The effect of stress on female collegiate athletes' alcohol consumption

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THE EFFECTS OF STRESS ON FEMALE COLLEGIATE ATHLETES' ALCOHOL CONSUMPTION

by

Holly M. Thornton

A Thesis
Submitted in partial fulfillment of the requirements of the Master of Arts Degree of The Graduate School at Rowan University May 1, 2004

Approved by ______________________________
Professor

Date Approved 5/4/04
The purpose of this research study was to investigate the relationship between the amounts of stress female student athletes experience with the amount of alcohol they consume at the collegiate level. It was hypothesized that the more stress a student athlete experiences the more likely she is to consume alcohol. Thirty-five female student athletes from the east coast of the United States filled out surveys assessing the amount of stress experienced and the amount of alcohol consumed, and proved the proposed hypothesis to be false. The Pearson Correlation Analysis was used and found that there was no significant relationship between stress and alcohol consumption among female student athletes at the .01 level. There may have been other extraneous variables that were not considered or controlled for during the collection of data. A one-way ANOVA was also conducted to examine any patterns among the type of sport played, Division played, and year in school in regards to stress experienced and alcohol consumption. Results showed a significant difference between lacrosse players and golf players and stress, and between Divisions and stress. Implications for future research and alternative directions for research are discussed.
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CHAPTER I

Need

There is very limited research done in sport psychology related to the study of stress on collegiate athletes (Anshel, Williams, and Williams, 2000), and according to Gay, Minelli, Tripp, and Keilitz (1990), the number one drug abuse problem among college athletes is alcohol. There seems to be a connection between these two aspects, therefore, an investigation on the topic seems crucial. Understanding why athletes drink alcohol is important for the health and safety of individuals and the public.

Also, more recently, comprehensive assessments of student athletes' drinking have revealed that student athletes are most likely to be at greater risk for alcohol abuse than non-athletes. Little is known about alcohol misuse among collegiate athletes because the research seeking to explain the problem is lacking, and previous research only focuses on the prevalence of drinking behaviors for athletes compared with those of non-athletes (Thombs, 2000). According to Martens (2003) prior research has indicated that collegiate athletes tend to consume more alcohol than their non-athlete counterparts, and the reasons for this statistic have yet to be tested empirically.

Purpose

The purpose of this study is to supplement the prior research that has been conducted and to contribute to the understanding of the association between stress,
caused by playing a collegiate sport, and alcohol use. This study will also help to identify the extent (if any) athletes use alcohol to lesson anxieties and pressures associated with being a student and an athlete. College athletic departments need to become involved in campus alcohol education efforts, while coaches and athletic directors should influence athletes to curb abusive drinking behavior. Stress is not inherent in all sports or experienced by all athletes, but it is imperative to have the ability to cope effectively with stressful events. This study will allow the athletic departments to be more knowledgeable in the area of stress, which is related to the dual role of being a student athlete, and how alcohol plays a large part in relieving that stress.

Hypothesis

According to sport psychology literature, student athletes misuse alcohol to cope with psychological stress from competition (Thombs, 2000). Therefore, there seems to be a direct link between alcohol consumption and athletes, which emphasizes the unique pressures athletes deal with everyday. Because student athletes are a special population, who experience dual roles, this study hypothesizes that the more collegiate athletes are under stress, the more likely they are to consume alcohol.

Theory

This study focuses on the relationship between stress and alcohol use among college athletes. The tension-reduction hypothesis suggests that people use alcohol to reduce stress. Stress has been found to be a major contributor to the initiation and
continuation of alcohol and drug use (Brady and Sonne, 1999). Therefore, it is important to understand how stress physically and mentally affects an individual.

Stress is generally referred to as the reactions of the body to certain events or stimuli that an individual perceives as potentially harmful or distressful (Brady and Sonne, 1999). When put in a potentially harmful situation the body creates a stress response, which is a set of complicated behavioral, biological and emotional reactions. Behavioral reactions would be to escape or avoid behaviors, biological reactions consist of an increase in heart rate, blood pressure, or sweating, and an emotional reaction would be to experience feelings of anxiety (Brady and Sonne, 1999).

Brady and Sonne (1999) explain how stress and the body’s response to it play a role in the vulnerability to initial alcohol use. This relationship maybe explained by common neurochemical systems, such as the serotonin, dopamine, and opiate peptide systems, as well as the hypothalamic-pituitary adrenal (HPA) axis. A stress response is coordinated by two mechanisms, which are the changes in activities of various brain regions and brain chemicals, and changes in the activity of the hormonal system or HPA axis. Neurotransmitters, such as serotonin, dopamine, and opiate peptides control the stress response. The opiate peptides directly lead to pain relief, while dopamine is shown to increase blood pressure and heart rate.

Also, the activation of neurons in this brain response to stress, releases hormones, such as corticotropin-releasing hormone (CRH), which is then transported from the hypothalamus to the pituitary gland, where adrenocorticotropic hormone (ACTH) is released. ACTH eventually reaches the adrenal glands and starts the production and release of glucocorticoid hormones, which regulate the body’s varied physiological
responses to stress, such as increased heart rate and sweat gland activity (Brady and Sonne, 1999). This biological description of a stress response shows how the physiological reactions contribute to various behavioral and emotional consequences of stress, which may lead to an individual’s vulnerability to initial alcohol use.

The physiological explanation of the experience of stress is quite complex and not easily understood, but the state of stress that most individuals are more familiar with are characterized by mood change, more intense and focused emotional experiences, such as one feeling anxious or tense, and worn out or depressed. Alcohol may be effective in alleviating these feelings, but this alleviation is dependent on the interactions of pharmacological, personality, and environmental factors (Powers and Kutash, 1978). Alcohol intake has both central nervous system depressants and excitatory effects, neurochemically, electrically, and clinically, but the depressant effects predominate earlier (Handbook of Stress, 1982).

