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DISSERTATION

ANGER, ANGER EXPRESSION, ALCOHOL, AND ALCOHOL CONSEQUENCES

Submitted by

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In partial fulfillment of the requirements

for the Degree of Doctor of Philosophy

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Summer, 2002

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WE HEREBY RECOMMEND THAT THE DISSERTATION PREPARED UNDER OUR SUPERVISION BY LANA L. CARTER ENTITLED ANGER, ANGER EXPRESSION, ALCOHOL AND ALCOHOL CONSEQUENCES BE ACCEPTED AS FULFILLING IN PART REQUIREMENTS FOR THE DEGREE OF DOCTOR OF PHILOSOPHY.

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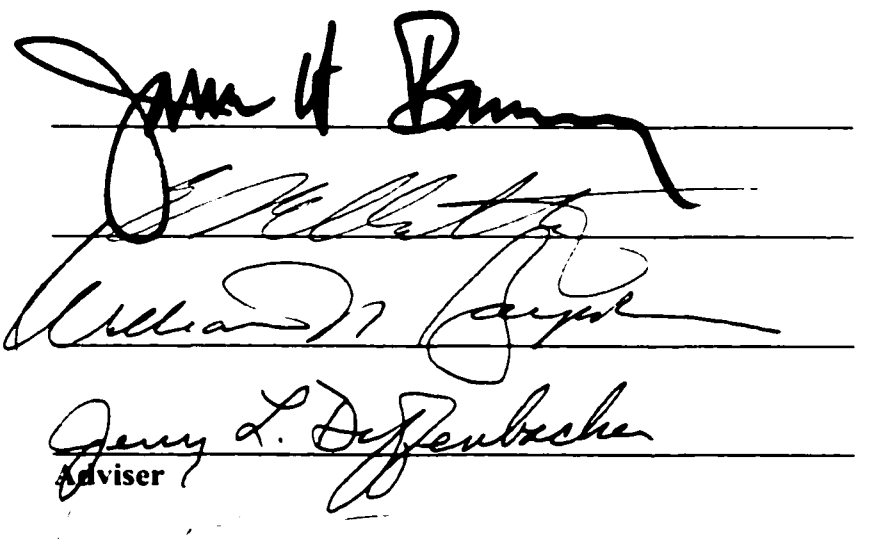

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ABSTRACT OF DISSERATION

ANGER, ANGER EXPRESSION,

ALCOHOL AND ALCOHOL CONSEQUENCES

This study investigated the relationship of anger, anger expression styles, alcohol consumption and alcohol-related consequences. The results show alcohol consumption and intoxication are prevalent behaviors among college students. Although males reported drinking and becoming intoxicated more often than females, gender was not a strong predictor of frequency of alcohol consequences. However, gender was of greater predictive power in accounting for alcohol-related consequences in the worst-case incident, with males suffering more consequences than females.

Trait anger was significantly related to the total alcohol consequences, worst alcohol-related incidents, and to alcohol-related behavioral consequences (e.g. aggressive behaviors). Prosocial anger expression styles and anger control were inversely related to negative alcohol-related consequences and total consequences. Anger expression styles such as verbal putdowns and verbal assaults were related to alcohol consequences. Anger and anger expression styles played a significant role in predicting the worst alcohol-related event.

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Intoxication played the greatest role in predicting physical consequences, total frequency of consequences, and aggressive behaviors towards others.

Results were discussed in terms of the importance of addressing anger management issues in alcohol treatment and prevention programs.

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ACKNOWLEDGEMENTS

I am greatly indebted to Dr. Jerry Deffenbacher for his untiring effort in bringing this manuscript to completion through countless editorial drafts. Dr. Deffenbacher has demonstrated exceptional commitment to this author's success and an endless capacity to redirect a wandering mind.

I also wish to express my appreciation to Keegan, Erin, and Shannon Flaugh. Their support throughout the duration of my graduate work and the writing of this dissertation was outstanding.

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CHAPTER I

INTRODUCTION

A growing body of literature has shown that alcohol consumption on college campuses has remained consistently high since the 1970's. Research indicates that alcohol use among college students is a pervasive and intransigent problem (Brennan, Walfish, & AuBuchon, 1986a, 1986b; Carter & Deffenbacher, 1995; Engel, 1989; Engs, 1977; Hanson, 1977; Hinrichs, 1978; Kraft, 1976; Kuder & Madson, 1976; Liebsohn, Oetting, & Deffenbacher, 1994; Wechsler & McFadden, 1979). The negative outcomes of alcohol consumption among college students may include mild to very serious emotional (Carter & Deffenbacher, 1995; Liebsohn et al., 1994) and physical outcomes such as hangovers, passing out, and physical fights (Bogg & Hughes, 1973; Carter & Deffenbacher, 1995; Engs, 1977; Walfish, Wentz, Benzing, Brennan, & Champ, 1981), as well as negative social, academic and legal consequences (Carter & Deffenbacher, 1995; Engs, 1977; Hanson, 1974; Liebsohn et al., 1994; Walfish et al., 1981; Wechsler & McFadden, 1979). Given the fact that college student drinking and the negative consequences that go hand-in-hand with alcohol use remain a severe problem, it follows that there is a need for additional research. The present study is offered as an attempt to expand the current body of knowledge on the relationship between anger, anger expression, alcohol use, and the negative consequences of alcohol use.

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A variety of studies have searched for emotional factors that might correlate with or precipitate alcohol consumption. Anger level has been shown to be consistently linked to alcohol use. Specifically, high anger level is associated with higher levels of alcohol use and intoxication. While investigating the connection that anger and alcohol use shared, studies found that high anger was also related to more frequent and more severe alcohol-related consequences. There are several hypotheses as to why anger and alcohol may be a dangerous combination. For example, Miller and Potter-Efron (1990) suggested that: (1) alcohol may reduce ego controls allowing anger to be released, (2) judgment may be impaired, (3) feelings of restlessness, irritability, and impulsiveness may be induced, (4) feelings of power and boldness may be induced, promoting dangerous behaviors, (5) alcohol can bring about amnesiastic or fugue states that cause a person to act unpredictably or uncharacteristically, (6) there is a tendency to miss and misinterpret social cues, and (6) the person may be in environments that promote, encourage, and /or reinforce aggressive and risky behaviors.

Anger

Anger is a ubiquitous emotion thought to be biologically intrinsic to human nature. Although an essential tool to human expression, anger carries with it a host of negative psychological, psychosocial, and physical consequences. Anger has been shown to be linked to high blood pressure, domestic violence, coronary heart disease, interpersonal relationship problems, difficulties in the workplace, angry emotionality and distress, and an increase in alcohol consumption (Deffenbacher, Oetting, Lynch, & Morris, 1996). Several studies indicate that most people experience anger, and some

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people experience it from several times a day to several times a week (Averill, 1983; Kasssinove & Sukholdolsky, 1995).

Spielberger, Jacobs, Russell, and Crane (1983) set the stage for anger research by attempting to define anger and the related concepts of hostility and aggression. The construct of anger was identified as a continuum of emotions, ranging from mild irritation to intense rage, along with physiological arousal. Hostility was seen as an attitude in which individuals had reoccurring thoughts of and impulses towards directing their anger to harm other people, things, or social systems. Aggression denoted a punitive or destructive behavior that might or does bring about harm to a person, object, or social system. It was further noted that although aggression and hostility often go hand-in-hand, a person may be aggressive without experiencing hostility. Instrumental aggression is seen when a person is trying to overcome an obstacle, but does not engage in hostility.

This study will use Spielberger et al.'s (1983) concept of anger as an emotion. In an effort to further clarify the complex issues surrounding anger, Spielberger (1988) conceptualized anger as a transitory state (state-anger) and an underlying personality dimension or trait (trait-anger). Trait anger reflects reasonably stable elements of personality with a consistent tendency to become angry. State anger is more transitory in nature and includes subjective feelings of anger and physical arousal. Since state anger is in response to environmental and cognitive variables, it tends to change in response to subjective cognitive states and varying contexts. This theory of State-Trait anger has been supported through numerous studies (Deffenbacher, Demm, & Brandon, 1986; Deffenbacher, Oetting, Thwaites, et al., 1996; Demm, 1986; Eiswerth-

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Cox, 1990; Lopez & Thurman, 1986). These studies found that people with high trait anger tended to experience more frequent and intense anger episodes, respond to relevant anger situations with heightened arousal, engage in verbal and physical antagonism, not use constructive coping mechanisms in anger arousing situations, experience more frequent and intense anger-related consequences, and experience increased physiological arousal.

Although State-Trait theory can provide a framework in which to conceptualize anger as it relates to an enduring trait versus a situational state, it is limited in helping us understand how anger is expressed. A number of studies discovered that how a person habitually manifested heightened anger was linked to the physiological consequences (Gentry, 1972; Harburg, Blakelock & Roeper, 1979). It might be possible that an individual could experience a high level of anger, but not necessarily experience the negative physiological, behavioral, or interpersonal consequences given a particular expression style. However a person behaves while experiencing anger can play an important role in their physical health, interpersonal relationships, problems with the legal system, schoolwork and work performance, as well as their self-esteem and their outlook on the world.

Anger Expression

Building on prior research (e.g., Funkenstein et al., 1954; Gentry, 1972; Harburg et al., 1979; Spielberger, 1983), and using factor analysis, Spielberger (1988), identified three somewhat independent dimensions of anger expression. Anger-in (AX/I) described those people who tend to be inwardly critical and harbor grudges and suppress their angry feelings and approach anger passively (e.g. "I keep things in").

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Anger-out (AX/O) described individuals who tended to express their anger actively in a physically or verbally demonstrative way (e.g. "I lose my temper"). Anger-control (AX/C) described those people who tend to monitor and prevent or control the expression of anger (e.g. "I control my behavior"). Numerous studies have substantiated Spielberger's forms of anger expression (Deffenbacher, Oetting, Thwaites, et al., 1996; Delamater & Mcnamara, 1987; Knight, Chisholm, Paulin & Waal-Manning, 1988). Correlations between the anger-in and anger-out are minimal, indicating that these two subscales are independent and factorially orthogonal. For example, there is minimal correlation between anger-in and anger-control, but significant negative correlations between anger-out and anger-control (Deffenbacher, 1992; Deffenbacher, Oetting, Thwaites, et al., 1996; Spielberger, 1988).

Trait anger and anger expression have been found to be correlated along several lines (Deffenbacher, 1992; Spielberger et al., 1988). Anger-in and anger-out have been found to correlate positively with trait anger, while anger-control was negatively correlated with trait anger, indicating significant relationships between trait anger and anger expression style (Deffenbacher, 1992). Deffenbacher, Oetting, Thwaites, et al. (1996) found that individuals high in trait anger did not report a preference for one anger expression style, being moderately high on all three forms of expression. Those individuals low in trait anger reported a clear preference for controlling their anger. They were low in anger-in and anger-out and relatively high on anger-control. One hypothesis regarding this finding is that individuals high in trait anger will experience anger more intensely and more frequently than those individuals low in trait anger.

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Therefore, the high trait anger people have a greater opportunity to use multiple combinations of anger expression styles (Governale, 2000).

Anger Expression and the Negative Consequences of Anger

It has been well documented that trait anger, negative life events, and anger related consequences are linked (Broman & Johnson, 1988; Deffenbacher, 1992; Deffenbacher, Oetting, Thwaites, et al., 1996; Governale, 2000). Research identifies concomitant risk factors for individuals who carry high levels of anger. Broman and Johnson (1988) reported a danger of high anger individuals having the tendency to alienate relationships and support systems that could otherwise help mediate some of the negative life consequences and health difficulties related to high anger. In essence, individuals with high anger are more apt to express their anger in a manner that could possibly damage relationships and support systems. Not only do high trait anger individuals report expressing anger in ways that could damage relationships, they also have a greater tendency to experience anger-related physiological symptoms and more anger-related interference in their lives than those low in trait anger (Desnos & Deffenbacher, 1995). High trait anger individuals are more apt to be involved in physical altercations such as physical fights than those low in trait anger (Lynch, Morris, Deffenbacher, & Oetting, 1998). Brooks, Walfish, Stenmark, and Canger (1981) also identified links between trait anger, anger expression and negative consequences. Their study showed that high levels of anger can predict more frequent and more severe alcohol and drug use, negative affect, physical and verbal assault, interpersonal relationship problems, and low self-esteem. They also found that high

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anger was linked to an increase in alcohol abuse and to negative psychosocial, physical, and educational consequences related to the alcohol use.

As was noted earlier, the level of an individual's anger is related to the likelihood of experiencing anger consequences. In addition to this relationship, anger expression is linked to the frequency and types of consequences due to the anger. The relationship between high levels of anger-out, anger-in, and anger-control and an increased frequency of overall anger-related consequences is clear. However, the individual outcomes are significantly related to specific anger expression styles (Morris, 1998). Other studies have substantiated this relationship (Deffenbacher, Oetting, Thwaites, et al., 1996; Tschannen, 1992). Negative affective states such as embarrassment, depression, or anxiety were more likely to be experienced by individuals who tended toward an anger-in style of expression. Several studies have identified the tendency of anger-in individuals to report higher levels of depression (Clay, Anderson, & Dixon, 1993; Deffenbacher, Oetting, Lynch, et al., 1996); Tschannen, Duckro, Margolis, & Tomazic, 1992). Along these same lines, individuals who expressed their anger through physical and verbal assault toward others and the environment, and through arguing nosily were also seen as reporting more depression. Key features of depression include feelings of helplessness and sadness. It has been hypothesized that those individuals who express their anger in a caring and considerate manner may be less likely to suffer from helplessness and sadness. Studies have shown that individuals who have high levels of rage, but who suppress their feelings may pay the price with harmful physiological consequences (Burns & Katkin, 1993; Feshbach, 1986). In predicting greater levels of physiological problems, it seems that

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the expressive styles of anger-in or anger-out both may be implicated when paired with intense levels of anger. Those individuals who tended to express their anger verbally had greater difficulties in interpersonal relationships and more verbal fights as well (Deffenbacher, Oetting, Thwaites, et al., 1996; Tschannen et al., 1992). Lynch et al. (1998) found that individuals who tended toward anger-in were more likely to brood or ruminate over their anger, which could reduce the ability to concentrate on school or work issues. Components of the anger expression styles anger-in and anger-out were once again linked to the type of negative anger-related consequences experienced.

