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DISSERTATION

**ANGER AND ALCOHOL USE
A DANGEROUS COMBINATION**

Submitted by

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In partial fulfillment of the requirements

For the Degree of Doctor of Philosophy

Colorado State University

Fort Collins, Colorado

Summer, 2002

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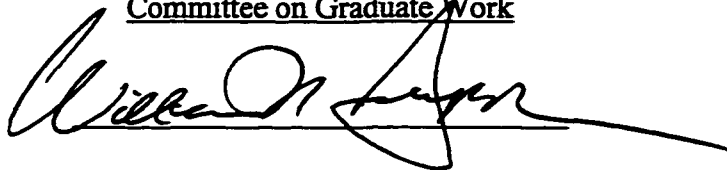
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WE HEREBY RECOMMEND THAT THE DISSERTATION PREPARED UNDER OUR SUPERVISION BY CARLA C. GRAHAM ENTITLED ANGER AND ALCOHOL USE - A DANGEROUS COMBINATION BE ACCEPTED AS FULFILLING IN PART REQUIREMENTS FOR THE DEGREE OF DOCTOR OF PHILOSOPHY.

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ABSTRACT OF DISSERTATION

ANGER AND ALCOHOL – A DANGEROUS COMBINATION

Anger and alcohol each individually lead to negative consequences, suggesting a group who may be particularly at risk – those who combine high levels of anger and alcohol. This study compared the frequency and types of alcohol- and anger-related consequences among college students who were either high or low in general anger and who reported drinking to the point of intoxication or not. Specifically, this study tested if those high anger, intoxicated individuals experienced more anger- and alcohol-related consequences than other groups.

A 2 (Gender) x 2 (High-low anger status) x 2 (Intoxication/non-intoxication status) design was used to explore how these variables relate to anger- and alcohol-related consequences. Few gender differences were found in regards to trait anger level and anger expression. However, females were more likely to experience an anger-related consequence and reported experiencing more of the negative emotion and damaging relationship type consequences due to their anger than males. Males, on the other hand, were more likely to be involved in property damage due to their anger. Men and women experienced comparable

numbers of alcohol consequences with a relatively similar frequency of physical, aggressive, and self-harm consequences. High anger individuals reported a tendency to express their anger in an inward or outward manner as well as experienced greater frequencies of anger- and alcohol-related consequences than low anger individuals. In addition, intoxicated individuals were more likely to experience alcohol- and anger-related consequences than non-intoxicated individuals. High anger, intoxicated individuals reported a much higher frequency of both anger- and alcohol-related consequences, regardless of their gender.

Two different series of hierarchical regressions were run: (1) regressions on the alcohol-related consequences and (2) regressions on the anger-related consequences. Anger and anger expression added the most predicted variance for anger-related consequences, although in several instances intoxication and gender added additional predictive variance. Frequency of intoxication was the main contributing factor for the majority of alcohol consequences, whereas trait anger and anger expression variables added additional variance.

Results were discussed in terms of convergent and discriminant validity and implications for theory and treatment planning.

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Chapter I

INTRODUCTION

Importance of studying alcohol and anger

The literature has shown that alcohol use is commonplace in today's colleges and universities. Research shows that for the past two decades college student drinking rates have remained high (Brennan, Walfish, & Aubuchon, 1986; Governale, 2000; Engel, 1989; Liebsohn, Oetting, & Deffenbacher, 1994). Thus the rates of harmful consequences that result from excessive alcohol use in this population are also extremely high. Additional research in this area is of high importance because of the wide spread effects of alcohol consumption in this population and the consequences associated with drinking on college campuses. Excessive use of alcohol has been shown to effect the relative safety of the college campus environment by contributing to increased rates of violence on college campuses (e.g., physical altercations, rape), property damage, instances of disturbance of the peace, and traffic accidents. While these consequences may affect the college environment at large, there are several alcohol consequences that affect the individual at the more personal level such as physical symptoms that affect school and work (e.g., hangovers, vomiting, blackouts), damaging personal relationships, unwanted or unsafe sexual experiences, and feelings of wanting to harm oneself. Since alcohol-related consequences have been shown to have such a negative impact at the individual level as well as in the greater social context (e.g., the college campus environment, the community of which the university is a part) it is very important to gain

a more thorough understanding of college drinking patterns and factors that influence consequences associated with alcohol consumption.

In order to better understand the effects of alcohol use and the subsequent consequences that result from its use, much research has looked at possible emotional factors that may be associated with alcohol consumption. In particular, the literature shows that there tends to be a relationship between anger level and alcohol use. High levels of anger are typically associated with higher consumption of alcohol and higher frequencies of intoxication (Carter, 1995; Deffenbacher, Oetting, Lynch, et al., 1996; Governale, 2000; Schonwetter & Janisse, 1991). It is also associated with higher frequency and severity of alcohol-related consequences. There are several reasons why a combination of anger and alcohol may be dangerous. Alcohol may (1) diminish ego controls and release submerged anger, (2) may impair judgment, (3) might induce restlessness, irritability, and impulsiveness, (4) may induce feelings of omnipotence and boldness that may promote dangerous behaviors, and (5) alcohol may cause amnestic or fugue states that bring about unpredictable and uncharacteristic behavior (Miller & Potter-Efron, 1989).

In recent years, research investigating the connection between anger and alcohol use has gained more popularity due to the rise in many social ills that many have speculated may be associated with this dangerous and unique combination. Social ills such as incidents of road rage, increases in violence in the home, schools, and workplace, and high crime rates have all been linked to high levels of anger and in many instances alcohol use as well. Other problems in our society have been directly linked to alcohol use including violent and aggressive behavior, harassment, traffic accidents, and

accidental death or injury (Miller & Potter-Efron, 1989; Presley, Meilman, Cashin, & Leichliter, 1997). Some negative consequences that have been linked to both anger and alcohol use that have been reported to affect people at the individual level include such things as getting in trouble at work or at school, damage in relationships, property damage, acts of delinquency, trouble with family and friends, and having legal difficulties (Cherpitel, 1993; Hansen, 1974; Leibsohn et al., 1994). While research has shown a connection between an individual's use of alcohol and level of anger, as well as a connection between anger and alcohol use to negative consequences, the exact nature of the relationship is still unclear. For example, the effect of alcohol on anger-related consequences has yet to be investigated.

Because alcohol and anger appear to be correlated and because the consequences of both can have damaging effects on the individual, those associated with the individual, and the community at large it is important to investigate the relationships between the two and to better understand how anger and alcohol use in combination can affect a person's life.

Anger

Kennedy (1992) describes the emotion of anger as "an affective state experienced as the motivation to act in ways that warn, intimidate, or attack those who are perceived as challenging or threatening" (Kennedy, 1992, p. 145). Webster's dictionary defines anger as "an intense emotional state induced by displeasure." Like other emotions, there are biological and physiological changes that occur in the body that are associated with anger. These changes include increased blood pressure and heart rate, tensing of muscles, and an increased level of adrenaline and noradrenaline. This emotion has been

implicated in numerous psychosocial and somatic problems such as domestic violence, high blood pressure, coronary heart disease, relationship difficulties, problems in the workplace, angry emotionality and distress, reckless driving, and increased rates of intoxication (Deffenbacher, Oetting, Lynch, & Morris, 1996).

To further confuse people's understanding of the construct of anger, the concepts of anger, hostility, and aggression are often thought of interchangeably in the literature. Anger refers to a continuum of emotion that ranges from mild irritation to rage (Spielberger, Jacobs, Russell, & Crowe, 1983). Anger includes a constellation of physiological and psychological components. Physiological components often associated with anger include increased heart rate, tensing of muscles, and increased and irregular breathing rates. During episodes of anger these physiological changes are accompanied by negative feelings that one is experiencing towards another person, object, or situation. The term hostility instead denotes a specific set of beliefs or attitudes, usually involving reoccurring cognitions or impulses to direct anger towards hurting others. Aggression is a term used to describe a set of damaging behaviors that are directed towards objects or other individuals in the environment. Aggression typically brings harm or destruction to another person, object, or system. While hostility and aggression are often times connected, a hostile temperament is not always needed for an individual to engage in aggressive behaviors. There are often times a relationship between aggressive acts and feelings of anger. However, it is important to note that while aggression may be a response to anger, the individual may express or cope with anger in a wide variety of ways.

Anger can be considered an “umbrella term” that is used to describe a wide range of experiences and circumstances that can each demand a different type of therapeutic intervention. First, it is important to recognize that anger can be experienced differently by different individuals. Anger can range from mild irritation to rage and the feelings can begin rather suddenly or they can slowly build up over time. Also, anger tends to be cognitive as well as physical so that each experience may be made up of a unique constellation of thoughts, beliefs, and physiological reactions that differ depending on the particular circumstances and the person involved. Individuals can also express their anger in very different ways (e.g., holding anger in versus lashing out verbally at others), which may call for very different therapeutic interventions. For example, a therapeutic technique that may be used for those individuals who physically assault their partners will not necessarily work for those individuals who suppress their anger. For both of these people, feelings of intense rage may be felt, but the cases would differ in several key areas. After all, the interpersonal and personal consequences associated with outward, aggressive anger would be very dissimilar from the experience of an individual whom others might not even know is feeling angry.

To further elaborate on the complexities of anger, Spielberger employed a state versus trait anger differentiation (Spielberger, 1988; Spielberger et al., 1983). State anger refers to a temporary circumstance, which includes the subjective experience of physiological arousal and anger. At any one instance, state anger can range in intensity from feelings of no anger or mild irritation to intense rage. State anger is a term used to identify feelings of anger that are based on based on changing situations and environments as well as to shifting subjective/cognitive states (Spielberger, 1988). Trait

anger reflects a relatively stable characteristic of the individual, an individual's differences in anger intensity and frequency (Spielberger, 1988). Although we tend to see a positive correlation between state and trait anger, state anger represents the individual's immediate feelings of anger, whereas trait anger reflects an individual's tendency to become angry across time and a range of situations.

According to State-Trait Anger Theory proposed by Spielberger, individuals who are high in trait anger should: (1) experience more frequent and intense episodes of anger than those low in trait anger; (2) have a tendency to be more verbally and physically aggressive when provoked than those with low trait anger; (3) are likely to have a low ability to constructively cope with anger arousing circumstances; (4) should experience greater state anger than to other emotions and behaviors; and (5) experience more anger-related consequences. These predictions have been supported in the literature (Deffenbacher, Oetting, Thwaites, et al., 1996; Demm, 1986; Esworth-Cox, 1990).

State-Trait Theory offers a way to examine anger as it relates to situational factors or as a more prevalent trend in one's personality. This distinction is valuable, yet there are limitations to the theory. Understanding the way that anger is expressed in those individuals with high or low levels of anger adds substantially more to our concept of the effects of anger on an individual. Even more so than anger level alone, the unique set of behaviors displayed while experiencing anger may have more of an influence over many aspects of an individual's life, including such things as an individual's tendency to develop cardiovascular complications, difficulties with the legal system, difficulties in relationships, or a person's schoolwork and work performance, as well as their own feelings about themselves and the world around them.

Anger Expression

Measures of anger expression attempt to assess the ways in which people express their anger. For example, a person would rate how often when feeling angry that they “boil inside, but do not show it,” “are sarcastic to others,” and “calm down faster than most people.” Spielberger noted that many items tended to cluster around two independent dimensions that appeared to have very distinguishable qualities; anger-in (AX-I) and anger-out (AX-O). High AX-I scores are interpreted as describing those individuals who suppress their angry feelings and approach anger expression in a passive manner (e.g., “I feel angrier than I will admit,” “I’m more irritated than others are aware of”). Those individuals who scored high on AX-O tend to express their anger actively or in a physically expressive manner (e.g., “I slam doors,” “I make sarcastic remarks to others”). Factor analysis also suggested the existence of a third expressive dimension (Spielberger, 1988). Some of the items that did not cluster around the AX-I and AX-O dimensions possessed a quality of anger control (e.g., “I don’t let unimportant things irritate me,” “I keep my cool”). This third dimension has been constructed and tested in order to more accurately measure a person’s tendency to control and prevent the expression of anger. Anger-Control (AX-C), in addition to AX-I and AX-O, have come to compose the Spielberger’s Anger Expression Scale. As an aside, there are several other means of expressing anger that individuals can display besides the anger-in, anger-out, and anger-control categories that have been discussed. Some examples might include having disruptive thoughts, impulsive behavior, reciprocal communication, taking a time out, and the avoidance of others. However due to the fact that AX-I, AX-O,

and AX-C are the most prevalent and psychometrically tested expressive means at people's disposal, these will be used to measure anger expression in the present study.

There are several findings in regards to the relationship between trait anger and anger expression (Deffenbacher, 1992; Spielberger et al., 1988). Trait anger tends to be correlated negatively with AX-C and positively with AX-I and AX-O, with the greatest correlation being AX-O. In addition, those individuals rated as being high in trait anger did not report a preference for one expressive style, whereas those individuals low in anger clearly preferred to control their anger (Deffenbacher, Oetting, Thwaites, et al., 1996). This finding most likely shows that those individuals who are high in anger experience anger more intensely and frequently than those individuals low in anger and therefore, have more opportunities to utilize diverse combinations of anger expression styles. AX-I tends to be uncorrelated with AX-O and AX-C, whereas AX-O and AX-C were negatively correlated. Whereas we are beginning to understand the relationships among anger and forms of anger expression, there is also literature that shows that trait anger and anger expression style have a significant impact on anger-related consequences.

Anger, Anger Expression, and the Negative Consequences of Anger

Research shows that high levels of anger have been shown to have serious implications for the individual. Several studies have found that as trait anger increases, incidents of negative life events and anger-related consequences also increase (Broman & Johnson, 1988; Deffenbacher, 1992; Deffenbacher, Oetting, Lynch, et al., 1996; Deffenbacher, Oetting, Thwaites, et al., 1996; Governale, 2000). In addition to this, those individuals who report experiencing higher levels of anger also report having a

greater quantity of anger symptoms associated with their anger and significantly more life interference than those individuals who report experiencing low levels of anger (Desnos & Deffenbacher, 1995). For example, trait anger is associated with increased incidents of physical altercations (e.g., physical fights, wanting to hurt someone) (Lynch, Morris, Deffenbacher, & Oetting, 1998). Other associated consequences include significantly more frequent and severe alcohol/drug use, physical and verbal assault, negative emotions, property damage, relationship difficulties, and low self-esteem. Those individuals who score high on levels of trait anger also appear to be more likely to abuse alcohol and to experience educational, physical, and other psychosocial consequences in combination with their alcohol consumption (Brooks, Walfish, Stenmark, & Canger, 1981; Liebsohn et al., 1994). It has been further cited that high levels of anger may not only be a major risk factor for health difficulties but that those individuals who are high in anger might also add to their problems by damaging potentially helpful relationships and networks that may buffer or mediate the relationship between negative life events and health difficulties (Broman & Johnson, 1988). In other words, those individuals who have high levels of anger are more likely to express their anger in ways that would be damaging to personal relationships. They would be more likely to lose friends due to anger outbursts than those individuals with low levels of anger.

Not only does an individual's level of anger appear to be related to anger consequences, but the way that a person expresses their anger is related to the types and frequency of consequences that they deal with (i.e. altercations with the law, relationship difficulties, damaged property, etc.). Our knowledge of distinct anger expression styles

has made it more possible to ask whether specific styles of anger expression are more prone to be related to certain types of anger-related consequences. If the behavioral, interpersonal, and physiological consequences of anger are related to the expressive style involved, then individuals may have a high degree of anger, but not experience the damaging effects due to their preference for one expressive tendency over another. While the literature shows that high levels of anger-control, anger-in, and anger-out are related to an increased likelihood that an individual will experience a high number of consequences overall, it is also noted that a tendency towards a specific expressive style also seems to be significantly associated with distinctive outcomes (Morris, 1998).

Deffenbacher, Oetting, Thwaites, et al. (1996) found that the form of anger expression largely correlated with the type of anger consequence that was to be experienced. For example, those individuals who were more likely to hold their anger in and not openly express their feelings were more likely to experience negative states of emotion such as embarrassment, anxiety, or depression, while those who were more likely to express themselves verbally had more consequences related to verbal fights and difficulties in relationships (Deffenbacher, Oetting, Thwaites, et al., 1996; Tschannen, Duckro, Margolis, & Tomazic, 1992). In addition to this, it has also been suggested that those individuals who hold their anger in may be prone to recycling their anger and brooding which interferes with concentration in school and work (Deffenbacher, Oetting, Lynch, et al., 1996; Lynch et al., 1998). Also those individuals who report a tendency to hold their anger in have been shown to have significantly high levels of depression (Clay, Anderson, & Dixon, 1993; Deffenbacher, Oetting, Lynch, et al., 1996; Tschannen, Duckro, Margolis, & Tomazic, 1992). Depression has also been linked to those who

express their anger through noisy arguing, and physically and verbally assaulting others and the environment around them. Those individuals who tend to control their anger were less likely to suffer depression. Findings in the area suggest that expressing one's anger, but doing so in a considerate and caring way may protect an individual from experiencing the sadness and sense of hopelessness that is characteristic of depression. Those individuals who tend to suppress high levels of rage may suffer from medical conditions due to their high level of repressed emotions. For example, those individuals who demonstrate these anger-in qualities, as well as several of the anger-out qualities, seem to exert a profound effect on the cardiovascular system that may over time, lead to hypertension and heart disease (Burns & Katkin, 1993; Feshbach, 1986). Based on findings in the literature it appears that either high levels of suppressed anger or high levels of expressed anger may lead to the same physiological end result, with the key being the frequency with which intense anger occurs.