The tension-reduction hypothesis states that alcohol reduces one’s tension but on some occasions the reduction of tension appears to be due not to actual decreased response to stress caused by alcohol in the body, but to decreased attention or diversion of attention from the affective response state (Handbook of Stress, 1982). This approach of attention diversion is closely related to the aspect of an individual denying or ignoring their state of stress.

The physiological aspects of alcohol use and stress on the body are important in this research, but the amount of stress collegiate athletes experience is also necessary to examine because it may explain what the leading causes are of an athlete’s stress, which could then lead to alcohol use. Athletes are subject to the same pressures regarding
alcohol use in the general population, but they must also cope with the added stress and pressure inherent with their status as a student athlete (Parham, 1993). Student athletes may engage in drinking alcohol for comforting support, which they would normally receive from friends or family.

Collegiate athletes are expected to maintain a high-level of performance, both athletically and academically. Therefore, they are dealing with dual roles. Athletes are continually under the constant scrutiny of coaches, teammates, fans, and the media. These pressures turn out to be more difficult to developmentally handle, and as a result they turn to alcohol to ease the burden of these stressors.

Student athletes have constant exposure and an elevated status on campus; therefore, they are typically placed in situations that cause stress and anxiety. Many student athletes lack productive stress management techniques and instead choose coping strategies that are maladaptive, such as consuming alcohol. There is a variety of stressors student athletes experience with their dual roles, but the following ones are experienced most often.

The term student-athlete refers to the idea that an individual is involved in athletics and academics. Learning to balance academic and athletic pursuits is perhaps one of the most obvious challenges (Lanning, 1982; Pinkney, 1991; Remer, Tongate, & Watson, 1978, Wittmer, Bostic, Phillips, & Waters, 1981). Academics include attending classes, study hall hours, and tutoring sessions. Athletic demands include attending practice and games, participating in strength and conditioning programs, and post-game physical therapy (Parham, 1993). All of these activities are very time-consuming, which may create stress for any student athlete. Also because of the tremendous time
commitment involved with both academics and athletics, athletes are forced to sacrifice substantial amounts of social and leisure time (Austin, 1978; Lanning, 1982; Masland, 1983; Nelson, 1983). These time constraints make student athletes feel somewhat left out because they do not have the time to develop other hobbies or interests or even form friendships.

Another stressor for a collegiate athlete would involve coping with athletic success and failure. When an athlete is successful, he or she may feel more pressure to consistently be successful by not only themselves, but by his or her coach, teammates, and even fans. On the other hand, there are athletes who are constantly trying not to fail or to just make it, which creates an enormous amount of pressure. Also, seeing teammates or opponents succeed can be quite stressful (Antonelli, 1966; Cavenar and Werman, 1981).

Physical injury is also an extremely stressful event for a student athlete to endure. Besides dealing with the physical pain, an athlete must deal with the psychological pain of not being able to compete. The pressures and stress that come from an injury are physical pain, as well as the worry of a potential threat of a future injury. Also, the termination of an athletic career is also very difficult for athletes to cope with. Many collegiate athletes expect to move on to the professional level, and even if they realize that professional sport participation is not an option they may be reluctant to give up the identity of an athlete (Spady, 1970). For those athletes whose identity has been drawn exclusively from athletic participation, anticipation of life after college athletics can be scary (Pinkerton, Hinz, and Barrow, 1989). According to Parham (1993) it is common
for athletes to experience anxiety and fear when approaching the termination phase of their career as an athlete.

All of these issues place an enormous amount of stress on athletes. Student athletes feel they have to please too many people, such as coaches, teammates, teachers, school officials, classmates, fans, and members of the media. For some student athletes alcohol acts as a stress reliever, temporarily taking away all worries and anxieties.

Definitions

**Adrenal Glands** – either of two small, dissimilarly shaped endocrine glands, one located above each kidney, consisting of the cortex, which secretes several steroid hormones, and the medulla, which secretes epinephrine

**Adrenocorticotropic Hormone** – (ACTH) a hormone produced by the anterior lobe of the pituitary gland that stimulates the secretion of cortisone and other hormones by the adrenal cortex

**Corticotropin-Releasing Hormone** – (CRH) a hormone produced by the hypothalamus that stimulates the anterior pituitary gland to release adrenocorticotropic hormone

**Dopamine** – a neurotransmitter located in the brain, which increases blood pressure and heart rate

**Dual roles** – two or more socially expected behavior patterns usually determined by an individual’s status in a particular society

**Hypothalamic-Pituitary Adrenal Axis** – (HPA) also known as the human hormonal system

**Maladaptive Behaviors** – an action or response that is not conducive or is inadequate in
adaptation, such as drinking alcohol to avoid or cope with problems

**Negative Reinforcer**—something that eliminates an unpleasant experience

**Neurotransmitters**—a substance that transmits nerve impulses across a synapse

**Opiate peptide**—a neurotransmitter located in the brain, which leads to pain relief

**Serotonin**—a chemical substance that is derived from the amino acid tryptophan. It occurs in the brain, intestinal tissue, blood platelets, and mast cells. It functions as a neurotransmitter, concentrated in certain areas of the brain, especially the midbrain

**Stress**—is a combination of psychological, physiological, and behavioral reactions that people have in response to events that threaten or challenge them

**Stressors**—the events that threaten or challenge people; they are the sources of stress; they are daily hassles that are the little hassles or annoyances that occur practically everyday

**Stress response**—psychological, physiological and behavioral reactions to stressors; anxiety, depression, concentration difficulties, and muscle tension are all examples of stress responses

**Student Athletes**—individuals who engage in both academics and athletics simultaneously

**Tension-Reduction Hypothesis**—a hypothesis which suggests that alcohol acts as a negative reinforcer to reduce stress and anxiety

**Assumptions**

This research study was conducted in a way that allows all participants to experience the same directions and administration of the research measures. It was
necessary to make the methods of the experiment standardized and equal across all of the subjects who participated. Also it can be assumed that all other confounding variables were accounted for and eliminated in the research method.

The participants in themselves will have individual differences, which may explain their alcohol consumption. This should be kept under consideration when examining the results because in this experiment it is the experimenter’s goal to only focus on the correlation between stress and alcohol use. And finally, the participants will be aware of the confidentiality of their self-reports, but there is always a possible estimate of error related to inaccurate self-reports.