Studies have also shown an association between anger expression in the form of aggression (e.g. physical or verbal aggression to people or objects in the environment) and negative anger consequences. Specifically, individuals who express their anger in physically aggressive ways (e.g. lash out at objects in their environment) are more likely to experience adverse consequences such as vehicular accidents, property damage, and self-injurious behaviors (Lynch et al., 1998). Individuals who express their anger in verbally aggressive ways (e.g. verbal put downs, verbal assault, and noisy arguing) were linked with problems with the legal system, verbal altercations, anger-related alcohol consumption, and physical altercations. This link points to a connection between verbal and physical aggression (Lynch et al., 1998). Individuals who tended to express their anger verbally were more apt to have interpersonal relationship difficulties. As might be expected, non-aggressive forms of anger expression such as trying to be tolerant, understanding, and trying to control one's anger were negatively related to deleterious consequences. Investigation into the relationship between how individuals express their anger and the ensuing anger-related

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consequences is an important clinical challenge. This challenge may make the difference in being able to accurately conceptualize, treat, and prevent problematic anger-related behaviors.

Anger Expression and Gender

Several studies have evaluated gender differences in anger expression styles with conflicting results. Speilberger and colleagues (1985, 1988) found significant gender differences among high school students, with anger-in being endorsed more by males than females and females scoring higher on total anger expression scores. However, significant gender differences were not found by Spielberger in adult and college student norm groups (1988). These findings were reinforced by Deffenbacher et al. (1993). This study found no gender differences for anger expression style. Another study by Malatesta-Magai et al. (1992) revealed significant differences for the AX/EX scale with females scoring higher than males, but showed no other significant gender differences along the other anger expression scales. Differences were found between sex role identity and anger expression, but not on gender and anger expression (Kopper & Epperson, 1991). Individuals with a reported masculine sex role were more likely to have higher anger-out scores and those with feminine or androgynous sex roles were more likely to have elevated anger-control scores. Anger-in scores were roughly equivalent for masculine, feminine, and undifferentiated types. These finds were replicated later in a study that found sex role effects in association with anger expression styles, but no significant gender effect with anger expression styles (Kopper, 1993). Gender differences have been found in several studies in which males report greater levels of anger-out (Deffenbacher, Oetting, Lynch, et al., 1996;

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Fischer et al., 1993; Kopper & Epperson, 1996). Consonant with these findings, these males were also suffering more negative anger-related consequences related to the overt aggression such as property damage and physical altercations. Deffenbacher (1995) also found that women reported using body language in their anger expression and suffered from more negative emotional outcomes (e.g. guilt, embarrassment).

Anger Consequences and Gender

The idea of anger expression leading to specific adverse outcomes is not without support in the literature. It follows that we would find gender differences in anger-related consequences. As mentioned before, there is some evidence that males report a greater frequency of physical damage of others and objects in the environment when compared to females (Deffenbacher, Oetting, Thwaites, et al., 1996). It has also been shown that males may report higher levels of verbal and physical assault (e.g., screaming at others, physical altercations, and property damage) than females. Females had more negative anger-related emotional reactions than males (Deffenbacher, Oetting, Lynch, et al., 1996).

Although the findings in regards to gender differences in anger expression and anger-related consequences are mixed, we see some support of the idea that males and females have tendencies to express their anger in dissimilar ways and therefore experience varying anger-related consequences. The picture, however, may not be that clear. There are an equal number of studies that indicate that males and females have similar anger-related consequences. The study of outside influences on anger

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expression and anger-related consequences may help elucidate the issue. Alcohol is one of the influences that may play a key role in furthering our understanding.

Incidence of College Alcohol Use

The most recent findings from ongoing national research and reporting programs on drug and alcohol use show a relatively steady pattern in monthly prevalence and daily use of alcohol by college students since 1980. The National Survey Results on Drug Use from The Monitoring the Future Study reported that the monthly prevalence of alcohol use by college students ranged from 82% in 1980 to 68% in 1995 and the daily use was at 6.5% in 1980 and 3.3% in 1995. There had been little change in the rate of occasions of heavy drinking, which was at 40% in 1995. The data show a very high rate of binge or party drinking by college students (Johnston, O'Malley, & Bachman, 1996). The National Household Survey on Drug Abuse (SAMSHA, 1997) surveyed individuals aged 12 and older throughout the United States. This study found that approximately 9 million current drinkers in 1996 were between 12 and 20 years of age. Approximately 4.4 million of those drinkers were considered binge drinkers (5 or more drinks on the same occasion at least once in the past month), and 1.9 million of those were considered heavy drinkers (5 or more drinks on the same occasion on a least five different days in the past month). Among young adults age 21 through 29, current alcohol use rates were around 60% with 18 to 25 year old drinkers being most likely to binge or drink heavily. Within the 18-to-25 year old age group, approximately 50% of the drinkers were binge drinkers, and 20% were heavy drinkers (SAMSHA, 1997). According to the SAMSHA (1997) data, there has not been a significant reduction in alcohol use rates for all ages 12 years and older

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between 1995 and 1996. Data from the Student Alcohol Questionnaire, a nationwide survey assessing the drinking patterns and problems of college students from 1993 through 1994, showed 72% of students consuming alcohol at least once a year, and 20.6% as heavy drinkers (Engs, Diebold, & Hanson, 1994). The Core Alcohol and Drug Survey (CADS) is a survey of alcohol consumption trends on college campuses in the United States. Data from the first part of this survey indicate that college students consume an average of 5 drinks weekly, around 42% of students had binged in the past two weeks, and the most widely used drug used by college students was alcohol. Results from data gathered between October 1994 and June 1996 showed that 10% of the students reported on the average they consumed 15 or more drinks weekly (Meilman, Presley, & Cashin, 1997).

Presley and colleagues (1997) found that 75 to 90% of college students polled (out of over 1,100 institutions of higher education) reported to have used alcohol. Some studies have found that the frequency of light drinking has increased with each year in school for both males and females (Engs, 1977; Peters, 1987; Wechsler & McFadden, 1979). Engs et al. (1994) found that students under 21 years old were more likely to be heavy drinkers than older students. Research on age-related alcohol consumption shows a pattern of more frequent light drinking among older adults and less frequent but heavier drinking among younger adults (Meilman et al., 1997; Peters, 1987; Temple, 1986). Young college drinkers who consume alcohol less frequently but more heavily may be at a higher risk of becoming drunk and experiencing negative consequences as a result of their drinking (Carey, 1993; Engs et al., 1994).

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Although the National Highway Traffic Safety Administration (NHTSA) estimates that the 21-year-old minimum drinking age law has reduced traffic fatalities involving drivers in affected age groups by 13 %, statistics still indicate a major problem exists with college age students drinking and driving. In 1990, 38.5% of fatally injured 16 to 20 year old drivers were intoxicated (NHTSA, 1990).

Over a decade ago, approximately 70% of college males and 50% of college females consumed alcohol weekly. According to Engs (1977), the extent of drinking across 13 colleges showed percentages equal to those of 25 years earlier. Kuder and Madson (1976) surveyed students over 25 years ago and found that 80% of the students drank at least once a week. Studies at Colorado State University, a fairly typical land grant state university, indicate that the prevalence of alcohol use has changed little. Leibsohn (1990) determined that during the last 30 days close to 90% of college freshman at Colorado State University reported using alcohol, almost 70% reported getting drunk, and 60% reported to have three or more drinks in a 3-5 hour period. Conway (1992) surveyed campus residence hall students at Colorado State University and reported that 82% of the students used alcohol in the past 30 days. Clearly, research to date indicates that alcohol consumption by college students is a widespread social phenomenon.

Studies vary in the demographic correlates of drinking rates and related problems among college students. These variations may be due to a number of factors including differences in male and female drinking patterns (Jackson & Matthews, 1988; Peters, 1987; Wilsnack & Wilsnack, 1979), and differences in regional laws and religious guidelines (Hughes & Dodder, 1983; Peters, 1987). Factors outside of the

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college setting, includes things such as social class, family-of-origin influences, and negative consequences (Peters, 1987; Wechsler & McFadden, 1979). Other factors in the contexts of college drinking, such as peer pressure, or the setting in which the college student drinks (e.g. fraternity functions, with friends at a bar, or home alone) may also influence the rate of drinking and any related negative consequences (Harford, Wechsler, & Rohman, 1983).

Most studies, recent and past, show substantiated gender differences in alcohol consumption. Johnston et al. (1996) reported that male college students drank more than females, with 47% of college males reporting having had 5 or more drinks in a row over the previous two weeks versus 35% of college females. In the general population, SAMSHA (1997) data indicated that 59% of men used alcohol in the past month versus 44% of women. Leibsohn et. al (1994) surveyed college students and found that men drank alcohol and became drunk more often than women. A much higher percentage of men were likely to binge drink than women (22.8% and 8.7%, respectively), and women were much less likely to be heavy drinkers than men (1.9% and 9.3 %, respectively). Engs et al. (1994) found that a significantly higher percentage of men were heavy drinkers and exhibited a higher number of drinking-related problems. Brennan et al. (1986) revealed that male college students drank more heavily and became intoxicated more frequently than their female college counterparts. Temple (1986) also found that males drank a higher average weekly volume, drank more often, and consumed more alcohol per episode than women do. Hypotheses addressing the gender differences in alcohol consumption and incidences of problem drinking vary greatly. In a study on the relationship between gender and alcohol use,

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McCormack (1996) suggested that college men may be drinking due to their inability to cope with stress as it relates to academic, peer pressure, and family problems. Some studies theorize that college student drinking is primarily a social activity and that females drink less than males because the social settings females are more likely to be in tend to be those in which drinking is not emphasized (Biber, et al., 1980; Harford, et al., 1983). Other research suggests that college women have more of an acceptance of alcohol consumption at parties and when dating (McCormack, 1996). The research literature on gender differences by Engs and Hanson (1990) revealed that there are fewer differences between college men's and women's drinking patterns with males reporting drinking less and females reporting an increase in alcohol consumption. According to Engs and Hanson (1990) the reduction of differences between male and female alcohol consumption may be due to society's move toward more equitable standards of behaviors for females and males.

Gender differences in alcohol consumption may be due to biological reasons. Lieber (1990) reported that women are less likely to metabolize alcohol before it affects their functioning and that alcohol affects women more quickly. The relative body weight of males versus females is also used in determining how the quantity of alcohol effects the individual (Brennan, et al. 1986a; Biber, Hashway, & Annick, 1980). The outcomes of studies controlling for relative body weight have been mixed. Some found no significant differences in quantity consumed between males and females when controlling for body weight differences (Ratliff & Burkhart, 1984). Other research studies have found differences in level of alcohol consumption between men and women even with correcting for weight differences between the genders, with

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males having reported consuming significantly more alcohol during the previous month (Maltzman, 1992; Schall et al., 1992).

The research literature on alcohol use among college students clearly indicates an extensive and ongoing problem. According to the National Survey Results on Drug Use, in 1995 about 3.3% of all college students drink daily and 40% drink heavily. Many college students drink and get drunk frequently despite the laws against underage drinking, a variety of negative consequences, and a myriad of campus programs designed to reduce alcohol abuse.

Negative Consequences of College Alcohol Use

The research literature clearly shows that the majority of college students drink and that many of them become intoxicated. Alcohol consumption has been found to be the most pervasive and critical health problem on college campuses (CASA, 1994). From the standpoint of college student personnel, public health and human services officials, parents, and many college students, the negative consequences of college alcohol use are of paramount importance. Numerous studies have addressed the wide range of problems stemming from college student drinking. These studies indicate that negative effects resulting from drinking may include physical health, academic, legal, psychological, and social problems. The consequences may run the gamut from mild symptoms such as malaise due to a hangover, to more severe outcomes such as having unwanted sexual encounters, being in a physical fight, or being in an alcohol-related vehicular crash.

Probably the most frequently reported alcohol-related problem is the hangover. Studies have shown that about 70% of college students reported having at least one

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hangover (Bogg & Hughes, 1973; Engs, 1977). Consistent with these findings, Walfish, Wentz, Benzing, Brennan, and Champ (1981) indicated 65% of college students surveyed experienced one to three hangovers during the past year, and approximately one-half of the students reported negative consequences of drinking such as nausea and vomiting. In the same survey, almost one-third of the students reported experiencing periods of time during which they could not recall all that happened while drinking (i.e., a blackout).

However other consequences are also frequent and in some cases more severe. Some research suggests that approximately 50% of college students experience up to four negative consequences due to drinking (Engs, 1977). Other commonly reported more serious negative consequences of drinking include physical altercations, interpersonal difficulties, damage to property, problems with authority, difficulty in school, and damaged relationships (Berkowitz & Perkins, 1986; Engs, 1977; Walfish et al., 1981; Wechsler & McFadden, 1979). Norton and Morgan (1989) found that the consumption of alcohol increased the likelihood of people perpetrating violence and falling victim to violence when compared to those who did not consume alcohol. The National Commission for Drug-Free Schools (NCDSF, 1990) reported that more than one-half of campus incidents were directly related to alcohol use. These incidents ranged from violent behavior to damage to residence halls and other property. A large number of violent crimes among students, such as date or acquaintance rape, robbery, and assault involved alcohol (NCDFS, 1990). Similar findings were reported by Presley and colleagues (1997) in a survey of over 18,000 college students. Approximately 43% of students indicated that they had experienced negative

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consequences such as forced sexual contact, forced sexual intercourse, physical assault, threats of physical violence, theft under threat of force or involving force, and racial or ethnic harassment (Presley et al., 1997). Alcohol-related violence may be one of society's most pervasive social problems.

Findings by the Centers for Disease Control (1990) indicated that in all major fatal and non-fatal vehicular crashes alcohol use was a major factor. Carter (1995) found that 85% of males and 70% of females reported to have driven a car after drinking. Other research showed 71% of men and 54% of women who reported having driven after drinking had driven their car despite feeling that they had had too much to drink (Engs & Hanson, 1990). The National Highway Traffic Safety Administration (1990) reported that approximately 48% of the motor vehicle-related deaths of all 16 to 20 year olds involved alcohol consumption.

Some college students engage in high-risk sexual activities following alcohol consumption (Anderson & Mathieu, 1996). Fromme and Wendel (1995) assessed the relationship of alcohol's disinhibitory effects to high-risk sexual behavior. They found that intoxicated males believed they were more likely to be involved in coercive sexual behaviors than males who were sober. Intoxicated males also predicted that they would experience fewer negative consequences from coercive sex than did sober males. The American Journal of Public Health (1990) reported that pairing drinking with sexual activities was a potentially dangerous combination for teens. Teens who were sexually active and drank five or more drinks per day were three times less likely to use condoms, thus putting them at a greater risk for HIV infection, other sexually transmitted diseases, and unwanted pregnancies.

