Griffith, the father of North American sport psychology, referred to the arousal performance relationship when he discussed the advisability of "keying up teams" and identifying strategies for dealing with athlete's "anxiety and fright states" (Horn, 1992). Studies of anxiety have most frequently focused in two main directions; the influence of anxiety levels on motor and athletic performance, and techniques to cope with anxiety in competitive situations (Vealey, 1988). Many inter-, intra-personal, social, and situational factors are now considered to be antecedents of anxiety.

Studies by Fenz (1975), Scanlan (1975, 1978), Mahoney and Avener (1977), Meyers, Cooke, Cullen, and Liles (1979), Wandzilak, Potter and Lorentzen (1982), Cook, Gansneder, Rotella, Malone, Bunker and Owens (1983), Gould, Horn, and Spreeman (1983), Highlen

and Benett (1983), Martens et al. (1990) have examined anxiety in various sports such as parachuting, gymnastics, racquetball, wrestling, golf, volleyball and soccer among athletes at various levels of skill and age. The results revealed that the anxiety levels of the highly skilled and less skilled participants differed, in that successful athletes demonstrated lower levels of anxiety before and during competition than their counterparts. On the other hand, Mahoney et al. (1977), and Meyers and colleagues (1979) reported that more skilled athletes exhibited higher levels of anxiety than did the other competitors as the time of competition approached. State anxiety was found to increase as the event came closer in time. Past success and failure were strong predictors of state anxiety before the competition among young athletes. Some other antecedents are also strong sources of anxiety such as uncertainty and importance of the outcome (Martens et al., 1990).

Many researchers have sought to identify the factors leading to anxiety and to help athletes to cope with these sources. Numerous studies have been conducted and techniques developed to help athletes control their anxiety levels. Lazarus and Folkman (1984) defined coping as "constantly changing cognitive and behavioral effects to manage specific external and/or internal demands that are appraised as taxing or exceeding the resources of the person" (p.141). Coping strategies such as biofeedback training (DeWitt, 1980), autogenic training, meditation techniques (Layman, 1978), and mental imagery (Suinn, 1983, 1985) are some of these techniques taught to athletes to cope with anxiety. Millhouse (1981) examined the effectiveness of two cognitive behavioral techniques concerning the reduction of anxiety to facilitate performance among volleyball players. Millhouse's findings revealed that both cognitive treatment groups reduced competitive trait anxiety compared to the control group. On the other hand, other writers such as Buhrmann et al. (1981,1982) and Neil (1981, 1982)

suggested that athletes' superstitious practices can be seen as a natural and efficient means of dealing with sources of anxiety.

Inter- and intra-personal, and situational factors are common antecedents of anxiety in sports. Athletes with different skills and age react differently to anxiety in competitive settings. However, natural or taught intervention techniques have a real influence on the treatment of anxiety, and researchers, athletes and coaches are aware of their positive effects on performance during competition.

Anxiety and Gender

Previous research by Wark and Wittig (1979) and Wittig (1984) with college students indicated that, in general, females exhibit more competitive anxiety than males. Even if the women's participation increased in sports, this difference in competitive anxiety could be explained by the socialization process, due to the fact that female participation and enjoyment could be limited by social norms. Other studies have shown that gender differences in competitive sport anxiety can be explained by personality factors and gender role endorsements. Wittig, Duncan and Schurr (1987) reported finding that the greater perceived physical self-efficacy of males endorsing a masculine role is a factor contributing to the explanation of their significantly lower levels of sport competitive anxiety. Both females in general, and males endorsing a feminine role are less satisfied with their physical self-efficacy and show higher levels of sport competition anxiety.

The way men and women cope with stress in sport and physical activity seems to be similar. There are few studies of how males and females cope with competitive stress. Madden, Summers and Brown (1990) found some evidence that female cross-country runners use more emotional responses in reaction to injury than their male counterparts. Studies from

community populations have shown that women are more likely to seek social support and to use emotional strategies than are men (Stone & Neale, 1984; Carver, Scheier & Weintraub, 1989).

Anxiety in Soccer

Studies examining anxiety in soccer have investigated the same patterns as most of the studies concerning the construct of anxiety in sport. Firstly, sport psychologists and soccer experts were interested in identifying factors related to anxiety. Secondly, they focused on studying and using efficient coping strategies to help soccer players deal with this particular competitive factor.

There has been a major concern about anxiety in youth soccer. Participation in a competitive sport is important for youth, but can be perceived as threatening to those who feel incompetent to successfully meet the demands of competition, and as consequence, risk failure and/or negative social appraisal. Researchers like Scanlan (1975, 1978), Scanlan and Passer (1978, 1979), Passer (1983), and Leuthwaite (1990) were interested in investigating sources of anxiety among young male and female soccer players. They reported that self-esteem, basal trait anxiety, and expectancies of self and team performance outcomes were significantly related to stress when anticipating competition. Young athletes worried more frequently about poor performance and incurring negative evaluations by others. Fear of failure and negative evaluation represent significant sources of threat and lead to state anxiety.

Sports psychologists were also interested in anxiety among older and more skillful players. Supporting Landers (1980), Davids and Sanderson (1988) mentioned:

> In the sport of soccer there is an apparent paradox in that the performer typically requires high levels of arousal to cope with the substantial element of physical contact and yet there is a danger that this may be superceded by anxiety which may eventually impair perceptual awareness, speed and flexibility of decision making and the precision of movement coordination (p. 77).

Because of the pressures experienced by present-day national and international soccer players, anxiety has become widely recognized as exercising a major influence on performance (Nadori, 1988). The athlete is exposed to many potential stressors, some having their origin in the environment and others being internally produced. Nadori (1988), studying Hungarian international players, suggested a number of variables leading to anxiety prior to or during the game: Climatic factors such as air-temperature, humidity, wind direction, snow, circadian rhythms, influence of jet lag, potential stressors related to the playing surface, the visual impression of the stadium, decisions and attitude of game officials, stressors related to opponent's behavior and skills, and inter-personal relations with coaches, teammates or opponents, friends, family.

Man, Stuchlikova, and Kindlmann (1995) examined the hypothesis that soccer players high in competitive trait anxiety have a greater tendency to perceive an ego-involving situation as threatening, and are expected to respond to this situation with elevated state anxiety. They administered the Competitive Sport Anxiety Inventory-2 (CSAI-2) to 44 top level male Czech soccer players (aged 18 to 30 years old). They found a significant person-situation interaction only in self-confidence. The lack of significant person situation interactions in somatic or cognitive state anxiety scores can be due to the fact that soccer players play important games regularly and become desensitized to precompetitive anxiety responses.

While soccer involves potential stressors leading to anxiety, there are several methods, which when used consistently, are fairly efficient in promoting improved performance. Sports psychologists have been interested in examining coping strategies to deal with anxiety in soccer. Crevoisier (1993) suggested various psychotherapeutic methods used with French professional soccer players such as: management of the environment, management of somatic stress using progressive relaxation, management of cognitive stress, and stress inoculation. The aim of the studies of Maynard, Hemmings, and Warwick-Evans (1995b) was to evaluate the effect of a somatic intervention technique, Positive Thought Control (PTC). Using the CSAI-2 (Martens et al., 1990), Maynard et al. (1995a) assessed 17 English male semi-professional players on both intensity and direction (debilitative-facilitative) of state anxiety before and during a game. Their findings revealed significant interactions for cognitive anxiety intensity, somatic anxiety intensity, and somatic anxiety direction. Maynard et al. (1995b) tried to duplicate their prior results with 24 other male soccer players. Their findings showed significant group by event interactions for both cognitive and somatic anxiety, intensity and direction. The studies of Maynard et al. demonstrated that a stress management course is effective in reducing anxiety during performance. Studies have demonstrated that soccer can be stressful for young and older skilled players. Unfortunately no studies have been conducted on older female soccer players. Research identified stressors related to competitive soccer such as situational, inter-personal and intra-personal factors. Sport psychologists have developed and taught athletes strategies to cope with competitive anxiety and hence to improve performance.

Anxiety Overview

Every one in his own life feels emotions due to stressful situations. In the past, psychologists considered anxiety or stress as a fundamental emotion. Numerous theories, such as the psycho-analytic, learning theory, and cognitive approaches have tried to explain and describe this construct. Sport psychologists have also tried to define and achieve a better understanding of anxiety. They reached a consensus in suggesting that anxiety can be seen as a multidimensional construct. Everyone agrees that anxiety may have an influence on motor and athletic performance (Gould & Krane, 1992). Athletes and coaches use specific strategies to reduce anxiety and stress. These coping strategies are helpful to the athlete before and during competition, because they provide better control of the self in competitive events such as soccer.

