PROXIMAL STRESS PROCESSES AS PREDICTORS OF ALCOHOL USE IN GAY AND BISEXUAL MALES: A PARTIAL TEST OF THE MINORITY STRESS THEORY

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ABSTRACT

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Research has shown that gay and bisexual males use alcohol in higher quantities and more frequently than their heterosexual counterparts. In this study, I examined the relationship between sexual identity (internalized homonegativity and gay identity formation) and the quantity and frequency of alcohol use, drinking-related consequences, and drinking-related outcome expectancies in gay and bisexual males. I recruited two samples ($n_1 = 529$; $n_2 = 337$) via the World-Wide-Web who completed my survey online. Participants in both samples who reported a more integrated gay identity also reported less internalized homonegativity. In the second sample, there was a small but consistent relationship between internalized homonegativity, quantity and frequency of alcohol use and drinking related consequences. There was no relationship between gay identity formation and any of the drinking outcome variables. None of the sexual identity variables explained more than 10% of the variance in alcohol-related behaviors. Although the methods of this project attempted to address some of the limitations of previous research by using a larger sample size, using more than one measure of internalized homonegativity, and attempting to recruit a demographically diverse sample, my results are similar to previous results. Future directions for research include recruiting a wider range of problem and non-problem drinkers, more subjects in the lower stages of gay identity development, and subjects who are less educated, older, lower income, and from a variety of ethnic backgrounds.

I dedicate this manuscript to the people I love the most in this world,

my parents, Mervin and Margaret Cabral.

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INTRODUCTION

Researchers disagree about how to define and identify sexual minority individuals. Several researchers have used self-identification as lesbian, gay, and bisexual (LGB) to define individuals as such (McCabe, Boyd, Hughes, & d'Arcy, 2003; Remafedi, 1987; Russell, Driscoll, & Truong, 2002). This may lead to underestimation of the prevalence of homosexuality, however, because adolescents and young adults are more likely than older individuals to endorse same-sex attractions, fantasies and experiences, but less likely to self-identify as homosexual (Remafedi, Resnick, Blum, & Harris, 1992). Other researchers define sexual identity in terms of behavior (i.e., men who have sex with men, MSM; and women who have sex with women, WSW). Whatever the merits to the argument that behavior is a key element of sexual orientation (Dean et al., 2000; Orenstein, 2001), requiring same-sex behavior as part of the definition may exclude individuals who have not had any sexual contact, but nonetheless identify as lesbian, gay, or bisexual. For my study, which focused on gay and bisexual adult males, I defined sexual identity based on a combination of emotional and physical attraction, content of sexual fantasies, past sexual experiences, and self-reported sexual identity (Berkey, Perelman-Hall, & Krudek, 1990; Chung & Katayama, 1996).

However defined, LGB individuals are a sexual minority and a marginalized population in the United States and, perhaps as a result, are more likely to use and abuse alcohol and other drugs than heterosexuals. Studies of both adolescents and adults show that substance use is more prevalent in sexual minority populations than among heterosexuals. For example, in a review of eight population-based studies involving 83,402 adolescents, Reis and Saewyc (1999) found that 23% of heterosexual youth versus 36% of LGB youth had engaged in drug use. Compared to a heterosexual comparison group, LGB youth were six times more likely to have used cocaine,

three times more likely to have used hallucinogens, and twice as likely to have smoked marijuana at least 40 times in the past 30 days (Reis & Saewyc, 1999).

McKirnan and Peterson (1989a) investigated patterns of alcohol and drug use in a Chicago sample of 3400 individuals in their early-to-mid 30's. They found that LGB individuals were less likely than heterosexuals to abstain from alcohol use, more likely to report lifetime experience with "hard" drugs (e.g., cocaine, heroin, PCP, amphetamines, barbiturates), and more often reported high-frequency marijuana and cocaine use. Similarly, Bergmark (1999) found that Swedish lesbians and gay men drank more, and fewer abstained from alcohol completely, than heterosexual counterparts. In a study of 190 self-identified lesbians and 265 self-identified gay men in the American South, Skinner (1994) found that his subjects were more likely to have used marijuana, drank alcohol, or smoked tobacco in the past month than a heterosexual sample of the same age range. Another study of lesbians and gay men from two southern cities found that participants' past year use of alcohol, marijuana, and inhalants was significantly higher than that reported in a household survey (Skinner & Otis, 1996).

More recently, Cochran and Mays (2000) found that homosexually-active men were more likely than non-homosexually-active men to report evidence of major depression and anxiety, and homosexually-active women were more likely to be classified with alcohol or drug dependency disorders. In the National Comorbidity Survey, Gilman and colleagues (2001) found that participants who reported one or more same-sex sexual partners in the past five years had a higher prevalence of substance use (and mood and anxiety) disorders in the previous 12 months. Gilman and colleagues' operational definition of homosexual behavior combined together everyone who had one or more same-sex sexual partners in the past five years and considered

them as a homogeneous group, but their subjects may have differed considerably in the number of same-sex experiences and their gay identity.

Substance-related problems may be caused or exacerbated by marginalization, the process by which a group or an individual is denied access to education, employment and other political, economic or social services (Marshall, 1998). Common stressors for marginalized populations include discrimination, difficulties with acculturation, higher incidences of criminal and gang behavior, and poverty (Lambert & Wiebel, 1990). Researchers have found that antigay violence and discrimination are significant stressors for sexual minority populations (Kessler, Mickelson, & Williams, 1999). In a comprehensive review of the literature, Meyer (2003) found that LGB individuals have been more likely then their heterosexual counterparts to have experienced violence (e.g., antigay hate crimes), victimization, workplace inequalities, and psychiatric disorders (e.g., substance use disorders, suicide, and affective disorders).

Drawing on the literature on social stress, identity, and acculturation, Meyer (2003) proposed a model of minority stress in which members of stigmatized groups must exert “an adaptation effort above that required of similar others who are not stigmatized”(p. 676). Meyer (2003) proposed that minority stress is unique, chronic, and socially based. Based on these assumptions, Meyer developed a proximal-distal approach to explain minority stress in LGB individuals. Distal stress processes are external observable phenomena, such as antigay discrimination and violence. Proximal stress processes are personal and subjective because they rely on individual perceptions and appraisals, such as expectations of rejection based on minority identity, concealment of minority identity, and internalized homonegativity. According to Meyer’s model, LGB individuals may be more likely to experience mental health problems such as substance abuse than heterosexual populations. In this study, I tested a hypothesis based on

one prediction of Meyer's minority stress theory and its application to alcohol use and its related consequences in gay and bisexual males.

The minority stress model proposes that minority identity may either inhibit or facilitate substance use, and that substance use may occur as a direct response to stressors such as violence, discrimination, identity formation, or internalized homonegativity. It may also occur as a response to group expectations concerning coping and solidarity. For example, the belief that alcohol and other drugs decrease stress may be represented in the popularity of "gay bars," comfortable places for LGB individuals to meet others and socialize without stigmatization or exclusion (Jordan, 2000). McKirnan and Peterson (1989a) refer to the popularity of gay bars as a "cultural vulnerability" because the popularity of such bars may increase the likelihood of substance abuse and its related problems. Substance use may be both a mechanism for coping with minority stress and an outcome of frequenting bars to socialize with other LGB individuals in a comfortable atmosphere.

Two potential sources of stress for LGB persons, which Meyer (2003) refers to as examples of proximal stress processes, are internalized homophobia and formation of a gay identity. Internalized homophobia is described as the internalized negative attitudes toward homosexuality that LGB individuals sometimes initially adopt as a consequence of growing up in a heterosexist and antigay society (Mayfield, 2001). In a comprehensive review of the conceptual and empirical literature about internalized homophobia, Shildo (1994) agreed with other researchers (e.g., Herek, 1984) that the term "internalized homophobia" is an unsatisfactory term because of its connotation of a neurotic or exaggerated fear of homosexuality. He proposed the term *internalized homonegativity* as a more neutral term that includes the variety of negative attitudes toward homosexuality.

Meyer's theory is consistent with Hull's (1981) self-awareness model of drinking in which he argued that some people consume alcohol because intoxication reduces their level of self-awareness and in turn reduces negative self-criticism. Hull proposed that alcohol depresses parts of the brain responsible for processing self-relevant information and drinking provides a source of psychological relief from negative self-evaluation. Hull's theory also stated that, in order to predict drinking patterns, self-awareness must be coupled with a perceived inability to overcome personal shortcomings (e.g., due to situational constraints). The lack of acceptance in the social environment is a situational constraint that gay and bisexual men may perceive they are unable to overcome. Therefore, they may drink to avoid the self-awareness that their sexual orientation is not accepted by society – that is, they experience internalized homonegativity.

Numerous researchers have proposed internalized homonegativity as a reason for the heightened incidence of alcohol and drug problems in LGB individuals (Anderson & Henderson, 1985; Cabaj, 1989; Coleman, Rosser, & Strapko, 1992; Deevy & Wall, 1993; Finnegan & McNally, 1987; Glaus, 1988; Kowszun & Malley, 1996; Kus, 1988), and the original theorizers about internalized homonegativity (e.g., Malyon, 1981; Nungesser, 1983) proposed that it has a negative impact on the substance use patterns of LGB individuals. Recent empirical studies, however, have not supported a strong or consistent association between internalized homonegativity and drinking (Amadio & Chung, 2004; Ross et al., 2001). Studying a sample of LGB individuals who attended a gay pride festival in Atlanta, GA, Amadio and Chung (2004) found significant negative correlations between internalized homonegativity and lifetime use of alcohol, marijuana, and cigarettes, and monthly use of marijuana, by lesbian and bisexual women. In other words, as internalized homonegativity decreased, lifetime use of alcohol and cigarettes, along with lifetime and monthly use of marijuana, increased. These findings are in the

opposite direction from what they expected. They also found no significant correlations between internalized homonegativity and substance use or substance-related problems for gay and bisexual males.

In a study of 422 Midwestern Men-who-have-Sex-with-Men, Ross and colleagues (2001) also did not find any consistent relationship between internalized homonegativity and use of alcohol and other drugs. One exception was the finding that users of "hard" drugs (i.e. cocaine, crack, crank, amphetamines, heroin, and barbiturates) scored significantly higher on a scale measuring Lack of Social Comfort with Gay Men (Ross & Rosser, 1996).

That some researchers have found an association between internalized homonegativity and substance abuse, and others have not, may be a function of insensitivity of the measures used to assess internalized homonegativity and substance use, sampling bias, a non-linear relationship between internalized homonegativity and substance use, or an unstable and changing relationship between internalized homonegativity and substance use. Given the inconsistent findings and the methodological limitations of previous research, additional investigation may elucidate the relationship between internalized homonegativity and substance use and its related problems.

The second source of stress that may be linked to substance use is the formation of a gay identity (Cabaj, 1996; Cass, 1979, 1984). Gay identity formation is frequently termed the "coming-out" process and is defined as the process of changing from a pre-homosexual to a homosexual identity (Cass, 1979, 1984). Cass's Homosexual Identity Formation Model (HIF) also addressed the psychosocial correlates of "coming out." Cass (1979) proposed that the change from pre-homosexual to homosexual identity occurs in response to the dissonance that occurs when: 1) individuals assign a homosexual label to themselves, 2) the individual's perceptions or beliefs about their identity and behavior are not congruent, and 3) the individual's

beliefs about what people think about them do not match their beliefs about themselves. Cass (1979) proposed and empirically investigated (Cass, 1984) a six-stage developmental model of HIF: Identity Confusion, Identity Comparison, Identity Tolerance, Identity Acceptance, Identity Pride, and Identity Synthesis. Movement from one stage to another is propelled by the individual's desire to obtain congruency between his/her own perceptions about self-identity, sexual behavior, and beliefs others have about him/her.

In their attempt to create a measure of HIF, Brady and Busse (1994) suggested that HIF may be simplified to a two-stage process rather than the six-stage process that was originally proposed by Cass. Stage I encompasses the first three stages of Cass' original model: Identity Confusion, Identity Comparison, and Identity Tolerance. Stage II encompasses the latter three stages of Cass' original model: Identity Tolerance, Identity Pride, and Identity Synthesis. Brady and Busse (1994) noted that the key difference between Stage I and Stage II is the individual's ability to resolve a coherent self-identity as a LGB individual.

In the original model of HIF, Cass (1979) proposed that the most psychologically healthy gay people would be those fully integrated into both the homosexual and heterosexual communities. This implies that, as LGB individuals integrate into both homosexual and heterosexual communities, they will become better psychologically adjusted and exhibit lower incidence of psychological disorders, including substance use and its associated problems.

In an investigation that used the HIF model to measure gay identity formation and its relationship to substance use, Ghindia and Kola (1996) studied a community sample of 341 Midwestern gay men, and found no relationship between HIF stage and frequency of substance use or problems associated with substance use. Other empirical studies of the relationship between substance use and aspects of the "coming-out" process, specifically disclosure of one's

sexual minority status, have yielded inconsistent results. Disclosure of one's sexual minority status was correlated with some forms of substance use, but not others (McKirnan & Peterson, 1989b; Stall et al., 2001). Disclosure was unrelated to substance use in LGB youth (Rosario, Rotheram-Borus, & Reid, 1996).

There are several methodological limitations of these studies. For example, Stall and colleagues (2001) investigated only males who lived in one of four urban metropolitan cities in the United States, and Rosario and colleagues (1996) recruited only self-identified gay and bisexual African-American and Hispanic adolescent males. Sampling bias may limit the generalizability of the results of these studies. Secondly, each study used different measures to assess HIF. McKirnan and Peterson (1989b), Rosario and colleagues (1996), and Stall and colleagues (2001) each used newly developed and unvalidated measures to investigate disclosure of one's sexual minority status. These measures may not have captured the full range of variability in the disclosure of sexual identity and therefore attenuated the relationship with substance use. Once again, further research may reveal the relationship between gay identity formation, as explained by Cass's model of HIF, and substance use and its consequences.

One possible way to overcome the limitations of previous sampling techniques is to gather data via the World Wide Web (WWW). Research has shown that sampling on the WWW could potentially overcome both the small sample sizes and lack of variability of previous investigations (Currie, Cunningham, & Findlay, 2004). Other advantages of using the WWW to gather survey data include reaching hidden or inaccessible populations (Duncan, White, & Nicholson, 2003), and recruiting more motivated respondents (Gosling, Vazire, Srivastava, & John, 2004). The web also reduces the response time, lowers cost of paper and postage, increases the accuracy of data entry, and allows more flexibility of survey format (Granello & Wheaton,

2004). Given these potential advantages, I recruited and assessed a sample of gay and bisexual men using the WWW.