Aggressive forms of anger expression (e.g., verbally or physically lashing out at objects or people in the environment) were positively correlated with adverse consequences while non-aggressive forms (e.g., trying to control one's anger, trying to be tolerant and understand others) were found to be negatively correlated (Deffenbacher, Oetting, Lynch, et al., 1996). Individuals who tend to physically assault objects around them when angry are likely to suffer from such anger-related consequences such as car crashes, self-injurious behavior, and property damage (Lynch et al., 1998). Verbally aggressive forms of anger expression, such as noisy arguing, verbal put downs, and verbal assault correlated with verbal altercations, anger-related alcohol consumption, and legal difficulties, as well as physical altercations and property damage, suggesting a

connection between verbal and physical aggression (Lynch et al., 1998). Not surprisingly, those individuals who were more prone to verbally express their anger by noisy arguments and sarcasm were likely to suffer relationship difficulties with friends, family, and significant others. Understanding the way that anger and anger expression may be related to consequential behaviors will be very important in understanding not only the nature of the consequences of this emotion but may also be important in treating client concerns and difficulties.

Anger, Anger Expression, Anger Consequences, and Gender

The influence of gender on the experience and expression of anger is mixed in the literature. For the most part, studies show that men and women experience the emotion of anger with the same frequency, intensity, and under similar circumstances (Averill, 1983; Morris, 1998). These similarities between the genders appear in regards to both state and trait anger (Spielberger, 1988). Reviews suggest that gender stereotypes, portraying anger as predominately a male attribute, may not be correct (e.g., Sharkin, 1993).

Anger studies have drawn similar inferences in regards to the relationship between gender and anger expression style (Morris, 1998). In developing the anger expression scale, Spielberger (1988) found no substantial gender differences across adult and college student norm groups. Other studies have found no significant gender differences in types of anger expression styles displayed (Malatesa-Magai, Jonas, Shepard, & Culver, 1992). However, when examining the expression of anger in an outward manner, several studies show a consistent gender difference. Several studies illustrate males reporting higher levels of AX-O (Fischer, Smith, Leonard, et al., 1993).

When breaking down the concept of AX-O, it appears as if males are more likely to become more physically and verbally aggressive (e.g., getting into more physical fights, damaging property) than females, whereas females are more likely to use their body language to communicate their feelings of anger to others (e.g., giving dirty looks) (Deffenbacher, Oetting, Lynch, et al., 1996). These findings should not be construed to mean that women do not express themselves in overt, negative, and aggressive ways, since no more than 5% of the variance in any form of anger expression was accounted for by gender (Deffenbacher, 1995; Deffenbacher, Oetting, Lynch, et al., 1996).

There does appear to be some evidence suggesting differences in anger consequences that are experienced by women and men. Some reports show males reporting a greater frequency of physical damage of others and objects in the environment than their females counterparts (Deffenbacher, Oetting, Thwaites, et al., 1996). In addition to this, men may also report significantly higher levels of verbal and physical assault (e.g., screaming at others, property damage, physical altercations) than women (Deffenbacher, Oetting, Lynch, et al., 1996). Women, on the other hand, tended to experience significantly more negative, emotional reactions to anger than men. However, in some studies when correlations between anger expression and anger-related consequences were examined, effects of gender were not found (Deffenbacher, 1995; Lynch et al., 1998). In other words, while women and men may not display the same rates of anger-related consequences or express their anger in the same manner, the anger expression styles and the anger consequences show the same relationship to one another regardless of gender. It can also be hypothesized that society's sex-role socialization has led men and women to attain different methods for expressing their anger, which explains

the gender differences that we find in the anger-related consequences. It is important to note that while there are a handful of studies that report some gender differences in anger consequences, there are just as many studies that show men and women experiencing the same type of anger related consequences and to a similar degree (Morris, 1998).

Alcohol

Abuse of alcohol is a major problem in the United States. As many as 16 million people in this country are directly affected by alcohol problems in some way, and another 60 million are indirectly affected (Brennan, Walfish, & AuBuchon, 1986). College populations may be even more alcohol involved than the public in general. Due to the special social pressures to drink, as well as the relatively newness of the legal or illegal availability of alcohol, college students have been identified as one of the specific populations who are at a high risk for experiencing alcohol abuse problems.

Undergraduates' peer influence appears to be significantly positively correlated with involvement of diverse aspects of alcohol consumption in the college environment (Jackson & Matthews, 1988). In a study conducted by Presley and colleagues (1997) over 1100 institutions of higher education were polled to find out more information about college drinking habits and the negative consequences associated with binge drinking and increased alcohol consumption. Overall, 75-90% of college students polled were involved in drinking. Other studies have found that 50 to 70% of college students report drinking to the point of drunkenness (Engs, 1977; Leibsohn, 1990; Wechsler & McFadden, 1979).

Additional studies at Colorado State University indicate prevalence rates that are very comparable to college campuses nationwide. A survey conducted in 1976 reported

that 80% of students attending Colorado State University admitted to drinking at least once a week (Kuder & Madson, 1976). A more recent study by Leibsohn (1990) showed that these rates have not significantly changed at Colorado State University over the last few decades. When students were asked if they had consumed alcohol in the past 30 days, 90% of college freshman reported using alcohol, 70% reported becoming intoxicated, and 60% reported that they had consumed more than 3-5 drinks in a one hour time period (Leibsohn, 1990). A 1992 survey of students at Colorado State University living in resident halls showed that 82% of students reported having consumed alcohol in the last 30 days (Conway, 1992).

These statistics on alcohol consumption rates differ depending on the subgroup that is being examined within the college population (Carter, 1995). Group differences can be attributed to such characteristics as gender, religiosity of the population, legal guidelines in the area, socioeconomic level of the individual, and family-of-origin drinking habits (Peters, 1987). Other factors that may influence the drinking rates of certain groups of students include peer influence and the setting in which the majority of drinking takes place (e.g., alone at home, social drinking in a bar, at fraternity parties).

With regard to gender, men tend to consume higher amounts of alcohol than women, particularly with respect to the quantity consumed in one sitting (Jackson & Matthews, 1988). This might be due to the physiological differences between the sexes including differences in body weight and fat/water ratio body composition. For the most part, women achieve the same pharmacological effects of alcohol by drinking less. Also drinking at the college level is a relatively social activity and males' social settings at this age are primarily centered around alcohol consumption (e.g., bars, parties), whereas

female college students are more likely to socialize in environments where alcohol consumption is not emphasized (Hartford, Wechsler, & Rohman, 1983). It is also a possibility that any gender differences may be in part due to society's code of conduct for males and females and perceived gender roles held in this population. Additional support for the theory that society's perceived gender roles influence drinking patterns was found by Engs and Hanson (1990) who found that the differences between the genders in alcohol consumption has narrowed considerably.

Personality characteristics may also influence drinking. Brennan et al. (1988) cite several characteristics that may influence one's tendency to drink heavily as opposed to light drinking. Some of these include characteristics such as being impulsive or sensation seeking, being disinhibited by nature, extroverted, rebellious, stubborn, dominant, less committed to conventional values, and their tendency to have more difficulties with authority. Many also have positive attitudes towards drinking and strongly believe that a high level of alcohol consumption will lead to enjoyable experiences and evaluate "acting foolish" as a result of alcohol less negatively than those who do not binge drink (Jackson & Matthews, 1988). In addition to this, they tend to have a greater need for autonomy and change as well as having a tendency to act more aggressively and report higher levels of trait anger (Brooks, Walfish, Stenmark, & Canger, 1981). This topic of trait anger as a possible mediator in alcohol and alcohol-related consequences will be further explored in this study. The purpose behind studying trait anger is based upon preliminary studies that have found some connection between the two areas and many similarities that can be found between the consequences associated with anger and those associated with alcohol use.

The consequences that many of these individuals experience due to their alcohol consumption is frequently not enough of an incentive to keep an individual from continuing to use and abuse alcohol. Research has shown that many college students tend to hold certain expectations about how alcohol will help them to feel or behave that motivates them to keep using alcohol. Several studies have looked at the importance of “expectancy,” which is defined as “the probability held by the individual that a particular reinforcement will occur as a function of a specific behavior” (Jackson & Matthews, 1988, p. 305). Two expectancies that are widely held in the college population include the belief that alcohol will (1) help an individual to dominate others or will help the individual to feel powerful and aggressive and (2) give great pleasure (e.g., the individual will feel really good physically and that it will help them to relax). Some studies have suggested that males and females expect different types of effects due to alcohol use (Brown, Goldman, Inn, & Anderson, 1980; Rosenow, 1983). It has been suggested that males tend to believe that alcohol use will increase their aggression and courage, while women tend to think that alcohol will increase their physical pleasure and cause motor and cognitive impairments. Both sexes report feeling that alcohol use may increase their sexual drive and sexual responsiveness as well as make them more extroverted and likeable. A number of these expectations are tied in with social learning theory which suggests that the more positive the individual’s expectancies of the effects of alcohol, the more likely that person is likely to consume (Jackson & Matthews, 1988). These widely held beliefs that appear to be prevalent in the college population may contribute to the high rates of alcohol use and relatively widespread acceptance by this population of alcohol use and intoxication.

Even more alarming than the high rate of alcohol consumption is the high frequency of binge drinking on college campuses. Depending on the study, binge drinking can be defined in one of several different ways. It is the general consensus in the literature that binge drinking is a type of behavior that is characterized by excessive and heavy amounts of alcohol being consumed at one period of time. Some studies define binge-drinking in very concrete terms with specific number of drinks in a set amount of time (e.g., 4-5 alcoholic beverages in a three hour period), whereas other studies simply state that if one becomes intoxicated then that is considered a binge-drinking episode. Because of such variables as a person's body weight and water/fat ratio, the type of alcoholic beverage consumed and the amount of alcohol in a drink, and other physiological reason why one person may be more influenced by a certain amount of alcohol (e.g., not used to drinking, hasn't had any food), studies have begun to rely on the frequency of intoxication as an adequate measure of a person's tendency to engage in binge-drinking behaviors (Carter, 1995; Governale, 2000). By studying the actual effects of the alcohol (intoxication) as opposed to just number of drinks, we are measuring the type of pattern where a person drinks large amounts of alcohol according to their own standards (e.g., a person has drunk until intoxicated no matter if it is a 5'2" female after four beers or a 6'4" male after nine).

Several studies show that 50-70% of students on college campuses are drinking to the point of intoxication (Leibsohn, 1990; Leibsohn et al., 1995). Around 40% of college students in the Presley study reported binge drinking at least once in the previous two weeks and around thirty percent reported binge drinking more than once in the previous two weeks. Six percent of students in the survey reported more than five binge drinking

episodes during the same two-week time span. In a “College Alcohol Study” conducted by the Harvard School of Public Health (1993), 18,000 undergraduate students were sampled randomly from many different four-year public and private universities in 40 states. According to this study, 44% of all of the undergraduates sampled reported engaging in binge drinking (e.g., 5 or more drinks in a row for men, 4 or more drinks in a row for women) in the past two weeks. The highest percentage of binge drinking reported at any one university sampled in this study was 70%. Among men in this sample, 50% were binge drinkers while 39% of women reported binge drinking in the past two weeks. At almost one-third of the colleges sampled, more than half of the students had engaged in binge-drinking behaviors in the past two weeks.

In the college population where alcohol use and binge drinking is relatively high, it is not surprising that a significant percentage of this population may experience with greater frequency many social and behavioral consequences due to their involvement with alcohol. Additionally, even those individuals who choose not to engage in drinking in college will most likely be affected in some way by the drinking behaviors of other students on their college campuses.

Alcohol and Alcohol-related Consequences

Many college students engage in some type of drinking behavior, and many of these frequently become intoxicated due to their alcohol consumption. However, the facets of alcohol consumption that are most distressing and that are of the most concern to college administrators, parents, and public health and human services officials are the negative consequences associated with alcohol use. Several studies have examined in depth the various social and health problems that can result from alcohol use including

such adverse alcohol-related consequences as a wide range of physical, relational, psychological, educational, and legal problems (Carter, 1995; Cherpitel, 1993; Hansen, 1974; Miller & Potter-Efron, 1989; Presley et al., 1997). These consequences can range in severity from feeling sick due to a hangover, to being in a car crash, engaging in unprotected sex, or being involved in a physical altercation.

The alcohol-related consequence that is most often associated with episodes of alcohol consumption and that appears to be thought of as non-consequential is the hangover. Several surveys show that around 70% of undergraduate students have experienced at least one hangover during their college years (Bogg & Hughs, 1973; Engs, 1977). Walfish, Wentz, Benzing, Brennan, and Champ (1981) also found that 65% of college students experienced one to three hangovers in the past year. In addition, approximately half of the students in the Walfish et al. study reported suffering from vomiting or nausea as a result of their drinking and a third reported blacking out during drinking.

Alcohol is also often associated with violent behavior (Cohen, 1985; Miller & Potter-Efron, 1989; Rajendran & Cherian, 1992). Some studies show that while high alcohol consumption predicts aggression more than low alcohol consumption, it is important to note that not all alcohol users become aggressive (Gomerg, 1993; Miller & Potter-Efron, 1989). It is believed that the link between alcohol consumption levels and violence may be seen more in the Type II alcoholic, a group who is characteristically mostly male and who begin their problems with alcohol at a very young age. These individuals also display an inability to abstain when needed, typically get into fights and have more frequent altercations with the law when drunk.

In a study conducted by Presley and colleagues (1997) approximately 43% of the sample of over 80,000 college students polled, reported that they had experienced various forms of violence while under the influence of alcohol. These negative consequences included such incidents as threats of violence, forced sexual touching, theft involving force or threat of force, unwanted intercourse, physical assault, and ethnic or racial harassment. Alcohol has been linked to violence in several other reports (Miller & Potter-Efron, 1989; Rajendran & Cherian, 1992). These allegations are a major concern on college campuses but are also considered major health problems for the rest of the country (Rajendran & Cherian, 1992). They contribute to major problems in our society including mortality and morbidity rates through things such as suicide attempts, driving while intoxicated, homicides, and other court convictions appear to be interrelated with alcoholism and violence (Rajendran & Cherian, 1992).

Binge drinking students were much more likely to experience violence on or around campus than those who do not binge drink. Those students who were binge drinkers were 3.5 times more likely than non-binge drinkers to be victims of physical violence (Presley et al., 1997). They were also three times more likely to endure unwanted sexual intercourse and twice as likely to have experienced forced sexual touching. Binge drinking has been associated with such problems as physical altercations, sexual assault, and residence hall damage, among other forms of violence.

Gomberg (1993) postulates that the effects of alcohol on aggressive type behaviors will vary according to the quantity of alcohol consumed. Larger doses will most likely lead to more severe and frequent types of consequences. Gomberg (1993) found that in women an increase in alcohol consumption does not lead to an increase in

aggressive behaviors when there are different response alternatives available (e.g., women could send a vibration [non-aggressive alternative] as opposed to a shock [aggressive alternative] towards the provoking person in the experiment), however, an increase in aggression was seen in response to frustration levels. In a previous study by Gomez (1990), 201 female alcoholics in treatment were compared with an age and social class matched group of women. It was found that those women in treatment for alcohol problems had a significantly larger number of violent events happen to them, and 65% of the alcoholic females in this study reported that they were more likely to lose their temper.

Another potential consequence associated with substance use in the college population includes risky sexual behavior (Schafer, Blanchard, & Fals-Stewart, 1994). Those individuals who had increased rates of substance use were less likely to use a condom with a new sexual partner than those who had low rates of substance use. In a survey of adolescents conducted by the American Journal of Public Health (1990), adolescents who were both sexually active and drank five or more drinks during the day were three times less likely to use a condom, thus increasing their risk of contracting a sexually transmitted disease or experiencing an unwanted pregnancy. It was reported that up to 16% of all teenagers in their sample used condoms less often after drinking. While alcohol and drug use may be partly to blame for disinhibiting the user and leading to risky sexual behavior, it is more likely that certain personality characteristics (e.g. anger, impulsivity) in association with increased substance use leads to these types of risky behaviors (Schafer et al., 1994).