ANXIETY and SUPERSTITION

Social scientists have frequently mentioned that superstitious behaviors occur during extremely stressful situations. Maller and Lundeen (1933) expressed their opinion on this subject saying: "The most prevalent irrational beliefs are the results of human helplessness in the face of insurmountable difficulties, irreconcilable realities, the fear of impending catastrophies and the dread of unknown perils" (p.593). Superstitions are closely related to psychological stress and emotional adjustment. Skawran (1937) suggested that they are more prevalent in a few specific classes of people participating in dangerous occupations, such as soldiering, sailing, flying, racing. Blum and Blum (1974) mentioned that there is a close relationship between anxiety and insecurity. The individual interprets the reality and accords his behavior to the affected emotions and past experiences. Many believe that our society is

characterized by anxiety and we try to remove it using irrational beliefs and practices. Van Ginkel (1990), referring to Malinowski's proposition of anxiety-ritual, asserted that unpredictable circumstances produce high levels of anxiety. In his study on magic, taboos, amulets, and ominous animals among North Atlantic deep-sea fishermen, he suggested that objects or beliefs "may help people cope by providing them with a subjective feeling of control and predictability" (p.73).

Sport competition settings provide such anxiety. Athletes are submitted to high levels of pressure and expectations by managers, fans, and the mass media. They are seeking reassurances and methods to cope with personal and environmental stress and anxiety. Sport psychologists provide numerous coping strategies, however, competitors also believe and use supernatural beliefs. Superstitions are part of modern sport.

Becker (1975) pointed out that athletes used superstitious practices to overcome mental and physical difficulties, and feel "a partial control over the outcome of events and cause them to experience less anxiety than they would if they did nothing" (p.148). Turos (1977) examined the use and the role of mascots among athletes in closed sport activities, such as ice-skating, gymnastics, and diving. These activities provide high levels of anxiety because of numerous external and subjective factors such as the complexity of movements required, marking subjectivity of scoring, and the level of risk in routines and performances. The athletes' mascots can be seen as a psychological help to deal with and master their anxiety before and during competition, because they provide the competitor a sense of security and a feeling of mastery of the activity.

Womack (1979) examined North American professional athletes and suggested that rituals are important in sports in the following ways: preventing anxiety or excessive environmental stimuli, and providing a means of coping with high-risk, high stress situations.

Neil (1982) reported that "superstition appears to be a natural psychological mechanism helping the athlete to cope with the stress of the competitive situation and perform at his best under pressure" (p.121).

Soccer like any sport provides this sort of uncertainty and stress, and superstition, as Steffen (1993) suggested, may be seen as a form of anxiety release. Morris (1981), discussing the use of superstitions among English soccer players, and the high level of uncertainty and chance related to this sport concluded: "For this reason, superstition will always be commonplace in the high-risk occupation sport, as it was in primitive human tribes where the whole way of life was fraught with risks and dangers and where magical thinking was born" (p.154).

CHAPTER III
METHODS AND PROCEDURES

The purpose of this study was to examine the use of superstitions in relation to pre-game anxiety amongst soccer players of varying levels, ages and of both genders. The methodology used in this research is described under the following headings: Subjects, Instrumentation, Programme and Procedures, Treatment of Data, and Statistical Design.

Subjects

All of the subjects of this study were members of the Canadian Soccer Association through their respective teams or programs. The professional players were from the Canadian National team as they prepared for the next World Cup qualifications and/or members of the Montreal Impact team. The university players were the athletes of McGill University men's and women's varsity soccer program. A third group were the under 15 boys and girls competing in the Quebec Soccer Federation's provincial elite program.

The objective of using three somewhat diverse groups by age, ability and gender, all relatively highly involved and at the upper levels of skill in their age categories, was to see if the same relationship exists between pre-game anxiety and superstitious behavior across age, ability level and gender.

Professionals players. This group had 23 professional athletes with an average age of 27 years. They were highly skilled soccer players competing for positions on the National Team of Canada which was trying to qualify for the next World Cup in France in 1998, or players of the Montreal Impact team, competing in the North American Professional Soccer A-league. Their sport activity requires a high level of involvement, in that their source of living and main income is provided by soccer. They practice their sport all year long in America or Europe.

University players. This group included 15 male and 18 female soccer players with an average age of 20.8 years. They were varsity players of the McGill Soccer Program registered with the Quebec Student Sport Federation and the Canadian Intercollegiate Athletic Union. They practised almost every day during the college fall season and played at a good level during the summer season. Some of these athletes were highly skilled players who formerly played at a higher level in the United States or Europe.

Under 15 players. This group included 45 players (24 boys and 21 girls) with an average age of 14.4 years. These players, registered with the Quebec Soccer Federation, represented the best under 15 year old boy and girl prospects in the province of Quebec. Most of them played during the summer season in the Quebec Elite Soccer League. Some of them have participated in international tournaments in the United States and in Europe. They were preparing for the Canadian All Star Championships which were to be held during the summer of 1997.

Instrumentation

Competitive Sport Anxiety Inventory-2. In this study investigating the relationship between superstitions and pre-game anxiety, all subjects completed a questionnaire assessing their anxiety levels before competition. For this purpose, the Competitive Sport Anxiety Inventory-2 (CSAI-2) developed by Martens, Burton, Vealey, Bump, and Smith (1990), which assesses the cognitive and somatic components of competitive anxiety and self-confidence in relation to competitive performance, was used. The CSAI-2 is a 27 item instrument. Each of the three sub-scales involves the subject's responses to nine different items using a four point Likert type scale. The CSAI-2 reliability was demonstrated by Martens et al. (1985), using Cronbach alpha internal consistency coefficients. They reported across collegiate swimmers, wrestlers and runners, coefficients ranging from .79 to .83 for the cognitive A-state scale, from .82 to .83 for the somatic A-state scale and from .87 to .90 for the state self-confidence scale. Concurrent validity was demonstrated by Martens et al. (1985) showing that the responses of three independent samples of athletes to the CSAI-2 were significantly correlated in the hypothesised directions with their responses on the Sport Competition Anxiety Test (SCAT), General State and Anxiety scales, Rotter's Internal-External Locus of Control Scale, the Zuckermann Affect Check List, and Alpert and Habert's Achievement Anxiety Test (Ostrow, 1990).

The administration of the CSAI-2 to the athletes required 5 to 10 minutes using the English and French versions (See sample of English questionnaire in Appendix A).

Soccer Behaviour, Beliefs and Preferences Questionnaire (SBBPQ). No questionnaire assessing the level of superstition among North American soccer players was found in the existing literature. Gregory and Petrie (1971, 1972) appear to have been the first researchers

to measure sport superstitions and rituals through the means of a questionnaire. Later, Neil (1981, 1982, 1984, 1985) and Buhrmann and Zaugg (1981, 1982) created inventories to assess superstitious practices amongst ice-hockey and basketball players respectively. Measurement of superstitions involves methodological problems. First, athletes are reluctant to admit to these acts or do not recognize their behavior as such. Secondly, sports psychologists have had problems finding an understandable and workable definition of the superstition concept. Some studies have tried to exclude the primitive and modern aspects of religion (Becker, 1975; Womack, 1979; Neil, 1981, 1982), while others have included them (Gregory & Petrie, 1972; Gmelch, 1972; Buhrmann et al., 1981, 1982).

In an attempt to overcome some methodological flaws present in prior sport superstition studies, Neil, Anderson and Sheppard (1981) used another methodology to assess superstitious practices among ice-hockey players. They used an open-ended questionnaire assisted interview to relate superstitious behaviors with level of involvement in their activity. In the same way that they examined the routines exhibited by players before the game, they reported equipment and practice preferences. Neil et al. organised their data collection to mask the purpose of the study, so that the subjects would not perceive the questionnaire as an inventory dealing with superstitious practices. They tried also to distinguish habits and religious practices from superstitions.

One of the purposes of this research was to design a questionnaire specific to soccer players, respecting the past work of people such as Neil (1981, 1982), Buhrmann (1981, 1982), Kouablan (1985), and Tanimomo (1987). Consequently an attempt was made to differentiate religious or magical practices from superstitions. The development of the different items required a good knowledge of soccer. The work of Tanimomo (1987) was consulted in creating this inventory. Considering the relative universality of soccer, this questionnaire was developed

respecting beliefs and rituals performed by professional players in Europe as described by Le Blé in his book, *Superstitions. Croyances et petites Manies des grands Footballeurs* (1995). The personal experience of the present researcher was also predominant in the construction of this questionnaire. The objective was to determine whether or not each subject had a superstition related to the soccer activity. The items were designed to be relevant to professional players, and also applicable at other levels of play. The practices to which they refer have been identified among young and old, male and female soccer players. Numerous items referred to behaviors considered universal, while others referred to more original or rare practices. Religious practices were excluded in so far as possible. The selected items were organised in a short statement format. The original version of the questionnaire was critiqued by sport psychologists and soccer players. It was revised, critiqued and then revised again until it seemed satisfactory for its purpose. This instrument was designed to avoid players perceiving it as a questionnaire about superstitions. It was hoped that it would be seen simply as an inventory of soccer players' behaviours, beliefs and preferences. The final Soccer Behaviour, Beliefs and Preferences Questionnaire (SBBPQ) contained 34 items. Its items referred to clothing, fetishes, equipment, cultural and personal tendencies, team, pre-game and game routines, coaches and physiotherapy. Using a five point scale, subjects' responses could range from "never" to "always" on each item.