To date, there have been few studies of the relationship between substance use and either internalized homonegativity or gay identity formation. The existing literature indicates that sexual minority status increases the likelihood of both substance use and use-related problems, but other studies find no relationship between internalized homonegativity (Amadio & Chung, 2004; Ross et al., 2001) and gay identity formation (Ghindia & Kola, 1996) and substance use. Although Meyer's theory (2003) asserts that stressors experienced by stigmatized populations are implicated in health and psychosocial problems such as substance use, the evidence is equivocal—perhaps in large part due to insensitive measures and limited variability within the sample. Therefore, I used empirically-validated measures and recruited a sample from the WWW to study the effects of internalized homonegativity and gay identity formation on the quantity and frequency of alcohol use and alcohol-related problems.

In this study, I assessed only alcohol use (and its related problems) because it is the most prevalent substance of abuse among LGB (and heterosexual) individuals. McKirnan and Peterson (1989a) found that 86% of the LGB sample had used alcohol in the past year, as compared to 18% and 22% of the LGB sample having used marijuana and cocaine, respectively, in the past year. Other studies have shown similar trends of alcohol and other drug use by LGB individuals (Skinner, 1994; Skinner & Otis, 1992, 1996). In a review of the literature on substance use in LGB populations, Hughes & Elaison (2002) noted that drinking declined in the entire LGB population since the 1970's, but young lesbians and gay males were engaging in more heavy drinking than in the past. The results of the aforementioned empirical investigations, coupled with the availability of alcohol and its associated health risks (e.g., heart disease,

cirrhosis of the liver, malnutrition), indicate that alcohol presents a larger risk of both health-related problems and addiction to LGB individuals than do other psychoactive substances.

METHODS

Sample One Participants

I advertised this study via Internet links posted on various gay-related sites (e.g. newsgroups, e-lists, message boards, chat rooms, list-procs, e-mailing lists). I invited potential participants to read an overview of the study and its purpose, my qualifications, and my contact details, including my e-mail address and the e-mail address of Bowling Green State University's Human Subjects Review Board. If they chose to proceed, they were informed of steps taken to preserve their confidentiality and anonymity. Both the informed consent and surveys were presented online.

To be eligible for this study, individuals must have reported being: 1) 18 years or older, 2) a biological male (the measures of internalized homophobia and gay identity formation were normed and validated on males; Brady & Busse, 1994; Currie et al., 2004; Mayfield, 2001), and 3) a current resident of the United States (previous research suggests that the interpretation of instruments may not be equivalent cross-culturally; Byrne, Baron, & Balev, 1998).

From November 2005 to February 2006, 569 males responded to the first phase of my study. First, I scanned the data for duplicates by comparing IP addresses of the participants. In cases with the same IP address, I compared the responses of the entire data set. Upon comparison of the entire line of data, if the line was a duplicate, I kept only the first line of data, and I deleted the rest of the duplicated lines. This resulted in the removal of 18 cases. Next, I examined the data for incomplete entries. I removed from the data set responses of the 22 participants who left more than ten percent of the questions blank on two or more surveys. The remaining 529 participants were included in the analyses.

Their mean age was 35.7 (*sd = 10.8*) and ranged from 18 to 68. Participants' ascribed ethnicities were 81% Caucasian, 3% Native American, 1% Native Hawaiian, 3% African-American, 5% Hispanic or Latin American, 3% Asian, 1% Pacific Islander, and 3% "mixed" or "other" ethnicity. In terms of education, 6% of participants reported completing high-school, 32% reported some college, 25% reported a four-year degree, 11% reported some graduate school, and 24% reported a graduate degree. The median annual income category that participants reported earning was between $45,000 and $59,999. Regarding the type of neighborhood in which they lived, 49% of participants reported living in urban areas, 39% in suburban areas, and 11% reported living in rural areas. Regarding marital status, 80% of participants reported being single or never married, 9% were divorced, and 9% were currently married. Sixty-six percent reported that they currently were not in a relationship; 23% reported that they were in a monogamous relationship; and 11% reported that they are in an open-relationship. Regarding participants' self-ascribed sexual orientation, 98% self-identified as either gay or bisexual, 1% self-identified as heterosexual, and 1% reported "don't know" or "not-sure." On the question asking how participants found out about my study, 95% reported that they were referred by one of three websites (Gay.com, PlanetOut.com, Gaywired.com) and the remaining 5% of participants were referred from email lists, their College LGBTQ Association, "Other Webzine," or "Other."

Sample Two Participants

Subsequent to collecting data from Sample One, I discovered that the responses to the questions regarding the quantity and frequency of alcohol use were not recorded in the database. Therefore, from February 2006 to March 2006, I recruited an additional 358 males using the same procedure employed for Sample One. Employing the same data grooming techniques in

this phase, I removed 7 cases due to duplicate entries and 14 due to incomplete entries. The remaining 337 participants were included in the analyses.

Their mean age was 35.1 (*sd = 10.6*) and ranged from 18 to 67. Participants' ascribed ethnicities were 84% Caucasian, 3% Native American, 1% Native Hawaiian, 2% African-American, 4% Hispanic or Latin American, 2% Asian, 1% Pacific Islander, and 3% "mixed" or "other" ethnicity. In terms of education, 8% of participants reported completing high-school, 33% reported some college, 27% reported a four-year degree, 9% reported some graduate school, and 21% reported a graduate degree. The median annual income category that participants reported earning was between $45,000 and $59,999. Regarding the type of neighborhood in which they live, 49% of participants reported living in urban areas, 39% in suburban areas, and 11% reported living in rural areas. Regarding marital status, 80% of participants reported being single or never married, 9% divorced, and 9% currently married. Sixty-eight percent reported that they currently were not in a relationship, 20% reported that they were in a monogamous relationship, and 11% reported that they were in an open-relationship. Regarding participants' self-ascribed sexual orientation, 97% self-identified as either gay or bisexual, 1% self-identified as heterosexual, and 2% reported "don't know" or "not-sure." On the question asking how participants found out about my study, 93% reported that they were referred by one of the same three websites (Gay.com, PlanetOut.com, Gaywired.com) and the remaining 7% of participants were referred from email lists, their College LGBTQ Association, "Message Boards," or "Other."

Measures

Internalized Homonegativity Inventory for Gay Men (INHI). The IHNI was created by Mayfield (2001) based on the Nungesser Homosexuality Attitudes Inventory (NHAI; Nungesser,

1983). Mayfield (2001) identified one higher order factor, internalized homonegativity, and three subscales: Personal Homonegativity (PH), Gay Affirmation (GA), and Morality of Homosexuality (MH). The IHNI is a 23-item self-report scale to which subjects responded using a 6-point scale (1 = *strongly disagree*, 6 = *strongly agree*). To obtain the total score for the entire scale and the individual subscales, I summed the score from each item and divided it by the total number of items in the scale. The range of possible scores is 1 to 6, with higher scores indicating higher internalized homonegativity.

Mayfield (2001) reported the internal consistency reliability (Cronbach's coefficient alpha) for the entire 23-item inventory was .91, and the coefficient alpha for the three subscales PH, GA, and MH were .89, .82, and .70 respectively. Mayfield also reported convergent validity with a significant correlation, $r = .85$, between scores on the IHNI and the NHAI. The three subscales were also significantly positively correlated with the NHAI: PH ($r = .82$), GA ($r = .66$), and MH ($r = .53$). Evidence for discriminant validity was provided by small (though statistically significant) relationships of IHNI scores with Extroversion (surgency) and Emotional Stability (neuroticism) scores. Additional evidence for discriminant validity was demonstrated by the lack of a statistically significant correlation between the scores on the IHNI and the Marlow-Crowne social desirability scale (MCSDS; Crowne & Marlowe, 1960). Construct validity was supported because IHNI scores were significantly negatively correlated with GIQ stage, indicating that gay men's internalized homonegativity decreased as their gay identity stage increased. Also, each of the three subscales of the IHNI was negatively correlated with GIQ stage.

Shortened Internalized Homonegativity Scale (SIHS). The SIHS was created by Currie and colleagues (2004) based on the three factor structure of Ross and Rosser's (1996) Reactions

to Homosexuality Scale (RHS). SHIS is a 12-item self-report instrument to which subjects responded using a 7-point scale (1 = *strongly disagree*, 7 = *strongly agree*). I summed the score for each item across the entire measure and divided it by the valid number of items to obtain the total score for the scale and each individual subscale. The range of total possible scores is 1 to 7, with higher scores indicating higher internalized homonegativity. Currie and colleagues (2004) identified a single higher-order structure, internalized homonegativity, and three lower-order factors: Public Identification as Gay, Sexual Comfort With Gay Men, and Social Comfort With Gay Men. They reported the internal consistency reliability (Cronbach's coefficient alpha) of the 12-item measure of internalized homonegativity as .78, of the Public Identification as Gay subscale as .73, of the Sexual Comfort With Gay Men as .71, and of the Social Comfort With Gay Men as .68. Test-retest reliability, convergent validity, and discriminant validity have not been reported for this measure at this time.

Gay Identity Questionnaire (GIQ). The GIQ was developed by Brady and Busse (1994) based on Cass's model of Homosexual Identity Formation (1979) and Homosexual Identity Questionnaire (1984), which originally contained 210 items. Cass (1984) created the HIQ by administering the measure to and interviewing 178 lesbians and gay males. Cass assigned subjects to one of the six stages of homosexual identity formation based on their responses to the survey and the interview. She determined that different questions on the survey are indicators of different stages of homosexuality identity formation based on the subjects' responses. Brady and Busse (1994) used the resulting measure to create a shorter version that is easier to administer and score.

The GIQ is a 45-item self-report scale that assesses the level of homosexual identity formation according to Cass's (1979) six-stage model. There are seven questions that represent

each of the six stages and three validity questions to assess whether the participant has homosexual thoughts, feelings, or behaviors. Subjects respond using a true-false format. True responses indicate the presence of characteristics typical of people in that particular stage of homosexual identity formation. The subscale score that has the most endorsed responses determines a subject's stage of development. Using the Kuder-Richardson reliability formula, Brady and Busse (1994) found that the internal consistency of the six GIQ subscales ranged from .44 to .78. Consistent with Cass's (1979) proposition that gay men's psychological adjustment will increase as they progress in their identity development, GIQ development stage was correlated with measures of psychological well-being (Brady & Busse, 1994).

Drinker Inventory of Consequences (DrInC). To measure lifetime and recent problems associated with alcohol use, I used the Drinker Inventory of Consequences (DrInC). This is a 50-item self-report instrument which has five subscales: Interpersonal, Physical, Social, Impulsive, and Intrapersonal. Subjects were given a list of adverse consequences and asked to answer in a yes or no format to the question "Has this EVER happened to you?" Subjects who endorsed an item were then asked to answer the question "During the past three months, about how often has this happened to you?" To this second question, subjects responded in a 4-choice format (*0 = never, 1 = once or a few times, 2 = once or twice a week, 3 = daily or almost everyday*). This scale was created by Miller, Tonigan, & Longabaugh (1995), who reported an internal consistency coefficient (Cronbach's alpha) for the entire scale of .94 with the subscales ranging from .70 to .86. The DrInC-2L was correlated positively, but not highly, with the Alcohol Use Inventory, the Addiction Severity Index, Alcohol Use Disorders Identification Test, Psychological Functioning Inventory, and the total number of standard drinks that subjects reported consuming in the past 90 days.

Alcohol Expectancy Questionnaire- 3rd Revision (AEQ-3). Alcohol outcome expectancies were measured using the 40-item AEQ-3. Subjects responded using a 6-point scale (*agree strongly, agree moderately, agree slightly, disagree slightly, disagree moderately, disagree strongly*). Scores were calculated by summing across the entire scale and dividing by the total number of questions. The total scores ranged from 1 to 6, with higher scores indicating less agreement with stated alcohol-related outcome expectancies. The scale consists of six positive expectancy subscales (global positive; social and physical pleasure; social expressiveness; sexual enhancement; power and aggression; tension reduction and relaxation) and two negative expectancy subscales (cognitive and physical impairment; careless unconcern). George, Frone, Cooper, Russell, Skinner, and Windle (1995) confirmed the factor structure of this scale in a community sample. They found that the internal consistency reliability (Chronbach's alpha coefficient) of the subscales ranged from .83 to .93, but also that the subscales were substantially inter-correlated (mean r = .78). The average correlation among the positive expectancy subscales was .81, and the average correlation among the negative subscales was .92 (George et al., 1995).

Quantity and Frequency of Alcohol Use. The quantity and frequency of alcohol use was measured by asking participants to report the typical number of standard drinks (12 ounces of beer, 4 ounces of table wine, or 1.5 ounces of distilled spirits) consumed per day, the average number of days on which one drank in a typical week, and the number of heavy drinking episodes (operationalized as 5 or more standard drinks during one occasion) during the past 30 days. The results of the first two questions was used to calculate total volume of alcohol consumed per month and the third question yielded the number of binge drinking episodes in the past month. Both measures are commonly used methods to assess an individual's quantity and frequency of alcohol use.

Hypotheses

Though the current literature reports a mixed pattern of results, I hypothesized that there would be a positive relationship between internalized homonegativity and both the quantity and frequency of alcohol use and alcohol-related consequences. I also predicted that gay or bisexual males in the latter stages of gay identity development would use alcohol in lower amounts, less frequently, and have fewer alcohol-related problems. Because previous research has indicated that income, household location (urban, suburban, or rural), and relationship status (single or in a relationship) were positively associated with alcohol use (Skinner, 1994), I used linear multiple regression analysis to assess whether these demographic variables accounted for meaningful variance in the relationship between alcohol use and internalized homonegativity and gay identity formation. Although age and drinking are correlated in heterosexual populations, three investigations have found no relationship between age and alcohol use in the LGB community (Bergmark, 1999; McKirnan & Peterson, 1989a; Skinner & Otis, 1992). Therefore, I did not control for age in this study.

There is little previous research investigating the motivations and contexts in which LGB individuals use alcohol. Therefore, along with my key hypotheses outlined above, I also explored the relationship between alcohol outcome expectancies and the quantity and frequency of alcohol use, alcohol-related problems, internalized homonegativity, and gay identity formation in gay and bisexual males.

RESULTS

Sexuality-Related Measures

First, I examined the frequency of sexual identity stages and level of internalized homonegativity based on responses to the Gay Identity Questionnaire and the two measures of Internalized Homonegativity. As Table 1 displays, the majority of Sample One, 57%, fell into Stage Six, Identity Synthesis. Stage Four, Identity Acceptance, comprised another quarter (24%) of the participants. The remaining nine percent of the sample were classified in Stages One, Two, Three, or Five (Identity Confusion, Comparison, Tolerance, and Pride). The frequency of classifications of the GIQ stages was very similar in Sample Two. The largest proportion of participants were classified in Stage Six (62%) and Stage Four (24%). The remaining 14% were classified into Stages One, Two, Three, or Five. In both samples, large majorities of participants answered in a pattern indicating that they had developed a gay identity and were comfortable with and accepting of their homosexual sexual identity. A small minority indicated poor development of and discomfort with their gay identity. Limited amounts of variability in GIQ stage left little variance to be predicted by other variables in the regression models.