Limitations

In this research study all measures relied on self-reports. Respondents were informed that their responses were going to be anonymous and private, which allows the measures and results to be considered valid. However, some degree of inaccurate reporting is probable. Also, after examining the results the experimenter cannot conclude causation, instead he or she can only examine the relationship between the variables studied.

Another limitation that must be considered is the fact that the investigation was conducted on only two campuses, which means caution is needed when generalizing the findings. The two college campuses involved in this study are both geographically located on the east coast of the United States, and again this will limit the capability to generalize across the entire nation. The sample also consisted of only female field hockey players, female lacrosse players, and female golfers, therefore, generalizing the results to
any collegiate athlete population maybe risky or inaccurate.

**Summary**

In the current research study the experimenter first examines and reviews the history and past research on the topic of the relationship between stress and alcohol use among collegiate athletes. The experimenter then discusses the design of this research by explaining the methods used and the participants used to collect the data. Next, the experimenter states the results that were found and makes a conclusion based on the suggested hypothesis. Finally, the results will be discussed along with the possible limitations of the study and suggestions for future research on this particular topic.
CHAPTER II

Introduction

The present research examined the relationship between stress and alcohol use among female collegiate athletes. The experimenter was interested in examining if whether the more stress a student athlete was experiencing then the more likely she would be to consume alcohol. There have been numerous amounts of research covering the relationships of alcohol and athletes and stress and athletes, but there have been very few studies done on the combination of stress and alcohol on the athlete. A literature review was conducted and in this chapter the past research on these issues will be summarized. First, the review of literature on the causes of stress in athletes will be covered. Then literature on the correlations between alcohol use and student athletes will be explained. And finally, the slight literature that has examined the effects of stress on alcohol consumption will be examined and compared to the current research study.

Stress and Athletes

In a study on the risk factors for disordered eating in female university athletes, Berry and Howe (2000) concluded that social pressures from coaches and peers were significant predictors of restrained eating. Just as turning to alcohol, developing an eating disorder is just another maladaptive way of coping with stress. Two major risk factors that they found to affect female athletes were competition anxiety and social pressure. This research also supports the idea that athletes are under an extreme amount
of stress, and in this case the female athletes were found to cope by controlling their eating and eventually developing eating disorders. These females were also found to have low self-esteem and their eating disorders were developed particularly by the added pressures of the sport's arenas (Berry et al., 2000). These findings enhance the suggestion that stress caused by athletics has a huge impact on the behaviors of student athletes.

Unfortunately, most people are insensitive to the amount of pressure that can build up within student athletes. According to Humphrey, Yow, and Bowden (Lee, 2001) unreleased pressure converts to stress. Lee (2001) compares the settings of the educational or working environment with the athletic arena. Students and workers rarely walk into the classroom or an office to the sound of boos or are subject to the possibility of public failure and humiliation. The environment, in which athletes perform is filled with extreme conditions, which not only causes stress, but can affect an individual’s self-esteem and confidence (Lee, 2002). Humphrey et al (Lee, 2001) defined stress demands that exceed the resources of the human body over an extended period of time. During that time the body strains to maintain a state of equilibrium and the authors’ main point is to raise awareness. Knowledge of the effects of stress is absolutely necessary to maintain good mental and physical health (Lee, 2001).

Many tools have been used to quantify all the stressors that influence the elite athlete. McKenzie (1995) used a 10-item questionnaire that highlighted the different stressors and created a stressor index for medical, psychological, training, and miscellaneous conditions. The results showed that athletes who became over-trained tended to show a pattern to the change in their stress indices. The first change is in
psychological markers, then physiological markers (McKenzie, 1995). According to McKenzie (1999) overtraining is a serious concern for athletes and the most promising tool at present is a measure of mood state, and there are several psychological tools that can be used for that purpose.

Holt and Hogg (2002) categorized the sources of stress into four main themes: coaches, demands of the sport, competitive stressors, and distractions. Stress theorists view stress as a dynamic process that involves a transaction between the environment and personal factors (Dugdale, Eklund, & Gordon, 2002). When athletes become inefficient in managing external and/or internal stressors they are considered to be in the state of failure adaptation (Tennenbaum, Jones, Kitsantas, Sacks, & Berwick, 2003). The results of failure adaptation for athletes training for and competing in athletic competition are failure to meet their designated goals, which may create stress. Tennenbaum et al (2003) stated that one category of stressors relates to the physical intensity, frequency, duration, and recovery period from practice. Athletes are often over-trained, which results in the diminishing of performance, which also creates stress. Another category of stressors that Tennenbaum et al (2003) found related to the failure of utilizing coping strategies, which lead to psychological burnout. In their research they also presented an alternative view of failure adaptation responses by systematically considering psychological stressors, which can lead to maladaptive behaviors, like drinking alcohol, without the necessary presence of physiological over-training (Tennenbaum et al., 2003).

Kimball and Freysinger (2003) examined collegiate sport and individuals' experiences of stress created from participation in athletics. The experimenters interviewed collegiate athletes and found that sports act as an experience of stress. They
also concluded that participation in athletics may also act as a buffer (Kimball et al., 2003), which would contradict this current research that states that being a student athlete causes stress.

Dunn, Dunn, and Syrotuik (2002) examined the relationship between perfectionism and goal orientation in sports. Many athletes strive to be perfect and/or to accomplish set goals. Perfectionists set very high personal standards of achievement, are driven by a powerful need to succeed, and are highly motivated to do their best on tasks they undertake (Hamachek, 1978; Dunn et al., 2003). On the other hand, other perfectionists are driven by the overwhelming need to avoid failure (Blatt, 1995; Hacheck, 1978; Dunn et al., 2002). With these perfectionist mentalities collegiate athletes are subject to feelings of inadequacy and negative affect in achievement and failure situations. These high standards can have destructive consequences, from an affective and motivational perspective, when combined with high levels of perfectionisms on other dimensions, such as concern over mistakes, parental pressure, or socially agreed perfectionism (Blatt, 1995; Dunn et al., 2002).