Because the native language of the subjects participating in this research was either French or English, the questionnaire had to be available in both languages. To prepare the two versions, the translation process suggested by Vallerand and Halliwell (1983) was used. First, this inventory was designed in French (native language of the experimenter). Secondly the French version was translated into English by a bilingual individual. A second bilingual individual translated the English version into French. The two French versions were then

checked for consistency of the different items. Then the final two versions, one in English and one in French were submitted to bilingual sport psychologists, experienced soccer players and coaches to be sure the tool was as valid as possible an instrument to assess superstitious practices in soccer. A number of corrections and revisions were made in the process. This instrument was the first known tool to study soccer superstitions in Canada.

To verify the SBBPQ's reliability, it was administered twice to one university team. The coach of the University of Victoria men's soccer program was contacted during the Canadian National Intercollegiate Athletic Union Soccer Championship at York University, Ontario, Canada in November, 1996. Twelve players completed the SBBPQ on Wednesday before a game against McGill University and were involved in the same process the following Saturday before the final game of the tournament. The questionnaire as a whole showed a test-retest reliability of $r = .95$ with these twelve soccer players.

The administration of the SBBPQ required 10 to 15 minutes to complete in the French or English version (See sample of English questionnaire in Appendix B).

Program and Procedures

In this study, five different samples of soccer players from Quebec and the rest of Canada were used. They represented different experience, levels of involvement and experience in the sport, different ages, levels of play and both genders. Each group was contacted through the medium of their respective coaches. A personal letter was sent to the coaches of the Canadian National team and the Montreal Impact organisation. The coaches of the varsity and under 15 teams were contacted by telephone. Agreement and support of the Quebec Soccer Federation was obtained by contacting the Elite Program Director.

Every player participating in this study, or his or her parent or guardian, completed an informed consent form (See English samples in Appendix D and E). Informed consent forms were mailed to the parents of the under 15 soccer players. Similarly, every soccer player completed a soccer background information form prior to completing both questionnaires (See English version in Appendix C). The subjects were told that their responses would be anonymous and that they could withdraw from the study at any time if they so desired. The players and their representatives were informed that the results of the study would be submitted for publication in Quebec Soccer and Soccer Canada. The questionnaires with the accompanying informed consent forms and the soccer background form and questionnaires were distributed and collected by the respective team coaches and returned to the researcher after completion.

The professional players were assessed during November, 1996, the morning before a game against Cuba for Team Canada and the morning before the games against Seattle and Vancouver for the Montreal Impact. Each player completed the package (Informed Consent form, Soccer Background form, CSAI-2 and SBBPQ) individually in his hotel room and had to give it back to his respective coach. The same package was provided to the coaches of the university players the morning before an important season game against the University of Quebec in Three Rivers men and women's teams in October, 1996. Each player completed the package individually and gave it back to their coach. The under 15 boys were administered the questionnaires during the third week-end of February, 1997 and the under 15 girls during the last week-end of February, 1997. During these periods of time, they were at a training camp which decided, based on their individual performances, whether they stayed in the program or not. They were to complete the questionnaires before the last practice or game prior to the

ultimate decision of the coaches being made concerning who made and who was cut from each of the two teams.

All of these soccer players responded to the questionnaires during situations or competitive settings, which involved a relatively high level of pressure and it is assumed anxiety, such as at a World Cup qualifying game, at the end of the regular season before play-offs or when trying to qualify for a prestigious program.

Treatment of Data

The Competitive State Anxiety Inventory-2 (CSAI-2) was designed to measure existing states of cognitive A-state, somatic A-state and state self confidence in competitive situations. The cognitive A-state was scored by totalling the responses for the following nine items: #1, 4, 7, 10, 13, 16, 19, 22, 25 scoring from 1 to 4. The somatic A-state sub-scale was scored by adding the answers to the following nine items: #2, 5, 8, 11, 14r, 17, 20, 23, 26. Scoring for the item #14 was reversed in calculating the score for the somatic A-state sub-scale as follows: 1=4, 2=3, 3=2, 4=1. The state self confidence sub-scale was scored by adding the following nine items: #3, 6, 9, 12, 15, 18, 21, 24, 27. With nine items in each scale, and a one to four score possible on each, a range of scores from nine to thirty-six was possible on each scale.

The Soccer Behaviour, Beliefs and Preferences Questionnaire (SBBPQ) was designed to assess the use of superstitions among soccer players. Player's answers were recorded and the total scores were be used for statistical analysis. Each item was scored on a five point scale. Consequently on the 34 item questionnaire, the minimum possible score was 34 and the maximum possible score was 170. The items were scored as follows: Never = 1, Seldom = 2, Sometimes = 3, Often = 4, Always = 5.

The respondents' demographic data, soccer experience, age and sex were recorded through the soccer background information form. The age, gender, level of play, and the number of years playing elite soccer was recorded along with the other data collected.

Statistical Design

Means and standard deviations of the participants' scores on superstitions, anxiety sub-scales, soccer experience, and age were computed by gender at each level of play to produce a summary of the descriptive statistics. The raw scores of all subjects on cognitive A-state, somatic A-state, state self-confidence and the total score of the SBBPQ were intercorrelated to produce a correlation matrix (Pearson Product Moment Correlation) from which hypotheses 1 and 2 to be assessed. If the hypothesised correlations were not found to be significant, additional Pearson Product Moment correlations were computed at the different levels of play and for both genders.

In order to test hypothesis 3, a one by three Kruskal-Wallis Analysis of Variance by Rank was performed on the superstition scores comparing each of the three levels of players (Professional, University, Under-15). If a significant finding was obtained, the Dunn's post hoc Method was to be performed to isolate the group or groups that differed from the others.

In order to test hypothesis 4, a two by two Analysis of Variance (gender by level) was conducted on the superstition scores of the university and under 15 soccer players. If a difference between males and females was to be found, the Student-Newmann-Keuls post hoc Method would be performed to determine exactly where the differences existed. In order to test hypothesis 5, two Mann-Whitney Rank Sum t-tests were to be computed to determine if differences appeared in cognitive A-state between the professional players and each of the

under-15 boys and girls soccer groups. T-tests were similarly used to determine if differences in somatic A-state and state self-confidence existed between the professional players and both under-15 boys and girls groups.

In this study, the .05 level of confidence was used as the criterion for statistical significance for all tests.

CHAPTER IV
RESULTS

The purpose of this study was to investigate the use of superstitions in relation to pre-game anxiety amongst soccer players of varying levels, ages and genders. These variables were measured prior to an important soccer game for the professional and university players and during a crucial training camp for both the under 15 year old boys and girls. The present chapter is divided into the following three sections : the first part deals with the description of the subject group data of the soccer players participating in this study, the second deals with the relationships between the endorsement of the superstitions and the other variables for the entire sample and for each sub-sample of soccer players, and the last section identifies the differences in the endorsement of superstitions across levels of play and gender.

Subject Group Descriptive Data

Table 1 presents the means and standard deviations for superstition (Sup), cognitive (C-A) and somatic (S-A) anxiety states, state self-confidence (SCf), soccer experience (SEx), and age at the three levels of play and for males and females separately.