Next, I calculated participants' level of internalized homonegativity. Table 2 displays the means and standard deviations for the IHNI and the SIHS. Respondents in both Sample One and Sample Two reported relatively low levels of internalized homonegativity. On the IHNI, participants reported the highest levels of internalized homonegativity on the second subscale, Gay Affirmation, which measured the extent to which gay men feel that their homosexuality is an important and positive part of them and that being homosexual is normal and fulfilling. Participants had the lowest levels on the third subscale, Morality of Homosexuality, which measured negative attitudes regarding the moral implications of same-sex behavior and

attraction. Lower scores on this subscale indicate less negative attitudes. On average, participants in both samples report that being gay is normal and that same-sex sexual behavior and attraction is moral.

Participants' in both Samples One and Two scored similarly on the SIHS. They reported low levels of internalized homonegativity in general, but reported the relatively highest levels on the subscale Sexual Comfort with Gay Men. This subscale measures the extent to which participants' are comfortable in sexual situations or engaging in sexual behaviors with gay men. Higher scores indicate lower levels of comfort in these types of situations. The lowest levels were reported on the subscale Public Identification as Gay. This subscale measures the extent to which participants' are comfortable with others knowing they are gay. Higher scores on this subscale indicate less comfort with others knowing they are gay. On average, the sample was relatively less comfortable in sexual situations with gay men and relatively more comfortable with publicly identifying as gay.

To examine the relationship between the two predictor variables, gay identity formation and internalized homonegativity, I calculated bivariate correlations between the GIQ final stage, IHNI, and SIHS, for each sample separately. As an examination of Table 3 reveals, the negative correlations between the final stage of the GIQ and both measures of internalized homonegativity indicates that the more participants had integrated their sexuality into their lifestyle, the fewer negative ideas they had internalized about homosexuality. Membership in the final stage of the GIQ correlated moderately with the total score of both the IHNI and the SIHS.

To assess the degree to which the measures of internalized homonegativity measured similar constructs, I calculated the bivariate correlation between each of the subscales and the total scale score. The correlations between these two measures of internalized homonegativity

were similar to correlations reported by prior studies. In Sample One, the inter-scale correlations of the IHNI subscales ranged from 0.61 to 0.71 and their correlation with the scale score ranged from 0.79 to 0.94. The pattern of correlations in the second sample was similar to that of the first sample, but the correlations in Sample Two were slightly lower. The inter-scale correlation between the subscales of the SIHS were moderately weak in both samples, ranging from 0.27 to 0.45. In contrast, the correlation between the subscales and the full-scale score were moderately strong, ranging from 0.72 to 0.79. The correlation between the subscale scores and the total score for both the IHNI and the SIHS were moderately strong, indicating that though each subscale measured a construct similar to the full scale, it was not exactly the same. Therefore, to investigate what type of internalized homonegativity best predicted the quantity and frequency of alcohol use, alcohol-related consequences, and alcohol-related outcome expectancies, I used the individual subscales of the IHNI and SIHS as predictors of drinking-related outcomes in the regression models.

To examine further how the two different measures of internalized homophobia were related, I calculated bivariate correlations between each of the subscales and the total score for both the IHNI and the SIHS. When I calculated the correlation between the IHNI and the SIHS, within each sample, there were positive correlations between the measures, ranging from 0.48 to 0.78. The second subscale of the SIHS correlated the weakest with the IHNI, yet it still correlated meaningfully. The full-scale scores of both measures are correlated 0.74 and above. The similar content of the scales is reflected by the strong correlations, but I interpret the pattern of coefficients and item content as indicating differences in what the subscales are measuring. I used both the IHNI and the SIHS as predictors of drinking-related outcome variables in the regression models.

Alcohol Related Measures

Before assessing the relationship of drinking with sexual identity, I first examined the quantity and frequency of alcohol use. I recorded these data only from participants in the second sample. As Table 4 reveals, the average participant drank on fewer than two days per week, had fewer than four drinks per occasion, and reported not having consumed more than five drinks in a row on a single day in the last 30 days. In terms of aggregate volume (number of drinks consumed multiplied by the number of days per week that participants reported drinking), 54% of participants reported consuming fewer than three drinks per week.

I also examined the drinking-related consequences participants had experienced and their alcohol outcome expectancies. Table 5, 6, and 7 present the means and standard deviations of Drinking Related Consequences-Lifetime (DrInC-2L), Drinking Related Consequences-Recent (DrInC-2R), and the Alcohol Expectancies Questionnaire, third revision (AEQ-3) scale scores and subscale scores. I measured lifetime consequences of drinking with the DrInC-2L. As Table 5 reveals, the average participant in both Sample One and Two reported having experienced between eight and nine different drinking-related consequences in his lifetime. Participants endorsed consequences from the subscale Impulse Control Consequences the most often, and they endorsed items on the Social Consequences subscale the least often.

With regard to recent drinking related consequences, the average participant in both samples reported having experienced a little more than five recent drinking-related consequences within the past three months (see Table 6). Participants endorsed items on the Impulse Control Consequences subscale the most, and items on the Social Consequences subscale the least.

On the self-report measure of alcohol-related outcome expectancies (AEQ-3), participants in both samples endorsed a moderate amount of alcohol-related outcome

expectancies. The average participant held the strongest beliefs about global positive alcohol outcome expectancies and the least strong beliefs about social and physical pleasure resulting from alcohol use (see Table 7).

I calculated the inter-scale correlations for each of the three drinking-related measures to evaluate whether I could reduce the number of predictors. As Tables 8 and 9 reveal, the correlations among the five subscales assessing lifetime drinking related consequences were significant ($p < .001$), positive and moderately strong, and the relationship between the subscales and the full-scale scores were also strong, in both samples. I also observed a similar pattern of inter-scale correlations for recent drinking-related consequences as I did in lifetime drinking-related consequences (see Table 10 and Table 11). Due to the strength of the relationship between the subscales and the full-scale score of all the scales, I used only the full-scale score in the regression models as an outcome variable for lifetime and recent drinking-related consequences.

To examine how well the AEQ-3 subscales correlated with the full-scale score in both samples, I calculated bivariate correlation coefficients among all eight subscales and the full-scale score. As Table 12 and Table 13 reveal, in both samples, all of the correlations were significant ($p < .001$) and positive, but the coefficients were generally weak to moderate. The correlations between the full-scale score and the subscale scores for the AEQ-3 were higher than 0.78 across both samples. Therefore, I used only the full-scale score in the regression models as an outcome variable for alcohol-related expectancies.

To examine the relationship between lifetime drinking-related consequences and recent drinking-related consequences, I calculated the bivariate correlations of each subscale and full-scale score for the DrInC-2L and DrInC-2R. As Table 14 and Table 15 reveal, the correlations

between the DrInC-2L and the DrInC-2R were moderate and positive in both samples. Not surprisingly, participants who reported more lifetime drinking-related consequences also reported more drinking-related consequences in the past three months. This makes sense intuitively because they are measuring the same drinking-related consequences with different time spans.

To investigate the relationship between lifetime drinking-related consequences (DrInC-2L) and alcohol-related outcome expectancies (AEQ-3), I calculated bivariate correlations among subscales and the full-scale scores of the each questionnaire. As examination of the results in Table 16 and Table 17 reveal, all correlations were positive and significant, $p < .001$, but only moderate to weak. More specifically, in Sample One, the subscale of the AEQ-3 measuring global positive alcohol expectancies, had the strongest relationship with the subscales and full-scale score of the DrInC-2L. The correlations ranged from 0.34 to 0.47. This indicates that participants who have generally positive alcohol outcome expectancies also reported more lifetime drinking-related consequences. In Sample Two, the subscale of the AEQ-3 that measures Cognitive and Physical Impairment had the weakest relationship with the subscales and full-scale score of the DrInC-2L. The correlations ranged from 0.15 to 0.24. This indicates that participants who expected alcohol to cause them cognitive and physical impairment also reported a little more lifetime drinking-related consequences, but the associations were relatively weak. I observed a similar pattern of relationships in Sample Two (see Table 16 and Table 17).

To examine the relationship between recent drinking-related consequences and alcohol-related outcome expectancies, I calculated bivariate correlations between each of the subscales and the full-scale score of the DrInC-2R and the AEQ-3. Examination of Table 16 and Table 17 reveals that all but two correlations were statistically significant, $p < .001$. The correlations were

statistically significant, positive, and ranged in strength from weak to moderate. In both samples, the AEQ-3 subscale measuring cognitive and physical impairment had the weakest relationship with recent drinking-related consequences, and the subscale measuring global positive alcohol outcome expectancies had the strongest relationship with recent drinking-related consequences. This indicates that participants who believed that drinking alcohol impairs them cognitively or physically reported the least drinking-related consequences in the past 3 months. Those who believed that drinking alcohol had a positive effect on them reported more drinking-related consequences in the past three months.

In Sample Two, I collected data about the quantity and frequency of participants' alcohol use. To examine the relationships between the quantity and frequency of participants' alcohol use and drinking-related consequences and alcohol-related outcome expectancies, I calculated bivariate correlations among the score on these measures. An examination of Tables 9, 11, and 13 reveal that all but four correlations were significant ($p < .001$), positive, and moderate to weak in strength. The amount of alcohol participants reported that they consumed in a typical week has the strongest relationship with recent drinking-related social consequences, $r(336) = 0.50$, $p < .001$. The more alcohol participants reported drinking in a typical week, the more drinking-related social consequences they reported experiencing in the past three months. The number of binge drinking episodes that a participant reported engaging in during the last 30 days had the strongest relationship with recent alcohol-related physical consequences, $r(336) = 0.46$, $p < .001$. The more binge drinking episodes that a participant reported engaging in during the last 30 days, the more alcohol-related physical consequences they reported in the last 3-months.

Hypothesis One

To test my hypothesis that internalized homonegativity would predict both the quantity and frequency of alcohol use and alcohol-related consequences, I conducted multiple regression analyses including all three subscales of the IHNI and all three subscales of the SIHS as predictor variables of the total recent and total lifetime consequences scores (DRINC-2L and DRINC-2R). If the full model was significant, I reran the regression model with just the subscales whose beta-coefficients were significant in the full model. This allowed me to test if the change in explained variance was significant and to select the model that best fit my data.

Sample One. Internalized homonegativity was a significant predictor of lifetime drinking consequences in both the full and reduced regression models (see Table 18). The results of the reduced model indicate that subscale 1 of the IHNI that measured participants' personal homonegativity and subscale 1 of the SIHS that measured participants' level of comfort with publicly identifying as gay were both significant predictors of lifetime alcohol-related consequences, but the unstandardized beta-coefficient for personal homonegativity (IHNI subscale 1) was positive, while public identification as gay (SIHS subscale 1) was negative. This indicates that as participants reported more personal internalized homonegativity, they also reported more lifetime drinking-related consequences. In addition, as participants reported less internalized homonegativity about publicly identifying as gay, they reported more lifetime drinking-related consequences.

The full and reduced regression models were also significant predictors of recent drinking consequences (see Table 19). Because the full model was a significant predictor of recent drinking-related consequences, I reran the regression model with only the subscales whose beta-coefficients were significant in the full model. The reduced model included the subscale of the

IHNI that measured personal homonegativity (subscale 1) and the subscale of the SIHS that measured sexual comfort with gay men (subscale 2). This indicates that as participants reported more personal internalized homonegativity, they also reported more drinking-related consequences in the past three months. Although the beta-coefficient for the subscale of the SIHS, Sexual Comfort with Gay Men, was significant in the full model, it was not significant in the reduced model.

Sample Two. Conducting these analyses using the second sample also revealed that several aspects of internalized homonegativity were significant predictors of lifetime drinking-related consequences (see Table 20). Since the full model was a significant predictor of lifetime drinking-related consequences, I reran the regression model with only the subscales whose beta-coefficients were significant in the full model. The reduced model was different in Sample One than it was in Sample Two. SIHS Subscale 1 predicted drinking consequences in the reduced model, in both samples, but the first sample included IHNI Subscale 1, while the second sample included IHNI Subscale 2. Similar to Sample One, the beta-coefficient for SIHS Subscale 1, Public Identification as Gay, was negative, while the beta-coefficient for the IHNI Subscale 2, Gay Affirmation, was positive. This indicates that while both were significant predictors of lifetime drinking-related consequences, their relationship with these consequences is in different directions.

The full and reduced regression models were significant predictors of recent drinking-related consequences (see Table 21). Because the full model was a significant predictor of recent drinking-related consequences, I reran the regression model with only the subscales whose beta-coefficients were significant in the full model. The reduced model was different in Sample One than it was in Sample Two. Subscale 1 of the IHNI, Personal Homonegativity, predicted recent

drinking consequences in the reduced model in both samples, but the second sample included subscale 1 of the SIHS, Public Identification as Gay, while the first sample did not include any subscales from the SIHS in the final reduced model. This indicates that as a participant reported more personal internalized homonegativity, they also reported more drinking-related consequences in the past three months. In contrast, as a participant reported more internalized homonegativity about publicly identifying as gay, they reported experiencing less drinking-related consequences in the past three months.

The next regression model I tested for Sample Two included the reported quantity of alcohol consumed by participants in a typical week regressed on all of the subscales for each the IHNI and the SIHS. Both the full and reduced models were significant predictors of the amount of alcohol consumed in a typical week (see Table 22). The reduced model included Subscale 2 and 3 of the SIHS, Sexual Comfort with Gay Men and Social Comfort with Gay Men. The beta-coefficients indicate that participants who were less comfortable in sexual situations with gay men reported consuming more alcohol in a typical week. In contrast, participants who were more comfortable in social situations with gay men also reported consuming more alcohol in a typical week. Although both these variables were significant predictors of the quantity of alcohol consumed in a typical week, these two subscales of the SIHS explained only 3.9% of the variance in alcohol consumption.

The last regression model I tested for Sample Two included the reported number of binge drinking episodes in the past 30 days regressed on all of the subscales for each the IHNI and the SIHS. The full and reduced models were significant predictors of the number of binge drinking episodes in the past 30 days (see Table 23). Only the beta-coefficient, $\beta = -0.174$, for Subscale 1 of the SIHS was significant, indicating that participants who were less comfortable with publicly

identifying as gay reported fewer numbers of binge drinking episodes. The reduced model explained only 4.3% of the variance in the reported number of binge drinking episodes in the past 30 days.