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Studies in the general population show that fewer women than men consume alcohol and those who do drink consume less and experience fewer problems as a result of their drinking. Yet among the heaviest drinkers, women surpass or equal men in the number of alcohol-related consequences (Williams, Grant, Hartford, & Noble, 1989; Wilsnack, Wilsnack, & Klassen, 1984). The amount of alcohol consumed, gender, and age are some of the various factors implicated in the type and severity of alcohol-related problems reported by college students. Most studies indicate that males experience more problems due to alcohol consumption than do females (Engs & Hanson, 1990; Temple, 1986; Walfish et al., 1981. Engs and Hanson (1990) found the greatest gender differences were in males reporting more property damage, missed classes, not being prepared for exams, and blackouts. Despite the stereotypical belief that males in general report negative consequences of drinking more frequently than females, not all studies support this view. Carter and Deffenbacher (1995) did not find significant across-the-board gender effects for frequency of alcohol-related consequences or severity of worst alcohol-related event consequences. Whether a person experiences negative alcohol-related consequences and to what degree and frequency may be due less to gender differences and more to individual differences in drinking patterns, motives for drinking, or personality traits.

The age of a person may play a role in the severity and frequency of negative alcohol-related consequences experienced. The research addressing age as a factor, however, is equivocal. One survey of students at a large public Eastern university reported that the amount of alcohol consumed and alcohol-related consequences were equivalent for drinkers over and under 21 (O'Hare, 1990). Another study found that

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the severity of alcohol-related consequences increased with age (Walfish et al. 1981). This study examined the interaction between alcohol use and the severity of school problems and found that students who reported having alcohol-related consequences in the freshmen year with the problems increasing in severity each year with the most severe in the senior year. Another study found an inverse relationship between negative consequences and age. In this study, both male and female younger students reported more alcohol-related consequences than their older counterparts (Temple, 1986). The results of this study suggest that students at a younger age are more likely to "binge" drink, have difficulty coping with the effects of alcohol, and feel fewer constraints in acting out, and may be less aware of the alcohol-related problems than older students.

Anger and Alcohol Use

A sizable body of research has been conducted in an effort to address the relationship between emotional factors and the use and abuse of alcohol. These studies indicate that some emotional factors may be correlated with and, in some cases, precipitate drinking related problems. Numerous studies indicate a clear correlation between anger level and the use of alcohol (Deffenbacher, Oetting, Lynch et al., 1996; Evans, Weinberg, & Jackson, 1992; Governale, 2000; Green, Burke, Nix, & Mason, 1995; Grover & Thomas, 1993; Leibsohn et al., 1995; Johnson, Cloninger, Roache, Bordnick, & Ruiz, 2000; Schonwetter & Janisse, 1991). Other studies, however, provide conflicting results on whether there is a link between anger expression and alcohol consumption. In a study by Musante and Treiber (2000) anger suppression was correlated with an increase in alcohol consumption. In contrast, Grover and

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Thomas (1993) reported no definitive link between anger expression, withholding or outwardly venting, and the use of alcohol. They did, however, suggest that anger repression might be linked to somatic complaints. Other research has supported a link between anger and alcohol and substance use in adolescence (Swaim et al. , 1989). This study indicated that the mediating emotion between distress factors such as depression, anxiety, and feelings of alienation, and substance use was anger. This study found that not only did anger play a role in the use of substances, but it could also influence the association with peers who are substance users themselves.

Numerous studies have supported the state-trait anger theory that high trait anger individuals, compared to low trait anger individuals, experience more intense and more frequent anger episodes and are more likely to perceive many situations as anger provoking or irritating (Deffenbacher, Oetting, Thwaites, et al., 1996). Carter and Deffenbacher (1995) found that high anger students reported having drank alcohol more often and reported getting drunk and drinking significantly more often than their low anger counterparts. These findings were consistent with results found by Leibson, et al. (1995). Several other studies found results mirroring this trend with correlations between anger level and greater alcohol use (Breennan et al., 1986a; Brooks et al., 1981; Marlatt, Kosturn, & Lang, 1975; Pliner & Cappel, 1974; Swaim et al., 1989; Williams, 1967).

How anger is expressed has been shown to be predictive of alcohol use, as well. A study by Deffenbacher and Ball (1988) indicated that an outward negative anger expression style was the strongest predictor of increased amounts and frequency of use

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of alcohol. Other research (Carter & Deffenbacher, 1995) also supported some linkages between outward negative expression and alcohol consequences.

As noted previously, many studies suggest that anger level is related to the use and abuse of alcohol. Given that anger level has proven to be a significant variable in the prediction of alcohol-related consequences, it follows that the way in which an individual expresses their anger might also contribute to our understanding.

Anger and Alcohol-Related Consequences

A growing body of literature indicates that anger is related to a number of problems such as health problems, interpersonal difficulties, negative life events, substance use, physical assault, verbal abuse, and negative emotions (Deffenbacher, Oetting, Thwaites, et al., 1996; Desnoes & Deffenbacher, 1995). Studies have shown that high anger is linked to anger-related consequences such as physical assault of people and objects, low self-esteem, and wanting to harm self (Deffenbacher, Oetting, Thwaites, et al., 1996). Given the fact that anger level and anger-related consequences are correlated and high anger students consume more alcohol, more frequently, the interface of anger, anger expression, alcohol, and alcohol consequences is worthy of investigation. A few studies have examined the relationship between anxiety, alienation, depression, etc. and the use of controlled substances. Swaim et al. (1989) and Oetting, Swaim, Edwards, and Beauvais (1989) found that emotional distress factors did not correlate directly to the use of controlled substances by adolescents, but rather were mediated by anger. Depression or low self-esteem did not directly relate to the use of alcohol, but if depression or low self-esteem related to anger, then that anger was linked with alcohol use.

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A few studies have begun to examine the association between anger and alcohol-related consequences. A study by Leonard and Blane (1992) showed a clear link between feelings of anger, drinking, and intimate partner violence. They surveyed co-habiting or married men on their anger, marital/relationship satisfaction, alcohol dependence and problems, and marital aggression (reports of hitting partner). Those who were high-alcohol involved and categorized as low-anger reported less than a .10 probability of hitting their partner. The probability of a high anger, alcohol involved male hitting their partner was .75. These findings were not linked to marital satisfaction as the high anger/high marital satisfaction/high alcohol involved males had a probability of marital aggression of .72. Another study clearly indicated that college students who were high in trait anger drank and became drunk more often and consumed more alcohol when they drank than those students low in anger (Leibsohn et al., 1994). High trait anger students experienced more severe and frequent physical, emotional, and behavioral alcohol-related problems in the last month than the low anger students. High anger students reported rates of negative consequences from two to ten times higher than those reported by low anger students (Liebsohn et al., 1994).

Carter (1995) also showed a link between expression styles of anger and alcohol-related consequences. High anger students reported more frequent and more severe emotional consequences from drinking compared to the low anger students. The severity and frequency of physical impairments, behavioral, emotional, and psychological consequences were correlated to levels of anger. Trait anger and anger-out (negatively expressed anger) were found to be significant in predicting the severity of consequences, and anger-out and anger-in (suppressed anger) were most predictive

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of frequency of consequences. The study also found some gender differences in that high anger men tended to report more instances of negative alcohol-related consequences such as breaking objects, forgetting things, having problems in school, relationship problems, and feeling like hurting other people (Carter, 1995).

More recently, a study by Governale (2000) supported this link between anger and alcohol consequences. This study also found a connection between anger level and the number of alcohol consequences, especially in terms of physical and aggressive consequences. High trait anger was predictive of physical illness, and acting out aggressively when drinking. Anger-out, trait anger, and anger-in all were predictive of aggressive consequences related to alcohol consumption. Those who expressed their anger outwardly were more apt to report negative alcohol consequences while drinking including aggressive consequences (e.g., physically assaulting objects or others in the environment), physical consequences (e.g., getting sick, vomiting, blacking out), and self-harm consequences (e.g., having feelings of wanting to harm or kill oneself). Individuals high on anger-out also reported drinking more and becoming intoxicated more frequently. Anger-control was negatively correlated to frequency of alcohol consumption, frequency of intoxication, and alcohol-related consequences.

In summary, research shows associations between anger, anger consequences, and alcohol consumption. Some research suggest cross links where anger is related to alcohol and alcohol consequences and vice versa. Additionally, ways anger is expressed may add to the understanding of these relationships.

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The Present Study

This study was conducted to explore the relationships among alcohol consumption, anger, anger expression, and alcohol consequences. It was designed as a partial replication and extension of the anger and alcohol study done by Carter and Deffenbacher (1995). The study by Carter and Deffenbacher (1995) looked at relationships of anger and anger expression with alcohol use and consequences in high and low trait anger students. Effects due to anger expression were, therefore, nested within anger level. The present study was designed to sample the full range of anger and anger expression and remove this confound. This study will add to the limited, yet expanding, body of research on the correlates of anger, anger expression, and alcohol-related consequences by:

1. further evaluating the relationships of anger, alcohol consumption, and alcohol-related consequences;
2. addressing how anger expression styles (i.e., controlled, suppressed, and outwardly, negative expressed) relate to the level of alcohol consumption and the severity and likelihood of negative alcohol-related consequences;
3. increasing the sensitivity in the measurement of the frequency of negative alcohol-related consequences; and
4. further exploring gender differences in alcohol-related consequences.

This study was aimed at more clearly defining the relationships of trait anger and anger expression style on alcohol consumption and on the frequency and severity of alcohol-related problems. By addressing these areas this study will help professionals and individuals make more informed decisions concerning alcohol use and in the

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diagnosis, prevention, and treatment of alcohol abuse. Research aimed at more clearly defining the circumstances and factors that increase the likelihood of drinking, and identifying the categories of individuals who are at risk for alcohol-related problems will help in the development of effective strategies for reducing or eliminating negative consequences due to alcohol consumption.

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CHAPTER II

METHOD

Participants

Participants were 249 undergraduate college students (114 male and 135 female), aged 17 to 29 (Mdn = 19), enrolled in introductory psychology courses at Colorado State University. Students received two of three required research credits for participation.

Instruments

Measures were selected to assess the following aspects: (a) general or trait anger; (b) anger expression styles; (c) quantity and frequency of alcohol consumption; (d) frequency of alcohol-related consequences; and (e) severity of alcohol-related consequences.

Trait Anger Scale (TAS). Trait or general anger was measured by the TAS (Spielberger, 1988; Spielberger et al., 1983), a 10-item scale on which the subject responds by indicating her/his general disposition to experience anger. Ratings are of the Likert-type asking for the frequency with which the individual perceives situations as annoying or frustrating, as well as how often s/he responds to those situations with elevations in state anger. Response categories include: 1-Almost Never; 2-Sometimes; 3-Often; and 4-Almost Always. TAS items assess general temperament (e.g., "I am quick tempered")

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and anger in response to situations (e.g., "It makes me furious when I am criticized in front of others"). Total scores on the TAS range from 10-40 with higher scores indicating a greater tendency to perceive more situations as anger-provoking and a tendency for the individual to respond to those situations with more intense elevations of state anger (Deffenbacher, 1992; Deffenbacher, Oetting, Thwaites, et al., 1996; Spielberger, 1988). Internal consistency reliabilities for the TAS on large samples of adolescents, college students, and adults range from .81 to .91. TAS reliabilities suggest internal consistency not affected by gender or age (Spielberger, 1988). In a two-month test-retest of the TAS, Morris and Deffenbacher (1995) reported a reliability of .75. Additionally, anger was also correlated with depression (r_s = .20 and .22) and anxiety (rs = .31 and .33). Strong concurrent and convergent validity is indicated in the TAS's correlation with other measures of hostility and anger; for example, Spielberger (1988) reported significant correlations with the Buss-Durkee Hostility Inventory and the Hostility and Overt Hostility scales of the MMPI, with correlations ranging from .27 to .73. The TAS also correlates significantly with daily anger levels, anger in ongoing provocations, anger in a wide number of provocative situations, and the anger-in, anger-out, and anger-control (Deffenbacher, 1992; Deffenbacher, Oetting, Thwaites, et al., 1996; Spielberger, 1988; Spielberger et al., 1985).

Anger Expression Inventory (AEI). Anger expression style was measured by the revised Anger Expression Inventory, a 99-item, Likert-type inventory developed by Deffenbacher, Oetting, Lynch, et al. (1996) and

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expanded for the present study. It consists of fourteen subscales (alpha reliabilities at the first and second assessment and the two-month test-retest reliability are provided, in order, for each subscale within parentheses below): (1) Physical Assault-Objects (.94, .94, &. 81), an 8-item scale of anger expression through physical aggression towards objects and the environment (e.g. hitting, throwing things, kicking, and slamming things around); (2) Physical Assault-People (.87, .88, & .57), a 4-item cluster measuring the general tendency to express anger through threatening to hit someone, being physically aggressive toward others, or hitting someone (i.e., outward negative physical expression toward people, not the physical environment); (3) Verbal Put Downs (.77, .82, & .73), a 4-item scale which assesses the expression of anger through belittling, putting others down, and using sarcasm; (4) Noisy Arguing (.88, .86, & .70), a 6-item scale assessing the tendency to express anger through arguing and raising one's voice (e.g. yelling, shouting, and becoming argumentative); (5) Verbal Assault (.87, .89, & .77), a 5-item scale measuring anger expression through verbal abuse, with items including swearing, calling names, and telling people off; (6) Dirty Looks (.90, .92, & .68), a 6-item scale assessing the tendency to express anger with the eyes (e.g. glaring, staring, giving dirty looks); (7) Body Language (.79, .85, & .71), an 8-item cluster measuring the tendency toward communicating anger nonverbally other than with the eyes (e.g. sighing pointedly, making faces, shaking head); (8) Control (.88, .89, & .77), a 6-item cluster which measures the general tendency of the person to control anger in calm and socially acceptable ways

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(e.g., keeping one's cool, controlling one's behavior, and expressing one's self calmly); (9) Time Out (.82, .84, & .69), a 4-item scale of the tendency to remove one's self from situations which might trigger anger and calming down prior to responding (e.g., waiting to cool down before responding, taking a time out when needed); (10) Reciprocal Communication (.90, .89, & .79), a 6-item cluster measuring the tendency to compromise, express anger through assertive communication, listen to and respect other's views and problem-solve; (11) Think Before Responding (.86, .85, & .68), a 3-item cluster assessing the propensity to cognitively reflect on things prior to responding when angry; (12) In-Critical (.79, .80, & .70), a 2-item measure assessing the propensity to be critical and secretly critical of other; (13) In-Suppression (.81, .84, & .72), a scale with 6-items showing a tendency to keep things in while experiencing anger (e.g., withdraw from others, boil inside, but not show it, harbor grudges), a scale essentially replicating Spielberger's Anger-In scale, and (14) Negative Verbal Expression (.90, .90, & .78), combines items from Verbal Put Downs, Noisy Arguing, and Verbal Assault to make a 15- item scale to measure the variety of ways individuals can express themselves verbally in a socially inappropriate way.