Table 1

Means and Standard Deviations by Gender of All Variables at the Three Levels of Soccer Play (n = 101)

	Level						
	Professional	University			Under-15		
		Male	Female	Total	Boys	Girls	Total
	(n=23)	(n=15)	(n=18)	(n=33)	(n=21)	(n=24)	(n=45)
Sup X	75.4	80.7	71.7	75.8	87.8	87.4	87.6
SD	25.4	17.0	16.7	17.2	22.3	19.3	21.3
C-A X	17.2	20.3	18.7	19.4	20.9	17.3	19.1
SD	5.17	4.22	5.12	4.72	4.90	5.60	4.91
S-A X	16.0	12.9	14.2	13.6	18.2	17.3	18.0
SD	4.84	3.35	3.41	3.39	5.81	5.60	5.63
SCf X	29.4	28.7	25.2	26.8	26.6	26.9	26.8
SD	4.52	3.99	5.15	4.92	5.87	5.01	5.43
SEx X	17.1	13.3	12.7	13.0	7.75	4.95	6.44
SD	3.93	5.60	4.09	3.95	2.27	2.91	2.92
Age X	27.0	20.6	21.1	20.8	14.5	14.3	14.4
SD	3.54	2.35	2.71	2.35	0.51	0.64	0.58

It would appear that the under 15 year old players are higher in superstitious behavior than the other two group levels represented. The boys and girls at this level seem to be equally superstitious. Professionals and male university players seem to demonstrate more superstitious practices than the female university players. Female varsity athletes and under 15 girl players seem to show marginally lower cognitive A-state scores than male university and under 15 masculine players. Both under 15 boys and girls seem somewhat higher in somatic A-state than the players at the two other levels of play. The professional players appear to be marginally more anxious than the varsity group on the somatic A-state measure. The professional players seem to have somewhat better state self-confidence scores than the

groups at the two other levels of play. Female university players appear to be slightly less confident than the male varsity athletes and both the under the 15 boys and girls.

The average soccer playing experience and age of the different athletes in each of the three samples are those expected considering the groups examined in this study.

Relationships Between Superstitions, Measures of Anxiety, Soccer Experience and Age

The results of the intercorrelation of all variables for the entire sample are shown as a matrix in Table 2. The superstition scores did not correlated significantly with the scores on any of the three anxiety sub-scales. A significant inverse relationship was found between age and the use of superstitious practices ($r = -.23$) for the soccer sample as a whole. From the correlational data, there appears to be no relationship between superstition endorsement and level of play.

Although the correlations of this investigation focused primarily on the relationships between superstitions and anxiety measures, information was obtained regarding the relationships among the other variables as well. The correlation between cognitive A-state and somatic A-state ($r = .46$) is seen to be significant at the .05 level of confidence. Negative and significant correlations were found between Cognitive A-state and state self-confidence ($r = -.46$), soccer experience ($r = -.24$) and age ($r = -.29$). Negative and significant correlations were found between Somatic A-state and state self-confidence ($r = -.52$), soccer experience ($r = -.32$) and age ($r = -.22$). State self-confidence was also significantly related to soccer experience with the sample as a whole ($r = .23$).

Table 2

Matrix of Correlations with Their Levels of Significance of All Measures for the Entire Soccer Group Sampled (n = 101)

	Sup	Cog-A	Som-A	S-Con	SocExp	Age
Sup		.136	.142	-.033	-.146	-.233
		.173	.156	.745	.144	.018*
Cog-A			.458	-.464	-.238	-.290
			.000*	.000*	.016*	.003*
Som-A				-.522	-.322	-.219
				.000*	.000*	.027*
S-Con					.232	.145
					.019*	.146
SocExp						.810
						.000*
Age						

The correlation matrices produced for each level of play and for males and females are presented next. These correlations were used to determine relationships between the different variables within the different groups sampled. As may be noted in Table 3, the results show two tendencies in superstitious practices among professional players. They would suggest that superstitious behaviors may be related to somatic A-state (r = .40), and possibly negatively related to state self-confidence (r = -.39). Negative and significant correlations were found between Cognitive and somatic A-states and state self-confidence (r = -.46, and r = -.65).

Table 3

Matrix of Correlations with Their Levels of Significance of All Measures of Professional Players (n = 23)

Sup	Cog-A	Som-A	S-Con	SocExp	Age
Sup	.119	.401	-.392	.167	.051
	.588	.051	.063	.446	.816
Cog-A		.365	-.459	-.205	-.142
		.086	.027*	.349	.517
Som-A			-.647	.244	-.034
			.000*	.263	.876
S-Con				-.048	-.132
				.826	.548
SocExp					.654
					.000*
Age					

The results among male and female university players are shown in Tables 4, 5 and 6. In looking at the university group as a whole, significant inverse relationships were found between somatic A-state and state self-confidence ($r = -.50$), and soccer experience ($r = -.43$). There appears also a tendency towards an increase in state self-confidence with soccer experience at this level of play ($r = .33$).

Table 4

Matrix of Correlations with Their Levels of Significance of All Measures for University Players (n = 33)

	Sup	Cog-A	Som-A	S-Con	SocExp	Age
Sup		-.013	.130	.212	.031	-.078
		.940	.471	.235	.860	.664
Cog-A			.332	-.188	-.178	-.261
			.059	.295	.322	.143
Som-A				-.498	-.428	-.164
				.003*	.012*	.361
S-Con					.327	-.005
					.062	.973
SocExp						.249
						.162
Age						

In looking at the matrix of intercorrelations of variables of the university men alone in Table 5, a significant relationship between superstitious practices and somatic A-state is seen (r = .57). This correlation seems quite high considering the relatively small sample size (n=15).

Table 5

Matrix of Correlations with Their Levels of Significance of All Measures Among Male University Players (n = 15)

Sup	Cog-A	Som-A	S-Con	SocExp	Age
Sup	-.109	.568	-.036	.143	-.054
	.699	.027*	.898	.612	.846
Cog-A		.224	-.087	-.088	-.382
		.422	.756	.753	.160
Som-A			-.247	-.377	-.107
			.374	.166	.705
S-Con				.007	-.200
				.978	.476
SocExp					.537
					.038
Age					

As may be noted in Table 6, the university women players showed a different pattern of responses. There were significant positive relationships between cognitive A-state and somatic A-state (r = .61), and negative correlation with state self-confidence (r = -.64). There was a negative correlation between State self confidence and somatic A-state (r = -.61), and a positive association with soccer experience (r = .51). An inverse trend appeared between somatic A-state and soccer experience (r = -.46).

Table 6

Matrix of Correlations with Their Levels of Significance of All Measures Among Female University Players (n = 18)

Sup	Cog-A	Som-A	S-Con	SocExp	Age
Sup	-.101	-.119	.240	.130	-.119
	.698	.638	.338	.608	.637
Cog-A		.607	-.643	-.258	-.422
		.007*	.003*	.302	.080
Som-A			-.612	-.455	-.237
			.006*	.057	.343
S-Con				.511	.134
				.030*	.596
SocExp					.113
					.655
Age					

The correlation matrix for the scores of the under 15 boys and girls data are shown in Tables 7, 8 and 9. Superstitions practices were not found to be related to any other variable. As seen in Table 7 cognitive A-state is positively related to somatic A-state (r = .57) for this level of play. State self-confidence was related to both cognitive and somatic A-states (r = -.63, and r = -.59) for this age group of boy and girl soccer players. Interestingly, soccer experience and age were unrelated to any of the other measures of this study within this sample of under 15 year old players.

Table 7

Matrix of Correlations with Their Levels of Significance of All Measures Among the Under 15 Players (n = 45)

Sup	Cog-A	Som-A	S-Con	SocExp	Age
Sup	.116	-.151	.081	.109	-.078
	.448	.323	.594	.477	.608
Cog-A		.569	-.633	.140	-.060
		.000*	.000*	.359	.220
Som-A			-.590	-.094	.083
			.000*	.539	.585
S-Con				.158	-.105
				.301	.491
SocExp					.242
					.110
Age					

As seen in Tables 8 and 9, the findings in relation to gender at the under 15 level of play demonstrated that cognitive A-state was found to be significantly related to somatic A-state for both the boys' and girls' groups. For the boys the correlation was r = .52, while for the girls the extremely high correlation coefficient of r = 1.00 was obtained between those variables. Negative and significant correlations were found between State self-confidence state and to the two other anxiety sub-scale scores for both groups as noted in Tables 8 and 9. The correlation values associating state self-confidence with the two other anxiety components were r = -.72 and r = -.63 for boys, and r = -.50 and r = -.50 for girls.

Table 8

Matrix of Correlations with Their Levels of Significance of All Measures Among the Under 15 Boys (n = 21)

Sup	Cog-A	Som-A	S-Con	SocExp	Age
Sup	-.231	-.031	.012	.329	.099
	.276	.884	.953	.117	.642
Cog-A		.521	-.724	.115	.280
		.008*	.000*	.591	. 184
Som-A			-.629	-.012	.343
			.000*	.954	.101
S-Con				. 117	-.278
				. 587	.188
SocExp					.122
					.569
Age					

Table 9

Matrix of Correlations with Their Levels of Significance of All Measures Among the Under 15 Girls (n = 24)

Sup	Cog-A	Som-A	S-Con	SocExp	Age
Sup	-.344	-.344	.194	-.102	-.388
	.127	.127	.399	.660	.082
Cog-A		1.00	-.497	-.303	-.037
		.000*	.021*	.182	.871
Som-A			-.497	-.303	.037
			.021*	.182	.871
S-Con				.285	-.053
				.211	.818
SocExp					.168
					.467
Age					

Differences Across Levels of Play and Gender

The results of the 1 x 3 Kruskal-Wallis by Rank analysis of variance on superstition scores of the three ability groupings are shown in Table 10. The findings, reported in median values, demonstrate that there is a significant difference ($H(2,98) = 6.72$, $p < .05$) somewhere among the three groups. The results of Dunn's Ranks post-hoc Method showed a significant difference between the under 15 group and both the professional and university groups with the scores of the under 15 year old group being higher. As seen earlier in the results, no relationship appeared between superstitious practices and the level of play. However, the present findings of the 1 x 3 ANOVA indicate a significant difference in superstition endorsement across the levels of play.