The Centers for Disease Control (1990) found that alcohol consumption was a major risk factor in all major fatal and non-fatal vehicular crashes. Research conducted by the National Highway Traffic Safety Administration (1990) showed that 48% of all fatal automobile crashes involving individuals between the ages of 16 to 20 years involved alcohol consumption. Studies that examine college drinking habits show that around 85% of males and 70% of females have driven a car after drinking (Carter, 1995). In a study by Eng and Hanson (1990), 71% of men and 54% of women who reported driving after drinking, stated that they drove their car even after they felt that they had too much to drink.

In addition to the impact that alcohol has on the individual who consumes it, the increased use of alcohol on college campuses has had an impact on the lives of those college students who do not drink and influences how these students perceive the environment around them. Over 50% of the students in the Presley et al. (1997) study reported that substance abuse by fellow students had interfered with their quality of life (i.e., interrupting studying, making them feel unsafe, adversely affecting group activities, preventing enjoyment of events, and messing up their space). Over 20% of students reported feeling unsafe due to another student's drinking. In a similar study conducted by the Harvard School of Public Health (1993), on campuses where more than half of the students reported that they engaged in binge-drinking type behaviors, non-binge drinkers reported feeling that they had suffered secondhand effects of other students' misuse of alcohol (Wechsler, Austin, & DeLong, 1993). Among non-binge drinking women, 26% reported an unwanted sexual advance by another student who was drinking at the time, while 2% reported that they had actually been a victim of date rape or sexual assault by

another student who was drinking (Wechsler et al., 1993). In addition to this, non-binge drinking students, who were in schools where over 50% of the student population admitted to engaging in binge drinking, reported being affected by another student's drinking in the following ways: having sleep or study interrupted (68%), having to take care of another drunken student (54%), experienced an unwanted sexual advance (26%), had a serious argument or quarrel (20%), experienced property damaged (15%), and been physically pushed, hit, or assaulted (13%).

Alcohol, Alcohol Consequences, and Gender

The literature shows that males tend to consume alcohol in greater amounts than women; however, the research is mixed as to whether or not men suffer greater consequences because of their drinking behaviors. Several studies in the literature tend to show men engaging in more physically aggressive type behaviors (e.g., getting in physical altercations, having run ins with the law), whereas women tend to report more difficulties in their relationships due to alcohol use and abuse (Leibsohn et al., 1994). When we separate the confound involving the differences in alcohol consumption between men and women, we find that among the heaviest drinkers, women suffer the same amount if not more frequent and severe alcohol-related consequences than men (Carter, 1995; Williams, Grant, Hartford, & Noble, 1989). The differences between women and men may be due to something beyond just the amount of alcohol consumed and perhaps tied to differences in certain personally traits or the way in which people express themselves.

Anger and Alcohol Use

An important area in the literature on alcohol use and abuse lies in the area of understanding how different emotional factors may be correlated with and, in some cases, precipitate drinking-related problems. Several studies have found a link between anger level and alcohol consumption (Deffenbacher, Oetting, Lynch, et al., 1996; Evans, Weinberg, & Jackson, 1992; Governale, 2000; Green, Burke, Nix, & Mason, 1995; Grover & Thomas, 1993; Johnson, Cloninger, Roache, Bordnick, & Ruiz, 2000; Leibsohn, et al., 1995; Schonwetter & Janisse, 1991). There have been mixed results as to whether or not anger expression has any relationship to alcohol consumption. Musante and Treiber (2000) found that suppression of anger is associated with an increase in alcohol consumption. This suppression of anger may also be associated with long-term negative anger consequences such as high blood pressure, coronary heart disease, and mortality from all causes as well as alcohol-related consequences including difficulties in school, drinking while driving, and blacking and passing out. On the other hand, Grover and Thomas (1993) found no correlation between either withholding or outwardly venting anger with alcohol consumption; however, they did hypothesize that repressing anger maybe related to somatic complaints.

Another study found that there appeared to be a relationship between those people who report having difficulties expressing their anger and the frequency with which they report using alcohol as a means of coping with their anger (Pilner & Cappell, 1974). Similar results were found in a study conducted by Marlatt, Kosturn, and Lang (1975), who found that individuals who tended to express their anger drank much less alcohol than those individuals who tended to hold their anger in. Deffenbacher and Ball (1988)

also found that the best predictor of alcohol use was an outward negative style of anger expression.

Several studies have found a correlation between trait anger and incidents of intoxication or binge drinking episodes (Carter, 1995; Governale, 2000; Leibsohn et al., 1994). In addition, those individuals who expressed their anger outwardly or suppressed their anger also tended to have higher levels of intoxication (Governale, 2000). The opposite is true of those who are able to control their anger.

Since research has shown a relationship among anger, anger expression, and alcohol consumption rates, the possibility that anger might also play a significant role in alcohol-related consequences worthy of consideration. When considering the fact that college students who report experiencing harmful alcohol-related consequences oftentimes additionally report suffering from negative consequences that involve anger (e.g., breaking things, getting into physical altercations), it is important for continued investigation into the area exploring the role of anger in alcohol-related incidents.

Anger and Alcohol-related Consequences

Research has shown that anger can manifest itself in a variety of harmful ways including such things as disrupting relationships with others, causing problems at work and at school, physical and verbal assaults, and feeling out of control (Deffenbacher, Oetting, Thwaites, et al., 1996; Deffenbacher, Oetting, Lynch, et al., 1996). Individuals high in anger tend to experience such anger-related consequences as wanting to harm themselves, physically assaulting persons and objects in the environment, as well as having low self-esteem. These types of studies showing a link between anger level and anger-related consequences as well as the links in the literature found between anger

level and alcohol use led to further investigations of the possible links between anger and alcohol-related consequences.

A review of studies by Leibsohn et al. (1994) illustrated that those people who were most likely to experience consequences because of their alcohol consumption, were characterized as being more hostile, impulsive, and angry, as well as expressing a greater need for aggression. Trait anger was related to an increase in the frequency of experiencing many types of alcohol-related consequences. High anger individuals were found to have an increased amount of alcohol-related physical impairments (e.g., black outs, vomiting). It has been suggested that this possible link between physical impairment and anger levels may be due in part to a combination of high anger and binge drinking behaviors (i.e., those individuals who are angrier tend to binge drink more frequently). Other behavioral consequences that high anger individuals experienced more frequently than low anger individuals included difficulties in school performance, relationships, and finances as well as property damage. In addition to physical and behavioral consequences, emotional alcohol-related consequences also appeared to be related to level of trait anger (i.e. feeling mixed up or confused, feelings of hurting others).

Governale (2000) found that anger level was significantly related to total alcohol consequences and in particular aggressive and physical consequences. Those people who are angrier by nature are more likely to become physically ill and act out aggressively when drinking. In fact, aggressive consequences were not only predicted by anger-out, but by other anger variables including level of trait anger and anger expression-in. Level of anger also played a key piece in predicting the number of total alcohol consequences.

The higher the level of trait anger the more likely an individual would experience a negative consequence due to their drinking behaviors. Those who ordinarily express their anger in an outward way are more likely to experience any of the different types of alcohol consequence while drinking including physical consequences (e.g., getting sick and vomiting, blacking out), aggressive consequences (e.g., physically assaulting objects or others in the environment), and self-harm consequences (e.g., having feelings of wanting to harm or kill oneself). Anger control correlated negatively with frequency of alcohol consumption, intoxication, and the resulting alcohol-related consequences. Even though it appears that frequency of intoxication plays a large role in the likelihood of suffering an alcohol consequence, trait anger levels and anger expression outward contribute a significant amount to its likelihood as well. It appears that a person who reports both high levels of trait anger and expresses their anger in an outward sort of way is more likely to suffer from some sort of consequences while drinking than individuals who report lower levels of trait anger and do not express their feelings of anger in an outward way.

Carter (1995) found a connection between expression styles of anger and alcohol-related consequences. As found by others (Leibsohn et al., 1994), high anger students experienced a greater frequency of emotional consequences from drinking and more severe consequences than low anger students. Levels of anger were found to be significant in predicting severity and frequency of not only physical impairments but also behavioral, emotional, and psychological consequences. Anger-Out (negatively expressed anger) and Anger-In (suppressed anger) contributed the most to the prediction of frequency of consequences, whereas trait anger and Anger-Out were the most predictive

of the severity of consequences. Additionally, Carter (1995) found that high anger men and women differed in some types of alcohol-related consequences that they experienced after drinking. Men tended to report higher instances of breaking objects, more frequently forgot things, more problems in school and in relationships, and felt like hurting others.

Anger, Alcohol, and Negative Consequences

While the literature shows that both level of anger and alcohol consumption are related to negative outcomes (Brennan, Walfish, & AuBuchon, 1986; Deffenbacher, 1988; Leibsohn et al., 1995; Morris et al., 1996; Swaim, Oetting, Edwards, & Beauvais, 1989), few studies have looked at the combination of anger level and alcohol consumption on different types of anger- and alcohol-related consequences. One study found that high anger individuals showed more frequent and severe alcohol related consequences even when the level of alcohol consumption was accounted for first (Leibsohn et al., 1994). Longitudinal research has shown a link between heavy drinking patterns, high anger levels, and coronary heart disease (Schonwetter & Janisse, 1991). The results of this study showed that those individuals who scored high on trait anger also reported higher levels of alcohol consumption, alcohol intoxication, and experienced higher levels of and more severe incidents of physical, emotional, and behavioral alcohol-related consequences than low anger individuals.

In addition, other preliminary studies have found a connection between anger expression style and alcohol-related consequences (Carter, 1995; Governale, 2000). Governale (2000) found that those individuals who tended to express their anger in an outward manner were more likely to experience aggressive, physical, and self-harm

alcohol-related consequences, while those who controlled their anger showed a significant decrease in the total number of alcohol-related consequences experienced. Also, those who tended to hold their anger in tended to have higher levels of aggressive types of alcohol-related consequences. Carter (1995) also found an increased frequency of alcohol-related consequences in those individuals who displayed an AX-I or AX-O expression style. Those with AX-O also displayed more severe consequences. These types of studies suggest that anger and alcohol use may be more intertwined in some segments of the population and that this combination of high anger levels and alcohol use may work together to create unique and harmful types of behavioral consequences. The possibility exists that there may be a group of individuals who may be at a particularly high risk for experiencing negative anger and alcohol consequences — those who are both high on trait anger and high of frequency of intoxication.

The Purpose of this Study

This present study will compare both anger- related and alcohol-related consequences in college students who are either high or low on trait anger and who either become intoxicated while drinking or do not become intoxicated. Research has shown that individuals who report high levels of trait anger tend to exhibit more frequent and severe consequences as a result of their anger, as well as having higher incidents of alcohol use and alcohol-related consequences than individuals who are lower in trait anger. In addition to this, there is research that shows that the way that a person expresses their anger may also affect anger- and alcohol-related consequences. The literature on alcohol use shows a similar pattern in that as alcohol use increases so do alcohol-related consequences. However, the combined effects of anger and alcohol use

on both anger- and alcohol-related consequences has yet to be explored in the same sample.

Based on the literature the following predictions are made: (1) low anger, non-intoxicated individuals should have the lowest frequency of both anger- and alcohol-related consequences; (2) low-anger, intoxicated individuals should show increased alcohol related-consequences, but lower frequencies of anger consequences than those individuals who are high in anger; (3) high-anger, non-intoxicated individuals should show higher anger-related consequences, but lower incidents of alcohol-related consequences; and (4) those individuals who are both high in anger and drink to the point of intoxication will show the greatest frequencies of all types of consequences.

The latter group (high anger, intoxicated students) may be particularly vulnerable to their anger leading to increased alcohol consumption and to alcohol-involved aggression. This is based on prior research that shows a relationship not only among trait anger, anger expression, and anger-related consequences but also among anger, alcohol use, and alcohol-related consequences. Even though anger and alcohol consumption alone lead to their own set of negative consequences, it is valuable to look at the combination of anger and alcohol use and the negative consequences that ensue, considering that this segment of the population may be at a particular risk for developing the greatest combination of consequences.

Chapter II

METHOD

Participants

Participants were 545 introductory psychology students (247 male, 298 female), who were then designated as high or low anger and intoxicated or non-intoxicated. They were identified as high or low anger individuals if their scores fell in the upper or lower quartiles (≥ 22 or ≤ 16) of the Trait Anger Scale (TAS; Spielberger, 1988). Quartile cuts were the same for men and women. Two hundred and forty participants were dropped because they did not meet the criteria for high or low anger quartiles. Participants were identified as non-intoxicated if they reported no instances of intoxication in the past month and were identified as intoxicated if they reported two or more instances of intoxication in the past month. Forty-five participants were dropped because they reported being intoxicated one time in the past month. Final numbers by groups were: non-intoxicated, low anger = 75 (males = 24, females = 51), non-intoxicated, high anger = 37 (males = 14, females = 23), intoxicated, low-anger = 77 (males = 48, females = 29), and intoxicated, high-anger = 71 (males = 44, females = 27). Subjects were then identified as intoxicated versus non-intoxicated based on their reporting being intoxicated twice or more in the last month or zero times in the last month.

Instruments

Trait Anger Scale (TAS). The TAS (Spielberger, 1988) is a 10-item scale that assesses how subjects generally feel and is composed of two types of items, anger

temperament and anger reactions. That is, the TAS assesses responses to specific situations (e.g., I feel infuriated when I do a good job and I get a bad evaluation) and temper in general (e.g., I have a fiery temper). Items are rated on a four-point Likert scale (1 = almost never, 2 = sometimes, 3 = often, 4 = almost always) according to how often a person generally feels. High scores on the TAS indicate a tendency for the individual to respond with anger more frequently and intensely and perceive situations as more anger provoking (Deffenbacher, Oetting, Thwaites, et al., 1996; Spielberger, 1988). TAS internal consistency reliabilities range from .81 to .91 with the highest reliabilities for college students (Spielberger, 1988). The TAS also has strong convergent validity with other measures of anger, such as the Buss Durkee Hostility Inventory and overt hostility scales on the MMPI. The TAS also correlates with the AX-I, AX-O, and AX-C subscales of the Anger Expression Inventory (Deffenbacher, Oetting, Thwaites, et al., 1996; Spielberger, 1988). The validity is also supported by the TAS's ability to successfully differentiate between high and low anger groups (Deffenbacher, Oetting, Thwaites, et al., 1996; Spielberger, 1988). The TAS also has larger correlations with anger-related measures than with other behavioral, emotional, and cognitive variables (Deffenbacher, Oetting, Thwaites, et al., 1996). Deffenbacher, Oetting, Thwaites, et al. (1996) found trait anger to be related to all of the negative anger consequences, correlating higher with acting out consequences (i.e., physical and verbal fights, property damage).

Anger Expression Inventory (AEI). The AEI (Spielberger, 1988) is composed of 24 anger expression items, measuring three forms of anger expression. These include the tendency (1) to suppress or hold anger in (AX-I), (2) to verbally or physically express

anger outwardly, typically in a negative fashion, (AX-O) and (3) to lower anger and calm one's self down (AX-C). Items are rated on a Likert scale (1 = almost never, 2 = sometimes, 3 = often, 4 = almost always) according to how the person generally expresses anger. The AEI yielded alpha coefficients of .77-.84 (Spielberger, 1988) and a two week test-retest reliability of .64 to .81. Validity for these scales is shown in the different correlation patterns found with other physiological, personality, and anger measures (Deffenbacher, 1992; Deffenbacher, Oetting, Thwaites, et al., 1996; Spielberger, 1988;). It has been shown that different types of anger expression tend to correlate with specific types of anger consequences (Deffenbacher, Oetting, Twaites, et al., 1996). Correlations between the AX-I and AX-O are minimal, suggesting that these two scales are independent and orthogonal (Deffenbacher, 1992; Spielberger, 1988). For example, minimal correlations were found between AX-I and AX-C ($r = -.07$ and $-.16$) whereas significant, negative correlations were found between AX-O and AX-C ($r = -.59$) (Deffenbacher, 1992). AX-I and AX-O correlate positively with the TAS, whereas AX-C is negatively correlated, implying a relationship between anger level and anger expression style. Trait anger is more strongly correlated with AX-O and AX-C than AX-I (Deffenbacher, 1992).