Parental pressure seems to be a central factor in the cause of stress in collegiate athletes. In Helldstedt’s (1990) research article, he summarizes the findings of young adolescents’ perceptions of degree of parental pressure to compete, continue in participation in the sport, parental performance appraisal, and the athlete’s personal reaction. Parental pressure is the amount of motivational influence the parent exerts on the athletes to compete in sports, perform at a certain level, and continue to participate in sport. A major mechanism, which contributes to parental influence, is performance evaluation. Fear of failure may exist from different sources, such as the self, a peer, or a
coach, but a major source appears to be the young athlete’s parents (Helldstedt, 1990). Helldstedt (1990) also found from his relatively small sample that a moderate to excessive level of parental pressure does exist among athletes. He also found that low amounts of pressure are related to positive reactions, while high levels of parental pressure are likely to elicit negative emotional reactions, such as stress.

According to Fletcher and Hanton (2003) other stressors for collegiate athletes involved preparation and performance problems, judges’ decisions and competition organization, coach and teammate influences, coaching, managerial, and administrative decisions, social support, accommodation, travel, nutrition, and training facilities, and financial and time pressures. All of these demands when experienced simultaneously can have a major impact on the amount of stress experienced by a collegiate athlete. In this research the stressors were broken down into environmental issues, personal issues, leadership issues, and team issues. It has been estimated that approximately 10% of American college student athletes suffer from problems appropriate for counseling interventions (Hinkle, 1994). According to Murray (1997) while college student athletes tend not to seek help they report the need for professional counseling in the areas of time management, stress, burnout, fear of failure, anxiety, depression, and self-confidence/worth.

Anshel, Williams, and Williams (2000) researched the various coping styles collegiate athletes used in response to the stress caused by participating in competitive athletics. The experimenters asked Australian and United States college-aged participants to reflect upon “the most stressful situation that occurred in sports during the preceding three weeks.” The responses were numerous, but the seven most common
answers were: a physical or mental error, a reprimand from the coach, cheating by an opponent, an opponent's performance success, pain or discomfort, an undesirable or "bad" call by the official, and environmental conditions, such as weather conditions, crowd reactions, or poor field conditions (Anshel et al., 2000). These results conclude that athletes are faced with a number of events that become stressors, which individuals learn to cope with either adaptive or maladaptive behaviors.

Therefore, all of these studies have shown that parental, peer, and coach pressures along with environmental conditions and other minute factors may create the experience of stress in collegiate athletes, which in turn initiates the use of some adaptive or maladaptive behavior, such as alcohol use.

Some general ways of dealing with stress, include removing unnecessary stressors from the individuals life, not allowing certain neutral events to become stressors, developing a proficiency in dealing with conditions that individuals do not want to or cannot avoid, and finally seeking relaxation or diversion from the demand. Drinking alcohol is one way to seek that relaxation or to avoid and ignore the stress a student athlete may be under.

Alcohol consumption is one coping mechanism used when individuals experience stress. Coping is seen as a range of responses brought into play in an effort to manage a stressful encounter (Steptoe, 1991). Athletes are consistently faced with stressful events, and when they actually find time to relax, many of them use that time to "party" by consuming alcohol.
Alcohol and Athletes

According to Ham and Hope (2003), problem drinking during the college years is a significant public health concern. Also, research has shown that alcohol is the most common drug used on American college campuses, and although past research has focused on the demographic characteristics associated with drinking patterns relatively few researchers have examined the connection between intercollegiate athletics and drinking (Leichliter, Meilman, Presley, & Cashin, 1998). Some researchers suggested that athletes would be more likely to maintain good physical fitness and therefore, be less likely to consume alcohol. More recent research disagrees, and believes that athletes are as likely if not more likely to engage in drinking alcohol than the general student population. Leichliter et al (1998) concluded that athletes consumed more alcohol than non-athletes. Therefore, it seems important to investigate the reasons for why this may have occurred.

One study looked at alcohol use, binge drinking, and substance abuse – related consequences among students participating in different levels of intercollegiate athletics (Leichliter, Meilman, Presley, & Cashin, 1998). The participants answered questions about their involvement in athletics on the long form of the Core Alcohol and Drug Survey, which was designed to assess various factors related to students’ drug and alcohol use on college campuses. The 39-item instrument covers a variety of areas, such as demographics, extracurricular activities, alcohol and drug use, perceptions of the campus environment, campus climate, violence, and negative consequences that result from alcohol and drug use (Leichliter et al., 1998).
Leichliter et al (1998) found that both male and female athletes consumed significantly more alcohol per week, engaged in binge drinking more often, and experienced more adverse consequences from their substance abuse. This suggests that further research is necessary to become more knowledgeable about athletes and their consumption of alcohol. Leichliter et al (1998) suggested that future research should explore the differences in alcohol use among non-athletes, athletes, and team leaders.

Nelson and Wechsler (2001) examined heavy episodic alcohol consumption and harms associated with drinking in collegiate athletes in the United States. The experimenters randomly selected students from a nationally representative sample of 4-year colleges to complete self-report questionnaires. These athletes were then compared with other students at their college. Nelson et al (2001) found that athletes again reported more binge drinking, heavier alcohol use, and a greater number of alcohol-related harms. Therefore, in conclusion athletes were found to be a high-risk group for binge drinking and alcohol-related harms.

Wechsler and Davenport (1997) used the method of a mailed survey to collect data when researching binge drinking, tobacco, and elicit drug use and the involvement in college athletics. The participants consisted of students from 140 American colleges. The results from the surveys indicated that student athletes engaged in binge drinking and chewed tobacco more often than students not involved in athletics, but were also less likely to be cigarette smokers or marijuana users (Wechsler et al., 1997).