Table 10

Kruskal-Wallis One Way Analysis of Variance by Rank on Superstition Scores at the Three Levels of Play

Group	N	Median	25%	75%	H	P
					6.72	.034*
Sup Pro	23	76.0	51.3	95.8		
Sup Univ	33	77.0	64.8	88.3		
Sup U-15	45	86	72.5	102.3		

The results of the 2 x 2 Factorial Analysis of Variance of superstitious scores among university men and women, and under 15 boys and girls are shown in Table 11.

Table 11

2 x 2 ANOVA on Superstitious Practices at the University and U-15 Levels

Source of Variance	SS	df	MS	F	P
Gender	423.5	1	423.5	1.11	.296
Level	2484.6	1	2484.6	6.49	.012*
Gender x Level	353.6	1	353.6	0.93	.340
Residual	28671	75	382.3		
Total	32022.6	78	410.5		

The results indicate no difference in superstitions behaviors between males and females in this sample ($F(1,75) = 1.11$, $p > .05$). A significant difference was reported between the levels ($F(1,75) = 6.49$, $p < .05$). Furthermore, the results of the Student-Newmann-Keuls post-hoc test revealed that there was a significant difference between U-15 boy soccer players and the women university soccer players, under 15 players being higher in the endorsement of superstitious behaviors. In the same way the analysis demonstrated a significant difference between the U-15 girls and university women players, again with the under 15 players having the higher scores.

Ultimately the findings obtained from the two Mann-Whitney Rank Sum tests indicated a significant difference concerning cognitive A-state values ($T(45) = -2.52$, $p < .05$) between the professional players and the U-15 boys, showing that the young male soccer players were more cognitively anxious than their older counterparts. At the other hand no difference was found concerning cognitive A-state between the professional and the U-15 girls soccer players ($t(42) = -.04$, $p > .05$).

In addition, the results of the t-tests comparing somatic A-state between the professional and the U-15 boys and girls soccer players separately revealed respectively no significant differences for this variable at the two levels for boys $t(42) = -1.44$, $p > .05$, and for girls $t(42) = -.84$, $p > .05$.

On the contrary, results showed a significant difference ($t(66) = 2.03$, $p > .05$) between the professional players and both U-15 boys and girls soccer players for state self-confidence anxiety sub-scale. The professional players were significantly more self-confident than the under 15 group.

CHAPTER V
DISCUSSION

This chapter provides discussion of the results obtained in relation to the study's five hypotheses. In order to better interpret the findings, they are also discussed in relation to previous research findings. There is also some discussion of other results obtained.

The Relationship of Superstition Endorsement to Anxiety

It was hypothesized that superstitious behaviors would be positively related to cognitive and somatic pre-competitive anxiety and level of soccer play regardless of age and sex. The correlation analysis, however, showed no support for the first hypothesis. No significant correlations were found between superstition scores and the two anxiety component measures for the sample as a whole. One possible explanation for not obtaining any relationship may be that superstitions are not related to pre-competitive anxiety for the soccer groups considered. Nevertheless, when looking at the additional correlation analyses performed at each level of play, a significant relationship was found between superstitious practices and somatic A-state among male university players. Similarly, a trend appeared between these two variables at the professional level. An interpretation for this relationship between somatic A-state and superstitious endorsement is that somatic A-state is known to increase rapidly among athletes prior to competition. This increase in the physiological component of anxiety may be the result of what Borkovec (1976) has called "conditioned anxiety". He suggested that cognitive A-state and state self-confidence do not follow the same pattern of changes as somatic A-state, and thus remained quite stable. Superstitious

practices may be used to reduce the affect of the physiological element of anxiety. If this is the case, it is not clear why the somatic A-state was not found to be related to superstitious practices among the female university and under 15 players. While superstitious beliefs are understood to be developed and passed on as a part of a particular sport's sub-culture, and the female university soccer players demonstrated a similar length of playing experience to the men, they may not have been exposed to the same transmission pattern as their male counterparts. Also they may not have had the same level of concern regarding the outcome of their play. These variations in level of involvement may have been a factor in determining the difference between male and female university players' relationship of somatic A-state to superstition. This may be also explained by the small number of university men athletes assessed in this study. Although the under 15 boy and girl soccer players obtained higher mean scores on superstition and both components of anxiety than the two other groups sampled, no clear connection was found between these variables. The only obvious explanation for the absence of such a relationship is that pre-competitive anxiety and superstitious practices are not related in this group.

The findings revealed that cognitive A-state was not related to superstitious practices for the entire group sampled. Crevoisier (1993) has suggested that intervention skills are part of the mental preparation of soccer players. Athletes, especially at the professional and university levels, may have learned to use mental coping strategies, and therefore, they may not have needed superstitious practices to deal with competitive stressors. Thus, highly skilled soccer athletes, like the subjects of this study, seem to require little use of superstition to cope with cognitive A-state.

On the contrary, even if superstition endorsement was not found to be related to pre-game anxiety for the entire group studied, teenagers scored fairly high on superstition. Thus,

it could be proposed that superstitious beliefs may represent a form of natural means to deal with anxiety at the younger level.

The findings also indicated that superstition endorsement was not associated with the level of soccer playing experience for the sample as a whole. Further analyses performed at each level of play revealed no relationship between these two variables.

In summary, the pattern of results obtained suggests that there is not a clear relationship between superstitious practices and cognitive anxiety, somatic anxiety, or level of soccer play for the group studied as a whole. A significant relationship was found between somatic anxiety and superstition among male university and a tendency toward an increase was obtained among professional players. Additional analyses performed at other levels of play indicated no clear connection between the mental and physiological components of anxiety and the endorsement of superstition. This might be explained by the use of coping strategies among individuals, transmission patterns related to superstition, differences in perceptions of the importance of performance outcome, or simply that there is not a relationship between superstition endorsement and any measure of anxiety in these groups.

The second stated hypothesis, predicting that superstitious practices would be negatively related to state self-confidence regardless of age and sex was not supported by the present findings. When the subjects were treated as a single sample, the correlation between superstition scores and self-confidence was found to be non significant. This result suggests that there is no relationship between state self-confidence and the endorsement of superstitious acts. Additional correlational analyses by level of play revealed a negative trend among the professional players. This trend is consistent with Gould et al. (1984) report that with the level of experience and perceived ability comes higher self-confidence. It would follow that professional players might use less superstitions as their self-confidence is higher.

Martens et al. (1982) reported that very skilled athletes have been found to demonstrate high levels of self-confidence. The mean scores of the professional soccer players (X = 29.4), suggest a higher level of self-confidence than that found in the average of the mean scores (X = 26.2) in four previous studies conducted by Gould et al., (1984, 1985); Krane and Williams, (1987); and Weiss, (1988); on United States Olympic volleyball players, and elite gymnastics, rifle shooters, and wrestlers. The present results may indicate that professional players, who exhibit a high degree of self-confidence, do not require superstitious practices to be able to compete effectively. Nevertheless, the findings as a whole seem to demonstrate no clear relationship between superstitious behavior and state self-confidence. This may be due to a lack of precision necessary in assessing superstitions, to some conceptual limitations or weakness of the CSAI-2, or that there is simply no relationship between these two variables among skilled soccer players. The mean state self-confidence scores of university (X = 26.8) and under 15 soccer players (X = 26.8) are higher than the average of the mean scores found in previous studies for male and female university athletes (X = 25.1), and for younger boy and girl athletes (X = 23.6); (Martens, 1990), which may help to explain the non significant results.

In summary, our findings do not support our second hypothesis. No significant negative relationship was found between state self-confidence and superstitious practices for the group sampled. Nevertheless, a negative trend appeared at the professional level. This may be due to high levels of skill and perceived ability exhibited by such older and experienced athletes. There was no relationship between these two variables at the university and under 15 levels. The failure to confirm this prediction may be due to the particular samples assessed in this study or simply that there is not a consistent relationship between these variables in highly skilled athletes.