Anger Consequence Questionnaire (ACQ). The ACQ is a 42-item inventory that measures the frequency of anger-related consequences. Participants indicate by circling a number as to how many times in the last month their anger led them to experience, feel, or do the incident described in the item. Responses range from "0" to "4 or more", the latter of which will be treated as a 4 in analysis. It yields a total score and scores for the following types of anger consequences (e.g., negative emotions about self, feelings of

tension, damaged relationships, reckless driving, alcohol use, verbal fights, physical fights, property damage, and self-harm). Individuals are asked to rate how frequently or if at all their anger has led them to: (1) 5-item negative emotions about self (e.g., feeling of anger have led to feelings of shame, embarrassment, guilt, feeling dumb, feeling bad about self), (2) 2-item feelings of tension (e.g., feeling tense and uptight due to anger), (3) 3-items about damaged friendship (e.g., anger has led to your friends being mad or afraid of you, has led you to lose a friendship), (4) 3-item reckless driving (e.g., anger has led to driving recklessly, unsafely, or too fast), (5) 2-item alcohol use (e.g., anger led to drinking or intoxication), (6) 4-item verbal fights (e.g., anger leads to arguments, saying nasty things, telling someone off, or yelling at someone), (7) 3-item physical fights (e.g., anger lead to a physical fight, hitting someone, or hurting another person), (8) 3-item property damage (e.g., anger led to breaking things, feeling like breaking something, or hitting a wall or something), and (9) 2-item feeling like hurting self (e.g., anger led to feelings of hurting or killing oneself). Alpha reliabilities for the ACQ have been reported to be .75-.91 reflecting good internal consistencies, whereas two-month test re-test reliabilities (.41-.75) were predictability lower due to low frequencies of consequences. Anger consequences correlated with both anger expression styles and trait anger (Deffenbacher, Oetting, Lynch, et al., 1996), and specific individual and cluster items correlated with logically related anger expression dimensions (e.g., people who express their anger by physically lashing out at others had high rates of physical fights as an anger consequence).

American Drug and Alcohol Survey. This study used a modified version of the ADAS-College (Oetting, Beauvis, & Edwards, 1988). The ADAS-College is a self-

report measure that measures the frequency and quantity of alcohol in the last month and alcohol-related consequences in the last three months. Frequency of alcohol consumption in the last month was measured by reports of when the subject had “alcohol to drink,” “got drunk,” had five or more drinks in a three to five hour period,” “had three or four drinks in a three to five hour period,” and “had one or two drinks in a three to five hour period.” Options for each question ranged from 0 to 10+ with 10 being treated as a 10 in analysis. Thirty-five items are a self-report of the frequency of alcohol-related consequences (i.e., alcohol consumption led the person to do, feel, or experience the content of this item). In addition to a total score for alcohol-related consequences ($\alpha = .89$), recent cluster analysis yield measures of alcohol-related consequences: (1) physical consequences, 5-items ($\alpha = .88$) including the frequency of things such as passing out or vomiting; (2) aggressive consequences, 6-items ($\alpha = .88$) including frequency of things such as getting into an argument, breaking objects, and fighting with others; and (3) self-harm consequences, 2-items ($\alpha = .73$) including the frequency of feeling like killing or hurting oneself. Other alcohol-related consequences appear to be relatively independent of one another and did not cluster but will be included because of their potential importance (e.g., unprotected sex, had unwanted sex, driving recklessly).

Procedures

Participants signed up for one of several sessions, consisting of 50 to 150 students. They signed up at the departmental table display containing folders for several different experiments. Each folder contained male and female sign-up sheets for each of the sessions and were displayed for two weeks before the sessions were held.

Upon arrival at a large university classroom, each participant was given two informed consent forms. One was read, signed, and returned, whereas the other was kept by students for their records. Then, a packet of questionnaires consisting of the: (1) 10-item TAS; (2) report of intoxication (0-10+) in the last month; (3) 24-item Anger Expression Inventory (AEI), (4) 42-item Anger Consequences Questionnaire (ACQ; Morris et al., 1996); and (5) 35-item Alcohol Consequences Scale (ACS; Leibsohn et al., 1994). These questionnaires were counterbalanced in order to control for ordering effects. As subjects finished, they signed credit rosters and were given debriefing information.

Chapter III

RESULTS

A number of 2 (Gender) x 2 (Anger) x 2 (Intoxication status) MANOVAs were conducted on anger expression, anger consequences, and alcohol consequences. If a significant multivariate effect was found, it was followed by univariate analyses, and significant interactions were analyzed by Tukey post hoc tests (p at least $< .05$). Post hoc tests were also used to explore our “double jeopardy” group, those individuals who are both high in anger and drinking to the point of intoxication, to see if they are more likely to be at greater risk for experiencing higher incidence of alcohol- and anger-related consequences than the other three anger-alcohol groups.

Anger Expression

A significant multivariate anger effect was found on anger expression measures, $F(3, 250) = 76.55$, $p < .001$, $\eta^2 = 0.48$, but not for intoxication or gender, $F_s(3, 250) = 2.08$ and 2.13 . No significant multivariate effects were found for anger x intoxication, anger x gender, gender x intoxication, or the triple interaction, $F_s(3, 250) = 1.05$, 2.43 , 1.52 , and 1.21 , respectively. Univariate anger main effects were found for Anger-In (AXI), Anger-Out (AXO), and Anger-Control (AXC), $F_s(1, 259) = 25.93$, 151.67 , and 137.36 , $p_s < .001$, $\eta^2_s = 0.09$, 0.38 , and 0.35 (Table 1). High anger individuals reported greater anger-out and anger-in ($M_s = 19.46$ and 19.25) than low anger individuals ($M_s = 13.95$ and 16.64), while low anger individuals ($M = 26.50$) reported greater anger-control than high anger individuals ($M = 19.62$).

Table 1

Means and Standard Deviations for Anger Expression

<u>Measure</u>	<u>Gender</u>	<u>Anger-Alcohol Groups</u>							
		<u>LA-N</u>		<u>LA-I</u>		<u>HA-N</u>		<u>HA-I</u>	
		<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>
AXO	M	13.67	2.57	14.31	3.26	20.50	4.03	19.68	3.46
	F	13.37	2.56	14.62	3.57	18.39	4.42	19.48	3.34
AXI	M	17.79	5.63	16.40	3.79	19.64	5.05	18.63	3.93
	F	15.49	4.30	18.14	5.78	21.57	4.17	20.26	3.90
AXC	M	27.20	3.84	25.81	4.31	20.71	5.15	19.95	4.15
	F	27.35	4.13	25.55	4.81	19.96	5.20	18.22	2.94

Note. LA-N = Low anger, non-intoxicated; LA-I = Low anger, intoxicated; HA-N = High anger, non-intoxicated; HA-I = High anger, intoxicated; M = Male; F = Female; AXO = Anger expression-out; AXI = Anger expression-in; and AXC = Anger expression-control.

Anger Consequences

Significant gender, anger, and intoxication univariate main effects were found for total anger-related consequences (Table 2), $F_s(1, 259) = 12.34, 97.15, \text{ and } 16.75, p_s < .001, \eta^2_s = .05, 0.28, \text{ and } 0.06$. There were no significant interactions for gender x anger, gender x intoxication, or the triple interaction $F_s(1, 259) = 0.80, 1.45, \text{ and } 0.11, \text{ respectively}$. A significant interaction was found for anger x intoxication, $F(1, 259) = 6.47, p < .05, \eta^2 = 0.03$. A closer examination of this interaction, shows that it is the high anger, intoxicated group ($M = 50.13$) that is more likely to experience an anger-related consequence than the high anger, non-intoxicated ($M = 36.46$), low anger, intoxicated ($M = 20.42$), and low anger, non-intoxicated ($M = 18.44$) groups. The latter three groups did not differ significantly on total anger consequences. This interaction qualifies the following anger and intoxication main effects in that it shows that the high anger, intoxicated group is the main contributor for these effects. High anger individuals ($M = 45.44$) are more than twice as likely as low anger individuals ($M = 19.44$) to experience negative consequences due to anger, while intoxicated individuals ($M = 34.66$) are more likely to experience these anger-related consequences than non-intoxicated individuals ($M = 24.39$). Females ($M = 32.72$) were significantly more likely than males ($M = 27.76$) to experience an anger-related consequence.

Significant gender, anger, and intoxication multivariate effects were found for the nine types of anger-related consequences (Table 2), $F_s(9, 244) = 9.60, 14.87, \text{ and } 10.36, p_s < .001, \eta^2_s = 0.26, 0.35, \text{ and } 0.28$. Significant multivariate effects were also found for the gender x anger and anger x intoxication interactions, $F_s(9, 244) = 4.13 \text{ and } 2.28, p_s < .01, \eta^2_s = 0.13 \text{ and } 0.08$, but not for the gender x intoxication or triple interaction,

Table 2

Means and Standard Deviation for Anger Consequences Total and Clusters

<u>Measure</u>	<u>Gender</u>	<u>Anger-Alcohol Groups</u>							
		<u>LA-N</u>		<u>LA-I</u>		<u>HA-N</u>		<u>HA-I</u>	
		<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>
Total Anger Consequences	M	15.54	12.81	17.19	12.05	32.07	16.95	44.59	24.13
	F	19.80	11.60	25.76	16.47	39.13	22.53	59.15	26.55
Negative emotion	M	3.62	3.73	2.98	2.96	2.86	3.86	6.05	4.99
	F	4.92	4.05	5.86	5.35	9.43	5.22	11.00	6.51
Tense/ uptight	M	1.92	1.89	1.64	1.77	3.14	2.21	3.89	2.57
	F	2.98	2.40	3.28	2.45	4.78	2.70	5.56	2.52
Damaged friendship	M	0.29	0.62	0.46	0.99	0.71	0.83	1.59	1.88
	F	0.43	0.81	0.79	1.21	1.30	2.12	2.22	2.75
Reckless driving	M	1.00	2.17	1.56	2.12	3.07	3.54	3.82	4.18
	F	1.04	1.70	0.69	1.44	1.39	2.95	3.63	4.52
Alcohol use	M	0.08	0.28	1.77	2.57	0.14	0.36	3.50	3.32
	F	0.10	0.30	2.48	2.56	0.52	1.08	4.11	2.67
Verbal fights	M	2.54	2.78	2.35	2.54	8.00	4.88	7.23	4.12
	F	2.18	2.33	2.79	3.10	5.34	3.58	8.70	4.71
Self-harm	M	0.17	0.82	0.00	0.00	0.43	0.94	0.52	1.21
	F	0.08	0.44	0.24	1.12	0.78	2.04	0.67	1.54
Property damage	M	0.08	0.41	0.46	1.44	3.50	3.20	3.20	3.24
	F	0.12	0.48	0.24	0.58	0.96	1.86	1.78	2.26
Physical fights	M	0.54	1.10	0.25	0.60	0.71	0.99	1.80	2.50
	F	0.02	0.14	0.03	0.19	0.74	2.49	1.63	2.13

Note. LA-N = Low anger, non-intoxicated; LA-I = Low anger, intoxicated; HA-N = High anger, non-intoxicated; HA-I = High anger, intoxicated; M = Male; and F = Female.

$F_{s(9, 244)} = 0.10$ and 1.42 . Anger univariate effects were found for all nine clusters of anger consequence measures (Table 3). High anger individuals ($M_s = 7.59, 5.20, 1.57, 2.60, 2.58, 7.16, 0.72, 3.28, \text{ and } 1.22$) had their anger lead to more negative emotions, feeling tense/uptight, damaged friendships, driving recklessly, using alcohol, verbal fights, self-harm, property damage, and physical fights than low anger individuals ($M_s = 4.28, 3.09, 0.48, 0.91, 1.08, 2.40, 0.14, 0.33, \text{ and } 0.03$). Univariate gender effects (Table 3) showed females ($M_s = 7.19, 3.90, \text{ and } 1.04$) experienced more negative emotions, feeling uptight/tense, and damaging friendships than males ($M_s = 4.12, 2.62, \text{ and } 0.84$), while males experienced ($M = 1.65$) more property damage than females ($M = 0.64$). Univariate intoxication effects (Table 3) showed intoxicated individuals ($M_s = 5.92, 1.18, 2.44, 2.85, \text{ and } 0.92$) displayed more anger-related negative emotions, damaged friendships, reckless driving, alcohol use, and physical fights than non-intoxicated individuals ($M_s = 5.31, 0.61, 1.36, 0.19, \text{ and } 0.37$).

Univariate analysis on the multivariate gender x anger interaction showed a significant univariate effect for negative emotions, $F(1, 259) = 8.79, p < .01, \eta^2 = 0.03$, and property damage $F(1, 259) = 13.57, p < .001, \eta^2 = 0.05$. Post hoc analysis of the gender x anger interaction on negative emotions show that high anger females displayed significantly more negative emotions in response to their anger ($M = 10.28$) than low anger females ($M = 5.26$) and high anger males ($M = 5.27$), who do not differ significantly. Low anger males were significantly lower than all other groups ($M = 3.13$). For property damage revealed that high anger males ($M = 3.30$) were significantly more likely to destroy property than high anger females ($M = 1.42$), and both groups are

Table 3

Univariate Main Effects for Anger Consequences Clusters

Measure	Univariate Gender \underline{F} (1, 259)	η^2	Univariate Anger \underline{F} (1, 259)	η^2	Univariate Intoxication \underline{F} (1, 259)	η^2
Negative Emotion	40.12***	.137	23.21***	.084	4.41*	.016
Tense/Uptight	22.95***	.083	36.30***	.126	1.51	.006
Damaged Friendship	4.25*	.017	21.99***	.080	7.98**	.031
Reckless Driving	2.93	.011	23.26***	.085	4.10*	.016
Alcohol Use	2.15	.008	10.77**	.041	88.63***	.260
Verbal Fights	0.36	.001	111.68***	.307	2.69	.011
Self-harm	1.27	.005	10.98**	.042	0.00	.000
Property Damage	16.31***	.061	68.96***	.215	0.99	.004
Physical Fights	1.14	.005	24.11***	.087	4.23*	.017

* $p < .05$, ** $p < .01$, *** $p < .001$.

significantly higher than low anger males (\underline{M} = 0.16) and females (\underline{M} = 0.33). These findings qualify gender and anger main effects on negative emotions and property damage.

The significant multivariate anger x intoxication interaction can best be accounted for by the univariate effects on anger-related alcohol use, $\underline{F}(1, 259) = 6.03, p < .05, \eta^2 = 0.02$, and physical fights, $\underline{F}(1, 259) = 7.49, p < .01, \eta^2 = 0.03$. High anger, intoxicated individuals (\underline{M} = 3.73) reported significantly more frequent drinking in response to anger than low anger, intoxicated individuals (\underline{M} = 2.04), and both groups were higher than high and low anger, non-intoxicated individuals (\underline{M} s = 0.38 and 0.09). In addition, the high anger, intoxicated group (\underline{M} = 1.73) engaged in significantly more physical altercations than the high anger, non-intoxicated (\underline{M} = 0.72), low anger, intoxicated (\underline{M} = 0.17), and low anger, non-intoxicated (\underline{M} = 0.19) groups. The latter three groups did not differ significantly from one another. These anger x intoxication interactions qualify the anger and intoxication main effects in that the high anger, intoxicated group was significantly more likely to experience the anger-related consequences of using more alcohol and getting into a physical fight.

Significant gender, anger, and intoxication multivariate effects were found on the 13 individual anger-related consequences (Table 4), \underline{F} s(13, 240) = 5.86, 8.54, and 2.60, p s < .01, η^2 s = 0.24, 0.32, and 0.12. There were no significant multivariate effects found for gender x anger, gender x intoxication, anger x intoxication, and the triple interaction, \underline{F} s(13, 240) = 1.20, 0.87, 1.64, and 0.75, respectively. Univariate gender effects were found for eight of the twelve individual anger-related consequences (Table 5). Females (\underline{M} s = 1.73, 1.42, 1.84, 1.15, 1.64, 0.89, 0.75, and 0.61) were more likely to feel

Table 4

Means and Standard Deviations for Individual Anger-related Consequences

Measure	Gender	Anger-Alcohol Groups							
		LA-N		LA-I		HA-N		HA-I	
		<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>
Depressed	M	0.96	1.23	0.83	1.00	1.29	1.49	1.52	1.21
	F	1.22	1.08	1.66	1.26	2.04	1.55	2.52	1.42
Anxious	M	0.83	0.76	1.13	1.04	1.50	1.45	2.00	1.26
	F	1.59	1.15	1.38	1.78	2.22	1.41	2.48	1.45
Feels like hurting someone	M	0.17	0.38	0.25	0.60	1.29	1.20	1.52	1.25
	F	0.02	0.14	0.07	0.26	0.78	1.28	1.41	1.62
Trouble with law	M	0.04	0.20	0.13	0.44	0.14	0.54	0.32	0.86
	F	0.00	0.00	0.00	0.00	0.04	0.21	0.33	0.88
Use other drugs	M	0.00	0.00	0.56	1.29	0.07	0.27	0.50	1.07
	F	0.04	0.20	0.28	0.92	0.00	0.00	0.56	1.22
Something dumb	M	0.71	0.86	0.58	0.74	0.93	0.73	1.70	1.49
	F	0.37	0.56	0.59	1.05	0.96	1.26	2.15	1.29
Over-eat	M	0.04	0.20	0.21	0.68	0.64	1.15	0.39	0.99
	F	0.88	1.19	1.07	1.41	1.09	1.13	1.78	1.70
Withdraw	M	1.04	1.27	0.75	1.04	0.93	1.21	1.32	1.31
	F	1.27	1.19	1.41	1.46	2.13	1.63	2.15	1.43
Hurt self	M	0.00	0.00	0.00	0.00	0.36	0.75	0.11	0.39
	F	0.08	0.44	0.07	0.37	0.13	0.49	0.07	0.27

Feel ill	M	0.37	0.65	0.19	0.49	0.43	0.51	0.48	1.05
	F	0.53	0.78	0.79	1.15	1.13	1.14	1.48	1.40
Hurt my schoolwork	M	0.37	0.65	0.29	0.85	0.50	0.86	0.93	1.28
	F	0.37	0.72	0.66	1.20	1.00	1.35	1.33	1.62
Fight with family	M	0.21	0.51	0.12	0.44	0.29	0.61	0.52	1.13
	F	0.53	0.97	0.41	0.78	0.70	0.82	0.89	1.28
Nervous	M	0.50	0.72	0.56	0.80	1.14	1.23	1.52	1.52
	F	0.96	1.22	0.97	1.18	1.65	1.58	2.60	1.62

Note. LA-N = Low anger, non-intoxicated; LA-I = Low anger, intoxicated; HA-N = High anger, non-intoxicated; HA-I = High anger, intoxicated; M = Male; and F = Female.

depressed, nervous, and anxious, overeat, withdraw, feel physically ill, have their schoolwork suffer, and get into a fight with family members as a result of their anger than males ($M_s = 1.14, 0.94, 1.41, 0.28, 1.02, 0.35, 0.55, \text{ and } 0.29$). All individual consequences revealed significant univariate anger effects, except using other drugs (Table 5). When angered, high anger individuals ($M_s = 1.85, 2.10, 1.76, 1.31, 0.24, 1.56, 0.92, 1.65, 0.14, 0.86, 0.99, \text{ and } 0.62$) were more likely than low-anger individuals ($M_s = 1.14, 1.28, 0.76, 0.13, 0.05, 0.53, 0.57, 1.10, 0.04, 0.45, 0.40, \text{ and } 0.33$) to feel depressed, anxious, and nervous, feel like hurting someone, have trouble with the law, do something dumb, over-eat, withdraw, hurt self physically, feel ill, hurt school work, and get into a fight with family. Intoxication status univariate effects were found for five of the individual anger consequences (Table 5). Intoxicated individuals ($M_s = 0.80, 0.20, 0.49, 1.20, \text{ and } 1.30$) were more likely to feel like hurting someone, have trouble with the law, use other drugs, do something dumb, and feel nervous than non-intoxicated individuals ($M_s = 0.37, 0.04, 0.03, 0.63, \text{ and } 1.03$).