American Drug and Alcohol Survey-College (ADAS-College).

Portions of a modified version of the ADAS-College (Oetting, Beauvis, & Edwards, 1988) were used to assess self-reported frequency and quantity of alcohol consumption during the last month and the frequency of alcohol-related consequences in the last three months (see Appendix A). Frequency of alcohol

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consumption in the last month was measured by (1) reports of when the subject had "alcohol to drink," where a "drink" equals one ounce of liquor, a glass of wine, or a can or bottle of beer; (2) reports of the number of times "gotten drunk;" and (3) reports of the number of times had "10 or more drinks in a 3 to 5 hour period", had "5 to 9 drinks in a 3 to 5 hour period", had "3 to 4 drinks in a 3 to 5 hour period" and had "1 or 2 drinks in a 3 to 5 hour period". Frequency options for each of these questions were 0, 1, 2, 3,...8, 9, 10 or more. Scores of 10 or more were treated as 10 in analyses.

Frequencies of different types of alcohol-related consequences over the last three months were assessed by a modification of the 21-item Consequences Scale, which asks the frequency that alcohol led to a given consequence in the last month (i.e., consumption of alcohol led the person to act, feel, or experience the content of the item). This modified version includes thirty-four items in a self-report of the frequency of alcohol-related consequences (see Table 1). Frequency of each type of consequence experienced during the last three months was indicated in one of five frequency categories (0, 1, 2, 3, 4 or more). Scores of 4 or more will be treated as 4 in analyses. See the Results section for results of a cluster analysis for scale development. Items were subjected to cluster analyses with a total score for alcohol-related consequences (a = .89), and individual measures of: (1) physical consequences, a 5-item scale (a = .88) including the frequency of experiences such as vomiting or blacking out; (2) aggressive consequences, a 6-item scale (a = .88) including frequency

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Table 1

American Drug and Alcohol Survey-College (ADAS-College)

Alcohol-Related Consequences During the Last Three Months:

1. Get a traffic ticket?
2. Have a car accident?
3. Get arrested?
4. Have money problems?
5. Get you in trouble at school?
6. Hurt your work or school work?
7. Fight with family?
8. Fight with others?
9. Made you feel like killing yourself?
10. Made you feel like hurting yourself?
11. Made you feel confused or missed up?
12. Made you feel like people were against you?
13. Physically hurt someone?
14. Been physically hurt by someone?
15. Damaged a friendship?
16. Passed out?
17. Blacked out?
18. Felt sick?
19. Gotten sick and vomited?
20. Couldn't remember what happened while drinking?
21. Did something you later regretted?
22. Made you break something?
23. Engaged in unprotected sex?
24. Engaged in unwanted sex?
25. Sexually assaulted someone?
26. Been sexually assaulted?
27. Made you very sad?
28. Made you very anxious?
29. Made you feel like hurting someone?
30. Made you use other drugs?
31. Made you want to break something?
32. Got into an argument?
33. Made your friends mad at you?
34. Saw or heard things that were not there?

Options for each question range from 0 to 4 or more times.

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of reports of fighting with others, getting into arguments, and breaking objects; and (3) self-harm consequences, a 2-item measure (a = .73) including the frequency of reports of feeling like hurting or killing oneself. The remaining alcohol-related consequences did not form reliable clusters, but were retained in the final analyses due to their potential importance (e.g. driving recklessly, had unprotected sex, had unwanted sex).

Worst Alcohol-Related Incident Questionnaire. This questionnaire is a modified version of the Worst Anger-Related Incident Questionnaire (Deffenbacher, Oetting, Thwaites, et al., 1996). In its original form, individuals were asked to report the anger-related consequences of their "worst anger-related incident in the last year" (Deffenbacher & Thwaites, 1991). Leibsohn, Oetting and Deffenbacher (1997) modified this questionnaire (see Appendix B) and substituted the words "alcohol use" for the word "anger". All the questions, guidelines, and coding schemes were then related to incidents involving alcohol consumption.

The Worst Alcohol-Related Questionnaire asks subjects to describe their two worst alcohol-related incidents in the last year and to describe the consequences stemming from each incident. The responses are rated according to the following dimensions. The general categories of consequences include: (a) physical damage to the individual (i.e., physical damage or health problems that happened to the individual because of the incident); (b) physical damage to other people (i.e., anyone else incurred

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physical damage or health problems as a result of the incident); (c) physical damage to objects or property (i.e., damage to objects or property); (d) relationship damage (i.e., interference with a relationship); (e) school or work problems (i.e., problems or difficulties developed at school or work because of this incident); (f) legal or official consequences (i.e., legal or other official consequences such as being written up for a dormitory behavior code violation resulted from the alcohol incident); and (g) damage to self-esteem (i.e., the individual felt badly about him/herself as a result of this incident). Two categories, (h) financial costs (i.e., financial costs resulted from this incident); and (i) overall cost of this incident (i.e., with all things considered, the cost of the alcohol use) are included. The overall cost of the incident was rated by the subject on a 1 to 5 rating scale (1 = no cost, 2 = a little costly, 3 = somewhat costly, 4 = very costly, and 5 = extremely costly) and provides the individual's perceptions of the overall consequences of the incident.

Consequences were rated on the Consequence Rating Scale (CRS) (see Appendix C), which was originally created by Deffenbacher and Thwaites (1991) to provide a coding scheme with which to rate the severity of anger-related consequences. The modified version of the CRS (Leibsohn et al. 1993) rendered a coding scheme to rate the severity of alcohol-related consequences. The CRS uses a four point anchored rating scale of consequence severity (0 = none, 1 = mild, 2 = moderate, or 3 = severe). These criteria are used to give each consequence a 0-3 rating, except for Damage to Self-Esteem consequences which are rated from 0-2. In the Damage to Self-Esteem

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category, the moderate and severe ratings were collapsed because it was not possible to discriminate between the codings of moderate and severe, given the information provided by subjects.

Conservative guidelines are used (Leibsohn et al., 1994) so that if the severity of the consequence was on the cusp of two rating points, the lower rating would be used. Interrater reliabilities for the Anger CRS were based on three independent raters and ranged from .89 to 1.0 for each category. The interrater reliabilities for the Alcohol CRS were based on two independent raters and ranged from .95 to 1.0 for each category (Liebsohn et al., 1994).

Procedure

Students of introductory psychology classes signed up for the study at the departmental table describing research options and agreed to participate in one of five assessment sessions for this study. The study was described as one exploring the relationship of emotions (especially anger), emotional expression, alcohol use, and consequences. Students who chose to participate were assessed in groups in large-sized university classrooms. Students read a brief description of the study and received two copies of the informed consent form. One consent form was signed and returned prior to participation; the other form was kept by the student. Potential participants were given an opportunity to decline participation, but none did so.

Next, the participants received the packet of questionnaires. They were asked to answer the items honestly and were informed that there were no right or wrong answers to the questions and therefore should not spend too much

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time deliberating on each statement. The first two questions asked for age and gender. Each questionnaire included its own directions and provided space for participants to respond directly on the questionnaires. The questionnaires were in the following order: (1) Trait Anger Scale; (2) Anger Expression Scale; (3) American Drug and Alcohol Survey-College; and (4) Worst Alcohol-Related Incident Questionnaire. This order was chosen to move logically from anger to anger expression to alcohol use and consequences. Upon completion of the questionnaires, which took approximately one hour to an hour and a half to complete, subjects were debriefed about the nature of the study and were given research credit for their participation.

Each category of the Alcohol-Related Consequences Questionnaire was scored by a rater who had been trained in the application of the consequence rating system during the Carter and Deffenbacher (1995) study. A random 25% of the protocols were reviewed independently by Deffenbacher. Raters were blind to subject anger level, gender, and other identifying information. However, in some protocols the probable gender of the subject could be inferred due to the subject's reference to his/her boyfriend or girlfriend. Interrater agreement was 96 to 100%, reflecting high reliability of consequence severity ratings.

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CHAPTER III

RESULTS

Prevalence of Drinking and Becoming Intoxicated During Last Month

Alcohol consumption in the last month is summarized in Table 1. Frequency was summarized in terms of the reported frequency of consuming alcohol and of consuming various amounts of alcohol, with frequency of intoxication being assessed by reports of having "gotten drunk" and of having "10 or more drinks in a 3 to 5 hour period" or of having "5 to 9 drinks in a 3 to 5 hour period." The former is a perceptual interpretation of intoxication and the latter two categories reflect a definition of the research-based physiological effects of drinking (Johnston et al., 1991).

Of the participants sampled, 20.1% reported not having consumed alcohol in the last month, and 37.8 % reported that they had not been drunk in the last month. In reporting how many times they had alcohol in the last month, 18.0% of the participants indicated that they had consumed alcohol 1 to 2 times in the last month, 23.6% 3 to 4 times, 14.0% 5 to 6 times, 6.4% 7 to 8 times, and 17.7% had consumed alcohol 9 to 10 times in the last month. In reports of being drunk in the last month, 30.9% of the participants had been drunk 1 to 2 times, 18.0% 3 to 4 times, 6.4% 5 to 6 times, 2.8% 7 to 8 times, and 4.0% reported having been drunk 9 to 10 times in the last month.

Examination of the alcohol user ratings shows that 17.3% of the participants saw themselves as a "Non-User," 20.9% as a "Very Light User," 32.1% as a "Light User,"

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Table 1

Prevalence of Drinking in Last Month

Measure	M	SD
Had Alcohol in Last Month	3.45	4.09
Got Drunk in Last Month	2.53	2.04
10/More Drinks in 3-5 Hours	2.12	0.86
5-9 Drinks in 3-5 Hours	2.50	1.46
3-4 Drinks in 3-5 Hours	2.44	1.87
1-2 Drinks in 3-5 Hours	2.72	2.17
How I Use Alcohol	2.76	1.17

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and 24.5% as a "Moderate User." Only 4.0% of the participants reported being a "Heavy User" and 0.4% saw themselves as a "Very Heavy User.

Correlations among Alcohol Measures

Because of the large number of correlations in this study, α was set at $p < .01$ for correlations ($r > .16$) to reduce Type I error. Correlations between alcohol measures are reported in Table 2. Inspection of this table shows that reported rates of number of drinks consumed in a 3 to 5 hour period, number of times gotten drunk in the last month, and self-reports on alcohol use are highly correlated with one another. Reports of having gotten drunk in the last month and having consumed 10 or more drinks or 5 to 9 drinks in 3 to 5 hours were positively correlated ($rs = .50$ and $.75$). Reports of "gotten drunk" in the last month was correlated with rates of drinking 3 to 4 drinks and 1 to 2 drinks in 3 to 5 hours ($rs = .51$ and $.40$). Self-reports on alcohol use (from "Non-User to "Very Heavy User") correlated with "gotten drunk" in the last month with an r of .67. All of the alcohol use measurements were significantly related to number of times "gotten drunk" in the last month, with rs ranging from .40 to.75. Reports of number of times "gotten drunk" in the last month will be the primary alcohol variable in later regression analyses in order to reduce redundancy.

Gender Differences in Alcohol Use and Consequences

A one-way gender MANOVA on the three primary alcohol measures (Table 3) revealed a significant multivariate effect for gender, $F(3, 245) = 8.32$, $p < .001$, $\eta^2 = 0.092$. Univariate analyses (Table 3) showed significant gender effects on frequency of alcohol consumption (had alcohol in the last month), intoxication (gotten drunk), and

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Table 2

Correlations among Alcohol Measures

Measure	1.	2.	3.	4.	5.	6.	7.
1. Drank Alcohol	-.-	.73	.38	.66	.65	.60	.73
2. Got Drunk		-.-	.50	.75	.51	.40	.67
3. 10-more Drinks in 3-5 Hours			-.-	.48	.34	.35	.39
4. 5-9 Drinks in 3-5 Hours				-.-	.61	.51	.54
5. 3-4 Drinks in 3-5 Hours					-.-	.76	.48
6. 1-2 Drinks in 3-5 Hours						-.-	.39
7. How I use Alcohol							-.-

$r > .16$. $p > .01$

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Table 3

Gender Differences among Drinking Measures

Measure	Males		Females		Univariate Gender F(1, 245)	Gender η^2
	M	SD	M	SD		
Drank Alcohol	5.06	3.54	3.27	3.16	17.74*	.067
Got Drunk	2.76	2.86	1.42	2.04	18.50*	.070
How I Use Alcohol	3.12	1.12	2.45	1.12	22.20*	.082

*$p < .001$

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self-ratings of alcohol use. Men reported drinking and becoming intoxicated more often and described themselves as heavier alcohol users. Gender effect sizes were moderate for all variables.

Previous principal component analyses revealed three scales of deleterious effects or outcomes of alcohol consumption: (1) physical consequences; (2) self-directed aggression consequences; and (3) aggressive consequences. Frequencies of these alcohol-related consequences were reported over a three-month period. The physical consequences such as passing out, blacking out, getting sick and vomiting, and doing something when drunk and which was not remembered later were based on the kinds of physiological effects or impairments common to heavy alcohol consumption. The aggressive consequences scale included items describing aggression towards other people or property, (e.g., fight with others, physically hurt someone, made you feel like hurting someone, made you want to break something). The self-directed consequences scale was comprised of two items reflecting wanting to harm one's self (e.g., made you feel like killing yourself and made you feel like hurting yourself).