Differences in Superstitious Behaviors By Level of Play

The third hypothesis stated that professional players would report more superstitious practices than players at other levels of play. All previous literature agrees that the more involved and experienced athletes are, the more superstitions they endorse (Morris, 1981; Neil et al., 1981, Steffen, 1993). The present results contradict previous findings. Professional players obtained a mean score of 75.4, while the university and the under 15 players obtained mean scores of 75.8 and 87.6 respectively. The results of the ANOVA indicated a significant difference between the groups, and post hoc analysis identified the under 15 players as significantly higher in superstition endorsement than the players at the two other levels.

The present findings have shown that older and more experienced soccer athletes are less prone to subscribe to superstitious beliefs and practices than their younger counterparts. This may be explained by the skill level, the perceived ability and the commitment of professional and university soccer players. These players, during their soccer careers have been conditioned to competing at increasing levels of competition. They do not perhaps feel the same need as less experienced and skilled players for superstition to handle the stresses of a particular event, even a World Cup qualifying game or an intercollegiate soccer match. Moreover, as Man et al. (1995) suggested, older and more experienced players may have developed a kind of desensitization to the stressors of competition, so that they do not consider these events or their outcomes to be ego-threatening. On the other hand, the idea of being part of a provincial program for the first time of his own life, could represent an ultimate goal and potentially ego enhancing outcome for a young soccer competitor. Thus, the lack of experience, search for self-esteem, and the difficulty of the task may explain a higher endorsement of superstitious behaviors at the youngest age level. This would seem

reflected in the relatively high 15 year old cognitive and somatic A-states scores of the athletes at this age, although their anxiety and superstition scores did not correlate. The lower scores on superstition at the higher skill levels may be explained in part by greater success of other strategies. Learned mental preparation strategies may have modified the person-environment relationship, leading to a different emotional state anxiety of these more experienced athletes (Crocker et al., 1988, 1989, 1995). Since younger athletes may not yet have learned such coping skills, superstition may be a kind of natural coping strategy used to deal with the uncertainty and the importance of the outcome, and to handle the stress at this particular level. Hence this seems to indicate, that although superstitious practices may be associated with the level of involvement to a certain extent, mental preparation strategies may also replace the use of superstition to deal with potentially debilitating aspects of competition. For older and more experienced soccer players, the uncertainty and the importance of the outcome may already be controlled by mental preparation strategies which have been learned by these athletes through instruction or personal experience. The preceding may explain the varying scores for superstition endorsement across levels of play and the significant inverse relationship found between superstitious practices and age.

The present findings seem to contradict those discussed earlier in hypothesis one, which showed that no clear relationship has been found between level of play and superstition endorsement. The results of hypothesis three indicate a significant difference on superstition endorsement between the teenagers and the two other populations assessed in this study.

In summary, the results failed to support the third hypothesis which proposed that professional players would be more superstitious than players at the two other levels of play. This may be due to the use of other mental coping strategies learned by the older and more

experienced athletes. On the other hand, the inexperience, the lack of knowledge regarding other means of coping with the uncertainty and the importance assigned to the outcome may have caused the younger group to endorse more superstitious practices.

Gender Differences in Superstition Endorsement

It was hypothesized that the female university and under 15 year old girls would demonstrate greater use of superstitious acts than male university and under 15 year old boys. On the basis of past research on superstition, females were expected to subscribe to superstitious beliefs more than males. Findings of the present study failed to demonstrate this pattern. The results indicate that there are no differences between male and female soccer players in the use of superstition in relation to their sport. The present findings reveal some similarity to Gregory's results (1973) in that intercollegiate males and females seem not to differ in the use of superstitious practices. Looking at the mean scores, however, it appears that boy and girl soccer players appear to demonstrate a greater similarity in endorsement of superstitious beliefs and practices that their older counterparts. The lack of gender differences may be explained by the assumption of the equal level of involvement shared by these players at their respective levels of play. Exposure to the soccer activity seems to be a determinant of the lack of gender difference at the same level of play. It is interesting to note that both the under 15 boy and girl soccer players were significantly higher than the female university players in endorsement of superstitious practices. As discussed earlier, this may due to the importance and uncertainty of the outcome, which appear to elicit more superstitious practices among the younger group. It may be that female university students, involved in their academic lives, do not confer to this particular intercollegiate game the

same importance, than the younger athletes give to belonging to the provincial elite program. Selection to this program may induce the younger athletes to endorse more superstitious beliefs to cope with the stressors related to the importance of such an accomplishment. This seems consistent with Neil et al. (1981) suggestion that perceived importance of involvement is a key determinant of superstitious behavior.

In summary, the present findings, which reveal that university women and teenage girls did not endorse more superstitious acts than university men and under 15 boy soccer players, showed no support for the fourth hypothesis. On the contrary, the under 15 boys and girls demonstrated a greater level of superstition than female varsity players. These results may be explained by the non differentiation of superstition endorsement between men and women at the university level, and by the perceived importance of involvement by the under 15 boy and girl athletes.

Comparison in Anxiety Measures Between Professional and Under 15 Players

The fifth and last hypothesis, that professional players would demonstrate higher cognitive and somatic state anxiety, and state self-confidence than the under 15 boy and girl soccer players, was partially supported by the results obtained. Although the present findings indicate that professional players demonstrated significantly more self-confidence than the younger boy and girl athletes, the expected differences in cognitive and somatic state anxiety were not found. The results revealed that the under 15 boys were significantly higher in cognitive A-state than the professional athletes. As discussed previously, an explanation for this may be that young boys were cognitively more worried because of the importance of the event to them. The results indicate no significant differences between the professional

athletes and the under 15 girl soccer players. Although the girls were facing the same challenge as the boys, they had only been competing in the elite program for one year, while the boys had been involved in their program since the year before. Thus, the considered level and length of involvement in competitive soccer, may be an explanation for such gender differences concerning the mental component of anxiety.

The findings indicate no significant differences in somatic state anxiety between the professional players and either the under 15 boy or girl soccer players.

State self-confidence is known to remain constant as competition nears (Jones, 1995), and is closely related to skill level and perceived ability. A number of researchers, (Scanlan 1975, 1978 ; Scanlan & Passer 1979 ; Passer 1983 ; Leuthwaite, 1990) suggest that performance expectancies significantly affect the level of threat to self-esteem perceived by young players prior to competing, and they are influenced by intra-, inter-personal or situational factors such as perceived ability, game outcome or personal evaluations by others. Although the boy and girl soccer players demonstrated higher levels of state self-confidence than other athletes at a similar age (Martens, 1990), their perceptions of competence and control may have been influenced greatly by how adults structured their competitive situations. As hypothesized, the professional players exhibited significantly higher levels of self-confidence. These players possess considerable playing experience, and they are used to competing at high levels. In combination, their skill level, perceived ability, and personal experience have provided them a strong sense of self-confidence over the years. It is also probable that these professional athletes use a complete repertoire of mental preparation strategies to help them to reach such high competitive levels, such as a World Cup qualification opportunity, with minimal measurable anxiety. Possibly, as suggested by Crocker (1995), their mental preparation may reinforce their state self-confidence, and

consequently help them meet the high demands of competitive situations with little fear and few concerns.

In summary, the final hypothesis of this study was partially supported by the present findings. Although professional players demonstrated significantly higher levels of state-confidence than the under 15 year players, due probably to their soccer ability and experience, and the use of coping skills, no difference was found in the physiological component of anxiety between these two populations. On the other hand, the under 15 year old boys were found to be significantly more cognitively anxious than the professional athletes. This difference may be explained by the perception of the importance attributed by the young players to the outcome of their performance.

Relationships Between State Anxiety Components

Although the examination of the interrelationships between the components of state anxiety was not a purpose of this research, in the search for an explanation for the unexpected results obtained, a closer study was made of the nature and interrelationships of the scores obtained on the subscales of competitive anxiety. This section discusses the present study's findings interrelationships of the components, and compares them to those of earlier studies.

Researchers have suggested that state anxiety is an internal concept with complex components (Davidson et al., 1976; Liebert et al., 1967, Shwartz et al., 1978). It is seen as a multidimensional construct, separated into three major subcomponents, cognitive, and somatic A-states, and state self-confidence. Although cognitive and somatic state anxiety are theorized to be conceptually independent, researchers acknowledge that these components

are moderately interrelated in many stressful situations (Morris et al., 1981). Self-confidence is negatively related to both state cognitive and somatic anxiety measures (Martens et al., 1980).

This study's findings reveal that the three competitive anxiety components were associated as expected for the sampled population as a whole. Correlation coefficients reported are similar in range and direction to those of previous work (Maynard et al., 1995; Rodrigo et al., 1995). On the other hand, a few correlations at the professional and university levels did not support the expected pattern. Cognitive and somatic state anxiety were not related among the professional players. The cognitive and somatic anxiety subscales were not found to be related at the university level as a whole, although an association was found ($r = .33$). The mental and physiological components were, however, related among the female university players. The small number of subjects of the male university sample may have been a critical factor in determination of the low, non significant correlations of this group. Further explanation for these variations from the expected relationships among the components of competitive state anxiety are not evident.