Hypothesis Two

My second hypothesis was that gay or bisexual males in the latter stages of gay identity development would drink less alcohol, drink less frequently, and experience fewer alcohol-related problems.

Sample One. To examine the relationship between participants' measured stage of gay identity development (GIQ final stage) and both lifetime and recent drinking-related consequences, I conducted a one-way analysis of variance with DrInC-2L full-scale score as the dependent variable and GIQ final stage as the independent variable. The test statistic was not significant, $F(5,466) = 0.800$, $p = 0.550$. Next, I conducted a one-way analysis of variance with DrInC-2R full-scale score as the dependent variable and GIQ final stage as the independent variable. The model was also not significant, $F(5,454) = 0.707$, $p = 0.618$. Taken together, these results indicate that gay identity development stage was not associated with either lifetime or recent alcohol-related consequences.

Sample Two. I was interested in testing the relationship between GIQ final stage and both lifetime and recent drinking-related consequences in Sample Two. To investigate these relationships, I conducted a one-way analysis of variance with DrInC-2L full-scale score as the dependent variable and GIQ final stage as the independent variable. As in Sample One, the model was not significant, $F(5,303) = 0.855$, $p = 0.512$. Finally, I conducted a one-way analysis of variance with DrInC-2R full-scale score as the dependent variable and GIQ final stage as the independent variable. As in Sample One, the model was not significant, $F(5,296) = 0.566$, $p =$

0.726. This indicates that gay identity development stage was not associated with either lifetime or recent alcohol-related consequences.

In Sample Two, I also collected data on participants' amount and frequency of their drinking behavior as well as recent binge drinking episodes, allowing me to investigate the relationship between gay identity and alcohol consumption. To investigate this relationship, I conducted a one-way analysis of variance with quantity of alcohol consumed in a typical week as the dependent variable and GIQ final stage as the independent variable. The model was not significant, $F(5,314) = 1.464$, $p = 0.201$. Next, I conducted a one-way analysis of variance with number of binge drinking episodes as the dependent variable and GIQ final stage as the independent variable. The model also was not significant, $F(5,312) = 1.121$, $p = 0.349$. These results indicate that gay identity development stage was not associated with the quantity of alcohol participants reported consuming in a typical week or the number of binge drinking episodes that a participant reported engaging in during the last 30 days. The results from both samples indicate that there is no relationship between gay identity development and alcohol use, number of binge drinking episodes, recent alcohol-related consequences, and lifetime alcohol-related consequences.

Exploratory Analyses

My third set of analyses were exploratory in nature. I had no explicit hypotheses to test, but wanted to examine the relationship between alcohol outcome expectancies and the quantity and frequency of alcohol use, alcohol-related problems, internalized homonegativity, and gay identity formation in gay and bisexual males.

Sample One. I first examined the relationship between alcohol outcome expectancies and alcohol-related problems by regressing the full-scale score of the AEQ-3 onto the full-scale

scores of the DrInC-2L and DrInC-2R. The model was significant $F(2,494) = 89.367$, $p < .001$. This indicates that participants who reported stronger agreement with alcohol-related outcome expectancies also reported experiencing more lifetime and recent alcohol-related consequences. Lifetime and recent alcohol-related consequences explained 26.6% of the variance in alcohol-related outcome expectancies.

Next, I explored the relationship between alcohol outcome expectancies and internalized homonegativity. To test this hypothesis I used a full model in which the composite scale score of the AEQ-3 was the outcome variable, and the three subscales of the IHNI and the three subscales of the SIHS were the predictor variables. The full model was significant (see Table 25). Since the full model was significant, I reran the regression procedure with only the significant predictors in the reduced model to see if the change in explained variance was significant from the full model from the reduced model. The reduced model, which included subscale 1 of the IHNI, Personal Homonegativity, and subscale 1 and 2 of the SIHS, Public Identification as Gay and Sexual Comfort with Gay Men, significantly predicted alcohol-related outcome expectancies (see Table 25). The change in explained variance from the full model to the reduced model was not significant ($\Delta R^2 = .014$, $\Delta F\ (3,519) = 2.614$, $p = .051$), so I interpreted the reduced model as the best prediction equation. The beta-coefficients for subscale 1 of the IHNI and subscale 2 of the SIHS were both positive and the beta-coefficient for subscale 1 of the SIHS was negative. These results indicate that participants who reported more personal internalized homonegativity and less sexual comfort with gay men also endorsed more agreement with alcohol-related outcome expectancies. In contrast, participants who reported less comfort publicly identifying as gay reported less endorsement of alcohol-related outcome expectancies.

Finally, I explored the relationship between gay identity development stage and alcohol-related outcome expectancies. To explore this relationship, I conducted a one-way analysis of variance with AEQ-3 full-scale score as the dependent variable and GIQ final stage as the independent variable. The model was not significant, $F(5,471) = 1.285$, $p = 0.269$, indicating that gay identity development stage was not associated with alcohol-related outcome expectancies.

Sample Two. In the second sample, to explore the relationship between alcohol outcome expectancies and alcohol-related problems, I regressed the full-scale score of the AEQ-3 onto the full-scale score of both the DrInC-2L and DrInC-2R. The model was significant, $F(2,302) = 45.368$, $p < .001$. This indicates that participants who reported more alcohol-related outcome expectancies also reported experiencing more lifetime and recent alcohol-related consequences. Lifetime and recent alcohol-related consequences explain 23.1% of the variance in alcohol-related outcome expectancies.

To explore the relationship between alcohol outcome expectancies and internalized homonegativity, I regressed the composite scale score of the AEQ-3 on to the three subscales of the IHNI and the three subscales of the SIHS. The reduced model was comprised of subscale 1 and 3 of the IHNI, Personal Homonegativity and Morality of Homosexuality. Both the full and reduced models were each significant (see Table 27). Because the change in explained variance from the full model to the reduced model was not significant ($\Delta R^2 = .024$, $\Delta F\ (4,326) = 2.078$, $p = .083$), I interpreted the reduced model as the best prediction equation. The reduced model was the best prediction equation for both Sample One and Two, but they were comprised of different predictors variables. The beta-coefficient for subscale 1 of the IHNI was positive and was the only predictor that was included in the reduced models of both samples. In Sample One, the beta-coefficient for subscale 2 of the SIHS was positive as well. Also, in Sample One the beta-

coefficient for subscale 1 of the SIHS was significant and negative, while in Sample Two subscale 3 of the IHNI was significant and negative. These results indicate that participants who reported more personal internalized homonegativity also reported more alcohol-related outcome expectancies. In contrast, the more participants reported that they believe homosexuality is immoral the less alcohol-related outcome expectancies they reported.

In the second sample, I also collected data for the quantity and frequency of alcohol use and the number of binge drinking episodes participants reported in the past 30 days. To explore the relationships among these variables, I calculated bivariate correlations. There was a statistically significant but weak positive relationship between the reported amount of alcohol participants consume in a typical week and their alcohol-related outcome expectancies, $r = 0.20$, $p < 0.001$. There was also a statistically significant but weak positive relationship between the number of binge drinking episodes that participants reported in the past 30 days and their alcohol-related outcome expectancies, $r = 0.27$, $p < 0.001$.

Finally, to explore the relationship between gay identity development stage and alcohol-related outcome expectancies, I conducted a one-way analysis of variance with AEQ-3 full-scale score as the dependent variable and GIQ final stage as the independent variable. The model was not significant, $F(5,313) = 2.227$, $p = 0.051$. This indicates that gay identity development stage did not predict alcohol-related outcome expectancies.

DISCUSSION

The goal of this study was to examine the relationship between gay identity formation, internalized homonegativity, alcohol use, alcohol-related consequences, and alcohol-related outcome expectancies. I investigated this relationship in two samples of male participants who were recruited using the Internet to complete web-based surveys. The materials comprised one measure of gay identity formation (GIQ), two measures of internalized homonegativity (IHNI and SIHS), one measure of lifetime drinking-related consequences (DrInC-2L), one measure that assessed recent drinking-related consequences (DrInC-2R), one measure of alcohol-related outcome expectancies (AEQ-3), three questions that assessed the quantity and frequency of alcohol use and the frequency of binge drinking behavior, and a basic demographic questionnaire. I presented the surveys in random order to reduce the possibility of systematic effects due to order or fatigue that participants may have experienced while completing the survey online.

Stage of gay identity development was not associated with alcohol use, alcohol-related consequences, and alcohol-related outcome expectancies. My findings replicated the findings of (Ghindia & Kola, 1996) who also found no relationship between gay identity stage and alcohol use. My results also indicated that, in both samples, there was no relationship between gay identity development and alcohol-related outcome expectancies. There is no prior published research on gay identity development and expectancies of which I am aware and to which I can compare that particular finding.

My study is one of only several investigations that have assessed the relationship between internalized homonegativity and drinking. Although I found a weak relationship between internalized homonegativity and alcohol use, alcohol-related consequences, and alcohol-related

outcome expectancies, the predictor variables each explained less than 10% of the variance in outcome variables. Amadio and Chung (2004) and Ross and colleagues (2001) also studied the relationship between internalized homonegativity and substance use. Neither study found a consistent relationship between internalized homonegativity and substance use in gay and bisexual males, but Amadio and Chung (2004) reported a positive relationship between these variables in lesbian and bisexual females. In a more recent study of lesbians and gay men, Amadio (2006) again found a positive relationship between internalized homonegativity and alcohol use and alcohol-related problems for lesbians, but no such relationship for gay men.

Although it was not one of my original hypotheses, I also examined the relationship between the gay identity stage scores and internalized homonegativity scale scores. Theoretically, as people synthesize their homosexual identity into self-concept, they should have lower levels of internalized homonegativity (Rowen & Malcolm, 2002). This was the case in both samples of my study. Participants who had more fully integrated their homosexual identity into their lifestyle reported lower levels of internalized homonegativity. Another explanation for the strong relationships between the constructs could be that the content of the items in all three scales of sexual identity were similar and therefore correlated highly.

I also explored the relationship between alcohol-related consequences and alcohol-related outcome expectancies. In both samples, recent and lifetime alcohol-related consequences significantly predicted alcohol outcome expectancies. If we assume that undesirable consequences of drinking will reduce the anticipated benefits of consumption, my findings could be interpreted as counterintuitive. From this perspective, drinkers who experience more alcohol-related consequences should have fewer positive alcohol expectancies. One possible reason that I may have found a relationship in the opposite direction could be that people do not attribute the

negative consequences to their drinking behavior or that the benefits of drinking outweigh most negative consequences.

In Sample Two, I also studied the relationship between the quantity and frequency of alcohol use and alcohol-related expectancies. There was a statistically significant relationship between reported amount of alcohol participants consumed in a typical week and the number of binge drinking episodes in the past thirty days and alcohol-related outcome expectancies, but the relationships were weak and the explained variance was small (less than 7%). Therefore, I conclude that there was no meaningful relationship between alcohol-related outcome expectancies and the reported amount of alcohol participants consumed in a typical week and number of binge drinking episodes in the past thirty days.

My results indicate that gay identity development and internalized homonegativity were not strongly associated with how much or how often gay and bisexual males drank or with the number of consequences that arose from their relatively moderate drinking. Meyer's minority stress theory postulated that people who are marginalized, such as gay and bisexual men, are more likely to experience psychopathology including substance abuse. Hull's self-awareness model of alcohol consumption proposed that people drink to reduce self-awareness and negative self-criticism. Based on Meyer's and Hull's theories, drinking and internalized homonegativity should correlate, but my findings revealed no consistent, strong, or meaningful relationship between the two. The most parsimonious explanation is that there is no relationship between the experience of marginalization by gay and bisexual males and their drinking behavior. Another explanation of this could be that gay and bisexual men are drinking for reasons other than to cope with negative self-appraisal or are finding other ways to cope with their gay identity development.

If Meyer's and Hull's theories are correct and there is, in fact, a relationship between gay identity or internalized homonegativity and alcohol consumption, my study may not have reflected it because of self-selection bias in the two samples. I recruited the participants of this study via the world-wide-web. In order to participate in my study, respondents must have had access to a computer, have an email address on one of the listprocs from which I recruited, or have visited one of the websites on which I advertised. Then, as a result of receiving one of my recruitment emails or being exposed to one of my advertisements on websites, participants had to choose to participate in my study. People who were not comfortable answering questions about their sexual identity or about their drinking habits may have been unwilling to complete the survey. This could explain why the sample was comprised mostly of people in the latter stages of gay identity formation that had lower levels of internalized homonegativity. Self-selection bias may also explain why there was very little relationship between the gay identity variables and the alcohol use variables. People who view their alcohol use as a problem may not be comfortable answering questions about their alcohol use patterns, consequences of their alcohol use, or alcohol-related outcome expectancies, therefore, biasing the sample toward less alcohol use and less alcohol related consequences. Future research in this area should include gay and bisexual males whose alcohol use is problematic.

The lack of variability in the predictor variables — gay identity stage and internalized homonegativity — and the outcome variables — alcohol-related consequences, alcohol outcome expectancies, and alcohol consumption — is another reason that this may not have been a fair test of the relationship and may not accurately represent the association between sexual identity formation and drinking. Given the restricted range in all of these variables, it is perhaps not surprising that there was only a small, even if statistically significant, relationship between

internalized homonegativity and drinking. Future research should investigate the relationship between internalized homonegativity and drinking with a larger variability in internalized homonegativity, the quantity and frequency of alcohol use, alcohol-related consequences, and alcohol outcome expectancies. Future researchers can accomplish this by targeting heavy drinkers and people in the earlier stages of gay identity development.

Another reason I may have not found evidence to support my hypotheses based on Meyer's and Hull's theories is that the GIQ may be a poor measure of gay identity development. There are several potential problems with the use of the Gay Identity Questionnaire as a measure of gay identity formation. First, this scale assumed a stage model of sexual identity development and that each stage is mutually exclusive from the others. This implies that people can only be in one stage at a time, but my participants often spanned more than one stage of sexual identity development and therefore, were removed from the analyses. People may fit into more than one stage of identity development at any given time, and sexual identity formation maybe a more fluid phenomenon rather than composed of discrete stages that are rigid. It may make more sense to measure this construct as a continuous variable rather than a categorical one.

Other criticisms of the scale include numerous items seem to be double or triple barreled (e.g, "I live a homosexual lifestyle at home, while at work/school I do not want others to know about my lifestyle," "I'm probably homosexual, even though I maintain a heterosexual image in both my personal and public life," and "I don't mind if homosexuals know that I have homosexual thoughts and feelings, but I don't want others to know"). The multiple parts of each question make it difficult to discern what part of the question was being addressed with the answer. This can lead to measurement inaccuracy of the particular construct. Future research

should develop a measure of gay identity formation that corrects these problems and supports a more accurate assessment of the relationship between gay identity and drinking.