Alcohol Consequences

Significant anger and intoxication univariate effects were found for total alcohol-related consequences (Table 6), $F_s(1, 259) = 14.98 \text{ and } 76.79, p_s < .001, \eta^2_s = 0.06 \text{ and } 0.23$, while a gender effect was not found, $F(1, 259) = 1.01$. The gender x anger, gender x intoxication, and the triple interactions were not significant, $F_s(1, 259) = 1.01, 0.08, \text{ and } 0.29$. High anger individuals ($M = 11.44$) reported more than twice as many alcohol-related consequences than low-anger individuals ($M = 4.36$), and intoxicated

Table 5

Univariate Effects and η^2 s for Individual Anger-related Consequences

Measure	Univariate Gender F (1, 259)	η^2	Univariate Anger F (1, 259)	η^2	Univariate Intoxication F (1, 259)	η^2
Depressed	18.16***	.067	16.59***	.062	2.38	.009
Anxious	11.59**	.044	25.47***	.092	1.71	.007
Hurting someone	3.63	.014	81.84***	.245	4.01*	.016
Trouble with law	0.82	.003	5.87*	.023	3.92*	.015
Use drugs	0.31	.001	0.28	.001	14.32***	.054
Something dumb	0.06	.000	38.97***	.134	13.55***	.051
Over-eat	33.59***	.118	7.69**	.030	1.67	.007
Withdraw	17.60***	.065	8.58**	.033	0.13	.001
Hurt self	0.36	.001	7.16**	.028	2.46	.010
Feel ill	24.12***	.087	10.57**	.040	0.90	.004
Hurt my schoolwork	4.62*	.018	12.43***	.047	2.70	.011
Fight with family	8.46**	.033	5.49*	.021	0.24	.001
Nervous	13.00***	.049	33.50***	.117	4.19*	.016

* $p < .05$, ** $p < .01$, *** $p < .001$

Table 6

Means and Standard Deviations for Alcohol Total and Groups of Alcohol Consequences

<u>Measure</u>	<u>Gender</u>	<u>Anger-Alcohol Groups</u>							
		<u>LA-N</u>		<u>LA-I</u>		<u>HA-N</u>		<u>HA-I</u>	
		<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>
Total Alcohol	M	0.25	0.53	6.79	5.50	2.36	4.75	16.66	17.48
	F	1.04	2.35	9.59	7.24	2.00	3.66	15.67	12.37
Physical	M	0.08	0.28	3.12	3.24	0.86	2.21	5.84	5.31
	F	0.53	1.36	3.79	3.83	0.52	1.20	4.33	3.36
Aggressive	M	0.42	0.20	0.40	0.84	0.00	0.00	2.50	4.25
	F	0.04	0.20	0.45	0.78	0.17	0.49	1.44	2.12
Self-Harm	M	0.00	0.00	0.00	0.00	0.00	0.00	0.11	0.62
	F	0.00	0.00	0.00	0.00	0.00	0.00	0.15	0.46

Note. LA-N = Low anger, non-intoxicated; LA-I = Low anger, intoxicated; HA-N = High anger, non-intoxicated; HA-I = High anger, intoxicated; Total = Total alcohol-related consequences; Physical = Physical alcohol-related consequences; Aggressive = Aggressive alcohol-related consequences; Self-harm = Self-harm alcohol-related consequences; M = Male; and F = Female.

individuals ($M = 11.89$) nearly ten times more alcohol-related consequences than non-intoxicated individuals ($M = 1.23$). However, a significant anger x intoxication interaction was found, $F(1, 259) = 6.87, p < .01, \eta^2 = 0.03$, with high anger, intoxicated individuals ($M = 16.28$) reporting a greater frequency of alcohol-related consequences than high anger, non-intoxicated ($M = 2.13$), low anger, intoxicated ($M = 7.84$), and low anger, non-intoxicated ($M = 0.78$) groups. This anger x intoxication interaction qualifies the anger and intoxicated main effects noted above showing that the high anger, intoxicated individuals were the ones experiencing the majority of alcohol-related consequences.

A significant multivariate intoxication effect was found on the three clusters of alcohol consequences (physical, aggressive, and self-harm), $F(3, 250) = 25.73, p < .001, \eta^2 = 0.24$, as well as a significant multivariate anger effect, $F(3, 250) = 3.55, p < .05, \eta^2 = 0.04$. The multivariate effect for gender was not significant, $F(3, 250) = 0.35$. There was one significant multivariate effect among the interaction variables; the anger x intoxication interaction was significant, $F(3, 250) = 2.81, p < .05, \eta^2 = 0.03$. The gender x anger, gender x intoxication, and gender x anger x intoxication interactions were not significant, $F_s(3, 250) = 1.21, 0.63, \text{ and } 0.79$, respectively.

Univariate anger effects were found for physical and aggressive consequences, $F_s(1, 259) = 5.38 \text{ and } 9.28, p_s < .05, \eta^2_s = 0.02 \text{ and } 0.04$, but not on alcohol-related self-harm, $F(1, 259) = 2.27$ (Table 6). High anger individuals ($M_s = 3.68 \text{ and } 1.42$) experienced more physical and aggressive consequences than low anger individuals ($M_s = 1.90 \text{ and } 0.23$). Univariate intoxication main effects were found for physical and aggressive consequences $F_s(1, 259) = 75.83 \text{ and } 18.71, p_s < .001, \eta^2_s = 0.23 \text{ and } 0.07$,

but not for self-harm $F(1, 259) = 2.71$. Intoxicated individuals ($M_s = 4.28$ and 1.22) experienced more physical and aggressive consequences than non-intoxicated individuals ($M_s = 0.47$ and 0.06). A significant anger x intoxication univariate effect was found for aggressive alcohol-related consequences, $F(1, 259) = 8.23$, $p < .001$, $\eta^2 = 0.03$. High anger, intoxicated individuals ($M = 2.10$) experienced more aggressive alcohol-related consequences than high anger, non-intoxicated ($M = 0.11$), low anger, intoxicated ($M = 0.41$) and low anger, non-intoxicated ($M = 0.04$) groups, which did not differ from one another. This anger x intoxication interaction qualifies the anger and intoxication main effects cited earlier in that the high anger, intoxicated group experienced the majority of the aggressive consequences.

A significant multivariate main effect for intoxication was found for the 18 individual alcohol-related consequences (Table 7), $F(18, 235) = 5.17$, $p < .001$, $\eta^2 = 0.28$, as well as effects for gender and anger, $F_s(18, 235) = 1.70$ and 1.83 , $p_s < .05$, $\eta^2_s = 0.12$ and 0.12 . A significant multivariate effect was also found for the anger x intoxication interaction, $F(18, 235) = 1.73$, $p < .05$, $\eta = 0.12$, but not for the gender x anger, gender x intoxication, or triple interaction, $F_s(18, 235) = 1.06$, 1.44 , and 1.07 .

Univariate effects for gender were found on alcohol-related getting you in trouble in school, making you feel confused or mixed up, and damaged a friendship, $F_s(1, 259) = 4.69$, 5.35 , and 5.34 , $p_s < .05$, $\eta^2_s = 0.02$, 0.02 , and 0.02 . As a result of their drinking, females ($M_s = 0.11$, 1.08 , and 0.20) were more likely to get in trouble at school, feel mixed up or confused, and damage a friendship than males ($M_s = 0.04$, 0.60 , and 0.10). Nine of the eighteen individual items show univariate anger effects (Table 8). High anger individuals ($M_s = 0.38$, 0.49 , 0.16 , 0.43 , 0.97 , 0.39 , 0.66 , 0.31 , and 0.54) were

more likely to have alcohol-related money problems, hurt school/work, fight with family, fight with others, feel mixed up/confused, feel as if others were against them, do something they later regretted, made their friends mad, and made them feel anxious than low anger individuals ($M_s = 0.07, 0.16, 0.00, 0.08, 0.41, 0.13, 0.21, 0.07, \text{ and } 0.23$). Seventeen of the eighteen individual alcohol-related consequences (all except been sexually assaulted) showed intoxication univariate effects (Table 8). For all of these variables intoxicated individuals reported greater frequencies of these consequences than non-intoxicated individuals. Variables showing a univariate anger x intoxication effect included having money problems, having hurt school/work, fighting with family or others, and having been sexually assaulted (Table 8). This anger x intoxication interaction qualifies the main effects found for anger and intoxication in that the high anger, intoxicated group reported significantly higher rates than all other groups for many of the individual alcohol-related consequences. High anger, intoxicated individuals were significantly more likely to have money problems ($M = 0.56$) and fight with family ($M = 0.24$) and others ($M = 0.62$) than high anger, non-intoxicated ($M_s = 0.03, 0.00, \text{ and } 0.05$), low anger, intoxicated ($M_s = 0.13, 0.00, \text{ and } 0.14$), and low anger, non-intoxicated ($M_s = 0.00, 0.00, \text{ and } 0.01$) individuals, who did not differ. High anger, intoxicated individuals ($M = 0.73$) were twice as likely as low-anger intoxicated individuals ($M = 0.31$) to have their work or school work affected by their drinking; however, both of these groups were significantly more likely to experience alcohol-related work and school problems than both non-intoxicated groups ($M_s = 0.00 \text{ and } 0.03$). Post hoc analyses showed no significant difference between groups on being an alcohol-related victim of sexual assault.

Table 7

Means and Standard Deviations for Individual Alcohol-related Consequences

<u>Measure</u>	<u>Gender</u>	<u>Anger-Alcohol Groups</u>							
		<u>LA-N</u>		<u>LA-I</u>		<u>HA-N</u>		<u>HA-I</u>	
		<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>
Money problems	M	0.00	0.00	0.13	0.39	0.07	0.27	0.64	1.12
	F	0.00	0.00	0.14	0.44	0.00	0.00	0.44	1.19
Trouble at school	M	0.00	0.00	0.04	0.20	0.00	0.00	0.07	0.26
	F	0.02	0.14	0.14	0.44	0.04	0.21	0.30	0.78
Hurt work/schoolwork	M	0.00	0.00	0.33	0.81	0.00	0.00	0.66	1.03
	F	0.00	0.00	0.28	0.53	0.04	0.21	0.85	1.26
Fight with family	M	0.00	0.00	0.00	0.00	0.00	0.00	0.16	0.53
	F	0.00	0.00	0.00	0.00	0.00	0.00	0.37	0.97
Fight with others	M	0.04	0.20	0.08	0.35	0.00	0.00	0.61	1.06
	F	0.00	0.00	0.24	0.44	0.09	0.29	0.63	0.88
Confused/mixed-up	M	0.00	0.00	0.56	1.03	0.43	1.09	1.02	1.21
	F	0.14	0.35	0.97	0.94	0.22	0.52	1.81	1.21
Felt others are against you	M	0.00	0.00	0.21	0.50	0.07	0.27	0.55	0.98
	F	0.06	0.24	0.24	0.58	0.09	0.29	0.56	1.05
Physically hurt by someone	M	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.29
	F	0.00	0.00	0.10	0.41	0.00	0.00	0.26	0.71
Damaged friendship	M	0.00	0.00	0.06	0.25	0.00	0.00	0.23	0.61
	F	0.02	0.14	0.28	0.65	0.04	0.21	0.59	1.15

Something later regretted	M	0.00	0.00	0.23	0.52	0.29	0.61	0.84	1.08
	F	0.04	0.20	0.66	1.05	0.13	0.34	1.00	1.30
Unprotected sex	M	0.00	0.00	0.15	0.51	0.07	0.27	0.43	1.02
	F	0.00	0.00	0.17	0.38	0.00	0.00	0.07	0.27
Unwanted sex	M	0.04	0.20	0.02	0.14	0.00	0.00	0.23	0.74
	F	0.00	0.00	0.10	0.31	0.00	0.00	0.19	0.48
Sexually assaulted	M	0.00	0.00	0.00	0.00	0.07	0.27	0.00	0.00
	F	0.00	0.00	0.17	0.47	0.04	0.21	0.00	0.00
Made sad	M	0.04	0.20	0.42	0.71	0.14	0.36	0.68	1.14
	F	0.06	0.24	0.79	0.82	0.17	0.39	0.89	1.28
Made anxious	M	0.00	0.00	0.38	0.82	0.14	0.36	0.869	1.25
	F	0.08	0.34	0.45	0.69	0.17	0.39	0.52	0.75
Made use other drugs	M	0.00	0.00	0.50	1.13	0.07	0.27	0.52	1.15
	F	0.04	0.28	0.24	0.69	0.00	0.00	0.44	0.93
Made friends mad	M	0.00	0.00	0.04	0.20	0.07	0.27	0.32	0.71
	F	0.02	0.14	0.24	0.51	0.09	0.29	0.59	1.15
Saw/heard things not there	M	0.00	0.00	0.10	0.52	0.07	0.27	0.25	0.81
	F	0.00	0.00	0.14	0.44	0.00	0.00	0.19	0.79

Note. LA-N = Low-anger, non-intoxicated; LA-I = Low-anger, intoxicated; HA-N = High-anger, non-intoxicated; HA-I = High anger, non-intoxicated; M = Male; and F = Female.

Table 8

Univariate Effects for Individual Alcohol-related Consequences

Measure	Univariate Anger F (1, 259)		Univariate Intoxication F (1, 259)		Univariate Anger x Intoxication F (1, 259)	
	F	η^2	F	η^2	F	η^2
Money problems	6.54*	.025	13.41***	.051	4.61*	.018
Trouble at school	1.36	.005	7.22**	.028	0.81	.003
Hurt work/schoolwork	6.10*	.024	29.45***	.105	5.03*	.020
Fight with family	6.70*	.026	6.70*	.026	6.70*	.026
Fight with others	9.74**	.037	21.73***	.079	8.00**	.031
Confused/mixed-up	14.08***	.053	54.64***	.178	2.73	.011
Felt others are against you	5.06*	.020	15.96***	.060	2.73	.011
Physically hurt by someone	2.45	.010	8.28**	.032	2.45	.010
Damaged friendship	3.31	.013	15.53***	.058	2.71	.011
Something later regretted	10.52**	.040	30.47***	.108	1.99	.008
Unprotected sex	0.91	.004	7.70**	.030	0.18	.001

Unwanted sex	1.53	.006	6.16*	.024	2.73	.011
Been sexually assaulted	0.36	.001	0.36	.001	8.90**	.034
Made sad	1.93	.008	32.33***	.114	0.12	.000
Made anxious	4.01*	.016	20.69***	.076	0.65	.003
Made use of other drugs	0.36	.001	14.00***	.053	0.21	.001
Made friends mad	7.36**	.028	12.93***	.049	3.00	.012
Saw/heard things not there	0.96	.004	5.03*	.020	0.20	.001

* $p < .05$, ** $p < .01$, *** $p < .001$

Post Hoc Analysis on All Anger and Alcohol Variables: Were High Anger, Intoxicated Individuals at Greater Risk?