In the past it has been suggested that sport participation reduces the risk of substance use. Eitle, Turner, and Eitle (2003) reexamined this deterrence hypothesis, which is characterized by the ideas that athletes are less likely to be friends with deviant
peers, they have stricter supervision because of training rules and regulations, they have increased bonding to school, they have the ability to express masculinity through sports rather than deviant behavior, and therefore, they would be less likely to be labeled deviant as well. Using two waves of data collected from a group of students when they were preteens and as young adults, the study examined the association between high school sports participation and young adult substance use (Eitle et al., 2003). The results revealed that playing high school sports does not appear to be a protective factor that lowers one’s involvement in young adult alcohol or drug use. Therefore, there may be an association between athletes and alcohol consumption. Meilman, Leichliter, and Presley (1999; Leichliter et al., 2003) found that college students who were participants in both Greek life and intercollegiate sports consumed the most alcohol and had the biggest problem with binge drinking among forty-five thousand surveyed students.

A unique correlation between drinking alcohol and sport participation was suggested by the research of Kunz (1997). This study hypothesized that drinkers are physically more active than non-drinkers because the drinkers tend to be younger, males, or single. The Ontario Health Survey (OHS) was administered to classify drinkers as abstainers, former drinkers, current light drinkers, and other current drinkers. The results of this study offer limited support to Kunz’s (1997) hypothesis. Therefore, this research can only suggest that more research is necessary to uncover the associations between drinking and sports participation.

Another area of research that deals with alcohol use and athletes is the comparison between high school and college athletes and non-athletes. Hildebrand, Johnson, and Bogle (2001) compared the patterns of alcohol use and engagement in
alcohol-related risk behaviors by collegiate athletes, college students, who were athletes before college, and those who were never athletes. The students completed a 20-item survey designed to identify patterns of alcohol use and alcohol-related behaviors (Hildebrand et al., 2001). The resulting data concluded that college students who were previously or currently athletes consumed more alcohol, began drinking earlier and engaged in alcohol-related risk behaviors more frequently than college students (Hildebrand et al., 2001).

Another research study tested the ability of perceived drinking norms to differentiate among the drinking patterns in a sample of NCAA Division I student athletes. Thombs (2000) used an anonymous questionnaire to assess 297 athletes. The results revealed that higher levels of alcohol involvement are disproportionately found among athletes who began drinking regularly at an early age (Thombs, 2000). Many experimenters have speculated about two possible explanations for student athletes engaging in drinking alcohol. First they suggest that student athletes misuse alcohol to cope with the psychological stress of competition (Tricker et al., 1989). The second explanation suggests that student athletes’ drinking behavior is driven by the same social influences that shape drinking behaviors among other groups of students (Wechsler, Davenport, Dowdall, Grossman, & Zanakos 1997).

Gay, Minelli, Tripp, and Keilitz (1990) also suggested that the number one drug abuse problem among collegiate athletes is alcohol. Gay et al (1990) surveyed literature and presented procedures for initiating drug and alcohol education courses specifically for student-athletes. The current review of literature has found that alcohol consumption is somehow correlated with collegiate athletes. Therefore, this research hopes to
hypothesize correctly that stressors related to being a student athlete are also correlated to the use of alcohol among the athletes.

According to Thomb (2000) both male and female college students who have increasing levels of involvement in athletics, appear to be associated with greater alcohol use frequency, quantity of consumption, and heavy episodic drinking during a 2-week period preceding various surveys. Thomb (2000) says that little is known about alcohol misuse among college athletes because the research is so little. Almost all previous studies focused on the prevalence of drinking behaviors rather than the possible explanations. Stainback (1997) says that sport psychology literature suggests that student athletes misuse alcohol to cope with the psychological stress of competition.

**Stress, Alcohol, and Athletes**

There have been few empirical studies researching the relationship of stress and alcohol use. One study that did cover this topic tested the reliability of a state measure of psychological distress, which was developed from the MMPI item pool. The MMPI items selected represented three symptom areas frequently associated with the ability to cope with stress (McLachlan, 1977). In this research the participants consisted of detoxicated, chronic alcoholics, who were undergoing a 1-month inpatient treatment program and a sample of normal individuals. McLachlan (1977) concluded that the sample of alcoholics scored higher than the normal sample of medical patients on this measurement of stress. This supports the idea of this current study that individuals under stress engage in drinking alcohol. However, it should be kept in mind that it could be the
behavior of drinking alcohol that causes the stress or that the two variables could have a reciprocal effect on each other.

There has also been previous research that has found that stress, coping styles, tension-reduction expectancies, and coping reasons for drinking are individual predictors of alcohol outcomes (Egeth, 2002). Egeth (2002) found through regression analyses that, as predicted, life stress, tension-reduction expectancies, and coping reasons for drinking cross-sectionally predicted levels of alcohol use and problem drinking. These results have implications that further research should be conducted on the psychological factors of stress and drinking behavior.

Brady and Sonne (1999) wrote an in-depth article on the role of stress in alcohol use, alcohol treatment, and relapse. Stress is said to be considered a major contributor to the initiation and continuation of alcohol or other drug use (Brady et al., 1999). Many studies focused on occupational stress as an example of stress initiating alcohol consumption. Results indicated that men in positions combining little freedom in choosing how to do their job and high job demands reported the highest drinking levels and the most alcohol-related problems (Brady et al., 1999).

Those results support the present research because occupational stress is quite similar to the stress that coaches, parents, and peers place on student athletes. Student athletes are told what to do or how to practice, and they must also deal with the high demands that are put on them through their physical performance.

Brady et al (1999) also analyzed stress-response dampening (SRD) effects, which are those consequences of alcohol consumption that result in a reduction of both the body’s emotional responses and physiological responses. In regards to SRD
experimenters concluded that an enhanced sensitivity to alcohol's SRD effect may contribute to an increased vulnerability of people with anxiety disorders for initiating and escalating alcohol use (Brady et al., 1999). In summary, the relationship between stress and alcohol and other drug use is quite complex. However, stress and the body's response to it do play a role in the vulnerability to initial alcohol and drug use.