Another possible reason why my study did not find evidence to support the minority stress and self-awareness theories was the manner in which I assessed internalized homonegativity. Although I used two different previously published and presumably sound measures of internalized homonegativity, they each had different subscales that purport to measure the same construct. These individual subscales often predicted the outcome variable in different directions. This could indicate that the scales are not measuring the same construct or that there is a large amount of measurement error in one or both of the measures of internalized homonegativity. Future research would benefit from a single scale that includes the entire domain of internalized homonegativity, including personal homonegativity, gay affirmation, morality of homosexuality, public identification as gay, sexual comfort with gay men, and social comfort with gay men.

Another potential limitation of my study was the demographic make up of my sample. I recruited via the Internet, and the population of people who own computers and have access to the Internet are usually Caucasian, younger, more educated, of higher socio-economic status, employed, and live in urban areas, compared to non-Internet samples (Gosling et al., 2004). In previous studies, samples of gay and bisexual males are also of higher socio-economic status, employed, more educated, and live in more urban areas than other heterosexual or mixed samples**.** Taken together, recruiting a sample of gay and bisexual men from the internet may have resulted in a sample that was more educated and less diverse than I originally anticipated. This may limit the generalizability of my results. Future research should over-sample demographic populations that are less typical of Internet users, or use other recruitment methods,

which will result in a sample more representative of the general population of gay and bisexual males.

My study attempted to address some of the limitations of previous research on internalized homonegativity and drinking including samples that were small and geographically restricted, which can result in insufficient variance and limited generalizability. One of the strengths of my study was that I employed a larger and more geographically diverse sample than many previous studies of gay and bisexual males. Although my sample was self-selected, my participants were recruited from all parts of the country, from communities of various sizes (urban, suburban, and rural), and from a few different Internet sites.

Another strength of my study was the use of multiple measures of gay identity and of drinking-related behaviors and attitudes. For example, I used two measures of internalized homonegativity possibly leading to a more complete measurement of this construct. In addition, I included not only measures of actual consumption (quantity, frequency, number of binges), but also measures of recent and lifetime drinking-related consequences and alcohol outcome expectancies. This allowed me to conduct a more thorough examination of the relationship between gay identity, internalized homonegativity and drinking than previous investigations that assessed only consumption.

Another relative strength of my study was the use of two separate samples to cross-validate the findings. In all but one analysis, Subscale 1 of the IHNI, Personal Homonegativity, had a positive relationship with the drinking-related variables. Similarly, in all but one analysis, Subscale 1 of the SIHS, Public Identification as Gay, had a negative relationship with the drinking-related variables. The other subscales of both measures had inconsistent relationships with the drinking-related variables.

Despite all the strengths of my study, my results failed to support neither Meyer's minority stress theory nor Hull's self-awareness theory. Nonetheless, previous research has shown that gay and bisexual men drink more frequently and in higher quantities than their heterosexual counterparts. The reason may have little to do with gay identity development and internalized homonegativity, and more to do with the role of bars in gay culture. The bar is a gathering place where gay and bisexual men can go to meet other gay men in a safe environment, where they are not subject to judgment by heterosexuals, and they are free to express their own sexual identity. A bar is a place where alcohol is readily available and there are often incentives to drink alcohol excessively. Without other alternatives to the "bar scene," gay and bisexual males will continue to frequent these establishments to meet new people, socialize, engage others, and consume alcohol in a safe environment.

Although my study has some limitations and few significant findings, it contributes to the current literature on the relationship between gay identity formation and drinking. I investigated the relationship between gay identity development and drinking beyond simple quantity and frequency of alcohol consumption. I also examined the relationship between gay identity development and alcohol-related consequences and outcome expectancies, and found no meaningful relationship. Because these results are contrary to current theories of gay identity development, I suggested future research directions to investigate this relationship more thoroughly.

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APPENDIX A

Demographic Questionnaire

DIRECTIONS: Please answer the following questions by either filling in the blank or circling the answer that best describes you

1. **Age** _____

2. **Please indicate your biological sex**
   a. Female
   b. Male

3. **Please indicate your ethnicity (circle all that apply)**
   a. Native American or American Eskimo
   b. Native Hawaiian or part-Native Hawaiian
   c. Caucasian
   d. African-American
   e. Hispanic or Latin American
   f. Asian
   g. Pacific Islander
   h. Other _____

4. **What is the last year of education that you have completed?**
   a. Some high-school
   b. High-school diploma
   c. Some college
   d. 4 year college degree
   e. Some graduate school
   f. Graduate or Professional degree

5. **What is your estimated yearly household income?**
   a. Less than $14,999
   b. $15,000 to $29,999
   c. $30,000 to $44,999
   d. $45,000 to $59,999
   e. $60,000 to $74,999
   f. More than $75,000

6. **What is the size of the community you live in?**
   a. Urban (population of more than 150,000)
   b. Suburban (population greater than 15,000 but smaller than 150,000)
   c. Rural (population smaller than 15,000)

7. **What is the best description of your current marital status?**
   a. Single, never married
   b. Divorced
   c. Separated
   d. Married

8. **What is the best description of your current relationship status?**
   a. Not currently in a relationship
   b. Monogamous relationship
   c. Open-relationship

9. If you are currently in a relationship (i.e. monogamous relationship, open-relationship, married, separated) please indicate approximately how long you have been in this relationship:

_____ years _____ months

10. With what sexual orientation do you most identify yourself?

a. Heterosexual
b. Gay or Lesbian
c. Bisexual
d. Don't know or not sure

11. What is the gender of the people that you have ever had sexual contact with?

a. I have never had sexual contact with anyone
b. I have had sexual contact with only males.
c. I have had sexual contact with only females.
d. I have had sexual contact with both males and females.

12. What is the gender of the people that you currently feel sexually attracted to?

a. I am not sexually attracted to either males or females
b. I am sexually attracted to only males
c. I am sexually attracted to only females
d. I am sexually attracted to both males and females

13. What is the gender of the people that you currently have sexual fantasies about?

a. I do not have sexual fantasies about either males or females
b. I have sexual fantasies about only males
c. I have sexual fantasies about only females
d. I have sexual fantasies about both males and females

14. Where did you first hear about this study?

a. College LGBTQ association
b. Email list
c. Gay.com
d. Gaywebmonkey.com
e. Gaywired.com
f. GLBTQ.com
g. Listserve (e.g., Sexnet)
h. Message Boards (e.g., Yahoo!, The Advocate)
i. Msn.com
j. Other Webzine
k. Personal Blog
l. Search engine (e.g., Google, AskJeeves)
m. Yahoo! Newsgroup
n. Other: _____

APPENDIX B

Short Internalized Homonegativity Scale (SIHS)

DIRECTIONS: Please read each of the following statements carefully and then indicate if you strongly agree (SA), agree (A), somewhat agree (SWA), neither agree nor disagree (N), somewhat disagree (SWD), disagree (D), or strongly disagree (SD) with that particular statement. Give your first response and don't spend too much time on any one item. Some statements may depict situations that you have not experienced; please imagine yourself in those situations when answering those statements.

	Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree/ Disagree	Somewhat Agree	Agree	Strongly Agree
1. I am comfortable about people finding out that I am gay.							
2. It is important to me to control who knows about my homosexuality.							
3. I feel comfortable discussing homosexuality in a public situation.							
4. Even if I could change my sexual orientation I would not.							
5. Most gay men cannot sustain a long-term committed relationship.							
6. Most gay men prefer anonymous sexual encounters.							
7. Gay men tend to flaunt their sexuality inappropriately.							
8. Gay men are generally more promiscuous than straight men.							
9. I often feel intimidated while at gay venues.							
10. Social situations with gay men make me feel uncomfortable.							
11. I feel comfortable in gay bars.							
12. Making an advance to another man is difficult for me.							

APPENDIX C

Internalized Homonegativity Inventory for Gay Men (IHNI)

Directions: Please read each of the following statements carefully and then indicate if you strongly agree (SA), agree (A), somewhat agree (SWA), somewhat disagree (SWD), disagree (D), or strongly disagree (SD) with that particular statement. Give your first response and don't spend too much time on any one item. Some statements may depict situations that you have not experienced; please imagine yourself in those situations when answering those statements.

	Strongly Disagree	Disagree	Somewhat Disagree	Somewhat Agree	Agree	Strongly Agree
1. I believe being gay is an important part of me.*						
2. I believe it is OK for men to be attracted to other men in an emotional way, but it's not OK for them to have sex with each other.						
3. When I think of my homosexuality, I feel depressed.						
4. I believe that it is morally wrong for men to have sex with other men.						
5. I feel ashamed of my homosexuality.						
6. I am thankful for my sexual orientation.*						
7. When I think about my attraction towards men, I feel unhappy.						
8. I believe that more gay men should be shown in TV shows, movies, and commercials.*						
9. I see my homosexuality as a gift.*						
10. When people around me talk about homosexuality, I get nervous.						
11. I wish I could control my feelings of attraction toward other men.						
12. In general, I believe that homosexuality is as fulfilling as heterosexuality.*						
13. I am disturbed when people can tell I'm gay.						
14. In general, I believe that gay men are more immoral than straight men.						
15. Sometimes I get upset when I think about being attracted to men.						
16. In my opinion, homosexuality is harmful to the order of society.						

	Strongly Disagree	Disagree	Somewhat Disagree	Somewhat Agree	Agree	Strongly Agree
17. Sometimes I feel that I might be better off dead than gay.						
18. I sometimes resent my sexual orientation.						
19. I believe it is morally wrong for men to be attracted to each other.						
20. I sometimes feel that my homosexuality is embarrassing.						
21. I am proud to be gay.*						
22. I believe that public schools should teach that homosexuality is normal.*						
23. I believe it is unfair that I am attracted to men instead of women.						

* Indicates the item must be reverse scored.

APPENDIX D

Quantity and Frequency of Alcohol Use

Directions- Please answer the questions with regard to your current drinking behavior. A standard drink is equivalent to 12 ounces of beer, 4 ounces of wine, or 1.5 ounces of hard liquor.

1. In a typical week (7 days), how many days do you have at least one drink of alcohol?

a. Zero days
b. One day
c. Two days
d. Three days
e. Four days
f. Five days
g. Six days
h. Seven days

2. On a typical day that you drink alcohol, how many standard drinks of alcohol do you drink?

a. One (1) drink
b. Two (2) drinks
c. Three (3) drinks
d. Four (4) drinks
e. Five (5) drinks
f. Six (6) drinks
g. Seven (7) drinks
h. Eight (8) drinks
i. 9-11 drinks
j. 12-14 drinks
k. 15-16 drinks
l. 17-24 drinks
m. 25 drinks or more

3. During the past 30 days, on how many days did you have more than 5 drinks in a row during a single day?

a. Never
b. 1-3 days
c. 4-6 days
d. 7-9 days
e. 9-11 days
f. 12-14 days
g. 15-17 days
h. 18-20 days
i. 21 or more days

APPENDIX E

Gay Identity Questionnaire (GIQ)

DIRECTIONS: Please read each of the following statements carefully and then select whether you feel the statements are true (T) or false (F) for you at this point in time. A statement marked as true if the *entire* statement is true, otherwise it is marked as false.

	True	False
1. I probably am sexually attracted equally to men and women.	**T**	**F**
2. I live a homosexual lifestyle at home, while at work/school I do not want others to know about my lifestyle.	**T**	**F**
3. My homosexuality is a valid private identity, that I do not want made public.	**T**	**F**
4. I have feelings I would label as homosexual.	**T**	**F**
5. I have little desire to be around most heterosexuals.	**T**	**F**
6. I doubt that I am homosexual but still am confused about who I am sexually.	**T**	**F**
7. I do not want most heterosexuals to know that I am definitely homosexual.	**T**	**F**
8. I am very proud to be gay and make it known to everyone around me.	**T**	**F**
9. I don't have much contact with heterosexuals and can't say that I miss it.	**T**	**F**
10. I generally feel comfortable being the only gay person in a group of heterosexuals	**T**	**F**
11. I'm probably homosexual even though I maintain a heterosexual image in both my personal and public life.	**T**	**F**
12. I have disclosed to 1 or 2 people (very few) that I have homosexual feelings, although I'm not sure I'm homosexual.	**T**	**F**
13. I am not as angry about society's treatment of gays because even though I've told everyone about my gayness, they have responded well.	**T**	**F**
14. I am definitely homosexual but I do not share that knowledge with most people.	**T**	**F**
15. I don't mind if homosexuals know that I have homosexual thoughts and feelings, but I don't want others to know.	**T**	**F**
16. More than likely I'm homosexual, although I'm not positive about it yet.	**T**	**F**
17. I don't act like most homosexuals do, so I doubt I'm homosexual.	**T**	**F**
18. I'm probably homosexual, but I'm not sure yet.	**T**	**F**
19. I am openly gay and fully integrated into heterosexual society.	**T**	**F**
20. I don't think that I'm homosexual.	**T**	**F**
21. I don't feel I'm heterosexual or homosexual.	**T**	**F**
22. I have thoughts I would label as homosexual.	**T**	**F**
23. I don't want people to know that I may be homosexual, although I'm not sure if I am homosexual or not.	**T**	**F**

24. I may be homosexual and I am upset at the thought of it.	**T**	**F**
25. The topic of homosexuality does not related to me personally.	**T**	**F**
26. I frequently confront people about their irrational, homophobic (fear of homosexuality) feelings.	**T**	**F**
27. Getting in touch with homosexuals is something I feel I need to do, even though I'm not sure I want to.	**T**	**F**
28. I have homosexual thoughts and feelings but I doubt that I'm homosexual.	**T**	**F**
29. I dread having to deal with the fact I may be homosexual.	**T**	**F**
30. I am proud and open with everyone about being gay, but it isn't the major focus of my life.	**T**	**F**
31. I probably am heterosexual or non-sexual.	**T**	**F**
32. I am experimenting with my same sex, because I don't know what my sexual preference is.	**T**	**F**
33. I feel accepted by homosexual friends and acquaintances, even though I'm not sure I'm homosexual.	**T**	**F**
34. I frequently express to others, anger over heterosexuals' oppression of me and other gays.	**T**	**F**
35. I have not told most of the people at work that I am definitely homosexual.	**T**	**F**
36. I accept but would not say I am proud of the fact that I am definitely homosexual.	**T**	**F**
37. I cannot imagine sharing my homosexual feelings with anyone.	**T**	**F**
38. Most heterosexuals are not credible sources of help for me.	**T**	**F**
39. I am openly gay around gays and heterosexuals.	**T**	**F**
40. I engage in sexual behavior I would label as homosexual.	**T**	**F**
41. I am not about to stay hidden as gay for anyone.	**T**	**F**
42. I tolerate rather than accept my homosexual thoughts and feelings.	**T**	**F**
43. My heterosexual friends, family, and associates think of me as a person who happens to be gay, rather than as a gay person.	**T**	**F**
44. Even though I am definitely homosexual, I have not told my family.	**T**	**F**
45. I am openly gay with everyone, but it doesn't make me feel all that different from heterosexuals.	**T**	**F**

APPENDIX F

Alcohol Expectancies Questionnaire- 3rd Revision

Directions: Please respond according to your own personal thoughts, feeling, and beliefs about alcohol now. I am interested in what you think about alcohol, regardless of what other people might think. Please circle your response to the corresponding question.