The entire under 15 population, as well as the boys' and girls' groups separately, revealed correlations more-or-less resembling those of previous findings. However, some were higher than those reported in previous studies (Martens et al., 1990). State self-confidence was highly negatively related to somatic A-state among the teenage boy soccer players ($r = -.72$), and a perfect relationship was found between the cognitive and somatic components of competitive anxiety among the teenage girl athletes ($r = 1.00$). As seen earlier, although cognitive and somatic A-states are expected to be relatively independent in stressful situations, the present findings show them to be the same thing or to be two constructs that are not separable in this population under these conditions.

In summary, although some of the present results agree with findings of previous studies conducted with the Competitive State Anxiety Inventory-2, they do not provide conclusive evidence that the anxiety components are independent measures among some populations examined in this study. The relatively small number of subjects may explain some of the present study's disagreement with previous findings concerning the relationship of the three components of state anxiety as assessed by the CSAI-2. It is also possible that in some populations under specific conditions, the postulated relationships between these measures do not hold true.

CHAPTER VI
SUMMARY AND CONCLUSIONS

This chapter summarizes the rationale, purpose , procedures, results and conclusions, as well as briefly presenting the implications of this study for soccer. It also provides some recommendations for future research on this specific topic.

Summary

Soccer is the most widespread sport on the planet, and numerous publications have reported examples of superstitious acts related to individual behaviors while engaged in it. Superstitious beliefs and practices have been an integral part of the soccer world as in other sports. In competition, where opponents are most often evenly matched, the outcome of the game is frequently determined by "getting the breaks" or "lucking out" (Eitzen & Sage, 1978). Soccer players may have strong beliefs in supernatural practices to reassure them that they have completed everything in their power to bring them to a successful outcome.

It is widely acknowledged that the competitive sport environment provides an ideal context in which to study anxiety. As Morris (1981) suggests, many stressors are found in competitive soccer, and they represent different sources of anxiety for players. The construct of competitive state anxiety has been a major concern of sport psychologists. They have theorized it as a multidimensional concept (Morris & Liebert, 1967). Martens et al. (1990) based their theory of competitive anxiety on an interaction between uncertainty about the outcome and the importance assigned to that outcome. Many authors suggest that superstitious practices exist in sport because they provide the athlete a means of coping with anxiety (Tanimomo, 1987; Steffen, 1993). The relationship between these two constructs

needs further examination. The purpose of this study was to investigate the use of superstitious practices in relation to pre-game anxiety among male and female soccer players at varying levels of play.

Summary of Procedures. One hundred-and-one soccer players (23 male professional players, 33 male and female varsity players, and 45 teenage boys and girls playing at the provincial level) ranging in age from 13 to 34 participated as subjects. Superstition endorsement was assessed through the completion of the Soccer Behavior, Beliefs, and Preferences Questionnaire (SBBPQ). This inventory was developed by the experimenter, with the help of related literature and through a process of discussions, criticisms and corrections by sport psychologists and soccer players. The cognitive, somatic and state self-confidence components of anxiety were assessed through the completion of the Competitive State Anxiety Inventory-2 (CSAI-2, Martens, Burton, Vealey, Bump, & Smith, 1990). The two questionnaires were completed prior to an important competition, like a World Cup qualifying game for the National Team of Canada, North American professional league games for the Montreal Impact, intercollegiate matches for the male and female varsity teams, and prior to a crucial training camp for both the under 15 boy and girl players. Additional information concerning soccer experience and age of all subjects was obtained through a Soccer Background Information Form. Both of the questionnaires and soccer background information forms were collected by coaches or the experimenter after completion.

Summary of Results and Discussion The scores of the one hundred-and-one subjects on superstitious practices, and anxiety subcomponents were correlated to produce a matrix to verify if superstition endorsement was related to cognitive and somatic A-states, level of play and state self-confidence regardless of age and sex. Additional correlation matrices were

computed including superstition scores, anxiety subcomponent scores, soccer experience and age, at each level of play. A 1 x 3 Kruskal-Wallis Analysis of Variance by Rank was computed to determine if professional players would demonstrate more superstitious behaviors than players at other levels of play. A 2 x 2 Analysis of Variance was conducted to verify if female university and teenage girl soccer players endorsed more superstitions than university men and under 15 year old boy soccer players. For both analyses post hoc tests were conducted to isolate the differences within the groups. Finally, Mann Whitney Rank Sum Tests and t-tests were computed to determine if there were differences in the cognitive, and somatic A-states , or state self-confidence between the professional players and both under 15 boy and girl soccer players.

The examination of the relationships between superstitious practices and anxiety subcomponent scores yielded the following results. The findings did not support the first hypothesis in that neither the cognitive or somatic A-state, nor the level of play was related to superstition endorsement for the sample as a whole. The additional correlations indicated a significant relationship between somatic A-state and superstitious practices among male university players, and a tendency between superstition scores and somatic A-state at the professional level. This may be explained by the result of what Borkovec (1976) has identified as conditioned anxiety. The lack of a relationship between superstitious practices and cognitive state anxiety for the sample as a whole may be explained by the use of coping strategies to deal with the cognitive aspect of competition by older and experienced athletes, transmission patterns related to superstition, differences in perception of the importance of outcomes, and level of involvement among the teenage soccer players. Superstition endorsement was not found through, the correlational analyses, to be related to level of

soccer play for the group sampled. These explanations also apply to the findings for hypothesis three.

Regarding the second hypothesis, which stated that state self-confidence would be negatively related to superstition endorsement, the results indicated no relationship between these two variables for the sample as a whole. It was suggested that the level of skill and perceived ability might be factors determining the confidence exhibited by the professional players, and may explain the negative tendency of a negative relationship found between superstition and state self-confidence at the professional level. The failure to support the hypothesized relationship between state self-confidence and superstition endorsement at the two other levels of play may be due to the particularly elevated levels of self-confidence in the highly skilled groups assessed in this study.

The present findings on superstition endorsement indicated no support for the third hypothesis which stated that professional players would demonstrate more superstition than players at other levels of play. On the contrary, the results indicated that the teenage boys and girls were more superstitious than the professional and university athletes and that superstitious practices were significantly negatively related to age. It was proposed that these results may be due to the use of other mental preparation strategies by the older and more experiences athletes.

The fourth hypothesis, that university women and teenage girls would endorse more superstitious acts than university men and under 15 boy soccer players, was not supported. No difference was found between male and female players at the same levels of play. However, the under 15 boys and girls demonstrated a greater level of superstition than female varsity players. These findings seem best explained by the fact that the level,

intensity, and the perceived importance of their involvement may be strong determinants of superstition endorsement at this particular level.

Finally, some support was found for the last hypothesis that professional players would demonstrate more cognitive anxiety, somatic anxiety, and state self-confidence than the under 15 group. The results indicated a significant difference in state self-confidence between professional players and the under 15 soccer group, the professionals having greater self-confidence. The findings also showed a significant difference in cognitive A-state between the professional athletes and the under 15 boy players, who were more cognitively anxious. On the other hand, there were no differences found in somatic A-state among these two groups. It was suggested that state self-confidence may be partially a product of experience in the activity of concern. The difference found in cognitive A-state may be explained by the perception of the importance of the outcome felt by the younger male soccer players.

In general, the results concerning the interrelationships of the components of competitive anxiety remain moderately comparable with those of previous studies. Nevertheless, it should be noted that cognitive and somatic state anxiety were not related among the professional and university levels while considerably higher correlations between cognitive A-state and state self-confidence were obtained among the under 15 boys, and an extraordinary high relationship between these two variables was found among the under 15 girl athletes in comparison with previous findings. In trying to explain the preceding results, it was proposed that the anxiety components may not be independent among the teenage girls at the elite level of competition. Some perplexing findings may be due to the relatively small number of subjects assessed in this study.

Conclusions

Based on the findings of this study and taking the study's limitations into consideration, it may be concluded that:

1. The endorsement of superstitious practices and pre-competitive cognitive and somatic state anxiety are not related across the professional, university, and under 15 elite levels of soccer play.
2. Superstition endorsement and pre-competitive state self-confidence are not related across the professional, university, and under 15 elite levels of soccer play.
3. Professional soccer players are less superstitious than elite players at lower levels of play.
4. Superstition may not, to the full extent formally thought, be the natural stress coping strategy of high level elite athletes.
5. Older, more experienced athletes demonstrate less superstition endorsement than younger, less experienced players under comparable conditions of stress. The older, experienced athletes either perceive less stress and/or have acquired other relatively effective means of dealing with it.
6. Soccer superstition endorsement does not necessarily increase with level of play if the perceived level of importance of outcome does not also rise.
7. Male and female elite athletes of the same level of play and involvement do not differ in superstition endorsement.
8. Soccer superstition is moderately negatively related to age among high level elite players.