Evans, Weinberg, and Jackson (1992) found an interesting result in their research on the psychological factors associated with drug use in college athletes. They found that females in the low alcohol use sample and the non-users sample felt more pressure from coaches to perform well than did females in the high user group, and for males the reverse was true (Evans et al., 2002).

Fouquereau, Fernandez, Mullet, and Sorum (2003) were interested in understanding why people drink alcohol because of the importance drinking has on health and the safety of individuals and the public. The experimenters created 25 scenarios which combined two items, which were two life-changing events or a social situation and an emotional state. The participants were asked to judge the degree to which these scenarios were stressful and the degree to which they stimulated the urge to drink (Fouquereau et al., 2003). Unlike the former research that suggests stress is a factor involved with alcohol consumption, this research found that alcoholics and non-alcoholics, regardless of gender, placed similar stress values on the scenarios. However, they did differ in how they judged the urge to drink (Fouquereau et al., 2003).

Watson (2003) created an article which included diagnostic criteria, current treatment methods, and a brief assessment instrument for detecting substance-related disorders. Understanding the sources of stress for most student athletes may help in
identifying leading factors that cause some students to engage in consuming alcohol.

Watson (2003) suggested two major causes of stress for student athletes that are pertinent to the current research is the balancing of athletics and academics and managing athletic success and failure. Because of their dual role as student athletes, some individuals may feel a great amount of pressure. They may also feel they have to be perfect or please too many people, such as coaches, teammates, teachers, school officials, classmates, fans, and members of the media (Watson, 2003). According to Leichliter et al (1998) alcohol acts as a stress reliever, temporarily taking away all the worries and anxieties. A number of researchers and health educators have described the distinct concerns that student athletes face: the maintenance of athletic performance while responding to injuries and stress, academic performance, career or vocational concerns, and social isolation (Tricker, Cook, & McGuire, 1989). This supports the idea that student athletes have dual roles, which may predispose them to substance abuse.

Flam (2002) examined the demands that the majority of women in the United States manage for both work and family roles. It is important to consider dual-role experiences and how they affect an individual’s physical and psychological well-being. Just as the current research hypothesizes, Flam (2002) also suggests that higher levels of stress would be associated with higher levels of alcohol intake. Unfortunately, in the context of work and family roles, the results did not provide support for this hypothesis. Therefore, it seems obvious that more research should be conducted with the elimination of extraneous variables. However, in another study, the construct validity of the Reeder Stress Inventory (RSI) was compared to smoking and drinking habits, and conclusions supported the idea that higher levels of stress, as measured by the RSI, were associated
with greater levels of consumption of alcohol (Metcalf, Smith, Wadsworth, Sterne, Heslop, Macleod, & Smith, 2003).

Bower and Martin (1999) studied the use of drugs and alcohol by National Collegiate Athletic Association (NCAA) Division I African American female basketball players and their reasons for doing so. They found that 72% of the 50 African American women in this study reported having consumed alcoholic beverages. The reasons given by the female athletes for engaging in drinking alcohol were for social reasons, for boredom, and for trying to "feel good" or "peer pressure" (Bower et al., 1999). Bower et al (1999) disagree with the current research in that they found female athletes used alcohol for the same reasons that college students do, namely social drinking, but they do not use alcohol to cope with the stress of being college student-athletes. However, Bower et al (1999) did state that college athletes serve as role models for younger students, who aspire to model their skills and behaviors. Also the student athlete's community holds athletes in high regards and is expected to perform at high levels, maintain acceptable grades and represent their institutions in a positive manner. This definition of performance does not just involve sports but it encompasses academics, social, and decision-making performance. In other studies these factors have been shown to produce stress for student athletes.

There are many psychological factors associated with alcohol use. These factors were examined in a study done by Green and Burke (1995). The psychological factors included tension-anxiety, depression, anger, fatigue, vigor, confusion, and self-esteem. Green et al (1995) also tried to identify whether pressures of anxieties resulting from academics, parents or guardians, and coaches were associated with alcohol use. Unlike
the current research which used collegiate athletes, Green et al (1995) used 148 male and 152 female high school athletes from several Midwestern United States high schools.

The experimenters used four separate questionnaires to collect the research data. The first questionnaire consisted of demographic and academic items, such as age, gender, sport, and grade point average. The students were also asked to respond on a 5-point intensity scale (1 signifying no pressure and 5 signifying extreme pressure) to seven questions regarding the pressures resulting from the role as a student-athlete (Green et al., 1995). The second questionnaire was the Profile Mood State (POMS), which measures six mood or affective states: tension-anxiety, depression, anger, vigor, fatigue, and confusion (McNair, Lorr, & Droppleman, 1977; Green et al., 1995). The third questionnaire was the Cooprersmith Self-Esteems Inventory (Coopersmith, 1967; Green et al., 1995), which consisted of 25 descriptive statements. The athletes responded with either “like me” or “unlike me”. A total self-esteem score was obtained by summing the self-esteem items answered correctly (Green et al., 1995). Finally the fourth measure was an alcohol questionnaire (Evens, 1992; Green et al., 1995), which was used to examine the frequency, intensity, and duration of alcohol use by the athlete. The participants also answered questions as to why they used, did not use, or have stopped using alcohol.

The experimenter first met with athletes in their physical education and health classes to introduce the purpose of the study and distributed consent forms. During the second meeting the four questionnaires were administered by one researcher (Green et al., 1995). Green et al (1995) found that the primary reasons given by student-athletes for using alcohol was to “have a good time with friends,” “to celebrate,” “to make the athlete feel good,” and to “help the athlete deal with the worries and pressures of school” (Green
et al., 1995). Another finding in this research that is significant to the present research is that there was a significant difference found in the demographic and academic questionnaire with regards to the stressors associated with alcohol use (Green et al., 1995). Green et al (1995) concluded in their research that there were no difference in the reasons athletes gave for using alcohol with the reasons non-athletes gave for using alcohol and that the three primary reasons high school athletes and non-athletes reported for using alcohol were to “have a good time with friends,” “to celebrate,” and to “make one feel good.” This research contradicts the current hypothesis, as well as, the results found by Leichliter et al (1998), which stated that both male and female athletes consumed significantly more alcohol than non-athletes. Also, just as Leichliter et al (1998) suggested Green et al (1995) suggested that for future research there should be a focus on identifying to what extent athletes use alcohol in attempt to lesson anxieties, which also is similar to what the current research is examining (Green et al., 1995).