Total frequency of alcohol consequences over the last three months is presented, along with the three scales of alcohol-related consequences in Table 4. Univariate analyses showed no significant gender effects for total alcohol-related consequences experienced in the last month (Table 1). A one-way (Gender) MANOVA revealed no significant gender effects for the aggressive, physical, or self-directed consequence scales, $F(3, 245) = 2.08$. The frequency of individual alcohol consequences that did not enter into the scales of alcohol consequences are summarized by gender in

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Table 4

Gender Differences in Total Alcohol Measures

Measure	Males		Females		Univariate Gender F(1, 245)	Gender η^2
	M	SD	M	SD		
Totai Alcohol Consequences	6.35	9.70	4.44	6.72	0.07	.01
Aggressive to Others	0.90	2.78	3.78	1.26	3.90	.02
Harm to Self	0.01	0.09	0.02	0.19	0.47	.00
Physical Consequences	2.68	4.11	1.81	3.54	3.88	.02

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Table 5. A (one-way Gender) MANOVA showed no significant gender effects in the frequency of these individual consequences in the last month. $F(20, 228) = 1.50$.

Data on the worst alcohol consequences in the last year are summarized in Table 6. A one-way (Gender) MANOVA examined differences between the severity levels of the different consequences associated with the incident and revealed a significant multivariate gender effect, $F(8, 240) = 3.70$, $p < .001$, $\eta^2 = 0.110$. Univariate gender effects (Table 6) revealed significant gender effects on the incident leading to health consequences to others, property damage, and legal or other official consequences. In each case, men's alcohol consequences were more severe than those of women's alcohol consequences. Effect sizes, however, were generally small.

Ratings in Table 6 address the severity of a variety of different consequences suffered in the last year. Another index of severity is the number of different types of consequences suffered. That is, in general, those who suffer more consequences are likely to have suffered more than an individual who experienced only one consequence. A new variable was created to reflect the total number of consequences suffered. If a person did not suffer a specific consequence, they received a "0" and if they suffered a consequence, regardless of the severity, they were given a "1". The new variable called "Total Consequences in Worst Alcohol Event" (Table 6) was the sum across the seven consequences categories (range = 0 to 7). A one-way (Gender) ANOVA revealed a gender difference in total number of alcohol consequences suffered, due to men suffering, on average, slightly more consequences (Table 6).

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Table 5

Gender Differences in Frequency of Individual Alcohol Consequences

Measure	Males		Females	
	M	SD	M	SD
Traffic Ticket	0.01	0.09	0.03	0.34
Car Accident	0.01	0.09	0.00	0.00
Get Arrested	0.04	0.21	0.01	0.09
Money Problems	0.31	0.81	0.07	0.36
Trouble At School	0.07	0.29	0.05	0.33
Hurt Work At School	0.34	0.85	0.16	0.52
Fight with Family	0.03	0.21	0.03	0.24
Felt Confused	0.39	0.84	0.56	0.95
Felt People Are Against You	0.10	0.35	0.12	0.41
Physically Hurt by Someone	0.02	0.13	0.04	0.23
Damaged a Friendship	0.04	0.24	0.07	0.31

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Table 5 (Continued)

Gender Differences in Frequency of Individual Alcohol Consequences

Measure	Males		Females	
	M	SD	M	SD
Had Later Regrets	0.29	0.58	0.25	0.58
Was Sexually Assaulted	0.00	0.00	0.01	0.09
Unprotected Sex	0.11	0.49	0.04	0.19
Unwanted Sex	0.08	0.44	0.08	0.35
Sexually Assaulted Someone	0.00	0.00	0.00	0.00
Made Very Sad	0.22	0.51	0.32	0.59
Made Very Anxious	0.30	0.74	0.15	0.40
Use Other Drugs	0.28	0.79	0.13	0.57
Made Friends Mad	0.08	0.30	0.07	0.29
Saw/heard Things Not There	0.04	0.21	0.06	0.45

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Table 6

Gender Differences in the Worst Alcohol Consequences in the Last Year

Measure	Males		Females		Univariate Gender F(1, 240)	Gender η^2
	M	SD	M	SD		
Health Consequences To Self	0.51	0.63	0.44	0.66	0.61	.002
Health Consequences To Others	0.20	0.63	0.01	0.12	11.51***	.045
Damage to Objects/property	0.24	0.54	0.06	0.34	10.00**	.039
Damage to Relationships	0.22	0.59	0.21	0.51	0.00	.000
Problems at School or work	0.10	0.35	0.10	0.44	0.00	.000
Legal or Official Consequences	0.13	0.54	0.02	0.19	4.81*	.019
Felt Bad About Self	0.42	0.65	0.47	0.64	0.31	.001
How Costly Was Alcohol Use	1.92	0.99	1.78	1.10	1.19	.005
Total Consequences	1.36	1.32	1.04	1.15	4.03*	.016

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

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Correlations among Frequency Measures of Alcohol Consequences

Self-directed aggressive alcohol consequences were uncorrelated with aggressive (r = .03) and physical consequences (r = .07) and minimally correlated with total alcohol consequences (r = .15). Physical and aggressive consequences were positively correlated (r = .40) and highly correlated with total alcohol consequences in last month (rs = .82 and .76. respectively).

Correlations between the individual alcohol frequency consequences in the last three months are presented in Table 7. The individual alcohol frequency of "sexually assaulted someone" is not included in the table due to no participants reporting sexual assault. Relationships among variables varied considerably. Alcohol-related consequences of having unwanted sex and having unprotected sex were highly related. Having money problems and having alcohol-related consequences hurting work or school were also highly correlated. Significant positive correlations were found between reports of people being against you and having damaged a relationship and reports of feeling confused and made to feel very sad. Reports of feeling confused and people being against you were significantly correlated. A positive correlation between reports of damaged relationship and having later regrets was found. Individual alcohol-related consequences of fights with family. damaged relationships. and people being against you were also positively correlated. Inspection of other significant correlations among the frequency of these individual alcohol-related consequences shows fairly logical relationships for many of the measures but correlations were smaller. Overall. there were many. often small. positive relationships but the absence of forming factors suggests they should be analyzed individually.

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Table 7

Correlations among Individual Alcohol Consequences

Measures	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.
1. Traffic Ticket	.--	.24	.09	.00	-.02	-.03	.06	.01	-.22	-.01
2. Auto Accident		.--	.40	.08	-.01	-.02	.27	.18	-.02	-.01
3. Get Arrested			.--	-.00	.05	.06	.10	.06	.02	.26
4. Money Problems				.--	.26	.57	.22	.16	.28	.16
5. School Trouble					.--	.14	.20	.11	.08	-.03
6. Hurt Work/School						.--	.16	.23	.37	.29
7. Fight with Family							.--	.27	.43	-.02
8. Feel Confused								.--	.45	.09
9. People Against You									.--	.18
10. Physical Hurt by Others										.--
11. Damaged Relationship	-.02	-.01	-.03	.24	.00	.25	.47	.36	.53	.12
12. Later Regrets	-.01	.08	.06	.34	.04	.35	.28	.34	.42	.15
13. Had Sex Unprotected	-.02	-.01	-.03	.31	-.04	.26	-.02	-.07	.01	.27

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Table 7 (Continued)

Correlations among Individual Alcohol Consequences

Measure	11.	12.	13.	14.	15.	16.	17.	18	19.	20.
1. Traffic Ticket	-.02	-.01	-.02	-.02	-.01	-.01	-.00	-.02	-.02	-.01
2. Auto Accident	-.01	.08	-.01	-.01	-.00	.08	.09	-.02	-.02	-.01
3. Get Arrested	-.03	.06	-.03	-.03	-.01	-.03	.08	-.01	-.04	-.02
4. Money Problems	.24	.34	.31	.37	-.02	.13	.35	.32	.23	.17
5. School Trouble	.00	.04	-.04	.13	-.01	-.07	.02	.21	.17	-.03
6. Hurt Work/School	.25	.35	.26	.30	-.02	.16	.37	.21	.17	.17
7. Fight with Family	.47	.28	-.24	.07	-.01	.10	.17	.17	.33	-.02
8. Feel Confused	.36	.34	-.07	.25	.04	.48	.17	.29	.16	.22
9. People Against You	.53	.42	.01	.26	-.02	.31	.29	.15	.39	.28
10. Physical Hurt by Other	.12	.15	.27	.41	-.01	.16	.13	.08	.03	.27
11. Damaged Relationship	.--	.44	.04	.42	.21	.33	.12	.17	.37	.44
12. Later Regrets		.--	.28	.35	.19	.22	.26	.22	.42	.09
13. Had Sex Unprotected			.--	.59	.17	.01	.28	.36	.14	.00

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Table 7 (Continued)

Correlations among Individual Alcohol Consequences

Measures	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.
14. Had Unwanted Sex	-.02	-.01	-.03	.37	.13	.30	.07	.25	.26	.41
15. Been Sexually Assaulted	-.01	-.00	-.01	-.02	-.01	-.02	-.01	.04	-.02	-.01
16. Made Very Sad	-.01	.08	-.03	.12	-.07	.16	.10	.48	.32	.16
17. Made Very Anxious	-.00	.09	.08	.35	.02	.37	.17	.17	.29	.13
18. Made Use Other Drugs	-.02	-.02	-.01	.32	.21	.21	.17	.29	.15	.08
19. Made Friends Mad	-.02	-.02	-.04	.23	.17	.17	.33	.16	.39	.03
20. Saw or Heard Things Not There	-.01	-.01	-.02	.17	-.03	.18	-.02	.22	.28	.28

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Table 7

Correlations among Individual Alcohol Consequences

Measures	11.	12.	13.	14.	15.	16.	17.	18.	19.	20.
14. Had Unwanted Sex				.--	.15	.21	.21	.32	.19	.43
15. Was Sexually Assaulted					.--	.08	-.02	.08	.20	.17
16. Made Very Sad						.--	.23	.10	.24	.31
17. Made Very Anxious							.--	.13	.21	.00
18. Made Use Drugs								.--	.15	.01
19. Made Friends Mad									.--	.00
20. Saw or Heard Things Not There										.--

$r > .16$, $p < .01$

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Correlations among Worst Alcohol-Related Incident

Correlations among the worst alcohol-related incident in the last year are presented in Table 8. Reports of how costly the alcohol-related event correlated positively with all other consequences (rs = .26 to .67). Reports of damage to objects or property also correlated positively with all other worst alcohol-related incident measures (rs ranging from .19 to .35). Problems at school and legal or official consequences were related (r = .42). Significant correlations among the worst alcohol-related incident appear to have logical bases. The legal and official consequences being correlated with problems at school may be due to participant demographics. Many of the participants were students in their freshman or sophomore years and some of the official or legal consequences may have involved high school or college institution systems (e.g., expulsion from high school or on probation in the dorms due to drinking, etc.). All of the consequences reported involve one event (the worst case scenario) and are temporally related to a single event. However, types of consequences were moderately related in general and showed considerable independence.

Correlation of Anger and Anger Expression with Alcohol Consequences Scales

Correlations of anger and anger expression with the alcohol consequences scales are presented in Table 9. Aggressive consequences were significantly correlated with trait anger and Assault Toward Objects (rs = .23 and .21). The total alcohol consequences measure correlated positively with trait anger (r = .2o). Negative relationships were found between Anger Control and the alcohol-related measures of aggressive consequences and total consequences (rs = -.20). The total alcohol

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Table 8

Correlations among Worst Alcohol-Related Incident

Measures	2.	3.	4.	5.	6.	7.	8.
1. Health or Physical Damage	-.01	.23	.02	.27	-.04	.32	.41
2. Health or Physical Damage to Others		.19	.38	-.01	.05	.17	.26
3. Damage to Objects or Property			.19	.24	.33	.20	.35
4. Damage to Relationships				.14	.15	.42	.45
5. Problems at School or Work					.42	.38	.42
6. Legal or Official Consequences						.41	.41
7. Feel Bad about Self							.67
8. How Costly Was Alcohol Use							

$r > .16$, $p > .01$

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Table 9

Correlation of Anger and Anger Expression with Alcohol Consequences

Measures	Aggressive Consequences	Self-Directed Consequences	Physical Consequences	Total Consequences
Trait Anger	.23	.11	.14	.26
Anger Out Assault/Objects	.21	-.00	.14	.16
Anger Out Visual Glare	-.03	.06	.05	.05
Reciprocal Communication	-.12	-.10	-.10	-.12
Anger Control	-.20	-.10	-.06	-.20
Think Before Respond	-.15	-.10	-.10	-.16
Time Out	-.15	-.06	-.08	-.15
Anger Out Assault/People	.12	-.01	.05	.07
Verbal Put Downs	.05	-.02	.15	.17
Anger In Suppression	-.03	.00	.08	.05
Anger Out Verbal Assault	.11	.06	.15	.20
Angry Body Language	-.04	.01	.03	.04
Anger In Critical	.04	-.00	.01	.03
Noisy Arguing	.10	.02	.06	.13

$r > .16$, $p < .01$

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consequences measures were significantly related to Verbal Put Downs and Anger Out Verbal Assault measures (rs = .17 and .20, respectively). Self-harm and physical alcohol consequences were not correlated with anger measures.

Correlation of Anger and Anger Expression with Individual Alcohol Consequences

Correlations of anger measures with individual alcohol consequences (Table 10) show 20 significant but small correlations. Trait anger correlated with six consequences (rs = .19 to .27). Verbal put-downs correlated with three consequences (rs = .19 to .27), as did verbal assault (rs = .17 to .22). Other anger variables correlated with two or fewer consequences with several not correlating at all. In sum, bivariate correlations suggested several small relationships among anger variables and individual alcohol consequences.

Correlation of Anger and Anger Expression with the Worst Alcohol Consequences

The worst alcohol-related incident showed a greater number of significant correlations with anger variables (Table 11). Trait anger correlated positively with five consequences (rs = .19 to .35), with assault on objects with four (rs = .11 to .19), and verbal assault (rs = .19), noisy arguing (rs = - .15 to .21), and control (rs = -.17 to -.21) with three each. In all there were 21 significant correlations, but they were generally small.