One of the central areas of exploration in this research was whether the high anger-intoxicated group differed significantly from other anger/intoxicated groups. Specifically, did the high anger, intoxicated group differ on anger expression and experience more anger and alcohol consequences (i.e., were they at greater risk or jeopardy for negative forms of anger expression and alcohol and anger consequences). Some findings touching on this issue have already been presented, but this section will present all findings in one place. To explore these issues Tukey post hoc tests compared these four groups on anger expression and anger and alcohol consequences, but only how the high anger, intoxicated group differed from other groups will be highlighted to address its risk status.

Anger expression. While not differing from one another, high anger, intoxicated ($M_s = 19.25$ and 19.19) and high anger, non-intoxicated ($M_s = 20.84$ and 19.18) groups were both significantly higher on anger-in (AXI) and anger-out (AXO) than both low anger, intoxicated ($M_s = 17.05$ and 14.43) and low anger, non-intoxicated ($M_s = 16.23$ and 13.47), which did not differ. While not differing from each other, both low anger, intoxicated ($M = 25.71$) and low anger, non-intoxicated ($M = 27.31$) groups were significantly higher on anger-control (AXC) than both the high-anger intoxicated ($M = 19.30$) and non-intoxicated groups ($M = 20.24$), which did not differ. Thus, alcohol involvement was not related to forms of anger expression, whereas anger status was (i.e., alcohol status was not a risk factor for forms of anger expression).

Anger-related consequences. High anger, intoxicated [HA-I] students reported significantly more total number of anger consequences ($\underline{M} = 25.89$) than their high anger, non-intoxicated [HA-N] ($\underline{M} = 20.64$), low anger, intoxicated [LA-I] ($\underline{M} = 14.39$), and low anger, non-intoxicated [LA-N] ($\underline{M} = 12.09$) peers. HA-N ($\underline{M}s = 1.08, 2.03, \text{ and } 0.73$), LA-I ($\underline{M}s = 0.58, 1.23, \text{ and } 0.17$), and LA-N ($\underline{M}s = 0.38, 1.03, \text{ and } 0.19$) reported less anger-related damage of friendships, reckless driving, or physical fights than HA-I individuals ($\underline{M}s = 1.83, 3.75, \text{ and } 1.73$). HA-I students reported their anger leading to significantly more legal problems and doing something dumb ($\underline{M}s = 0.32 \text{ and } 1.87$), than HA-N ($\underline{M}s = 0.08 \text{ and } 0.95$), LA-I ($\underline{M}s = 0.08 \text{ and } 0.58$), and LA-N ($\underline{M}s = 0.01 \text{ and } 0.48$). HA-I individuals ($\underline{M} = 1.48$) were significantly more likely to feel like hurting someone than HA-N ($\underline{M} = 0.97$), LA-I ($\underline{M} = 0.18$), and LA-N ($\underline{M} = 0.07$) groups. The HA-I ($\underline{M} = 4.11$) group also had their anger lead to greater consumption of alcohol than LA-I ($\underline{M} = 2.48$), HA-N ($\underline{M} = 0.52$), and LA-N ($\underline{M} = 0.10$) groups, suggesting that angry, frequently intoxicated individuals were also more vulnerable to consuming alcohol when angry.

While not differing from one another, HA-I ($\underline{M}s = 7.93, 4.52, 7.79, 0.58, \text{ and } 2.66$) and HA-N ($\underline{M}s = 6.95, 4.16, 6.35, 0.65, \text{ and } 1.92$) were both significantly higher than LA-I ($\underline{M}s = 4.06, 2.26, 2.52, 0.09, \text{ and } 0.38$) and LA-N ($\underline{M}s = 4.5, 2.64, 2.29, 0.11, \text{ and } 0.11$) on anger leading to negative emotions, feeling tense/uptight, verbal fights, self-harm, and property damage. This same pattern was found on the individual anger consequences of feeling depressed, feeling anxious, hurting schoolwork, and feeling nervous with HA-I ($\underline{M}s = 1.90, 2.18, 1.08, \text{ and } 1.93$) and HA-N ($\underline{M}s = 1.76, 1.95, 0.81, \text{ and } 1.46$) being significantly higher than LA-I ($\underline{M}s = 1.14, 1.22, 0.43, \text{ and } 0.71$) and LA-

N ($M_s = 1.13, 1.35, 0.37, \text{ and } 0.81$). Thus anger status was more related to these variables, and being higher on alcohol use was not related to vulnerability.

In summary, it appears that the high anger, intoxicated individuals were reporting the majority of anger-related consequences and were at greater risk for experiencing more anger consequences than other groups.

Alcohol-related consequences. Results show that those who are high anger, intoxicated individuals experienced more consequences because of their alcohol use. HA-I individuals ($M = 16.16$) reported experiencing significantly more total alcohol-related consequences than LA-I ($M = 8.19$), HA-N ($M = 2.18$), and LA-N ($M = 0.83$) groups. These HA-I ($M = 2.10$) individuals also experienced more aggressive consequences due to their drinking than HA-N ($M = 0.11$), LA-I ($M = 0.42$), and LA-N ($M = 0.04$) groups. For physical alcohol-related consequences, HA-I ($M = 5.26$) individuals once again reported a greater frequency of these consequences than LA-I ($M = 3.38$), HA-N ($M = 0.65$), and LA-N ($M = 0.39$) groups.

HA-I ($M_s = 0.56, 0.73, 0.24, 0.62, 1.32, 0.55, \text{ and } 0.90$) were significantly higher on alcohol leading to having money problems, hurting school or work, fighting with family and others, making them feel mixed up or confused, feeling others are against them, and doing something they later regretted than HA-N ($M_s = 0.03, 0.03, 0.00, 0.05, 0.30, 0.08, \text{ and } 0.19$), LA-I ($M_s = 0.13, 0.31, 0.00, 0.14, 0.71, 0.22, \text{ and } 0.39$), and LA-N ($M_s = 0.00, 0.00, 0.00, 0.01, 0.09, 0.04, \text{ and } 0.03$) groups. In addition, HA-I individuals ($M_s = 0.76 \text{ and } 0.49$), reported that alcohol made them very sad and use other drugs more than LA-I ($M_s = 0.56 \text{ and } 0.40$), HA-N ($M_s = 0.16 \text{ and } 0.03$), and LA-N ($M_s = 0.05 \text{ and } 0.03$) students.

HA-I ($M_s = 0.15, 0.37, 0.30, 0.21,$ and 0.73) were significantly higher than both HA-N ($M_s = 0.00, 0.03, 0.03, 0.00,$ and 0.16) and LA-N ($M_s = 0.00, 0.01, 0.00, 0.01,$ and 0.05), but not significantly different from LA-I ($M_s = 0.04, 0.14, 0.16, 0.05,$ and 0.40) for the items been physically hurt by someone, damaged a friendship, engaged in unprotected or unwanted sex, and made anxious. It is important to note that for these variables there is also not a significant difference between the LA-I and both non-intoxicated groups.

As seen earlier in the post hoc analyses for anger consequences, high anger, intoxicated individuals are once again reported more frequent consequences; this time related to their alcohol use. It is important to note that the high anger, intoxicated group was significantly higher than the other anger-alcohol groups for the majority of alcohol scaled and individual items. That is, overall the high anger, intoxicated group was much more likely to be susceptible to all kinds of consequences associated with both their anger and alcohol use.

Prediction of anger- and alcohol-related consequences

Up to this point, relationships have been explored primarily by comparing our anger-alcohol groups on a number of different anger- and alcohol-related consequences. This study further investigated the complexity of relationships among anger, anger expression, gender, and level of intoxication in predicting anger- and alcohol-related consequences by entering these predictor variables into hierarchical regressions on anger and alcohol consequences. Gender, frequency of intoxication, anger, and modes of anger expression were regressed on total, scaled, and individual alcohol- and anger-related consequences in order to see which of these factors can best predict the likelihood that an

individual will experience these consequences. To be included in the regression equations, variables had to account for at least 1% of the variance and be significant at the $p < .05$. The first criteria was chosen because it is the lower margin of Cohen's (1988) small effect size. That is, to be considered meaningful, a variable had to add at least 1% of predicted variance or a small effect size to understanding the relationship.

Two different types of hierarchical regressions were conducted on alcohol-related consequences and anger-related consequences. The first analysis which involves predicting alcohol-related consequences loaded gender first, level of intoxication second, and anger and anger expression variables third. This allows us to see how anger and anger expression contribute above and beyond level of intoxication for alcohol-related consequences. That is, what does anger add to understanding alcohol-consequences above and beyond alcohol? In the second set of regressions where anger-related consequences were predicted, gender was loaded first, all anger variables second, and level of intoxication third to allow us to see if intoxication can in any way add to our ability to predict anger-related consequences.

Anger consequences. Hierarchical regressions were run on total anger consequences, as well as scaled and individual anger-related consequences (Tables 9 and 10). For these variables, gender was entered on the first step, anger variables were loaded stepwise on the second step, and number of times intoxicated was entered as the third step.

Total number of anger-related consequences was best accounted for by trait anger, accounting for 22.8% of the variance. However, AXI and AXO contributed significantly to the prediction of the total number of anger consequences, adding 5.1% and 3.1% of the

Table 9

Hierarchical Regressions of Gender, Anger Variables and Intoxication on Anger Consequences

Consequence	Variables in the Equation	R
1. Total Anger Consequences	Gender (.03, 0.1%), TAS (.48, 22.8%), AXI (.24, 5.1%), AXO (.22, 3.1%), AXC (-.11, 0.7%), and Intoxication (.17, 2.6%)	.58
2. Negative Emotions	Gender (.19, 3.6%), AXI (.39, 15.4%), TAS (.18, 2.8%), and Intoxication (.10, 1.0%)	.48
3. Tense/Uptight	Gender (.19, 3.5%), AXI (.35, 12.5%), AXO (.22, 4.8%), TAS (.14, 1.3%), and Intoxication (.03, 0.1%)	.47
4. Damaged Friendships	Gender (-.02, 0.0%), AXO (.31, 9.2%), AXI (.14, 1.8%), and Intoxication (.08, 0.7%)	.34
5. Reckless Driving	Gender (-.12, 1.5%), AXO (.25, 6.0%) AXI (.14, 2.1%), and Intoxication (.12, 1.2%)	.33
6. Alcohol Use	Gender (-.03, 0.1%), AXC (-.21, 4.5%) TAS (.13, 1.1%), and Intoxication (.49, 22.9%)	.54
7. Verbal Fights	Gender (-.07, 0.6%), AXO (.56, 31.5%), TAS (.26, 4.6%), and Intoxication (.05, 0.3%)	.61
8. Self-harm	Gender (-.02, 0.0%), AXI (.21, 4.3%), AXC (-.14, 2.0%), and Intoxication (-.02, 0.0%)	.25
9. Property Damage	Gender (-.25, 5.0%), AXO (.29, 15.3%), TAS (.17, 3.2%), and Intoxication (0.6, 0.4%)	.50

10 . Physical Fights	Gender (-.16, 2.4%), TAS (.32, 10.4%) AXC (-.12, 1.0%), AXI (-.09, 0.7%), and Intoxication (.12, 1.3%)	.40
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Note. The first variable in the parentheses is the standardized β weight and the second the percent of variance accounted for by that variable. Intoxication = Number of times intoxicated in the past month, TAS = Trait Anger Scale, AXC = Anger expression-control, AXI = Anger expression-in, and AXO = Anger expression-out.

Table 10

Hierarchical Regressions of Gender, Anger Variables and Intoxication on Individual Anger Consequences

Consequence	Variables in the Equation	<u>R</u>
1. Depressed	Gender (.14, 2.0%), AXI (.29, 8.3%), TAS (.13, 1.5%), and Intoxication (.08, 0.6%)	.35
2. Anxious	Gender (.07, 0.5%), TAS (.26, 6.0%), AXI (.17, 2.0%), and Intoxication (.03, 0.1%)	.31
3. Feel like hurting someone	Gender (-.22, 4.9%), TAS (.41, 16.8%), AXO (.16, 1.7%), and Intoxication (.09, 0.8%)	.49
4. Have trouble with the law	Gender (-.13, 1.8%), TAS (.20, 4.0%), and Intoxication (.18, 3.1%)	.30
5. Use other drugs	Gender (-.10, 8.4%), AXO (.13, 1.7%), and Intoxication (.30, 8.4%)	.33
6. Do something dumb	Gender (-.11, 1.2%), TAS (.32, 10.3%), AXO (.19, 2.5%), AXI (.12, 1.3%), and Intoxication (.14, 1.8%)	.41
7. Over-eat	Gender (.31, 9.5%), AXI (.25, 6.4%), and Intoxication (.04, 0.2%)	.40
8. Withdraw	Gender (.22, 5.0%), AXI (.45, 20.2%) and Intoxication (-.06, 0.4%)	.51
9. Hurt self physically	Gender (-.08, 0.7%), AXI (.15, 2.2%), AXC (-.11, 1.1%), and Intoxication (-.07, 0.5%)	.21
10. Feel physically ill	Gender (.24, 5.5%), AXI (.18, 3.4%), TAS (.14, 1.7%), and Intoxication (.12, 1.3%)	.34
11. Hurt school work	Gender (.05, 0.2%), TAS (.19, 3.5%), AXI (.11, 1.0%), and Intoxication (.10, 1.0%)	.24

12 . Fight with family	Gender (.17, 3.0%), AXO (.23, 5.2%) and Intoxication (.01, 0.0%)	.29
13 . Feel nervous	Gender (.10, 2.0%), AXI (.28, 7.9%), TAS (.21, 4.2%), and Intoxication (.05, 0.3%)	.39

Note. The first variable in the parentheses is the standardized β weight and the second the percent of variance accounted for by that variable. Intoxication = Number of times intoxicated in the past month, TAS = Trait Anger Scale, AXC = Anger expression-control, AXI = Anger expression-in, and AXO = Anger expression-out.

variance, respectively. Number of times intoxicated in the past month also aided in prediction by adding 2.6% of the variance. Gender was not a significant factor in predicting the total number of anger consequences (Table 9).

Regressions run on the anger-related scaled variables show predictions based on a mix of gender, intoxication, and anger variables. Both verbal fights and property damage were most accounted for by AXO (31.5% and 15.3%) and trait anger (4.6% and 3.2%). Gender did not aid in predicting verbal fights, but added 5.0% of variance for property damage, with males experiencing this consequence more than females. Damaged friendships and reckless driving consequences were best predicted by AXO (9.2% and 6.0%) and AXI (1.8% and 2.1%), although for reckless driving number of times intoxicated added another 1.2% of the variance and gender another 1.5%, with males showing more incidents of reckless driving. AXI was the best predictor for feeling negative emotions and feeling tense/uptight (15.4% and 12.5%), in addition to gender (3.6% and 3.5%) and trait anger (2.8% and 1.3%). The number of times intoxicated added to the prediction of feeling negative emotions (1.0%), while AXO added more to feelings of tenseness (4.8%). Getting into physical fights and drinking as a result of feeling angry were both predicted by a combination of AXC (1.0% and 4.5%), trait anger (10.4% and 1.1%), and intoxication (1.3% and 22.9%). However, gender also accounted for 2.4% of the variance for getting into a physical fight with males fighting physically more. Anger-related self-harm behaviors were best predicted with AXI (4.3%) and AXC (2.0%).

There were several individual anger-related variables that were best predicted by a combination of gender, trait anger, and AXI (Table 10). Feeling depressed and feeling

nervous were best predicted by AXI (8.3% and 7.9%), with trait anger contributing significantly (1.5% and 4.2%) as well as gender (2.0% and 2.0%), due to females experiencing more of these anger-related emotional consequences. However, made to feel anxious was best predicted by trait anger (6.8%) and secondarily by AXI (2.6%). Feeling physically ill was best predicted by gender (5.5%), with females reporting the highest frequency, and secondarily related to AXI (3.4%), trait anger (1.7%), and number of times intoxicated (1.3%).

There were a few anger-related consequences that were best predicted by gender and one or two of the anger-expression variables. Both over-eating and withdrawing were best predicted by a combination of gender and AXI, with overeating being best predicted by gender (9.5%) and then by AXI (6.4%) and withdrawing being best predicted by AXI (20.2%) and then by gender (5.0%). Both of these variables show females reporting a greater frequency of experiencing these consequences. Fighting with one's family is best predicted by AXO (5.2%) and secondly by gender (3.0%), while hurting one's self physically is best predicted by AXI (2.2%) and then by AXC (1.1%). Feel like hurting someone was best predicted by trait anger (16.8%); however, both gender (4.9%) and AXO (1.7%) contributed additional variance.