Conclusion

In summary, the review of the literature has shown that stress created by the roles student athletes take-on may be an influential cause of the initiation and continuation of alcohol use among student athletes. It was concluded that collegiate athletes must deal with pressures from several different angles in their lives, such as their athletics, academics, families, and other people involved in their everyday lives. The literature also examined the role stress has on alcohol consumption. In general, the results found that individuals consume alcohol to cope with the pressures mentioned earlier that create stress for the athletes.
Finally, alcohol has been examined largely by many experimenters, and almost all would conclude that student athletes consume alcohol more than non-athletes. They also concluded that alcohol use is the number one drug used by student athletes (Leichliter et al., 1998). Because alcohol use is so prevalent on college campuses and has so many negative effects on individuals, physically and psychologically, as well as the public safety of other individuals, it seems important to examine how stress may play an influencing role on the consumption of alcohol among female student athletes, which is what this study is attempting to investigate.
Sample

The subjects of this study are from a Division I college and a Division III college, both located on the east coast of the United States. The subjects are from various socioeconomic backgrounds as well as various races and ethnicities including, 20 Caucasian, 1 Hispanics, 2 Asians/Pacific Islanders, and 2 others.

There are 35 female student athletes participating in this study. The sample includes female athletes who have participated in Division I golf and Division III field hockey and lacrosse. The ages of the students range from 18 to 22 with a mean of 19.7 years of age. All participants are both students and athletes at their respective universities.

Design

In order to collect data for this research study, the experimenter had already established a rapport with both athletic departments used in the sample. Therefore, the coaches of each team cooperatively asked their players to attend a mandatory meeting after practice, in order to help the experimenter collect the necessary data.

At that time the experimenter first distributed the consent form, which explained the anonymity each participant would receive, as well as demographic questionnaire. Following this, the experimenter proceeded to explain the purpose of the study and then
asked if there were any questions. Finally, a stress test was administered, followed by the assessment of alcohol consumption.

**Testable Hypothesis**

The Null Hypothesis states that there will be no difference in alcohol consumption between female student athletes who experience a significant amount of stress and those who experience a smaller amount of stress.

The Alternative Hypothesis states that the more significant amount of stress a female student athlete experiences the more likely they are to consume alcohol than female student athletes, who experience less stress.

**Analysis**

The variables in this research study were the amount of stress student athletes experience through their dual roles as student athletes and the measure of amount and frequency of alcohol consumption for student athletes.

A Pearson Correlation was used to measure the data. It shows a relationship between stress and alcohol consumption among female student athletes.

**Summary**

A measure of stress was administered as well as an assessment of alcohol consumption among 35 female student athletes. These two measurements were then compared to examine the relationship between stress experience and alcohol consumptions.
CHAPTER IV

Analysis of Results

The purpose of the current research is to examine the relationship between stress and alcohol use among female collegiate athletes. The proposed hypothesis states that the more stress a collegiate athlete experiences the more likely she will be to consume alcohol.

Using the Pearson Correlation Analysis the results, in Table 4.1, showed that the correlation between stress and alcohol consumption was not significant at the .01 level. A one-way ANOVA was also conducted to examine if there were any patterns regarding year in school, type of sport played, and Division played with stress and then again comparing means using those variables with alcohol consumption.

Table 4.2 shows that there was a significant difference at the .05 level between lacrosse and golf in regards to stress experienced. There was no significant difference between each sport and alcohol consumption, as well as no significant differences between year in school with both stress and alcohol consumption. And finally there was no significant difference between Division played and alcohol consumption, however there was a significant difference between Division played and stress experienced at the .05 level, shown in Table 4.3. After comparing the means, Table 4.4 shows that Division I players experienced more stress than Division III players.
Table 4.1

Relationship Between Stress and Alcohol

<table>
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<tr>
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<th></th>
<th>ALCOHOL</th>
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</thead>
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<tr>
<td></td>
<td>Pearson Correlation</td>
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<td></td>
</tr>
<tr>
<td></td>
<td>Sig. (2-tailed)</td>
<td>.057</td>
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<td>35</td>
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<table>
<thead>
<tr>
<th>STRESS</th>
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<th>ALCOHOL</th>
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<td>Sig. (2-tailed)</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>N</td>
<td>35</td>
<td>35</td>
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Table 4.2

Oneway ANOVA
Sport and Stress

<table>
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<th>SPORT</th>
<th>SPORT</th>
<th>Mean Difference</th>
<th>Std. Error</th>
<th>Significance</th>
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<tr>
<td>1</td>
<td>2</td>
<td>1.4306</td>
<td>2.37944</td>
<td>.820</td>
</tr>
<tr>
<td>1</td>
<td>3</td>
<td>-5.6444</td>
<td>2.62387</td>
<td>.096</td>
</tr>
<tr>
<td>2</td>
<td>1</td>
<td>-1.4306</td>
<td>2.37944</td>
<td>.820</td>
</tr>
<tr>
<td>2</td>
<td>3</td>
<td>-7.0750 *</td>
<td>2.30204</td>
<td>.012</td>
</tr>
<tr>
<td>3</td>
<td>1</td>
<td>5.6444</td>
<td>2.62387</td>
<td>.096</td>
</tr>
<tr>
<td>3</td>
<td>2</td>
<td>7.0750 *</td>
<td>2.30204</td>
<td>.012</td>
</tr>
</tbody>
</table>

1 – Field Hockey 2 – Lacrosse 3 – Golf
* - The mean difference is significant at the .05 level
Table 4.3