Key:

Disagree Strongly (DSt)	Disagree Moderately (DM)	Disagree Slightly (DSl)	Agree Slightly (ASl)	Agree Moerately (AM)	Agree Strongly (ASt)

1.	Drinking makes me feel warm and flushed.	**DSt**	**DM**	**DSl**	**ASl**	**AM**	**ASt**
2.	Alcohol lowers muscle tension in my body.	**DSt**	**DM**	**DSl**	**ASl**	**AM**	**ASt**
3.	A few drinks make me feel less shy.	**DSt**	**DM**	**DSl**	**ASl**	**AM**	**ASt**
4.	Alcohol helps me to fall asleep more easily.	**DSt**	**DM**	**DSl**	**ASl**	**AM**	**ASt**
5.	I feel powerful when I drink, as if I can really make other people do as I want.	**DSt**	**DM**	**DSl**	**ASl**	**AM**	**ASt**
6.	I am more clumsy after a few drinks.	**DSt**	**DM**	**DSl**	**ASl**	**AM**	**ASt**
7.	I am more romantic when I drink.	**DSt**	**DM**	**DSl**	**ASl**	**AM**	**ASt**
8.	Drinking makes the future seem brighter to me.	**DSt**	**DM**	**DSl**	**ASl**	**AM**	**ASt**
9.	If I have had a couple of drinks, it is easier for me to tell someone off.	**DSt**	**DM**	**DSl**	**ASl**	**AM**	**ASt**
10.	I can't act as quickly when I've been drinking.	**DSt**	**DM**	**DSl**	**ASl**	**AM**	**ASt**
11.	Alcohol can act as an anesthetic for me, that is, it can stop pain.	**DSt**	**DM**	**DSl**	**ASl**	**AM**	**ASt**
12.	I often feel sexier after I've had a few drinks.	**DSt**	**DM**	**DSl**	**ASl**	**AM**	**ASt**
13.	Drinking makes me feel good.	**DSt**	**DM**	**DSl**	**ASl**	**AM**	**ASt**
14.	Alcohol makes me careless about my actions.	**DSt**	**DM**	**DSl**	**ASl**	**AM**	**ASt**
15.	Some alcohol has a pleasant, cleansing, tingly taste to me.	**DSt**	**DM**	**DSl**	**ASl**	**AM**	**ASt**
16.	Drinking makes me more aggressive.	**DSt**	**DM**	**DSl**	**ASl**	**AM**	**ASt**
17.	Alcohol seems like magic to me.	**DSt**	**DM**	**DSl**	**ASl**	**AM**	**ASt**
18.	Alcohol makes it hard for me to concentrate.	**DSt**	**DM**	**DSl**	**ASl**	**AM**	**ASt**
19.	I am a better lover after a few drinks.	**DSt**	**DM**	**DSl**	**ASl**	**AM**	**ASt**
20.	When I am drinking it is easier to open up and express my feelings.	**DSt**	**DM**	**DSl**	**ASl**	**AM**	**ASt**
21.	Drinking adds a certain warmth and friendliness to social occasions for me.	**DSt**	**DM**	**DSl**	**ASl**	**AM**	**ASt**

Key:

Disagree Strongly (DSt)	Disagree Moderately (DM)	Disagree Slightly (DSl)	Agree Slightly (ASl)	Agree Moerately (AM)	Agree Strongly (ASt)

22. If I'm feeling tied down or frustrated, a few drinks make me feel better.	**DSt**	**DM**	**DSl**	**ASl**	**AM**	**ASt**
23. I can't think as quickly after I drink.	**DSt**	**DM**	**DSl**	**ASl**	**AM**	**ASt**
24. Having a few drinks is a nice way for me to celebrate special occasions.	**DSt**	**DM**	**DSl**	**ASl**	**AM**	**ASt**
25. Alcohol makes me worry less.	**DSt**	**DM**	**DSl**	**ASl**	**AM**	**ASt**
26. Drinking makes me less efficient.	**DSt**	**DM**	**DSl**	**ASl**	**AM**	**ASt**
27. Drinking is pleasurable because it's enjoyable for me to join in with people who are enjoying themselves.	**DSt**	**DM**	**DSl**	**ASl**	**AM**	**ASt**
28. After a few drinks, I am more sexually responsive, that is, more in the mood for sex.	**DSt**	**DM**	**DSl**	**ASl**	**AM**	**ASt**
29. I feel more physically coordinated after I drink.	**DSt**	**DM**	**DSl**	**ASl**	**AM**	**ASt**
30. I am more likely to say embarrassing things after drinking.	**DSt**	**DM**	**DSl**	**ASl**	**AM**	**ASt**
31. I enjoy having sex more if I've had some alcohol.	**DSt**	**DM**	**DSl**	**ASl**	**AM**	**ASt**
32. I am more likely to get into an argument if I've had some alcohol.	**DSt**	**DM**	**DSl**	**ASl**	**AM**	**ASt**
33. Alcohol makes me less worried about doing things well.	**DSt**	**DM**	**DSl**	**ASl**	**AM**	**ASt**
34. Alcohol helps me sleep better.	**DSt**	**DM**	**DSl**	**ASl**	**AM**	**ASt**
35. Drinking gives me more confidence in myself.	**DSt**	**DM**	**DSl**	**ASl**	**AM**	**ASt**
36. Alcohol makes me more irresponsible.	**DSt**	**DM**	**DSl**	**ASl**	**AM**	**ASt**
37. After a few drinks it is easier for me to pick a fight.	**DSt**	**DM**	**DSl**	**ASl**	**AM**	**ASt**
38. A few drinks make it easier for me to talk to people.	**DSt**	**DM**	**DSl**	**ASl**	**AM**	**ASt**
39. If I have a couple of drinks, it is easier to express my feelings.	**DSt**	**DM**	**DSl**	**ASl**	**AM**	**ASt**
40. Alcohol makes me more interesting.	**DSt**	**DM**	**DSl**	**ASl**	**AM**	**ASt**

APPENDIX G

Drinker Inventory of Consequences- 2nd edition

Directions: Here are a number of events that drinkers sometimes experience. Read each one carefully, and circle whether or not this has *EVER* happened to you (0 = No, 1 = Yes). Then also indicate *how often* each one has happened to you *DURING THE PAST 3 MONTHS* by circling the appropriate number (0 = Never, 1 = Once or a few times, etc.) If an item does not apply to you, circle zero (0).

	Has this EVER happened to you? (circle one)		DURING THE PAST 3 MONTHS, about how often has this happened to you? (circle one)			
	No	**Yes**	**Never**	**Once or a few times**	**Once or twice a week**	**Daily or almost everyday**
1. I have had a hangover or felt bad after drinking.	0	1	0	1	2	3
2. I have felt bad about myself because of my drinking.	0	1	0	1	2	3
3. I have missed days of work or school because of my drinking.	0	1	0	1	2	3
4. My family or friends have worried or complained about my drinking.	0	1	0	1	2	3
5. I have enjoyed the taste of beer, wine, or liquor.	0	1	0	1	2	3
6. The quality of my work has suffered because of my drinking.	0	1	0	1	2	3
7. My ability to be a good parent has been harmed because of my drinking.	0	1	0	1	2	3
8. After drinking I have had trouble with sleep, staying asleep, or nightmares.	0	1	0	1	2	3
9. I have driven a motor vehicle after having three or more drinks.	0	1	0	1	2	3
10. My drinking has caused me to use other drugs more.	0	1	0	1	2	3
11. I have been sick and vomited after drinking.	0	1	0	1	2	3
12. I have been unhappy because of my drinking.	0	1	0	1	2	3
13. Because of my drinking, I have not eaten properly.	0	1	0	1	2	3
14. I have failed to do what is expected of me because of my drinking.	0	1	0	1	2	3
15. Drinking has helped me relax.	0	1	0	1	2	3
16. I have felt guilty or ashamed because of my drinking.	0	1	0	1	2	3
17. While drinking I have said or done embarrassing things.	0	1	0	1	2	3
18. When drinking, my personality has changed for the worse.	0	1	0	1	2	3
19. I have taken foolish risks when I have been drinking.	0	1	0	1	2	3
20. I have gotten into trouble because of drinking.	0	1	0	1	2	3

	Has this EVER happened to you? (circle one)		DURING THE PAST 3 MONTHS, about how often has this happened to you? (circle one)			
	No	**Yes**	**Never**	**Once or a few times**	**Once or twice a week**	**Daily or almost everyday**
21. While drinking or using drugs, I have done harsh or cruel things to someone.	0	1	0	1	2	3
22. When drinking I have done impulsive things that I regretted later.	0	1	0	1	2	3
23. I have gotten into a physical fight while drinking.	0	1	0	1	2	3
24. My physical health has been harmed by my drinking.	0	1	0	1	2	3
25. Drinking has helped me to have a more positive outlook on life.	0	1	0	1	2	3
26. I have had money problems because of my drinking.	0	1	0	1	2	3
27. My marriage or love relationship has been harmed by of my drinking.	0	1	0	1	2	3
28. I have smoked tobacco more when I am drinking.	0	1	0	1	2	3
29. My physical appearance has been harmed by my drinking.	0	1	0	1	2	3
30. My family has been hurt by my drinking.	0	1	0	1	2	3
31. A friendship or close relationship has been damaged by my drinking.	0	1	0	1	2	3
32. I have been overweight because of my drinking.	0	1	0	1	2	3
33. My sex life has suffered because of my drinking.	0	1	0	1	2	3
34. I have lost interest in activities and hobbies because of my drinking.	0	1	0	1	2	3
35. When drinking, my social life has been more enjoyable.	0	1	0	1	2	3
36. My spiritual or moral life has been harmed by my drinking.	0	1	0	1	2	3
37. Because of my drinking, I have not had the kind of life that I want.	0	1	0	1	2	3
38. My dinking has gotten in the way of my growth as a person.	0	1	0	1	2	3
39. My drinking has damaged my social life, popularity, or reputation.	0	1	0	1	2	3
40. I have spent too much or lost a lot of money because of my drinking.	0	1	0	1	2	3
41. I have been arrested for driving under the influence of alcohol.	0	1	0	1	2	3
42. I have had trouble with the law (other than driving while intoxicated) while drinking.	0	1	0	1	2	3
43. I have lost my marriage or a close love relationship because of my drinking.	0	1	0	1	2	3

	Has this EVER happened to you? (circle one)		DURING THE PAST 3 MONTHS, about how often has this happened to you? (circle one)			
	No	**Yes**	**Never**	**Once or a few times**	**Once or twice a week**	**Daily or almost everyday**
44. I have been suspended/fired from a job or school because of my drinking.	0	1	0	1	2	3
45. I drank alcohol normally, without any problems.	0	1	0	1	2	3
46. I have lost a friend because of my drinking.	0	1	0	1	2	3
47. I have had an accident while drinking or intoxicated.	0	1	0	1	2	3
48. While drinking or intoxicated, I have been physically hurt, injured, or burned.	0	1	0	1	2	3
49. While drinking or intoxicated, I have hurt or injured someone else.	0	1	0	1	2	3
50. I have broken things while drinking or intoxicated.	0	1	0	1	2	3

Table 1

Frequencies and Percentages of the Gay Identity Questionnaire

Sample One (*N* = 528)			
GIQ Stage	Frequency	Sample Percentage	Cumulative Percentage
1- Identity Confusion	5	0.9%	0.9%
2- Identity Comparison	11	2.1%	3.0%
3- Identity Tolerance	17	3.2%	6.2%
4- Identity Acceptance	128	24.2%	30.4%
5- Identity Pride	19	3.6%	34.0%
6- Identity Synthesis	300	56.7%	90.7%
Multiple Stages	48	9.1%	99.8%

Sample Two (*N* = 337)			
GIQ Stage	Frequency	Sample Percentage	Cumulative Percentage
1- Identity Confusion	3	0.9%	0.9%
2- Identity Comparison	5	1.5%	2.4%
3- Identity Tolerance	12	3.6%	6.0%
4- Identity Acceptance	80	23.7%	29.7%
5- Identity Pride	13	3.9%	33.6%
6- Identity Synthesis	208	61.7%	95.3%
Multiple Stages	16	4.7%	100%

Table 2

Means, Standard Deviations, and Cronbach's Coefficient Alpha for the IHNI and SIHS

Sample One (N = 529)			
Scale	Mean	*SD*	Cronbach's α
IHNI Subscale 1- Personal Homonegativity	2.02	1.05	0.94
IHNI Subscale 2- Gay Affirmation	2.49	1.26	0.89
IHNI Subscale 3- Morality of Homosexuality	1.51	0.72	0.77
IHNI Scale Score	2.05	0.90	0.95
SIHS Subscale 1- Public Identification as Gay	3.12	1.52	0.80
SIHS Subscale 2- Sexual Comfort with Gay Men	3.84	1.44	0.78
SIHS Subscale 3- Social Comfort with Gay Men	3.34	1.45	0.75
SIHS Scale Score	3.43	1.13	0.83

Sample Two (N = 336)			
Scale	Mean	*SD*	Cronbach's α
IHNI Subscale 1- Personal Homonegativity	1.98	0.99	0.93
IHNI Subscale 2- Gay Affirmation	2.44	1.05	0.88
IHNI Subscale 3- Morality of Homosexuality	1.49	0.73	0.75
IHNI Scale Score	2.01	0.83	0.93
SIHS Subscale 1- Public Identification as Gay	3.06	1.41	0.74
SIHS Subscale 2- Sexual Comfort with Gay Men	3.81	1.53	0.79
SIHS Subscale 3- Social Comfort with Gay Men	3.38	1.38	0.70
SIHS Scale Score	3.42	1.07	0.80

Note. SIHS responses ranged from 1 (strongly disagree) to 7 (strongly agree). The IHNI responses ranged from 1 (strongly disagree) to 6 (strongly agree).