Several of the anger-related consequences show that "number of times intoxicated" contributed additional variance above and beyond the anger variables and gender. For example, hurting school work and doing something dumb were both best predicted by trait anger (3.5% and 10.3%), while AXI (1.0% and 1.3%) and intoxication (1.0% and 1.8%) contributed additional variance. Gender (1.2%) and AXO (2.5%) also contributed to predicting doing something dumb, with males reporting a greater

frequency of doing something dumb in response to their anger. Having trouble with the law was best predicted by trait anger (4.0%) and secondly by number of times intoxicated (3.1%) and gender (1.8%), while using other drugs was best predicted by gender (8.4%) and number of times intoxicated (8.4%) and then by AXO (1.7%). Males reported higher incidents of having trouble with the law and using other drugs.

Alcohol consequences. Gender, number of times intoxicated, trait anger, and the three forms of anger expression were entered in a hierarchical regression analysis on total, scaled, and individual alcohol-related consequences. Gender was entered on the first step and number of times intoxicated was entered on the second. All anger variables were entered stepwise on the third step (Table 11).

Total number of alcohol-related consequences was best predicted by number of times intoxicated in the past month, accounting for 36.5% of the variance. Trait anger also contributed an additional 3.7% of the variance. Gender did not contribute significantly towards total alcohol-related consequences.

The frequency of times drunk also was the best predictor for physical alcohol and self-harm consequences, accounting for 40.3% and 2.6% of the variances, respectively. Anger variables and gender did not add additional variance. Aggressive consequences were predicted best by number of times intoxicated which accounted for by 12.5% of the variance, but anger-control added an addition 3.0% of the variance. The less control individuals have over their anger, the more likely they are to experience aggressive consequences associated with their alcohol use. Gender also added an addition 1.3% of the variance, showing that males are more likely to have aggressive consequences than females.

Table 11

Hierarchical Regressions of Gender, Drunk, and Anger Variables on Total Alcohol Consequence and Clusters

<u>Consequence</u>	<u>Variables in the Equation</u>	<u>R</u>
1. Total Alcohol Consequences	Gender (-.08, 0.7%), Intoxication (.63, 36.5%), and TAS (.20, 3.7%)	.64
2. Physical Consequences	Gender (-.10, 0.9%) and Intoxication (.64, 40.3%),	.65
3. Self-Harm Consequences	Gender (-.05, 0.2%) and Intoxication (.16, 2.6%)	.24
4. Aggressive Consequences	Gender (-.12, 1.3%), Intoxication (.35, 12.5%), and AXC (-.18, 3.0%)	.41

Note. The first variable in the parentheses is the standardized β weight and the second the percent of variance accounted for by that variable. Drunk = number of times intoxicated in the past month, TAS = Trait anger scale, and AXC = Anger expression control.

Most of the individual alcohol-related consequences (Table 12) were best predicted by the number of times intoxicated with one of the anger variables contributing addition variance. For example, number of times intoxicated best predicted hurting school/work (11.4%), fighting with others (10.4%), feeling confused or mixed up (20.8%), doing something you later regretted (12.9%), and making your friends mad at you (4.6%), while trait anger contributed addition variance (2.4%, 3.2%, 2.5%, 3.1%, and 3.7%), respectively. Gender did not contribute significantly to these variables. Having money problems because of alcohol use was also best predicted by number of times intoxicated (5.8%) and secondly by trait anger (3.4%); however, gender contributed an additional 1.1% of the variance, with males reporting higher rates of experiencing difficulties with money as a consequence of their alcohol use. Fighting with one's family and being hurt physically by someone was best predicted by trait anger (3.1% and 2.4%) and then by intoxication (2.8% and 1.8%), with no significant contribution from gender.

Anger expression also aided in predicting several of the individual alcohol-related consequences. While number of times intoxicated best predicted feeling that others are against you (7.1%), made you feel anxious (12.3%), and made you use other drugs (10.9%), AXO contributed addition variance (2.1%, 2.4%, and 1.4%), respectively. Gender only contributed additional variance for "made you use other drugs" (1.2%), with males reporting a greater frequency of this consequence. AXC contributed to damaging a friendship (1.5%), engaging in unwanted sex (1.0%), and made you feel sad (1.9%). For engaging in unwanted sex and made to feel sad, number of times intoxicated was the best

Table 12

Hierarchical Regressions of Gender, Drunk, and Anger Variables on Individual Alcohol-related Consequences

<u>Consequence</u>	<u>Variables in the Equation</u>	<u>R</u>
1. Money problems	Gender (-.11, 1.1%), Intoxication (.25, 5.8%), and TAS (.19, 3.4%)	.32
2. Trouble at school	Gender (-.01, 0.0%) and Intoxication (.23, 5.0%),	.23
3. Hurt work/school work	Gender (-.06, 0.0%), Intoxication (.34, 11.4%) and TAS (.16, 2.4%)	.38
4. Fight with family	Gender (-.03, 0.1%), Intoxication (.17, 2.8%), and TAS (.18, 3.1%)	.24
5. Fight with others	Gender (-.08, 0.0%), Intoxication (.32, 10.4%), and TAS (.18, 3.2%)	.37
6. Felt confused/mixed up	Gender (.07, 0.5%), Intoxication (.46, 20.8%), and TAS (.16, 2.5%)	.49
7. Feel others are against you	Gender (-.05, 0.2%), Intoxication (.27, 7.1%), and AXO (.15, 2.1%)	.31
8. Been physically hurt by someone	Gender (.01, 0.0%), Intoxication (.14, 1.8%), and TAS (.16, 2.4%)	.21
9. Damaged a friendship	Gender (.02, 0.0%), Intoxication (.13, 1.5%), and AXC (-.15, 2.2%)	.19
10. Did something you later regretted	Gender (-.02, 0.0%), Intoxication (.36, 12.9%), and TAS (.18, 3.1%)	.40
11. Engaged in unprotected sex	Gender (-.10, 0.9%) and Intoxication (.26, 6.4%)	.27
12. Engaged in unwanted sex	Gender (.00, 0.0%), Intoxication (.21, 4.4%), and AXC (-.10, 1.0%)	.23
13. Been sexually assaulted	Gender (.07, 0.5%) and Intoxication (-.01, 0.0%)	.07
14. Made you very sad	Gender (.06, 0.3%), Intoxication (.34, 10.9%), and AXC (-.12, 1.3%)	.36

15. Made you anxious	Gender (-.05, 0.2%), Intoxication (.36, 12.3%), and AXO (.16, 2.4%)	.39
16. Made you use other drugs	Gender (-.11, 1.2%), Intoxication (.34, 10.9%), and AXO (.12, 1.4%)	.39
17. Made your friends mad at you	Gender (.01, 0.0%), Intoxication (.22, 4.6%), and TAS (.20, 3.7%)	.29
18. Saw or heard things that were not there	Gender (-.05, 0.2%) and Intoxication (.27, 6.8%)	.27

Note. The first variable in the parentheses is the standardized β weight and the second the percent of variance accounted for by that variable. Intoxication = Number of times intoxicated in the past month, TAS = Trait Anger Scale, AXC = Anger expression-control, AXI = Anger expression-in, and AXO = Anger expression-out.

predictor (4.5% and 10.9%), while it was secondary to AXC for damaging a friendship (1.5%). Gender did not contribute significantly to predicting these variables.

For the variables “having trouble at school/work,” “engaging in unprotected sex,” and “seeing or hearing things that were not there,” number of times intoxicated was the best predictor (5.0%, 6.4%, and 6.8%), while anger variables and gender did not contribute any additional variance above and beyond number of times intoxicated. For the variable “been sexually assaulted,” none of our predictor variables contributed 1.0% or higher variance. The results from the regression on this variable may have been due to the low frequency with which this consequence was reported in our sample.

Chapter IV

DISCUSSION

Gender Effects

This study's findings are similar to earlier research showing few significant gender differences in regards to trait anger level and anger expression (Carter, 1995; Deffenbacher, Oetting, Thwaites, et al., 1996; Governale, 2000; Malatesa-Magi, Jonas, Shepard, & Culver, 1992). Men and women were equally likely to express their anger outwardly, hold their anger in, and/or control their anger. The results of this study suggest that anger expression is influenced more by the level of anger and intoxication status than whether an individual is male or female.

Gender differences were found in regards to anger-related consequences, with females being more likely to experience an anger-related consequence than males in general. In addition, females reported experiencing more of the negative emotion and damaging relationship type consequences due to their anger. This finding is consistent with other findings in the literature that found that women tend to experience more negative, emotional reactions to anger than men (Deffenbacher, Oetting, Lynch, et al., 1996; Leibsohn et al., 1994). For example, women reported higher frequencies of anger leading to negative emotions, feeling depressed, nervous, tense/uptight, and anxious, overeating, withdrawing, feeling physically ill, having their schoolwork hurt, damaging friendships, and getting into a fights with family members than males. In particular, high

anger, intoxicated females are more at risk for experiencing consequences due to their anger than high anger, non-intoxicated, and low anger females. Males, especially high anger, intoxicated males, were more likely to be involved in property damage due to their anger than females. Once again, this finding is consistent with prior research that has found that males report higher frequencies of property damage in response to anger (Deffenbacher, Oetting, Lynch, et al., 1996).

When it came to predicting alcohol consequences, men and women experienced comparable numbers of alcohol consequences with a relatively similar frequency of physical, aggressive, and self-harm consequences. That is, men and women were equal in engaging in such things as vomiting and blacking out from alcohol, participating in alcohol-related aggression, and experiencing thoughts about harming themselves. Findings were somewhat discrepant from past studies which have found that males and females tend to experience the same frequency of physical and self-harm consequences, but that males tend to report a greater frequency of aggressive alcohol-related consequences (Carter, 1995; Governale, 2000). In addition, men and women reported similar experiences in regards to fifteen of the eighteen individual alcohol-related consequences. Females in this study reported alcohol led to more trouble at school, feeling more mixed up and confused, and damaging friendships more often than males.

In summary, men and women were relatively similar in regards to the way that they express their anger; however, women may experience more of certain types of anger-related consequences than men, and these areas should be given consideration when working with women in treatment on issues related to anger. Since males and females show a difference in the frequency of which they experience some anger-related

consequences, it may be important to look more at the effects of anger on negative types of emotions, relationships with others, and responses to anger such as overeating, withdrawing, or feeling physically ill in females who are in treatment as opposed to males. The tendency towards property damage might receive greater attention for men.

Both genders appeared susceptible to the same kinds of consequences while drinking depending on their intoxication status, suggesting that alcohol treatment interventions may be relatively similar for college-aged men and women. Anger management strategies may be appropriate for both high anger, intoxicated males and females.

Anger Effects

Not surprisingly, high anger individuals express their anger differently than individuals who report low levels of trait anger. This study's findings were similar to findings in earlier research in that high anger individuals reported greater anger-in and anger-out than low anger individuals, whereas low anger individuals were more likely to experience greater anger-control (Deffenbacher, Oetting, Lynch, et al., 1996; Governale, 2000; Morris, 1998). One explanation for this finding could be that the actual level of anger that a person feels may play a role in how they express their anger. In other words it may be that low levels of anger are much easier to control than intense, high levels of anger. Additionally, high anger individuals are angry more often and, therefore, reported greater suppression and outward negative expression because they have many more incidents of anger.

Also not surprisingly is that high anger individuals report higher levels of anger-related consequences than low anger individuals. In fact, higher anger was related to

significant increases on all nine clusters of anger-related consequences and twelve of the thirteen individual anger-related consequences, (the exception being made to use other drugs). Prior research has also found that individuals high in trait anger experience negative anger-related consequences more frequently than those low in trait anger and that these consequences are typically more severe (Deffenbacher, Oetting, Lynch, et al., 1996; Deffenbacher, Oetting, Thwaites, et al., 1996). In particular, Deffenbacher, Oetting, Lynch and colleagues (1996) found that trait anger was highly correlated with consequences that involved acting out (i.e., physical and verbal fights, damaged friendships, and property damage).

Several studies have shown that the way that individuals express their anger is related to the types of consequences that they experience when they are angry (Deffenbacher, Oetting, Lynch, et al., 1996; Lynch et al., 1998). Individuals who express their anger in outward, aggressive ways report a greater frequency of anger-related aggressive type consequences. For example, those individuals who express their angry feelings by verbally lashing out or by physically acting out on their environment reported higher incidents of getting into verbal fights, physical fights, and causing property damage (Deffenbacher, Oetting, Lynch, et al., 1996). Other studies found that individuals who hold their anger in or suppress their anger report higher incidents of negative emotions such as depression or embarrassment (Deffenbacher, Oetting, Lynch, et al., 1996; Lynch et al., 1998). Those individuals who are able to control their anger showed decreased rates of experiencing many of the anger-related consequences, suggesting that controlling one's anger has a buffering effect on experiencing negative

consequences (Deffenbacher, Oetting, Lynch, et al., 1996; Lynch et al., 1998; Morris, 1998).

This study found that high anger individuals were more likely to express their anger outwardly or hold their anger in, while low anger individuals were much more likely to control their anger. These high anger individuals report greater frequencies of experiencing anger-related consequences, suggesting once again that the way that an individual expresses their anger affects the likelihood that they will experience a consequence due to their anger. In addition, this study found that those who suppress or hold their anger in are more likely to experience negative emotions such as depression or anxiety due to their anger, while those who express their anger outwardly are more likely to experience aggressive type anger-related consequences such as verbal fights, reckless driving, and property damage. Once again, those who were able to control their anger reported experiencing fewer negative consequences associated with their anger.

In addition, high anger individuals in this study were twice as likely to experience alcohol-related consequences than low anger individuals. However, it is important to note that it was the high anger, intoxicated individuals who experienced the majority of these alcohol-related consequences. High anger individuals reported experiencing a greater frequency of physical and aggressive alcohol-related consequences, although again this group proves to be the high anger, intoxicated group that is experiencing the majority of these consequences. This supports other studies that have found that trait anger aids in predicting whether an individual will experience an alcohol-related consequence and in particular the likelihood of experiencing an aggressive type alcohol-related consequence (Carter, 1995; Governale, 2000). Others have found that high anger

individuals get drunk more often and experience more frequent and severe physical, emotional, and behavioral alcohol-related consequences than low anger individuals (Brooks, Walfish, Stenmark, & Canger, 1981; Leibsohn et al., 1994). In this study, nine of the eighteen individual alcohol-related consequences were experienced more frequently by high anger individuals. However, again these findings are qualified by the fact that it is the high anger, intoxicated individuals who were reporting experiencing the majority of the individual alcohol-related consequences including having money problems, fighting with family and friends, and hurting work or schoolwork.

Based on the results of this study, high anger individuals, especially high anger, intoxicated individuals, are at risk for experiencing a variety of anger- and alcohol-related consequences. Anger-management strategies may be helpful to individuals who are presenting at substance abuse or mental health facilities with these types of symptoms. It may be important to look more at how the individual deals with and expresses their anger in that these differences may lead them to act in ways that increase the likelihood that they will experience severe consequences due to their anger, alcohol use, or a combination of the two. Also, the context in which anger is used may be an important focus of treatment as certain environments or interactions may be triggers for anger, especially when drinking. In particular, those individuals who are high anger and have a tendency towards drinking to the point of intoxication may be particularly at risk for experiencing these types of consequences.

Intoxication Effects

Whether an individual is intoxicated or not was not related to how an individual expresses his/her anger. This finding was different than other studies that have found that

individuals who express their anger in an outward way report higher frequencies of intoxication (Deffenbacher & Ball, 1988; Governale, 2000). However, in this study intoxication status does affect if an individual experiences consequences due to his/her anger. Intoxicated individuals were more likely to experience a consequence due to their anger than non-intoxicated individuals. This supports prior research that found high anger individuals to be more vulnerable to alcohol consumption and related consequences than low anger individuals (Cater, 1995; Governale, 2000; Leibsohn et al., 1994). In particular, high anger, intoxicated individuals were more likely to experience an anger-related consequence than all of the other anger-alcohol groups. In addition, intoxicated individuals reported a higher frequency of negative emotions, damaged friendships, reckless driving, alcohol use, and physical fights than non-intoxicated individuals. However, it was the high anger, intoxicated group that was significantly different from all others on anger-related alcohol use and physical altercations. Intoxicated individuals were much more likely to experience several of the individual anger-related consequences including feeling like hurting someone, having trouble with the law, using other drugs, doing something dumb, and feeling nervous.