Prediction of Alcohol Consequences from Anger, Anger Expression and Intoxication

Correlations presented above address the relationship of each anger variable with each alcohol consequence. The next set of analyses present the best prediction of alcohol consequences from alcohol and anger variables. A primary goal of this research was to assess whether and how anger variables might add to the understanding of specific

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Table 10

Correlation of Anger and Anger Expression with Individual Alcohol Consequences

Measures	Fight with Family	Damaged Friendship	Felt People Against You	Made Friends Mad
Trait Anger	.14	.11	.19	.10
Anger Out Assault/Objects	.06	.04	-.04	.04
Anger Out Visual Glare	.17	.11	.02	.09
Reciprocal Communication	-.12	-.03	-.04	-.03
Anger Control	-.14	-.12	-.14	-.07
Think Before Respond	-.11	-.14	-.11	-.02
Time Out	-.11	-.09	-.08	-.06
Anger Out Assault/People	.14	.05	.02	.01
Verbal Put Downs	.08	.04	.04	.13
Anger In Suppression	-.00	-.01	-.08	-.01
Anger Out Verbal Assault	.09	.08	.13	.07
Angry Body Language	.02	.12	.02	.02
Anger In Critical	-.00	-.07	-.05	.04
Noisy Arguing	.04	.04	.08	.04

$r > .16$, $p < .01$

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Table 10 (continued)

Correlation of Anger and Anger Expression with Individual Alcohol Consequences

Measures	Made Very Sad	Made Very Anxious	Feel Confused	Had Later Regrets
Trait Anger	.09	.19	.22	.10
Anger Out Assault/Objects	-.02	.05	-.04	.12
Anger Out Visual Glare	.02	-.07	.04	.08
Reciprocal Communication	-.02	-.12	.01	-.16
Anger Control	-.15	-.11	-.13	-.12
Think Before Respond	-.09	-.12	-.05	-.16
Time Out	-.07	-.07	-.04	-.14
Anger Out Assault/People	-.01	.07	.00	.06
Verbal Put Downs	.01	.22	.06	.12
Anger In Suppression	.05	.06	.03	.03
Anger Out Verbal Assault	.05	.15	.20	.17
Angry Body Language	.07	-.05	.08	.07
Anger In Critical	-.08	.07	-.02	.07
Noisy Arguing	.00	.14	.07	.12

$r > .16$, $p < .01$

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Table 10 (continued)

Correlation of Anger and Anger Expression with Individual Alcohol Consequences

Measures	Traffic Ticket	Auto Accident	Get Arrested
Trait Anger	.10	.07	.03
Anger Out Assault/Objects	-.01	.03	-.01
Anger Out Visual Glare	.12	.01	-.08
Reciprocal Communication	-.11	-.06	.07
Anger Control	-.11	-.04	-.01
Think Before Respond	-.14	-.00	.03
Time Out	-.06	-.05	.03
Anger Out Assault/People	.05	.15	.10
Verbal Put Downs	.03	.03	.01
Anger In Suppression	.06	.00	-.01
Anger Out Verbal Assault	-.08	.01	.01
Angry Body Language	.12	-.01	-.01
Anger In Critical	-.02	-.01	-.07
Noisy Arguing	.03	.01	.06

$r > .16$, $p < .01$

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Table 10 (continued)

Correlation of Anger and Anger Expression with Individual Alcohol Consequences

Measures	Money Problems	School Trouble	Hurt Work or School
Trait Anger	.21	.19	.27
Anger Out Assault/Objects	.05	-.03	-.01
Anger Out Visual Glare	.04	.10	.03
Reciprocal Communication	-.09	-.00	-.06
Anger Control	-.07	-.06	-.13
Think Before Respond	-.08	.06	-.11
Time Out	-.17	-.00	-.10
Anger Out Assault/People	.00	-.00	.01
Verbal Put Downs	.19	.09	.19
Anger In Suppression	.08	.02	.02
Anger Out Verbal Assault	.15	.05	.21
Angry Body Language	-.03	.10	.05
Anger In Critical	.06	-.03	.03
Noisy Arguing	.14	-.01	.14

$r > .16$, $p < .01$

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Table 10 (continued)

Correlation of Anger and Anger Expression with Individual Alcohol Consequences

Measures	Made Use Other Drugs	Saw or Heard Things Not There	Physically Hurt by Others
Trait Anger	.08	.01	.10
Anger Out Assault/Objects	.21	-.03	.13
Anger Out Visual Glare	.01	-.02	-.01
Reciprocal Communication	-.08	.06	.01
Anger Control	-.10	-.06	-.08
Think Before Respond	-.05	-.05	-.13
Time Out	-.06	-.01	-.08
Anger Out Assault/People	-.03	-.04	.08
Verbal Put Downs	.10	-.05	.04
Anger In Suppression	-.00	.02	.03
Anger Out Verbal Assault	.09	.06	.09
Angry Body Language	.05	.03	.09
Anger In Critical	.14	-.12	.04
Noisy Arguing	.08	.03	.15

$r > .16$, $p < .01$

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Table 10 (continued)

Correlation of Anger and Anger Expression with Individual Alcohol Consequences

Measures	Unprotected Sex	Unwanted Sex	Was Sexually Assaulted
Trait Anger	.06	.12	-.04
Anger Out Assault/Objects	.15	.12	-.03
Anger Out Visual Glare	.07	.05	.17
Reciprocal Communication	-.07	-.04	-.01
Anger Control	-.12	-.18	.00
Think Before Respond	-.15	-.18	-.03
Time Out	-.11	-.12	.02
Anger Out Assault/People	-.02	-.02	-.03
Verbal Put Downs	.11	.06	.08
Anger In Suppression	.10	.08	.13
Anger Out Verbal Assault	.14	.07	.09
Angry Body Language	-.01	.06	.04
Anger In Critical	.12	.03	.03
Noisy Arguing	.17	.11	.06

$r > .16$, $p < .01$

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Table 11

Correlation of Anger and Anger Expression with the Worst Alcohol Consequences in the Last Year

Measures	Health Damage Self	Health Damage Other	Damage to Objects/Property	Problems at School/Work
Trait Anger	.26	.35	.19	.08
Anger Out Assault/Objects	.18	.17	.19	.12
Anger Out Visual Glare	-.02	.04	-.00	.03
Reciprocal Communication	-.14	-.11	-.09	-.04
Anger Control	-.18	-.10	-.14	-.04
Think Before Respond	-.06	-.07	-.05	-.08
Time Out	-.12	-.08	-.11	-.03
Anger Out Assault/People	.08	.09	.08	.05
Verbal Put Downs	.21	.09	.07	.01
Anger In Suppression	.04	.05	.05	.06
Anger Out Verbal Assault	.16	.19	.12	.05
Angry Body Language	.05	.10	.03	.11
Anger In Critical	-.00	.18	-.02	.05
Noisy Arguing	.11	.21	.18	.03

$r > .16$, $p < .01$

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Table 11 (continued)

Correlation of Anger and Anger Expression with the Worst Alcohol Consequences in the Last Year

Measures	Legal/official Consequences	Felt Bad about Self	Damage to Relationship	How Costly Was Alcohol Use
Trait Anger	-.00	.20	.08	.24
Anger Out Assault/Objects	-.02	.16	.12	.14
Anger Out Visual Glare	-.05	.09	.03	.03
Reciprocal Communication	.09	-.08	-.04	-.14
Anger Control	.06	-.17	-.04	-.21
Think Before Respond	.07	-.14	-.08	-.16
Time Out	.04	-.10	-.03	-.14
Anger Out Assault/People	.06	.07	.05	.02
Verbal Put Downs	-.05	.08	.01	.13
Anger In Suppression	-.06	.03	.06	.05
Anger Out Verbal Assault	.05	.19	.05	.19
Angry Body Language	-.05	.13	.11	.07
Anger In Critical	-.10	.02	.05	.02
Noisy Arguing	-.02	.19	.03	.15

$r > .16$, $p < .01$

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alcohol consequences. Hierarchical regressions were conducted in which the alcohol consumption variable (number of times intoxicated in the last month) was entered on Step 1, with gender, trait anger, and anger expression variables allowed to enter stepwise on Step 2. This procedure allowed a direct exploration of the addition of anger variables to alcohol consumption in the prediction of alcohol-related consequences. However, there is an alternative logic to understanding the prediction of alcohol consequences. Specifically, if alcohol consumption is the strongest predictor of alcohol consequences, then it should naturally enter first in a stepwise regression with gender and anger variables loading on subsequent steps. However, if gender or an anger variable loaded prior to alcohol consumption, then it would clarify relationships without the shared variance of the anger variable and alcohol consumption being artificially forced in first in the hierarchical regression. Therefore, in presenting regression findings, all hierarchical regressions will be presented (noted as equation I in tables). In those cases where the results of a stepwise regression differ, they are presented immediately below the equation from the hierarchical regression to elucidate the different understandings (noted as equation II).

There were three highly correlated alcohol consumption variables from which to choose (i.e., number of times consumed alcohol in the last month, number of times intoxicated in the last month, and self-rating as a user of alcohol). In order to reduce redundancy in analyses, the number of times intoxicated in the last month was chosen as the alcohol consumption variable because the frequency of more intense use and, therefore, potential consequences were captured in this variable.

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In all regressions, variables were retained if they were significant at $p < .05$ and accounted for at least 1% of the variance. The latter criterion is the lower limit of Cohen's (1988) small effect size. That is, to be considered meaningful, a variable had to contribute at least a small amount of added variance.

Prediction of Total Alcohol Consequences and Scaled Consequences

Regressions on the total frequency of alcohol consequences and for the three scales of alcohol consequence frequencies (i.e., aggressive, self-directed, and physical consequences) are summarized in Table 12. No variable entered the regression on alcohol leading to self-directed harm. In all other cases, the frequency of intoxication in the last month was the best predictor, contributing from 15% to 44% of the variance in the consequence measures. Frequency of intoxication was the sole predictor of physical consequences such as feeling sick and vomiting. However, trait anger contributed additional meaningful variance to the prediction of total consequences and aggressive consequences with greater trait anger being associated with more frequent consequences. Verbal putdowns also added to the prediction of aggressive consequences, but with a negative β weight (i.e., lower anger expression through verbal putdowns being associated with greater aggressive consequences).

Prediction of Individual Alcohol-Related Consequences

Regressions on the individual alcohol-related consequences are presented in Table 13. No variables entered the regression equations on alcohol leading to getting arrested or seeing or hearing things that were not there. In 12 out of the 20 measures analyzed, the frequency of intoxication in the last month was the best predictor contributing from 2.7% to 17.9% of the variance in the individual consequences measures. Frequency of

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Table 12

Hierarchical Regressions on Alcohol Consequences Scales

Measures	Type of Regression	Variables in Equations	R
Total Measures	I	Intoxication (.60, 39%), and Trait Anger (.13, 1.5%)	.64
Aggressive to Others	I	Intoxication (.37, 15%), Trait Anger (.21, 2.2%), and Verbal Put Downs (-.14, 1.4%)	.43
Harm to Self		No variables entered equation.	-
Physical Consequences	I	Intoxication (.66, 44%)	.66

Note. Hierarchical regressions with intoxication level entered first are labeled regression equation I. Equations labeled II are forward stepwise regressions, letting variables enter in order of their predictive power. If no stepwise regression is presented, the results are identical to the hierarchical regression and are not presented to minimize redundancy. The first number within the parentheses is the standardized β weight. The "%" number within the parentheses represents the percentage of added variance for that variable on that step. The second equation for a given variable (when applicable) is the forward stepwise regression.

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Table 13
Hierarchical Regressions on Individual Alcohol Consequences

Measures	Type of Regression	Variables in Equations	R
Traffic Ticket	I	Intoxication (-.03, 0.3%), Think Before Respond (-.18, 2.1%), Anger Out, Verbal (-.21, 1.7%), and Anger Out, Glare (.17, 2.2%)	.25
	II	Think Before Respond (-.18, 1.9%), Anger Out, Verbal (-.22, 2.0%), and Anger Out, Glare (.17, 2.3%)	.25
Auto Accident	I	Anger Out, Assault People (.15, 2.2%)	.15
Get Arrested		No Variables Entered the Equation	
Money Problems	I	Intoxication (.39, 15.5%) and Time Out (-.15, 2.1%)	.42
School Trouble	I	Intoxication (.19, 4.9%), Trait Anger (.21, 2.2%), and Think Before Respond (.16, 2.2%)	.30
Hurt Work/School	I	Intoxication (.34, 12.6%), Trait Anger (.26, 3.8%), and, Anger Out, Assault Objects (-.17, 2.6%)	.44
Fight with Family	I	Intoxication (.13, 1.7%) and Anger Out, Glare (.17, 2.7%)	.21
	II	Anger Out, Glare (.17, 2.7%) and Intoxication (.13, 1.7%)	.21
Feel Confused	I	Intoxication (.38, 11.5%), Gender (.18, 3.4%), Trait Anger (.21, 2.5%), and Anger Out, Assault Objects (-.16, 2.1%)	.44
People Against You	I	Intoxication (.13, 2.1%), Trait Anger (.21, 2.6%), and Anger Out, Assault Objects (-.15, 1.8%)	.26
	II	Trait Anger (.22, 3.6%) and Anger-In Suppression (-.13, 1.6%)	.23
Physical Hurt by Others	I	Intoxication (.07, 0.04%), Argue (.12, 1.9%), Reciprocal Communication (.26, 2.4%), and Think Before Respond (-.21, 2.8%)	.27
	II	Argue (.09, 2.1%), Reciprocal Communication (.30, 2.1%), Think Before Respond (-.20, 2.8%), and Anger Out, Assault Objects (.15, 1.7%)	.30

Note. Hierarchical regressions with intoxication level entered first are labeled regression equation I. Equations labeled II are forward stepwise regressions, letting variables enter in order of their predictive power. If no stepwise regression is presented, the results are identical to the hierarchical regression and are not presented to minimize redundancy. The first number within the parentheses is the standardized β weight. The "%" number within the parentheses represents the percentage of added variance for that variable on that step. The second equation for a given variable (when applicable) is the forward stepwise regression.