Table 3

Intercorrelations Between the GIQ, IHNI, and SIHS for Sample One and Sample Two

Sample One (N = 529)									
Subscales	GIQ	IHNI 1	IHNI 2	IHNI 3	IHNI	SIHS 1	SIHS 2	SIHS 3	SIHS
GIQ Final Stage	-								
IHNI Subscale 1- Personal Homonegativity	-0.56*	-							
IHNI Subscale 2- Gay Affirmation	-0.58*	0.71*	-						
IHNI Subscale 3- Morality of Homosexuality	-0.45*	0.68*	0.61*	-					
IHNI Scale Score	-0.62*	0.94*	0.89*	0.79*	-				
SIHS Subscale 1- Public Identification as Gay	-0.73*	0.73*	0.75*	0.52*	0.78*	-			
SIHS Subscale 2- Sexual Comfort with Gay Men	-0.28*	0.38*	0.29*	0.40*	0.39*	0.33*	-		
SIHS Subscale 3- Social Comfort with Gay Men	-0.34*	0.49*	0.46*	0.38*	0.51*	0.45*	0.36*	-	
SIHS Scale Score	-0.59*	0.70*	0.66*	0.57*	0.74*	0.79*	0.73*	0.79*	-

* $p < .001$

Table 3 (Continued)

Sample Two (N = 336)									
Subscales	GIQ	IHNI 1	IHNI 2	IHNI 3	IHNI	SIHS 1	SIHS 2	SIHS 3	SIHS
GIQ Final Stage	-								
IHNI Subscale 1- Personal Homonegativity	-0.55*	-							
IHNI Subscale 2- Gay Affirmation	-0.47*	0.68*	-						
IHNI Subscale 3- Morality of Homosexuality	-0.32*	0.57*	0.55*	-					
IHNI Scale Score	-0.55*	0.93*	0.88*	0.73*	-				
SIHS Subscale 1- Public Identification as Gay	-0.66*	0.72*	0.71*	0.48*	0.77*	-			
SIHS Subscale 2- Sexual Comfort with Gay Men	-0.19*	0.31*	0.35*	0.41*	0.39*	0.27*	-		
SIHS Subscale 3- Social Comfort with Gay Men	-0.23*	0.50*	0.42*	0.34*	0.51*	0.37*	0.36*	-	
SIHS Scale Score	-0.48*	0.68*	0.66*	0.55*	0.75*	0.72*	0.75*	0.76*	-

* $p < .001$

Table 4

Descriptive Statistics for the Quantity and Frequency of Alcohol Use in Sample Two

Variable	*N*	Mean	*SD*
Number of days alcohol is consumed	336	1.60	1.62
Number of drinks consumed on a typical day	312	3.21	2.74
5 or more drinks in a row, past 30 days	334	0.70	1.16
Quantity of alcohol consumed in a typical week	336	5.70	8.86

Table 5

Means, Standard Deviations, and Cronbach's Coefficient Alpha for Lifetime Drinking Consequences (DrInC-2L)

Sample One				
	N	Mean	*SD*	Cronbach's α
Subscale 1- Physical Consequences	525	2.39	1.73	0.70
Subscale 2- Intrapersonal Consequences	526	1.23	1.96	0.86
Subscale 3- Social Consequences	523	0.93	1.56	0.80
Subscale 4- Interpersonal Consequences	524	1.39	1.79	0.79
Subscale 5- Impulse Control Consequences	524	2.81	2.38	0.77
Scale Score	521	8.75	8.17	0.94

Sample Two				
	N	Mean	*SD*	Cronbach's α
Subscale 1- Physical Consequences	333	2.30	1.59	0.67
Subscale 2- Intrapersonal Consequences	330	1.26	1.82	0.81
Subscale 3- Social Consequences	328	1.00	1.53	0.75
Subscale 4- Interpersonal Consequences	329	1.40	1.74	0.78
Subscale 5- Impulse Control Consequences	332	2.89	2.29	0.74
Scale Score	325	8.92	7.58	0.93

Note. Mean subscale scores indicate the number of lifetime consequences that individuals endorsed per subscale. Maximum number of possible consequences were 8 for subscale 1 and 2, 7 for subscale 3, 10 for subscale 4, and 12 for subscale 5.

Table 6

Means, Standard Deviations, and Cronbach's Coefficient Alpha for Drinking Consequences in the Past 3 Months (DrInC-2R)

Sample One				
	N	Mean	*SD*	Cronbach's α
Subscale 1- Physical Consequences	502	1.48	1.94	0.71
Subscale 2- Intrapersonal Consequences	442	0.91	2.22	0.89
Subscale 3- Social Consequences	440	0.61	1.55	0.79
Subscale 4- Interpersonal Consequences	470	0.82	1.45	0.70
Subscale 5- Impulse Control Consequences	477	1.93	2.42	0.71
Scale Score	521	5.36	7.83	0.93

Sample Two				
	N	Mean	*SD*	Cronbach's α
Subscale 1- Physical Consequences	314	1.34	1.49	0.63
Subscale 2- Intrapersonal Consequences	288	0.74	1.49	0.78
Subscale 3- Social Consequences	276	0.53	1.11	0.68
Subscale 4- Interpersonal Consequences	297	0.73	1.23	0.68
Subscale 5- Impulse Control Consequences	300	1.87	2.19	0.68
Scale Score	317	4.92	6.04	0.90

Note. Subscale scores range from 1 (never) to 4 (daily or almost daily).

Table 7

Means, Standard Deviations, and Cronbach's Coefficient Alpha for the Drinking Outcome Expectancies Subscales (AEQ-3)

Sample One (N = 526)			
	Mean	*SD*	Cronbach's α
Subscale 1- Global Positive	2.41	0.98	0.79
Subscale 2- Social and Physical Pleasure	3.96	1.12	0.87
Subscale 3- Social Expressiveness	3.72	1.27	0.91
Subscale 4- Sexual Enhancement	3.00	1.22	0.89
Subscale 5- Power and Aggression	2.80	1.00	0.80
Subscale 6- Tension Reduction and Relaxation	3.29	1.11	0.80
Subscale 7- Cognitive and Physical Impairment	3.85	1.13	0.85
Subscale 8- Careless Unconcern	3.41	1.18	0.80
Scale Score	3.29	0.88	0.96

Note. Subscale scores range from 1 (disagree strongly) to 6 (agree strongly).

Table 7 (continued).

Sample Two (N = 335)			
	Mean	*SD*	Cronbach's α
Subscale 1- Global Positive	2.45	0.93	0.77
Subscale 2- Social and Physical Pleasure	4.00	1.08	0.86
Subscale 3- Social Expressiveness	3.80	1.22	0.90
Subscale 4- Sexual Enhancement	3.02	1.18	0.88
Subscale 5- Power and Aggression	2.72	0.96	0.77
Subscale 6- Tension Reduction and Relaxation	3.32	1.04	0.76
Subscale 7- Cognitive and Physical Impairment	3.73	1.13	0.84
Subscale 8- Careless Unconcern	3.39	1.15	0.79
Scale Score	3.28	0.84	0.95

Note. Subscale scores range from 1 (disagree strongly) to 6 (agree strongly).

Table 8

Intercorrelations Among DrInC-2L for Sample One

(N = 529)						
Subscales	D-2L 1	D-2L 2	D-2L 3	D-2L 4	D-2L 5	D-2L
DrInC-2L Subscale 1- Physical Consequences	-					
DrInC-2L Subscale 2- Intrapersonal Consequences	0.66*	-				
DrInC-2L Subscale 3- Social Consequences	0.65*	0.76*	-			
DrInC-2L Subscale 4- Interpersonal Consequences	0.67*	0.75*	0.74*	-		
DrInC-2L Subscale 5- Impulse Control Consequences	0.70*	0.61*	0.66*	0.67*	-	
DrInC-2L Scale Score	0.85*	0.87*	0.87*	0.88*	0.86*	-

* $p < .001$

Table 9

Intercorrelations Among DrInC-2L and Quantity and Frequency of Alcohol Use for Sample Two

	(N = 336)						
Subscales	D-2L 1	D-2L 2	D-2L 3	D-2L 4	D-2L 5	D-2L	Q 1
DrInC-2L Subscale 1- Physical Consequences	-						
DrInC-2L Subscale 2- Intrapersonal Consequences	0.70*	-					
DrInC-2L Subscale 3- Social Consequences	0.65*	0.66*	-				
DrInC-2L Subscale 4- Interpersonal Consequences	0.60*	0.69*	0.71*	-			
DrInC-2L Subscale 5- Impulse Control Consequences	0.63*	0.53*	0.64*	0.63*	-		
DrInC-2L Scale Score	0.84*	0.84*	0.85*	0.85*	0.83*	-	
Quantity of alcohol consumed in a typical week	0.24*	0.21*	0.26*	0.24*	0.27*	0.28*	-
Number of binge drinking episodes in the past 30 days	0.27*	0.17*	0.21*	0.21*	0.29*	0.28*	0.61*

Note. Q 1 = Quantity of alcohol consumed in a typical week.

* $p < .001$

Table 10

Intercorrelations Among DrInC-2R for Sample One

Sample One (N = 529)						
Subscales	D-2R 1	D-2R 2	D-2R 3	D-2R 4	D-2R 5	D-2R
DrInC-2R Subscale 1- Physical Consequences	-					
DrInC-2R Subscale 2- Intrapersonal Consequences	0.70*	-				
DrInC-2R Subscale 3- Social Consequences	0.67*	0.71*	-			
DrInC-2R Subscale 4- Interpersonal Consequences	0.68*	0.58*	0.67*	-		
DrInC-2R Subscale 5- Impulse Control Consequences	0.70*	0.51*	0.62*	0.63*	-	
DrInC-2R Scale Score	0.88*	0.83*	0.85*	0.82*	0.84*	-

* $p < .001$

Table 11

Intercorrelations Among DrInC-2R and Quantity and Frequency of Alcohol Use for Sample Two

Sample Two (N = 336)						
Subscales	D-2R 1	D-2R 2	D-2R 3	D-2R 4	D-2R 5	D-2R
DrInC-2R Subscale 1- Physical Consequences	-					
DrInC-2R Subscale 2- Intrapersonal Consequences	0.70*	-				
DrInC-2R Subscale 3- Social Consequences	0.67*	0.71*	-			
DrInC-2R Subscale 4- Interpersonal Consequences	0.68*	0.58*	0.67*	-		
DrInC-2R Subscale 5- Impulse Control Consequences	0.70*	0.51*	0.62*	0.63*	-	
DrInC-2R Scale Score	0.88*	0.83*	0.85*	0.82*	0.84*	-
Quantity of alcohol consumed in a typical week	0.45*	0.37*	0.50*	0.43*	0.53*	0.49*
Number of binge drinking episodes in the past 30 days	0.46*	0.24*	0.33*	0.33*	0.43*	0.44*

* $p < .001$

Table 12

Intercorrelations Among AEQ-3 for Sample One

Sample One (N = 529)								
Subscales	AEQ 1	AEQ 2	AEQ 3	AEQ 4	AEQ 5	AEQ 6	AEQ 7	AEQ 8
AEQ-3 Subscale 1- Global Positive	-							
AEQ-3 Subscale 2- Social and Physical Pleasure	0.60*	-						
AEQ-3 Subscale 3- Social Expressiveness	0.69*	0.72*	-					
AEQ-3 Subscale 4- Sexual Enhancement	0.74*	0.64*	0.73*	-				
AEQ-3 Subscale 5- Power and Aggression	0.69*	0.51*	0.70*	0.64*	-			
AEQ-3 Subscale 6- Tension Reduction and Relaxation	0.65*	0.64*	0.69*	0.61*	0.65*	-		
AEQ-3 Subscale 7- Cognitive and Physical Impairment	0.17*	0.29*	0.39*	0.25*	0.41*	0.41*	-	
AEQ-3 Subscale 8- Careless Unconcern	0.49*	0.42*	0.63*	0.50*	0.69*	0.57*	0.65*	-
AEQ-3 Scale Score	0.80*	0.77*	0.89*	0.82*	0.84*	0.83*	0.56*	0.78*

* $p < .001$

Table 13

Intercorrelations Among AEQ-3 for Sample Two

Sample Two (N = 336)									
Subscales	AEQ 1	AEQ 2	AEQ 3	AEQ 4	AEQ 5	AEQ 6	AEQ 7	AEQ 8	AEQ
AEQ-3 Subscale 1- Global Positive	-								
AEQ-3 Subscale 2- Social and Physical Pleasure	0.61*	-							
AEQ-3 Subscale 3- Social Expressiveness	0.66*	0.69*	-						
AEQ-3 Subscale 4- Sexual Enhancement	0.72*	0.61*	0.67*	-					
AEQ-3 Subscale 5- Power and Aggression	0.63*	0.47*	0.58*	0.52*	-				
AEQ-3 Subscale 6- Tension Reduction and Relaxation	0.66*	0.60*	0.60*	0.59*	0.61*	-			
AEQ-3 Subscale 7- Cognitive and Physical Impairment	0.22*	0.35*	0.35*	0.31*	0.48*	0.31*	-		
AEQ-3 Subscale 8- Careless Unconcern	0.46*	0.63*	0.63*	0.50*	0.68*	0.50*	0.63*	-	
AEQ-3 Scale Score	0.80*	0.85*	0.85*	0.80*	0.81*	0.78*	0.59*	0.78*	-
Quantity of alcohol consumed in a typical week	0.16*	0.25*	0.24*	0.09	0.15*	0.15*	0.06	0.09	0.20*
Number of binge drinking episodes in the past 30 days	0.24*	0.34*	0.29*	0.17*	0.26*	0.24*	-0.03	0.14*	0.27*

* $p < .001$

Table 14

Intercorrelations Among DrInC-2L and DrInC-2R for Sample One

Sample One (N = 529)						
Subscales	D-2R 1	D-2R 2	D-2R 3	D-2R 4	D-2R 5	D-2R
DrInC-2L Subscale 1- Physical Consequences	0.52*	0.35*	0.39*	0.41*	0.35*	0.46*
DrInC-2L Subscale 2- Intrapersonal Consequences	0.41*	0.60*	0.49*	0.46*	0.31*	0.52*
DrInC-2L Subscale 3- Social Consequences	0.37*	0.45*	0.63*	0.45*	0.34*	0.51*
DrInC-2L Subscale 4- Interpersonal Consequences	0.35*	0.33*	0.38*	0.58*	0.31*	0.45*
DrInC-2L Subscale 5- Impulse Control Consequences	0.34*	0.26*	0.34*	0.34*	0.49*	0.42*
DrInC-2L Scale Score	0.48*	0.47*	0.52*	0.52*	0.44*	0.56*