Not surprisingly intoxication status correlated positively with the frequency for which individuals experienced an alcohol-related consequence. Again this supports findings in the literature that show that individuals who consume higher levels of alcohol tend to experience more negative consequences associated with their drinking than individuals who consume less (Brennen, Walfish, & AuBuchon, 1986; Governale, 2000; Leibsohn et al., 1995; Swaim, Oetting, Edwards, & Beauvais, 1989). Intoxicated individuals in this study were also more likely to experience a consequence in regards to

their anger as well. This study contributes new findings since literature is lacking in studies that specifically examine at the effects of intoxication on anger-related consequences. In treatment it may be very important to help these individuals to explore their tendencies to drink to the point of intoxication and to address the ramifications of their behaviors, including anger and aggression. High anger, intoxicated individuals may benefit from applied relaxation for reduction of emotional physiological arousal (Deffenbacher, Demm, & Brandon, 1986; Hazaleus & Deffenbacher, 1986) and from cognitive-behavioral techniques to alter anger engendering cognitions and decrease the frequency of intoxication (Bishop, 1995; Hazaleus & Deffenbacher, 1986; Moon & Eisler, 1983). Being intoxicated may disinhibit a person's behavior enough so that one may be more susceptible to act in inappropriate or destructive ways that increases the likelihood that one will experience a consequence due to their anger and/or alcohol use. However, it is important to note that again it is actually the high anger, intoxicated individuals who are experiencing most of these anger- and alcohol-related consequences.

High Anger, Intoxicated Individuals

After examining the effects that gender, trait anger, and intoxication status have on anger and alcohol variables a pattern begins to emerge in which it becomes clear that high anger, intoxicated individuals are reporting a much higher frequency of both anger- and alcohol-related consequences, regardless of their gender.

The high anger, intoxicated group appears to be at particular risk for becoming involved with behaviors that could be damaging or dangerous to themselves or those around them. Specifically, the high anger, intoxicated experienced more anger and

alcohol consequences (i.e., were they at greater risk or jeopardy for negative forms of anger expression and alcohol and anger consequences) than other groups.

High anger, intoxicated students reported significantly more total number of anger consequences than all of the other anger, alcohol groups. In addition to this, the high anger, intoxicated group reported experiencing a greater frequency of verbally/physically aggressive and impulsive anger-related consequences including damage of friendships, physical fights, reckless driving, drinking alcohol, doing something dumb, feeling like hurting someone, and legal problems. In addition, the high level of trait anger makes this group susceptible to a wide variety of anger-related consequences that deal with negative emotions and anger directed at self and others.

However, the high anger, intoxicated individuals are not just at a greater risk for experiencing more consequences because of their anger, they are also at a greater risk for experiencing more frequent consequences associated with their alcohol use. Results showed that the high anger, intoxicated group reported significantly more alcohol-related consequences than all other anger, alcohol groups. They also reported more aggressive and physical alcohol-related consequences than the high anger, non-intoxicated group and both low anger groups. In addition, they were also significantly higher on many of the scaled and individual alcohol-related consequences including alcohol leading to having money problems, hurting school or work, fighting with family and others, made you feel mixed up or confused, feeling sad, feeling others are against you, doing something you later regretted, and use other drugs. The level of intoxication for this high anger, intoxicated groups also put them at a greater risk for many other alcohol-

related consequences such as being physically hurt by someone, damaging a friendship, engaging in unprotected or unwanted sex, and made to feel anxious.

These high anger, intoxicated individuals are reporting more frequent consequences, related to both their anger and their alcohol use. It is important to note that the high anger, intoxicated group was significantly higher than the other anger-alcohol groups for the majority of anger and alcohol consequence scales and individual items. That is, overall the high anger, intoxicated group was much more likely to be susceptible to all kinds of consequences associated with both their anger and alcohol use.

This combination of anger and alcohol is extremely costly to the individual, their family and close friends, and the communities in which they live and therefore it is important for us to be able to not only identify this at-risk group but to also be able to offer effective treatment. This group of individuals may need to be specifically targeted as a high-need group for psychological treatment. It may be helpful to provide educational outreach programs to this group. In addition, on some college campuses students who have gotten in trouble due to their drinking habits are required to take classes or complete a program through the university's drug and alcohol prevention clinics. This may be a good place to assess anger as well as alcohol use.

Readiness will be important to assess as the high anger, intoxicated group may deny, externalize, and minimize problems. Strategies such as motivational interviewing (Miller & Rollich, 1995) may be appropriate if this is the case. In particular, motivational interviewing has been shown to be particularly effective for problem drinkers in facilitating readiness for change and improving treatment outcomes (Bien, Miller, & Boroughs, 1993).

Other treatment for this high anger, intoxicated group may combine substance abuse treatment with anger management strategies. In treatment it may be very important to help these individuals to explore their tendencies to drink to the point of intoxication and to address the subsequent consequences. High anger, intoxicated individuals may benefit from applied relaxation for reduction of emotional arousal (Deffenbacher, & Stark, 1992; Hazaleus & Deffenbacher, 1986) and cognitive restructuring to alter anger engendering cognitions (Hazaleus & Deffenbacher, 1986; Moon & Eisler, 1983). Other anger-management strategies such as combined cognitive-relaxation interventions will most likely prove to be helpful to individuals who are presenting at substance abuse or mental health facilities with these clusters of anger- and alcohol-related consequences (Deffenbacher & Stark, 1992; Leibsohn et al., 1994). Also social-communication skill interventions for interpersonal conflict management may be particularly valuable to this high-risk group (Moon & Eisler, 1983). In particular, it may be beneficial to address specific problem situations that appear to be common for these high anger, intoxicated individuals including managing verbal and physical aggressive tendencies in provoking situations.

In addition, it may be helpful to look at how the individual deals with and expresses anger in that these differences may lead them to act in ways that increase the likelihood that they will experience consequences due to their anger, alcohol use, or a combination of the two. In this same regard, it is important to note that while we have identified this particular at risk group, it is equally important that we understand how anger expression, trait anger, and intoxication status can aid us in predicting the

likelihood that an individual will experience these anger- and alcohol-related consequences.

Prediction of Anger Consequences

This study sought to explore further the complexities among anger, anger expression, gender and level of intoxication in predicting anger- and alcohol- related consequences. Up to this point we have explored the fact that the combination of anger and intoxication status effects the frequency for which individuals report having experienced anger- and alcohol-related consequences, however can these anger and alcohol variables aid us in predicting certain types of consequences? In particular, can gender, trait anger, and anger expression contribute above and beyond intoxication for predicting alcohol-related consequences and can gender and intoxication status contribute above and beyond anger variables in predicting anger-related consequences?

This study found that not only did anger expression and trait anger aid in predicting anger-related consequences but in several instances intoxication and gender added addition predictive variance. While the literature is scarce on studies that specifically investigate the relationship between alcohol-consumption and anger-related consequences, several studies of “problem drinkers” describe these individuals as more angry, hostile, impulsive, and aggressive (Brennen et al., 1986; Brooks, Walfish, Stenmark, & Canger, 1981), suggesting that anger and hostility are likely related to abusive patterns of alcohol consumption. In regards to the total number of anger-related consequences, trait anger, AXO, and AXI contributed the most but, level of intoxication added 2.6% variance. In other words, the frequency with which a person becomes intoxicated can be a contributing factor in whether they experience an anger-related

consequence and the frequency with which they experience anger-related consequences. In fact level of intoxication, aided in predicting four of the nine clusters of anger-related consequences. This is important in that it supports earlier finding that a combination of anger and alcohol use contributes to an individual experiencing anger-related consequences.

Not surprisingly, the higher an individual is in trait anger and the greater their tendency to express their anger in an outward fashion and/or suppress feelings of anger the more likely they are to experience several of the scaled anger-related consequences including feeling tense or uptight, experiencing negative emotions, engaging in verbal and physical fights, and in property damage. While the literature shows that high levels of anger-in and anger-out are related to an increased likelihood that an individual will experience a high number of consequences overall, it is also noted that a tendency towards a specific expressive style also seems to be significantly associated with distinctive outcomes (Morris, 1998).

The literature shows that those individuals who were more likely to hold their anger in were more likely to experience negative states of emotion such as embarrassment, anxiety, or depression, (Clay, Anderson, & Dixon, 1993; Deffenbacher, Oetting, Lynch, et al., 1996; Deffenbacher, Oetting, Thwaites, et al., 1996; Tschannen, Duckro, Margolis, & Tomazic, 1992). This study supports the literature in that anger expression-in aided in predicting such “negative emotion” anger-related consequences and self-destructive consequences including feeling tense/uptight, depressed, anxious, and nervous, over-eating, withdrawing, and feelings of wanting to harm oneself. In addition to this, it has also been suggested that those individuals who hold their anger in

may be prone to recycling their anger and brooding which interferes with concentration (Deffenbacher, Oetting, Lynch, et al., 1996; Lynch et al., 1998). Again this study supports this finding in that anger expression-in aided in predicting difficulties in areas where concentration and focused attention are required including hurting one's schoolwork and reckless driving.

Aggressive forms of anger expression (e.g., verbally or physically lashing out at objects or people in the environment) are positively correlated with adverse consequences while non-aggressive forms (e.g., trying to control one's anger, trying to be tolerant and understand others) are found to be negatively correlated (Deffenbacher, Oetting, Lynch, et al., 1996). Once again, the findings of this research supports earlier studies in that outward anger expression aided in predicting such verbally and physically aggressive type anger-related consequences, while controlled anger expression was negatively correlated with many of the anger-related consequences. Lynch and colleagues (1998) found that individuals who express their anger outwardly are likely to experience anger-related consequences such as car accidents, self-injurious behavior, property damage, verbal altercations, anger-related alcohol consumption, legal difficulties, and physical altercations. Not surprisingly, those individuals who were more prone to verbally express their anger by noisy arguments and sarcasm were likely to suffer relationship difficulties with friends, family, and significant others (Deffenbacher, Oetting, Thwaites, et al., 1996; Tschannen et al., 1992). This study once again found similar patterns between anger expression-out and many of the verbally and physically aggressive type anger-related consequences (i.e., damaged friendships, verbal fights, property damage, feel like hurting someone, and fight with family).

This study contributes new information to the literature in that it examines the relationship between frequency of intoxication and frequency and severity of anger-related consequences. In particular, frequency of intoxication added to the prediction of using alcohol when angry. In other words, a person who typically drinks to the point of intoxication is more likely to drink in response to anger than those who choose to not become intoxicated. This begins a dangerous and self-destructive cycle of anger and intoxication. This vicious cycle of anger and alcohol use leads to a greater frequency of negative consequences associated with experiencing anger. Intoxication level was correlated with many of the anger-related consequences including experiencing negative emotions, becoming involved with physical fights, and reckless driving. Damaging friendships and self-harm were best predicted by a combination of anger-expression variables, anger-out and anger-in for damaged friendships and anger-in and anger-control for self harm, while intoxication added little predictive variance for these items.

Similar patterns are found for the anger-related individual consequences. Intoxication adds additional variance for five of the thirteen individual items including having trouble with the law, doing something dumb, using other drugs, feeling physically ill, and hurting work or schoolwork. Again with these consequences trait anger and AXO and/or AXI contribute significant variance but alcohol added to the mix. Other individual consequences where trait anger and AXI and/or AXO were the best predictors include feeling depressed, nervous, and anxious, and feel like hurting someone.

Gender contributed significantly to predicting several of the individual and scaled anger-related consequences. In particular, those variables that dealt with negative emotions and relational difficulties were experienced most frequently by women

including negative emotions, overeating, withdrawing, feeling physically ill, and fighting with family and others. These findings are similar to past studies that have found that females tend to report higher incidents of negative emotion type anger consequences and relationship difficulties (Leibsohn et al, 1994; Lynch et al., 1998).

Consequences involving reckless or dangerous behavior or aggressive acts were more frequently experienced by men including reckless driving, property damage, physical fights, feeling like hurting someone, having trouble with the law, using other drugs, and doing something dumb. Again these findings are supported throughout the literature (Barron & Richardson, 1994; Lynch et al., 1998; Morris, 1998). These gender differences are most likely due to the way that males and females are socialized with females being more likely to internalize feelings of anger and experience negative emotions as a consequence. For males, on the other hand, it is more acceptable to engage in risky behaviors and act out towards other people or objects. These findings have implications in that men and women will most likely present with different types of anger-related consequences, and it will be important to gear treatment in a way that addresses the specific needs of the individual as well as keeping in mind the way that socialization has influenced their behavior. However, it is important to not overemphasize these differences as the percent variance accounted for by gender was generally small to moderate when found at all.

Prediction of Alcohol Consequences

Not surprisingly, this study found that total, physical, aggressive, and self-harm alcohol-related consequences were best predicted by level of intoxication. These findings support other literature showing a connection between intoxication and alcohol-related

consequences (Carter, 1995; Governale, 2000). In addition, this study supported the literature showing that total alcohol-related and aggressive consequences were also predicted by trait anger (Carter, 1995; Governale, 2000; Leibsohn et al., 1994). That is, individuals who experience high levels of anger on a fairly consistent basis are more likely to experience alcohol-related consequences and in particular aggressive-type consequences. Those individuals who are showing up in alcohol and drug treatment facilities who are experiencing a greater frequency of consequences and in particular consequences that are aggressive in nature may benefit from an anger-management component to their treatment. It also appears that males will be more likely to display aggressive type consequences.

Several of the individual alcohol-related consequences were best predicted by intoxication and trait anger including having money problems, having trouble at work and /or school, fighting with family and others, feeling mixed up or confused, been physically hurt by someone, doing something you later regretted, and making your friends mad at you. Governale (2000) also found similar results, in that angry individuals who are intoxicated frequently are more likely to suffer several of these same alcohol-related consequences when drinking than low anger individuals who do not report high levels of intoxication. Gombert (1993) also postulates that the effects of alcohol on aggressive type behaviors will vary according to the quantity of alcohol consumed. Larger doses will most likely lead to more severe and frequent types of consequences.

Both Carter (1995) and Governale (2000) found a connection between expression styles of anger and alcohol-related consequences. Anger-Out (negatively expressed anger) and Anger-In (suppressed anger) contributed the most to the prediction of

frequency of consequences, whereas trait anger and Anger-Out were the most predictive of the severity of consequences (Carter, 1995).

This study also found that anger expression aided in predicating alcohol-related consequences. Several individual items were best predicted by level of intoxication and AXO including feeling that others are against you, made you feel anxious, and made you use other drugs. It appears that those individuals who express their anger in an outwardly way in combination with becoming intoxicated may be more likely to use other substances and have more paranoid or nervous feelings. Individuals who damaged a friendship, engaged in unwanted sex, and felt sad in response to their alcohol consumption were more likely to have higher levels of intoxication and have less control over their anger. There were a few individual items that were best predicted by intoxication level alone including having trouble at school, engaging in unprotected sex, and seeing or hearing things that are not there.

Having money problems and made you use other drugs were also predicted by gender with males engaging in both of these behaviors more than females. Gender appears to be less of a factor for alcohol-related consequences than for anger-related consequences. Additionally, Carter (1995) found that high anger men and women differed in some types of alcohol-related consequences that they experienced after drinking. Men tended to report higher instances of breaking objects, more frequently forgot things, more problems in school and in relationships, and felt like hurting others.

In conclusion, the results of this study show an important relationship between anger and intoxication level in predicting both anger- and alcohol-related consequences. Analyses show that high anger, intoxicated individuals are a particularly at-risk group for

experiencing a wide variety of self-destructive and potentially dangerous behaviors. Findings may help to identify these individuals early based on the types of consequences that they are experiencing and may allow a better chance of intervening early to help these individuals to learn new ways of coping. In addition, by having a better understanding of the interplay among anger, anger expression, and intoxication in predicting anger- and alcohol-related consequences, professionals will be better able to tailor more specific treatments for individuals based on our knowledge of the factors that are contributing to their behaviors. Prevention, early intervention, and the utilization of appropriate and effective treatments will not only help the individual but also society from having to deal with the ramifications of behaviors.

Future Directions in Research

There are a number of issues that this study addressed including identifying an at-risk group of individuals who may need assistance and treatment either through the legal system or through mental health or substance abuse treatment programs. By identifying this group, we are better able to provide early intervention and in particular we are able to tailor a treatment program that will address the major components affecting their behavior including such things as level of anger, anger expression issues, and frequency of intoxication. Particular strengths of this study include our large sample size and the contribution to the literature on a subject that is affecting our society at large. In particular, anger- and alcohol-related consequences are frequently seen in the college population and therefore it is particularly important to study these issues in this population.

While answering some questions, this research clearly raises several other questions that need to be looked at in future research projects. The first being that perhaps it is not just the way that individuals deal with their anger that may effect anger- and alcohol-related consequences but perhaps it is a more pervasive way of dealing with all emotional states and feelings. For example, a kind of exploding or suppressing high levels of emotion that may make some people at a higher risk for engaging in self-destructive or dangerous behaviors. This type of disposition in combination with high levels of alcohol may work to disinhibit some behaviors and may prove to be an explosive combination. In addition, future research studies may want to investigate issues of anger, anger expression, intoxication status, and anger- and alcohol-related consequences with other populations (i.e., ethnic minorities, a non-college population, different age ranges). It would also be helpful to look at these high anger, intoxicated individuals in other populations to see if culture or ethnicity mediates the types of consequences associated with anger and alcohol use, regardless of anger and intoxication level.

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