9. State self-confidence is positively related to soccer experience among elite soccer players.
10. Professional soccer players exhibit higher levels of state self-confidence than under 15 elite boy and girl soccer players.
11. Professional athletes do not exhibit greater cognitive and somatic state anxiety than younger groups competing at lower levels of play.
12. Both cognitive and somatic A-states are negatively related to soccer experience among elite soccer players.
13. Cognitive and somatic A-states may not be as independent as originally thought in young elite athletes under highly competitive conditions.

Implications for Soccer

This study has provided information on superstition endorsement and pre-competitive anxiety subcomponents among male and female players at varying levels of play. A coach or manager should;

1. Recognize that there is a fairly high level of anxiety felt by young elite soccer players and help them to find ways of coping with this debilitative aspect of competition.
2. Note that the use of superstitious behavior appears to be one of their natural means of dealing with their insecurities and so respect this behavior until other coping strategies are developed. Do not expect boys to be any different than girls in this respect.

3. Recognize that self-confidence increases with age, experience and soccer skill acquisition. Help young athletes develop self-confidence as they acquire skill and they will no doubt be less anxious as they perform their favored sport.

4. Identify whether learning to cope with the stressors of competition leads to success at higher skill levels, or whether performance success leads to self-confidence and better coping.

5. Recognize that higher level players are more self-confident, frequently experience less anxiety and resort less to superstitious behavior than younger, less skilled players under comparable conditions of stress.

Recommendations for Further Studies.

With regard to this study the following recommendations are suggested for future investigations:

1. This study provided information regarding superstition endorsement in relation to pre-game anxiety among men and women university and under 15 boy and girl soccer players. It is suggested that this study be replicated with female professionals when a North American women's professional soccer league is available .

2. Superstitions studies may be improved with the use of systematic observations along with the completion of the SBBPQ or its equivalent in other sports.

3. It could be useful to chose national final competitive games, or play-off competition to ensure being able to compare the uncertainty and importance of the play outcome, at the professional, university, and under 15 levels of play.

4. Conduct a similar investigation with players less involved in soccer at various age and ability levels, and reexamine the relationship between superstition endorsement and pre-competitive anxiety.

5. Since it was found that the cognitive and somatic anxiety subscales were not independent for the under 15 girls' group, the CSAI-2 may have to be redefined, because the young teenage girl soccer players may not distinguish the cognitive and somatic components of anxiety.

6. Replicate this sort of study with athletes at other levels and in other sports to see if what was found in this study may be considered as a universal truth regarding superstitious behavior and pre-game anxiety.

7. Replicate this sort of study giving an opportunity for the athletes to indicate in open ended question format their own patterns in the use of superstitions and coping skills.

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APPENDICES

APPENDIX A

COMPETITIVE STATE ANXIETY INVENTORY-2

Directions: A number of statements that athletes have used to describe their feelings before competition are given below. Read each statement and then circle the appropriate number to the right of the statement to indicate *how you feel right now*—at this moment. There are no right or wrong answers. Do *not* spend too much time on any one statement, but choose the answer which describes your feelings *right now*.

	Not At All	Somewhat	Moderately So	Very Much So
1. I am concerned about this competition	1	2	3	4
2. I feel nervous	1	2	3	4
3. I feel at ease	1	2	3	4
4. I have self-doubts	1	2	3	4
5. I feel jittery	1	2	3	4
6. I feel comfortable	1	2	3	4
7. I am concerned that I may not do as well in this competition as I could	1	2	3	4
8. My body feels tense	1	2	3	4
9. I feel self-confident	1	2	3	4
10. I am concerned about losing	1	2	3	4
11. I feel tense in my stomach	1	2	3	4
12. I feel secure	1	2	3	4
13. I am concerned about choking under pressure	1	2	3	4
14. My body feels relaxed	1	2	3	4
15. I'm confident I can meet the challenge	1	2	3	4
16. I'm concerned about performing poorly	1	2	3	4
17. My heart is racing	1	2	3	4
18. I'm confident about performing well	1	2	3	4
19. I'm concerned about reaching my goal	1	2	3	4
20. I feel my stomach sinking	1	2	3	4
21. I feel mentally relaxed	1	2	3	4
22. I'm concerned that others will be disappointed with my performance	1	2	3	4
23. My hands are clammy	1	2	3	4
24. I'm confident because I mentally picture myself reaching my goal	1	2	3	4
25. I'm concerned I won't be able to concentrate	1	2	3	4
26. My body feels tight	1	2	3	4
27. I'm confident of coming through under pressure	1	2	3	4

APPENDIX B

SOCCER BEHAVIOR, BELIEFS,

AND PREFERENCES QUESTIONNAIRE

SOCCER BEHAVIOR, BELIEF and PREFERENCE QUESTIONNAIRE

INSTRUCTIONS

Please respond to each of the following statements by checking off the most appropriate response in one of the columns at the right.These answers should reflect YOUR Behavior, Beliefs and Preferences as a Soccer player.

Do not write your name on this questionnaire.This will enable you to answer with total honesty.Thank you for your most valuable assistance.

	ALWAYS	OFTEN	SOMETIMES	SELDOM	NEVER
	5	4	3	2	1
1- Before going on or going off the field I make a sign of the cross.					
2- When I get dressed before a game I put each article of clothing on in a particular order.					
3- On the day of the game I prefer not to shave.					
4- On arriving at the stadium I feel confident because I have followed my usual routine.					
5- I believe that using the same cleats helps me perform better.					
6- Before a free kick, a penalty kick or a shoot-out, I will kiss the ball for a good luck.					
7- I believe that I perform better in some colors more than others.					
8- It is important for me to put on my socks in the same way before a game.					
9- Before the game I consciously prepare my bag the exact same way.					

10- Before the beginning of the game I believe that is important that we come on to the field with the team in the same order.

11- I feel better when I am in the same place in the lockerroom.

12- I like to have the same number on my jersey.

13- When my team wins or when I perform well, I like to wear the same clothes again for the next game.

14- I feel better when I wear the same underwear during games.

15- When I have played well, I prefer not to have my clothes washed before the next game.

16- Before each game I believe in cleaning and waxing my cleats in a particular way.

17- Before a game I like to touch the posts and/or the nets of the goal.

18- I like to finish off my warm-up with a good move (shoot, receiving, pass or catch).

19- On the road I feel better if I always share my room with the same person.

20- If I have a good game on the road, I like to have the same place in the lockerroom on the next trip.

21- I wear my favorite piece of jewelry (i.e a ring, a chain, a pendant, an earring) during games to bring me luck.

22- I feel more confident if I do my warm-up in the same way.

23- I have a good-luck charm inside my bag or on me.

24- I like to start the game on a particular side of the field, so I will be playing the second half in my preferred direction.

5	4	3	2	1

25- I feel I play better if someone special (i.e girlfriend/boyfriend, parents, friends) are spectating.

26- If our coach doesn't give us a pep-talk before the game I feel less prepared.

27- The night before and the day of the game I like to eat the same things.

28- I kiss a lucky-charm upon entering the field, or after scoring a goal or winning a game.

29- After scoring a goal I need to perform a ritual move.

30- I like to put on my jersey or my shoes before my shorts or vice versa.

31- During games I wear a religious symbol.

32- I prefer not to play with the number 13 on my jersey.

33- I feel better prepared if the physiotherapist tapes a part of my body even though I have no injury.

34- I feel that disruption or change in my warm-up can be a bad sign for the coming game play.

5	4	3	2	1

APPENDIX C

SOCCER BACKGROUND INFORMATION FORM

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SOCCER BEHAVIOR, BELIEF AND PREFERENCE QUESTIONNAIRE

BACKGROUND INFORMATION

BIRTHDAY: ----------

SEX (circle) : MALE--- FEMALE---

CATEGORY (circle) : BANTAM-- MIDGET--JUNIOR--SENIOR

COMPETITION EXPERIENCE in SOCCER YEARS ----------

At what levels?.

ELITE PLAYERS	----------
PROVINCIAL	----------
NATIONAL	----------
PROFESSIONAL	----------
INTERNATIONAL	----------

During peak season, how many days per week do you practice?

APPENDIX D

LETTER OF INFORMED CONSENT FOR PROFESSIONAL AND UNIVERSITY ATHLETES

APPENDIX E

LETTER OF INFORMED CONSENT FOR PARENT OR GUARDIAN OF THE UNDER 15 ATHLETES

APPENDIX F

CERTIFICATE OF ETHICAL ACCEPTABILITY