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Table 13 (Continued)

Hierarchical Regressions on Individual Alcohol Consequences

Measures	Type of Regression	Variables in Equations	R
Damaged Relationship	I	Intoxication (.15, 2.7%) and Think Before Respond (-.13, 1.6%)	.21
Later Regrets	I	Intoxication (.32, 11%) and Think Before Respond (-.13, 1.6%)	.36
Had Sex Unprotected	I	Intoxication (.16, 3.2%) and Argue (.15, 2.3%)	.24
Had Unwanted Sex	I	Intoxication (.22, 5.4%) and Think Before Respond (-.16, 2.4%)	.28
Been Sexually Assaulted	I	Intoxication (.05, 0.02%), and Anger Out, Glare (.17, 2.8%)	.17
	II	Anger Out, Glare (.17, 2.8%)	.17
Made Very Sad	I	Intoxication (.28, 5.8%) and Gender (.16, 2.5%)	.29
Made Very Anxious	I	Intoxication (.19, 6.7%), Verbal Put Downs (.30, 2.6%), and Anger Out, Glare (-.23, 3.6%)	.36
Made Use Other Drugs	I	Intoxication (.40, 17.9%), Anger Out Assault Objects (.26, 1.5%), and Anger Out, Assault People (-.23, 3.7%)	.48
Made Friends Mad	I	Intoxication (.24, 5.7%)	.24
Saw or Heard Things Not There		No Variables Entered the Equation	

Note. Hierarchical regressions with intoxication level entered first are labeled regression equation I. Equations labeled II are forward stepwise regressions, letting variables enter in order of their predictive power. If no stepwise regression is presented, the results are identical to the hierarchical regression and are not presented to minimize redundancy. The first number within the parentheses is the standardized β weight. The "%" number within the parentheses represents the percentage of added variance for that variable on that step. The second equation for a given variable (when applicable) is the forward stepwise regression.

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intoxication was the only predictor of making friends mad. Although intoxication contributed the greater part of the variance in predicting damaged relationships, having later regrets, having unwanted sex, and school trouble, the anger expression variable of thinking before responding contributed additional variance with a negative β weight (i.e., those who act without thinking things through are more likely to do or say things in anger). The frequency of intoxication when forced into the equation for having gotten a traffic ticket contributed minimally (0.3% of the variance). There was a negative β weight for thinking before responding (i.e., those who express anger without thinking things through are more likely to have an alcohol-related traffic violation). A positive β for expressing anger through glaring or staring contributed to the variance in the traffic ticket equation (i.e., if people express their anger more in this manner, then they give off more provocative cues, hence more antagonism elicited in the officer). Frequency of intoxication did not enter into the prediction of alcohol-related traffic accidents. However, expressing anger outwardly toward other people did in both the hierarchical and stepwise equations. Although intoxication contributed the greater part of the variance for prediction of alcohol-related money problems, expressing anger through taking time outs added additional variance (negative β weight). Analysis of hurt school work indicated that 12.6% of the variance was predicted by intoxication, 3.8% by trait anger and 2.6% by physical assault on objects. The β weight for physical assault on objects was negative. Regression analyses revealed that the same two variables entered into the equations and explained the same amount of variance each time with alcohol-related fights with family. In the stepwise model, expressing anger via glares and stares entered first and carried more variance with frequency of intoxication coming in second.

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When intoxication was forced into the hierarchical regression on the alcohol consequence of felt like people were against you, it contributed a small variance. Trait anger and anger expressed via physical assault toward objects entered the equation with a negative β for physical assault toward objects (i.e. less assault toward objects, the more the person felt like others were against them). The stepwise regression had trait anger (positive β weight) and anger-in suppression (negative β weight) in the equation. Regression analyses revealed that intoxication was not related to having been physically hurt by others. Noisy arguing, reciprocal communication, thinking before responding and assault objects all added meaningful variance to the prediction of being physically hurt by others. Intoxication entered the equation for unprotected sex, with noisy arguing contributing a small amount of variance. Frequency of intoxication did not enter into the prediction of being a victim of alcohol-related sexual assault. However, expressing anger via stares and glares entered both equations. Intoxication added to the prediction of alcohol-related sadness, as did gender, with more women reporting this measure than men. Verbal putdowns were related positively to alcohol-related anxiety. Intoxication was the primary variable accounting for a significant proportion of variance in the consequence of made use other drugs. Assault objects and assault people added to the prediction.

Prediction of Worst Alcohol Incident Consequences

Regressions on the worst alcohol-related consequences in the last year are presented in Table 14. No variables entered the regression equations on the worst alcohol-related consequences of relationship damage and problems at work or school. Frequency of intoxication was the best predictor of variance in only two measures, health damage to self and how costly the alcohol use was. Trait anger contributed significant

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Table 14

Hierarchical Regressions on the Worst Alcohol-Related Consequences in the Last Year

Measures	Type of Regression	Variables in Equations	R
Health Damage to Self	I	Intoxication (.23, 7.7%) and Trait Anger (.21, 4.1%)	.34
Health Damage to Others	I	Intoxication (.03, 1.9%), Trait Anger (.38, 10.9%), Gender (-.19, 2.6%), Verbal Put Downs (-.19, 1.4%), and Anger-In, Critical (.14, 1.6%)	.43
	II	Trait Anger (.38, 12.5%), Gender (-.20, 2.9%), Verbal Put Downs (-.19, 1.4%), and Anger-In, Critical (.14, 1.6%)	.43
Property Damage	I	Intoxication (.07, 2.1%), Anger-Out, Assault Objects (.15, 2.8%), and Gender (-.15, 2%)	.26
	II	Gender (-.18, 3.9%) and Trait Anger (.17, 2.9%)	.26
Relationship Damage		No Variables Entered the Equation	
Problems Work/School		No Variables Entered the Equation	
Legal or Official Consequences	I	No Variables Entered the Equation	
	II	Gender (-.14, 2.0%)	.14
Feel Bad About Self	I	Intoxication (.09, 1.6%) and Trait Anger (.18, 3.2%)	.22
	II	Trait Anger (.20, 4.1%)	.20
How Costly Was Alcohol Use	I	Intoxication (.26, 9.2%) and Trait Anger (.18, 3.0%)	.35
Total Number of Consequences	I	Intoxication (.17, 5.1%) and Trait Anger (.26, 6.5%)	.34
	II	Trait Anger (.26, 8.9%) and Intoxication (.17, 2.7%)	.34

Note. Hierarchical regressions with intoxication level entered first are labeled regression equation I. Equations labeled II are forward stepwise regressions, letting variables enter in order of their predictive power. If no stepwise regression is presented, the results are identical to the hierarchical regression and are not presented to minimize redundancy. The first number within the parentheses is the standardized β weight. The "%" number within the parentheses represents the percentage of added variance for that variable on that step. The second equation for a given variable (when applicable) is the forward stepwise regression.

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variance for these two measures. Trait anger was the primary contributor to the prediction of an event that led to physical or health consequences to others, in both equations. When forced in, intoxication accounted for 1.9% of the variance, but when not forced, it did not enter into the equation. Gender, verbal putdowns and being critical added additional variance. Regression analyses on alcohol leading to property damage revealed that when intoxication was forced in the first equation, the expression of anger by way of assaulting things was the first anger variable, followed by gender. However, when allowed to enter in a stepwise manner, gender entered first (men experiencing more alcohol-related property damage) with trait anger filling out the rest of the equation. When intoxication was forced in the first regression equation for having legal or official consequences, there was not a significant equation. However, when allowed to enter stepwise, there was small predictive power with gender entering and accounting for 2.0% of the variance. Trait anger contributed to the prediction of feeling bad about oneself, with frequency of intoxication contributing a small amount of the variance in the first equation. Trait anger was the sole predictor of feeling bad about oneself in the second equation. In prediction of the total number of consequences suffered, two variables, frequency of intoxication and trait anger, entered the two regression equations. The order and the amount of variance changed depending on the hierarchical or forward stepwise format. In the hierarchical equation, intoxication accounts for 5.1% of the variance, but only 2.7% in the forward stepwise format. Trait anger accounted for 6.5% in the hierarchical version, but 8.9% in the stepwise version. Trait anger was the larger predictor in the total number of consequences suffered in the worst-case scenario.

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Whereas frequency of intoxication was the best predictor of the variance found across indices involving frequencies of consequences, trait anger and various anger expression styles tended to be better predictors of severity in the worst-case situation.

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CHAPTER IV

DISCUSSION

This study was designed to evaluate the relationship of anger, anger expression styles, alcohol consumption and alcohol-related consequences. One of the methodological strengths of this study is the number of participants involved. An additional strength is the balance in representation of gender. Of the 249 participants, 45.8% were male and 54.2% female. Students in this study were selected from an undergraduate population on a state university campus. Therefore, generalization should be limited to college student populations of similar demographic characteristics, a sizable population across the country.

All data analyzed in this study were acquired through retrospective self-report. Literature supports the accuracy of self-report data, and it is a reasonable assumption that data used in this study are comparable in validity (Elliot, Huizinga, & Menard, 1989). The retrospective nature of this study relies on the participants' recall of alcohol consumption in the last month, alcohol-related consequences in the last three months and the worst alcohol-related incident in the last year. Validity of any retrospective data is contingent on the participants' accurate recall of past experiences or behaviors. Despite the methodological limitations, past research has found high reliability within consequences ratings (Liebsohn et al., 1994).

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The modified American Drug and Alcohol Survey-College was used to assess a wide range of alcohol-related consequences. However, some specific deleterious alcohol-related consequences are not addressed in this survey. The Worst Alcohol-Related Consequence Questionnaire partially addresses this limitation, allowing participants to identify specific alcohol-related consequences that were highly significant to them.

Participants were assessed on how often they drank a specific number of drinks in a given time period. The weight of the participant and the percentage of alcohol per serving would have been a more complete measure of alcohol consumption. However, data of that nature was beyond the scope of this study. To address the methodological limitations inherent in assessing the quantity of alcohol consumption, participants' perceptual interpretation of "got drunk" and self-reports on alcohol use (from "Non-User to "Very Heavy User) were included in the analyses.

Alcohol Consumption

The results of this study support the growing body of literature that shows alcohol consumption and intoxication are prevalent behaviors among college students. Little change in the rate of alcohol consumption on college campuses has been found over the last two decades (Brennan et al., 1986; Carter & Deffenbacher, 1995; Conway, 1992; Engs, 1977; Johnston et al., 1991; Liebsohn et al., 1994). The current study yielded similar results; approximately 80% of the participants reported drinking during the last month and over 60% reported being intoxicated in the last month.

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Gender Differences in Alcohol Use and Consequences

The present study found that men reported drinking and becoming intoxicated more often than females. These results mirror findings similar to national survey results and studies with comparable samples (Carter & Deffenbacher, 1995; Johnston et al., 1991; Liebsohn et al., 1994). In the current study, males also described themselves as heavier alcohol users.

Although research shows that males drink more alcohol and in greater amounts than females, the literature is mixed as to whether males are more likely to experience negative alcohol-related consequences than females. Men have been shown to report more physically aggressive alcohol-related behaviors than women do, while women report more relationship problems due to alcohol consumption. However, past reports of alcohol-related consequences among the heaviest drinkers reveal that women experience the same amount if not more severe and more frequent alcohol-related consequences than men (Carter & Deffenbacher, 1995; Williams et al., 1989). The current study revealed no significant gender effects for total alcohol-related consequences. Additionally, no gender differences were found for the three scales of alcohol-related consequences or the frequency of individual consequences in the last month. Moreover, in a series of hierarchical regression analyses, gender appeared in only two of the individual alcohol-related consequence measures, and then it was the second variable in the equations, suggesting gender was not a strong predictor of alcohol consequences. Females tended to feel confused more often than males when drinking, but only 3.4% of the variance were accounted for by gender. Females also reported that drinking made them very sad more

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frequently than males, with only 2.5% of the variance linked to gender differences. The present study does not support the existence of large gender effects for frequency of alcohol-related consequences.

Analyses on the worst alcohol-related incident in the last year revealed that men's alcohol consequences leading to health consequences to others, property damage, and legal or other official consequences were more severe than those of women's. However, the effect sizes were generally small. Within hierarchical regressions on the worst alcohol-related incident in the last year, gender appeared in the equation for health damage to others and property damage. In both of these equations, men tended to report more incidents in which alcohol led to health damage to others, accounting for 2.6% of the variance, and for property damage, with only 2.0% of the variance accounted for by gender. The only measures in which gender was a first order variable were in the stepwise equations for legal or official consequences and property damage within the worst alcohol-related incident. Being male predicted greater legal or official consequences (2% variance) and greater property damage (3.9% variance). Gender was a second order variable in the stepwise equation on reports of health damage to others, with being male predicting 2.9% of the variance. Total consequences on the worst alcohol-related event revealed that men suffer slightly more consequences than females. Thus, while gender was not a powerful predictor, it was of greater predictive power in accounting for alcohol consequences in the worst-case scenario.

Anger and Alcohol-Related Consequences

A plethora of studies demonstrate a correlation between alcohol consumption and a wide range of negative consequences and behaviors. Leibsohn et al. (1994) found trait

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anger to be related to the prevalence of alcohol-related consequences and that high anger students experienced more physical, behavioral, and emotional alcohol-related consequences. Carter and Deffenbacher (1995) found consistent results with regard to anger status and alcohol-related physical, emotional-psychological, and behavioral consequences.

The present study found trait anger to be positively correlated with the total alcohol consequences measure. Positive relationships were also found between trait anger and the cluster of alcohol-related aggressive consequences. Consistent with the current study's findings, Brooks et al. (1981), Leibsohn et al. (1994), and Carter and Deffenbacher (1995) found anger to be significantly related to alcohol-related behavioral consequences (e.g., aggressive behaviors). One explanation for this trend of trait anger being linked to behavioral consequences is that high anger students may not seek to stay in control of their behaviors. Klein (1990) revealed that students who abstained from drinking alcohol did so because of a desire to "stay in control." Leibsohn et al. (1994) hypothesized that some angry individuals tend to respond to situations with anger and are used to losing control emotionally or do not value the ability to stay in control of their behaviors. Trait anger may also be associated with greater sensation seeking and impulsive aggressive behaviors that are also correlated with alcohol-related aggression.

Anger Expression and Alcohol-Related Consequences

Many past studies have failed to address the role anger expression styles may play in the frequency and severity of alcohol-related consequences. Deffenbacher et al. (1996) suggested that anger is a complex variable that can be manifested in many different ways. The present research found a positive relationship between the alcohol-related aggressive

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scales and anger expressed through assault toward objects. Anger control was found to be inversely related to aggressive consequences and total consequences. Anger expression through verbal put downs and verbal assaults were significantly related to the total alcohol consequences measures, as well. Thus anger expression was related to alcohol consequences, too.

Consistent with past research, the present study found that trait anger was significantly related to the worst alcohol-related incident in the last year (Carter & Deffenbacher, 1995; Leibsohn et al., 1994). Anger expressed through assault on objects, verbal assault, noisy arguing, and control strategies were also significantly related to the worst alcohol-related incident.