Oneway ANOVA
Stress and Division

<table>
<thead>
<tr>
<th>STRESS</th>
<th>Sum of Squares</th>
<th>Df</th>
<th>Mean Square</th>
<th>F</th>
<th>Significance</th>
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</thead>
<tbody>
<tr>
<td>Between Groups</td>
<td>307.383</td>
<td>1</td>
<td>307.383</td>
<td>9.612</td>
<td>0.004</td>
</tr>
<tr>
<td>Within Groups</td>
<td>1055.360</td>
<td>33</td>
<td>31.981</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>1362.743</td>
<td>34</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 4.4

Mean Comparison
Stress and Division

<table>
<thead>
<tr>
<th>DIVISION</th>
<th>Mean</th>
<th>N</th>
<th>Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>13.2000</td>
<td>10</td>
<td>6.14275</td>
</tr>
<tr>
<td>3</td>
<td>6.6400</td>
<td>25</td>
<td>5.46107</td>
</tr>
<tr>
<td>Total</td>
<td>8.5143</td>
<td>35</td>
<td>6.33093</td>
</tr>
</tbody>
</table>
The results have concluded that for female collegiate athletes there is no relationship between stress and alcohol consumption. There may have been too many other variables involved that were not controlled during the collection of the data.
CHAPTER V

Summary

The relationship between stress experienced and alcohol consumption among female collegiate athletes was studied. Stress was referred to as a combination of psychological, physiological, and behavioral reactions people have in response to events that threaten or challenge them. Alcohol consumption was measured by a survey inquiring about how often, how much, and reasons why individuals consume alcohol. The hypothesis stated that the more stress a student athlete endured the more likely she was to consume alcohol.

There were 35 females from a Division I University and a Division III University, both located on the east coast of the United States, that participated in this study. One University is located in Southern New Jersey, and the other is located in Maryland. The sample was from varying ethnic and economic backgrounds. Each female was a member of a field hockey, lacrosse, or golf team.

Surveys were distributed to these female student athletes to assess the amount of stress they experience and the amount and frequency of alcohol they consume. A Pearson Correlation Analysis was used to determine that there was no significant finding that high stress is related to alcohol consumption, and therefore, the null hypothesis was accepted.
Discussion

Past research on stress and alcohol consumption has been quite limited. Unfortunately the current research does not support what research there is on the topic, and therefore may explain the lack of research.

The available research on stress and alcohol consumption has shown that there is a relationship between stress and alcohol consumption. McLachlan (1977) found that a sample of alcoholics scored higher than a normal sample of medical patients on a measurement of stress. However, in this study the results may be explained by the fact that the stress in this scenario could have been created from the effects of being an alcoholic.

There has been research that has shown that alcohol is used as a coping mechanism for stress. One study found that life stress, tension-reduction expectancies, and coping reasons for drinking predicted levels of alcohol use and problem drinking (Egeth, 2002). According to Brady and Sonne (1999) stress is considered a major contribution to the initiation and continuation of alcohol use. This research concluded that stress and the body's response to it do play a role in the vulnerability to consume alcohol. The current research found no correlation between stress and alcohol consumption, but this may be explained by either the methods used to collect the data or the environment of the participants.

The surveys used in this research may have influenced the answers given by the student athletes. Many of the participants were not of legal age to consume alcohol, therefore, their responses may have been skewed because of the fear of being punished. Also the student athletes may have been overly aware of the purpose of the research
study, and may not have wanted to appear as though they had a problem with stress or alcohol use. Therefore, not completing the surveys honestly could have affected the results.

The participants in the current research were all student athletes. Being a student athlete requires much time, discipline, and hard work, that may create stress. However, it should be considered that student athletes use their athletic participation as their stress outlet, which explains why they may not consume alcohol for stress relief. Also, because student athletes have such busy schedules they may not have the time or the effort to engage in drinking behaviors.

The participants were all female and this also may have been an influence on the results. Other findings in this research study concluded that there were no significant differences among the mean scores of stress and alcohol consumption when looking at year in school or school division. However, there was a significant difference between the mean scores of the type of sport played. Results showed that golf student athletes experienced more stress than lacrosse student athletes. This may be a result of the numbers in the samples. There were far more field hockey players than lacrosse players, and far more lacrosse players than golf players, therefore the results would be affected.

Future research should consider involving a much larger sample to find the best results.

There was also a significant difference comparing the means of Division played and stress experienced. It seems that Division I athletes experience more stress than Division III players. This may be explained by the fact that they miss much more school because of their travel schedule. When Division I athletes have tournaments away from home, they may be gone for four or five days, which requires making up a lot of missed
work. Also simply playing at a more competitive level may result in more stress on the body and the mind. It may be helpful to focus a study on the differences between Divisions and stress experienced.

The current research lacks the support for the existence of a relationship between stress and alcohol consumption. Unfortunately past research has proven that unhealthy alcohol consumption is quite an epidemic in the college environment. This research was trying to link stress as an influence in order to better understand the problem. Since the research failed it is important to continue research in this area.

Implications for Future Research

As stated the current research topic needs to be further investigated. Because research has proven the high engagement in alcohol consumption among collegiate athletes, it seems pertinent that the influences or pressure of alcohol consumption should be identified.

The surveys used in this research may not have tapped into the drinking behaviors of these female student athletes, and therefore, further research should find a more efficient method for collecting data.

Because the participants in this research were student athletes it was difficult to eliminate any extraneous variables that may cause stress. Also many individuals use a variety of coping mechanisms and alcohol consumption is only one of those mechanisms. Continued research seems necessary to understand the experience of stress and the consumption of alcohol among collegiate student athletes.
Conclusions

This study lacked the credibility to support the hypothesis that the more stress experienced that more likely alcohol would be consumed among female collegiate athletes. However, because of the findings in past research that stated the prevalence of alcohol use among collegiate athletes, it is very important to discover the causes, the affects, and the long term results of alcohol consumption. It is also important to explain the significance of the responsibilities and pressures related to being a student athlete. Engaging in alcohol consumption may result in affecting both academic and athletic ability, and it is necessary to make student athletes aware of the issues, so that they can strive to be successful student athletes without the influence of alcohol and drugs.
REFERENCES