* $p < .001$

Table 15

Intercorrelations Among DrInC-2L and DrInC-2R for Sample Two

Sample Two (N = 336)						
Subscales	D-2R 1	D-2R 2	D-2R 3	D-2R 4	D-2R 5	D-2R
DrInC-2L Subscale 1- Physical Consequences	0.53*	0.38*	0.36*	0.23*	0.28*	0.42*
DrInC-2L Subscale 2- Intrapersonal Consequences	0.40*	0.64*	0.41*	0.39*	0.31*	0.52*
DrInC-2L Subscale 3- Social Consequences	0.37*	0.39*	0.60*	0.40*	0.35*	0.50*
DrInC-2L Subscale 4- Interpersonal Consequences	0.25*	0.31*	0.39*	0.54*	0.33*	0.44*
DrInC-2L Subscale 5- Impulse Control Consequences	0.27*	0.22*	0.30*	0.29*	0.48*	0.38*
DrInC-2L Scale Score	0.43*	0.44*	0.47*	0.42*	0.45*	0.52*

* $p < .001$

Table 16

Intercorrelations Among AEQ-3, DrInC-2L and DrInC-2R for Sample One

Subscales	AEQ 1	AEQ 2	AEQ 3	AEQ 4	AEQ 5	AEQ 6	AEQ 7	AEQ 8	AEQ
DrInC-2L Subscale 1- Physical	0.42*	0.38*	0.43*	0.38*	0.44*	0.37*	0.24*	0.38*	0.48*
DrInC-2L Subscale 2- Intrapersonal	0.34*	0.17*	0.28*	0.29*	0.40*	0.27*	0.22*	0.38*	0.37*
DrInC-2L Subscale 3- Social	0.40*	0.25*	0.32*	0.32*	0.40*	0.29*	0.15*	0.33*	0.39*
DrInC-2L Subscale 4- Interpersonal	0.46*	0.30*	0.39*	0.40*	0.48*	0.37*	0.19*	0.41*	0.47*
DrInC-2L Subscale 5- Impulse Control	0.41*	0.39*	0.44*	0.38*	0.49*	0.35*	0.18*	0.40*	0.48*
DrInC-2L Scale Score	0.47*	0.35*	0.44*	0.41*	0.52*	0.38*	0.23*	0.44*	0.52*
DrInC-2R Subscale 1- Physical	0.36*	0.34*	0.33*	0.31*	0.30*	0.29*	0.12*	0.27*	0.37*
DrInC-2R Subscale 2- Intrapersonal	0.24*	0.14*	0.20*	0.23*	0.23*	0.22*	0.13*	0.27*	0.26*
DrInC-2R Subscale 3- Social	0.33*	0.22*	0.25*	0.27*	0.28*	0.26*	0.09	0.22*	0.31*
DrInC-2R Subscale 4- Interpersonal	0.36*	0.29*	0.30*	0.33*	0.28*	0.30*	0.13*	0.25*	0.36*
DrInC-2R Subscale 5- Impulse Control	0.32*	0.36*	0.31*	0.31*	0.31*	0.26*	0.08	0.22*	0.35*
DrInC-2R Scale Score	0.38*	0.32*	0.32*	0.34*	0.33*	0.30*	0.13*	0.29*	0.39*

* $p < .001$

Table 17

Intercorrelations Among AEQ-3, DrInC-2L and DrInC-2R for Sample Two

Subscales	AEQ 1	AEQ 2	AEQ 3	AEQ 4	AEQ 5	AEQ 6	AEQ 7	AEQ 8	AEQ
DrInC-2L Subscale 1- Physical	0.32*	0.31*	0.31*	0.28*	0.41*	0.32*	0.26*	0.38*	0.42*
DrInC-2L Subscale 2- Intrapersonal	0.29*	0.20*	0.25*	0.25*	0.42*	0.29*	0.24*	0.40*	0.38*
DrInC-2L Subscale 3- Social	0.34*	0.26*	0.33*	0.24*	0.43*	0.28*	0.21*	0.38*	0.40*
DrInC-2L Subscale 4- Interpersonal	0.28*	0.22*	0.29*	0.20*	0.40*	0.29*	0.14*	0.32*	0.35*
DrInC-2L Subscale 5- Impulse Control	0.24*	0.34*	0.34*	0.29*	0.41*	0.33*	0.23*	0.41*	0.42*
DrInC-2L Scale Score	0.36*	0.33*	0.37*	0.31*	0.51*	0.37*	0.26*	0.46*	0.48*
DrInC-2R Subscale 1- Physical	0.23*	0.29*	0.27*	0.22*	0.31*	0.16*	0.14*	0.25*	0.31*
DrInC-2R Subscale 2- Intrapersonal	0.14*	0.16*	0.23*	0.14*	0.31*	0.16*	0.15*	0.27*	0.26*
DrInC-2R Subscale 3- Social	0.26*	0.20*	0.28*	0.17*	0.36*	0.22*	0.18	0.27*	0.32*
DrInC-2R Subscale 4- Interpersonal	0.18*	0.20*	0.29*	0.17*	0.32*	0.18*	0.10	0.24*	0.27*
DrInC-2R Subscale 5- Impulse Control	0.17*	0.28*	0.32*	0.25*	0.25*	0.20*	0.07	0.22*	0.29*
DrInC-2R Scale Score	0.21*	0.28*	0.32*	0.23*	0.35*	0.21*	0.15*	0.28*	0.33*

* $p < .001$

Table 18

Regression Statistics for Regressing DrInC-2L Full-Scale Score on IHNI and SHIS Subscale Scores for Sample One

Variable	β	*SE* β	*p*
Model 1: Including All Subscales of IHNI and SHIS			
Constant	7.524	1.204	0.000
$IHNI_1$	1.690	0.596	0.005
$IHNI_2$	-0.237	0.534	0.658
$IHNI_3$	-0.220	0.713	0.758
$SIHS_1$	-0.844	0.395	0.033
$SIHS_2$	0.336	0.281	0.233
$SIHS_3$	0.023	0.293	0.937
Model 2: Including Only Significant Predictors of DrInC-2L Full-Scale Score			
Constant	8.203	0.839	0.000
$IHNI_1$	1.649	0.492	0.001
$SIHS_1$	-0.893	0.341	0.009

Note. Including all IHNI and SHIS subscales, $R^2 = .025$, $F(6,514) = 2.184$, $p = .043$. Including only IHNI subscale 1 and SHIS subscale 1, $R^2 = .021$, $F(2,518) = 5.653$, $p = .004$.

Table 19

Regression Statistics for Regressing DrInC-2R Full-Scale Score on IHNI and SHIS Subscale Scores for Sample One

Variable	β	*SE* β	*p*
Model 1: Including All Subscales of IHNI and SHIS			
Constant	2.678	1.157	0.021
$IHNI_1$	2.025	0.571	0.000
$IHNI_2$	-0.448	0.513	0.328
$IHNI_3$	-0.096	0.679	0.887
$SIHS_1$	-0.477	0.379	0.209
$SIHS_2$	0.556	0.273	0.042
$SIHS_3$	-0.242	0.286	0.399
Model 2: Including Only Significant Predictors of DrInC-2R Full-Scale Score			
Constant	1.545	1.034	0.136
$IHNI_1$	1.032	0.348	0.003
$SIHS_2$	0.451	0.258	0.082

Note. Including all IHNI and SHIS subscales, $R^2 = .046$, $F(6,500) = 4.063$, $p = .001$. Including only IHNI subscale 1 and SHIS subscale 2, $R^2 = .035$, $F(2,504) = 9.118$, $p < .001$.

Table 20

Regression Statistics for Regressing DrInC-2L Full-Scale Score on IHNI and SHIS Subscale Scores for Sample Two

Variable	β	$SE\ \beta$	p
Model 1: Including All Subscales of IHNI and SHIS			
Constant	6.676	1.409	0.000
$IHNI_1$	1.271	0.689	0.066
$IHNI_2$	1.604	0.616	0.010
$IHNI_3$	-1.253	0.748	0.095
$SIHS_1$	-1.802	0.478	0.000
$SIHS_2$	0.316	0.306	0.302
$SIHS_3$	0.576	0.355	0.106
Model 2: Including Only Significant Predictors of DrInC-2L Full-Scale Score			
Constant	8.211	1.098	0.000
$IHNI_2$	2.028	0.565	0.000
$SIHS_1$	-1.395	0.421	0.001

Note. Including all IHNI and SHIS subscales, $R^2 = .075$, $F(6,316) = 4.300$, $p < .001$. Including only IHNI subscale 2 and SHIS subscale 1, $R^2 = .042$, $F(2,320) = 7.032$, $p = .001$.

Table 21

Regression Statistics for Regressing DrInC-2R Full-Scale Score on IHNI and SHIS Subscale Scores for Sample Two

Variable	β	*SE* β	*p*
Model 1: Including All Subscales of IHNI and SHIS			
Constant	5.811	1.160	0.000
$IHNI_1$	1.697	0.559	0.003
$IHNI_2$	-0.344	0.498	0.490
$IHNI_3$	-0.513	0.606	0.398
$SIHS_1$	-0.861	0.379	0.024
$SIHS_2$	0.412	0.253	0.104
$SIHS_3$	-0.463	0.292	0.114
Model 2: Including Only Significant Predictors of DrInC-2R Full-Scale Score			
Constant	5.482	0.839	0.000
$IHNI_1$	1.262	0.488	0.010
$SIHS_1$	-0.996	0.345	0.004

Note. Including all IHNI and SHIS subscales, $R^2 = .044$, $F(6,308) = 2.377$, $p = .029$. Including only IHNI subscale 1 and SHIS subscale 1, $R^2 = .028$, $F(2,312) = 4.446$, $p = .012$.

Table 22

Regression Statistics for Regressing the Quantity of Alcohol Consumed in a Typical Week on IHNI and SHIS Subscale Scores for Sample Two

Variable	β	$SE\ \beta$	p
Model 1: Including All Subscales of IHNI and SHIS			
Constant	7.306	1.629	0.000
$IHNI_1$	0.265	0.809	0.743
$IHNI_2$	0.341	0.713	0.633
$IHNI_3$	-1.577	0.846	0.063
$SIHS_1$	-0.528	0.542	0.331
$SIHS_2$	1.172	0.359	0.001
$SIHS_3$	-1.010	0.417	0.016
Model 2: Significant Predictors of Quantity of Alcohol Consumed in a Typical Week			
Constant	6.293	1.505	0.000
$SIHS_2$	0.921	0.336	0.007
$SIHS_3$	-1.205	0.370	0.001

Note. Including all IHNI and SHIS subscales, $R^2 = .056$, $F(6,327) = 3.214$, $p = .004$. Including only IHNI subscale 1 and SHIS subscale 1, $R^2 = .039$, $F(2,332) = 6.686$, $p = .001$.

Table 23

Regression Statistics for Regressing the Number of Binge Drinking Episodes Reported in the Past 30 Days on IHNI and SHIS Subscale Scores for Sample Two

Variable	β	$SE\ \beta$	p
Model 1: Including All Subscales of IHNI and SHIS			
Constant	2.066	0.212	0.000
$IHNI_1$	0.003	0.105	0.981
$IHNI_2$	0.153	0.093	0.102
$IHNI_3$	-0.120	0.110	0.275
$SIHS_1$	-0.195	0.071	0.006
$SIHS_2$	0.101	0.047	0.033
$SIHS_3$	-0.105	0.054	0.054
Model 2: Significant Predictors of Number of Binge Drinking Episodes in the Past 30 Days			
Constant	1.926	0.195	0.000
$SIHS_1$	-0.174	0.046	0.000
$SIHS_2$	0.080	0.042	0.061

Note. Including all IHNI and SHIS subscales, $R^2 = .063$, $F(6,325) = 3.670$, $p = .002$. Including only SIHS subscale 1 and subscale 2, $R^2 = .043$, $F(2,330) = 7.492$, $p = .001$.

Table 24

Regression Statistics for Regressing AEQ-3 Full-Scale Scores on DrInC-2L and DrInC-2R Full-Scale Scores for Sample One

Variable	β	*SE* β	*p*
	Full Model		
Constant	2.853	0.049	0.000
DrInC-2L	0.044	0.005	0.000
DrInC-2R	0.016	0.005	0.001

Note. Full Model, $R^2 = .266$, $F(2,494) = 89.367$, $p < .001$.

Table 25

Regression Statistics for Regressing AEQ-3 Full-Scale Score on IHNI and SHIS Subscale Scores for Sample One

Variable	β	$SE\ \beta$	p
Model 1: Including All Subscales of IHNI and SHIS			
Constant	2.988	0.125	0.000
$IHNI_1$	0.364	0.062	0.000
$IHNI_2$	-0.051	0.055	0.354
$IHNI_3$	-0.139	0.074	0.061
$SIHS_1$	-0.087	0.041	0.034
$SIHS_2$	0.079	0.029	0.007
$SIHS_3$	-0.039	0.031	0.203
Model 2: Including Only Significant Predictors of AEQ-3 Full-Scale Score			
Constant	2.863	0.116	0.000
$IHNI_1$	0.274	0.053	0.000
$SIHS_1$	-0.115	0.036	0.001
$SIHS_2$	0.060	0.028	0.031

Note. Including all IHNI and SHIS subscales, $R^2 = .086$, $F(6,519) = 8.146$, $p < .001$. Including only IHNI subscale 1 and SHIS subscale 1 and 2, $R^2 = .072$, $F(3,522) = 13.553$, $p < .001$.

Table 26

Regression Statistics for Regressing AEQ-3 Full-Scale Scores on DrInC-2L and DrInC-2R Full-Scale Scores for Sample Two

Variable	β	*SE* β	*p*
	Full Model		
Constant	2.838	0.064	0.000
DrInC-2L	0.041	0.006	0.000
DrInC-2R	0.019	0.008	0.015

Note. Full Model, $R^2 = .231$, $F(2,302) = 45.368$, $p < .001$.

Table 27

Regression Statistics for Regressing AEQ-3 Full-Scale Score on IHNI and SHIS Subscale Scores for Sample Two

Variable	β	*SE* β	*p*
Model 1: Including All Subscales of IHNI and SHIS			
Constant	3.017	0.153	0.000
$IHNI_1$	0.267	0.076	0.001
$IHNI_2$	-0.033	0.067	0.619
$IHNI_3$	-0.199	0.080	0.013
$SIHS_1$	-0.077	0.051	0.133
$SIHS_2$	0.054	0.034	0.114
$SIHS_3$	0.044	0.039	0.258
Model 2: Including Only Significant Predictors of AEQ-3 Full-Scale Score			
Constant	3.134	0.112	0.000
$IHNI_1$	0.213	0.056	0.000
$IHNI_3$	-0.182	0.075	0.015

Note. Including all IHNI and SHIS subscales, $R^2 = .067$, $F(6,326) = 3.888$, $p = .001$. Including only IHNI subscale 1 and 3, $R^2 = .043$, $F(2,330) = 7.412$, $p = .001$.