Prediction of Alcohol Consequences from Anger, Anger Expression and Intoxication

A primary goal of this research was to provide meaningful data about the impact of anger variables on the prevalence of alcohol consequences. Past research has shown that while angry students drink more heavily and may experience more frequent or severe alcohol-related consequences, anger provides additional variance to the prediction of consequences (Carter & Deffenbacher, 1995; Leibsohn et al., 1994). Carter and Deffenbacher (1995) found that anger level, separate from being intoxicated, added a significant proportion of variance across alcohol-related consequences categories and to the prediction of the total number of consequences experienced in a worst alcohol-related event category.

Some alcohol-related consequences may not be linked directly to anger, such as the physical consequences often experienced from intoxication (e.g., having a hangover, or getting sick). In the present study, hierarchical regressions were done to establish the

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roles anger and anger expression styles have in the prediction of the frequency or severity of alcohol-related consequences, above and beyond the contribution of alcohol consumption. Intoxication played the greatest role in predicting physical consequences, total frequency of alcohol consequences, and aggressive behaviors towards others. Many other individual alcohol consequences were also predicted by intoxication, with trait anger or anger expression styles adding to the prediction. As hypothesized, trait anger added to the prediction of the total frequency of alcohol consequences and to aggressive behaviors to others. Trait anger added the greatest proportion of variance for individual alcohol consequences of feeling like people were against you. One explanation for anger's contribution to the prediction of aggressive or impulsive behaviors is that alcohol may provide the behavioral disinhibition needed to act out angry feelings.

Many psychological variables may affect the likelihood of whether trait anger combined with alcohol intoxication would lead to negative alcohol-related consequences. We can hypothesize that how a person expresses their angry feelings verbally may play a role in the prediction of alcohol-related consequences. In the present study, the anger expression style of using verbal put downs contributed to the prediction of aggressive behaviors to others and to the individual alcohol-related consequence of feeling very anxious.

Deffenbacher et al. (1996) hypothesized that for some individuals the nonverbal expressive styles, such as giving dirty looks, may be the primary way they communicate their negative feelings. If an individual has difficulty expressing their feelings verbally, they may be misunderstood or antagonize others, hence leading to interpersonal difficulties or trouble with law enforcement. In the present study, anger expression

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through giving dirty looks (e.g., frowning, glaring, and giving looks that could kill) was an important factor in the prediction of individual alcohol-related consequences of getting a traffic ticket, fighting with family members, having been sexually assaulted, and feeling very anxious. Perhaps these salient, antagonistic means of communicating anger further inflame situations when drinking, leading to further interpersonal aggression or threat.

Communicating anger in a physically aggressive manner, such as anger-out, assault people and anger-out, assault objects may lead to negative alcohol-related consequences, as well. In the present study, anger-out, assault people added significant variance to the prediction of having an alcohol-related auto accident. Deffenbacher et al. (1996) found that the variable, anger-out, physical assault people, was correlated with reported physical fights, property damage, and feelings of wanting to harm someone. This variable logically supports the idea that a person who expresses their anger aggressively towards other people may find it tempting to use an automobile as a weapon of assault when intoxicated. Anger-out, assault objects, was also found to add variance to the prediction of negative alcohol-related consequences of feeling confused, feeling as if people were against you, being physically hurt by others and feeling as if the alcohol made you use other drugs. Perhaps, the anger expression style of being physically assaulting toward the environment mirrors a kind of recklessness that is reflected in these alcohol-related consequences.

If negative expressions of anger, verbally or nonverbally, added to the prediction of alcohol-related consequences, it would follow that positive or prosocial anger expression would predict a reduction of alcohol-related consequences, as well. In the present study, the anger expressive style of thinking before responding was the most

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predictive factor in the alcohol-related consequence of being physically hurt by others, in that those who did not think before responding were more apt to be physically hurt by others. Thinking before responding also contributed significantly to the variance in experiencing damaged relationships, having later regrets, having unwanted sex, and having school trouble. Once again, it showed that those who did not think before responding when angry were more likely to experience negative alcohol-related consequences.

Carter and Deffenbacher (1995) found that whereas frequency of intoxication played the most significant role in prediction of the frequency of alcohol consequences, that was not the case for the severity of consequences of the worst alcohol-related incident. They found trait anger and anger-out were most predictive of the severity of the consequences from the worst alcohol-related incident in the last year. Although the study looked at the upper and lower quartile trait anger individuals, they found that trait anger and anger expression style added significantly to the prediction of and understanding of consequences due to drinking, especially in the case of the worst event related to alcohol consumption. The present study found a pattern of results that mirrors this trend. Intoxication was the most significant variable in two out of the nine worst alcohol-related incident measures. Trait anger added significant variance to the worst alcohol-related incident consequences of experiencing health damage to self, health damage to others, property damage, feeling bad about oneself, ratings of how costly the event was, and the total number of consequences. Anger expression styles of verbal put downs, anger-in, critical, and anger-out, physical assault of objects also added to the prediction of some of the worst-alcohol related incident consequence measures. These results suggest that

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many college students experience less serious alcohol-related consequences on a day-to-day basis. These consequences are primarily due to being intoxicated or drinking. Trait anger and anger expression styles may add to the amount or frequency of drinking and to the frequency of alcohol-related consequences. The individual would be more likely to experience negative alcohol-related consequences simply because they are drinking. Anger and anger expression styles played less of a role in predicting the frequency of specific consequences. In contrast, the worst alcohol-related event reflects an incident of heavy drinking and serious consequences that may be more affected by anger and anger expression styles.

Implications for Treatment and Prevention

Typical treatment programs on college campuses today focus on a variety of approaches. These programs may develop positive peer networks, identify the hazards of alcohol use through scare tactics, use punishment, and address self-esteem issues. Student assistance programs may target various groups such as students with chemical dependencies, chemical abuse symptoms, and those in the experimentation stages. Although the literature indicates that angry students may drink more, become intoxicated more often, and experience more alcohol-related consequences, the prevention and treatment interventions usually do not include anger reduction or anger management in their objectives. Deffenbacher (1988) and Deffenbacher, Story, Stark, Stark, Hogg, and Brandon (1987) found that general anger could be reduced through the practice of social skills training and cognitive relaxation therapy.

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This study highlights the importance of using a multidisciplinary approach in treatment and prevention of alcohol problems on college campuses. Anger has been shown to play a role in the frequency and severity of alcohol-related consequences and a major contributor to the consequences in the worst alcohol-related incident. Addressing anger management issues in alcohol treatment and prevention programs may be helpful for effective interventions on college campuses, especially for the highly angry, frequently intoxicated student.

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Appendix A

AMERICAN DRUG AND ALCOHOL SURVEY-COLLEGE (REVISED)

1. How often in the last month have you... (Circle appropriate number)

Had alcohol to drink	0	1	2	3	4	5	6	7	8	9	10 or more
Gotten drunk	0	1	2	3	4	5	6	7	8	9	10 or more

Note: a "drink" equals one ounce of liquor, or a glass of wine, or a can of beer.

2. In the last month how many times during a 3 to 5 hour period did you have...

O I did not have a "drink in the last month

10 or more drinks	0	1	2	3	4	5	6	7	8	9	10 or more
5 to 9 drinks	0	1	2	3	4	5	6	7	8	9	10 or more
3 to 4 drinks	0	1	2	3	4	5	6	7	8	9	10 or more
1 or 2 drinks	0	1	2	3	4	5	6	7	8	9	10 or more

3. In using alcohol, are you a...

O Non User
O Very Light User
O Light User
O Moderate User
O Heavy User
O Very Heavy

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4. How much do you think people of your age harm themselves (physically or otherwise) if they...

Use alcohol 1 or 2 times a week
O No Harm O Very Little Harm O Some Harm O A lot of harm

Use alcohol almost daily
O No Harm O Very Little Harm O Some Harm O A lot of harm

Get drunk 1 or 2 times a week
O No Harm O Very Little Harm O Some Harm O A lot of harm

Get drunk almost daily
O No Harm O Very Little Harm O Some Harm O A lot of harm

5. In the last three months has your drinking alcohol caused you any of the following problems?

	No	1 time	2 times	3 times	4 or more times
Get a traffic ticket?	O	O	O	O	O
Have a car accident?	O	O	O	O	O
Get arrested?	O	O	O	O	O
Have money problems?	O	O	O	O	O
Get you in trouble at school?	O	O	O	O	O
Hurt your work or school work?	O	O	O	O	O
Fight with family?	O	O	O	O	O
Fight with others?	O	O	O	O	O
Made you feel like killing yourself?	O	O	O	O	O
Made you feel like hurting yourself?	O	O	O	O	O

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6. In the last three months has your drinking alcohol caused you any of the following problems?

	No	1 time	2 times	3 times	4 or more times
Made you feel confused or mixed up ?	O	O	O	O	O
Made you feel like people Were against you?	O	O	O	O	O
Physically hurt someone?	O	O	O	O	O
Been physically hurt by someone?	O	O	O	O	O
Damaged a friendship?	O	O	O	O	O
Passed out?	O	O	O	O	O
Blacked out?	O	O	O	O	O
Felt sick?	O	O	O	O	O
Gotten sick and vomited?	O	O	O	O	O
Couldn't remember what Happened while drinking?	O	O	O	O	O
Did something you later Regretted?	O	O	O	O	O
Made you break something?	O	O	O	O	O
Engaged in unprotected sex?	O	O	O	O	O
Engaged in unwanted sex?	O	O	O	O	O
Sexually assaulted someone?	O	O	O	O	O
Been sexually assaulted?	O	O	O	O	O
Made you very sad?	O	O	O	O	O
Made you very anxious?	O	O	O	O	O
Made you feel like hurting someone?	O	O	O	O	O
Made you use other drugs?	O	O	O	O	O
Made you want to break something?	O	O	O	O	O
Got into an argument?	O	O	O	O	O
Made your friends mad at you?	O	O	O	O	O
Saw or heard thing that were not there?	O	O	O	O	O

7. During the last month how drunk did you get (at the time when you got the most drunk?)

   O Did not drink
   O Did not get drunk
   O A little drunk
   O Fairly drunk
   O Extremely drunk

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8. Do you smoke cigarettes?

   O Not at all
   O Once in a while
   O 1-5 times a day
   O Half a pack a day
   O A pack or more a day

9. Do you use smokeless tobacco (chewing tobacco, snuff, etc.?)

   O Not at all
   O Once in a while
   O 1-5 times a day
   O 6-10 times a day
   O Almost all the time

10. How many times have you used any of these drugs to get high during the last month? Put a check under the appropriate number.

	0	1	2	3	4 or more
Marijuana	___	___	___	___	___
Uppers	___	___	___	___	___
Cocaine	___	___	___	___	___
Crack	___	___	___	___	___
"Sniff" something like glue or gasoline	___	___	___	___	___
LSD (acid)	___	___	___	___	___
Other psychedelic	___	___	___	___	___
PCP	___	___	___	___	___
Heroin	___	___	___	___	___

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APPENDIX B

ALCOHOL-RELATED INCIDENT QUESTIONNAIRE

Please describe your worst alcohol-related incident in the last year (involving you consuming alcohol).
Just write "no incident" in Section 1 below if you do not drink.

1. What happened? (describe in detail)

2. Did any financial costs result from this incident? Yes No
   If yes, explain and give your best estimate of the total dollar amount.

3. Did any physical damage or health problems happen to you because of this incident? Yes No
   If yes, explain.

4. Did any damage or health problems happen to anyone else? Yes No
   If yes, explain.

5. Was there any damage to objects of property? Yes No
   If yes, explain.

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6. Was there any damage to a relationship? Yes No
   If yes, explain.

7. Did any problems develop at school or work because of this? Yes No
   If yes, explain.

8. Were there any legal or other official consequences? Yes No
   If yes, explain.

9. Did you feel badly about yourself as a result of this incident? Yes No
   If yes, explain.

10. All things considered, how costly was your alcohol use? (Circle one)

extremely costly	very costly	somewhat costly	a little costly	no cost

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APPENDIX C

CONSEQUENCE RATING SCALE-ALCOHOL

GENERAL INSTRUCTIONS

This scale contains criteria to code the severity of various consequences or outcomes that have resulted from a person's drinking alcohol. The instrument addresses the following types of consequences:

1. PHYSICAL DAMAGE TO SELF: The action resulted in physical damage or bodily harm to oneself.

2. PHYSICAL DAMAGE TO OTHERS: The action resulted in physical damage or bodily harm to at least one other than the actor.

3. PHYSICAL DAMAGE TO OBJECTS: The action resulted in physical damage to nonperson objects.

4. RELATIONSHIP DAMAGE: The action resulted in damage to, negative consequences for, or termination of a relationship for the actor.

5. VOCATIONAL/SCHOOL PROBLEMS: The action resulted in problems or negative consequences in vocational or academic arenas.

6. LEGAL CONSEQUENCES: The action resulted in civil or criminal legal consequences.

7. DAMAGE TO SELF-ESTEEM OR FEELINGS ABOUT SELF: The action results in reported negative feelings about self and/or one's actions.

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INSTRUCTIONS: You will be asked to read a person's description of an event in which they drank alcohol and experienced consequences. Read the event and then rate the consequence in each and every category. Rate each consequence from 0-3 with:

0 = no consequence;

1 = mild consequence;

2 = moderate consequence; or

3 = severe consequence

Further information on ratings for each category is provided on the next pages; refer to these guidelines as necessary to make accurate ratings.

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KEEP THESE POINTS IN MIND WHEN CODING CONSEQUENCES

1. The person's consequences in a particular category will not match all of the guidelines. The guidelines are provided only for general assistance in making judgements, not fixed rules.

2. If the subject's written account describes a consequence resulting from their anger but they answer "no" to that question, code the consequence according to the details in the written account. That is, you may disagree with the person's rating: rate the consequences as you see them.

3. If the severity of the consequence is borderline, choose the lower rating.

4. In the absence of specific information, use your judgement to make decisions, e.g., if a person puts a hole in a wall but does not indicate any repair cost, simply estimate that cost and score the consequence accordingly.

5. When coding relationship damage and the subject does not indicate the importance of the relationship, refer to their response to overall cost, self-esteem damage, and information contained in any other responses.

6. If no description of a consequence is given, but the subject circles "yes" to that question, code that consequence as (1) mild.

7. Place a check mark by the description that best indicates, in your opinion, the overall cost of the person's consequences. Your check mark may not correlate with the person's response (e.g., you may see the even as more or less consequential that the individual who experienced it, ant this is fine).

8. Note that the self-esteem category is rated only with 0, 1, or 2.

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