Order Number 9006945

Ethnic differences in alcohol outcome expectancies and drinking patterns

Daisy, Fransing S. S., Ph.D.

University of Washington, 1989

U·M·I
300 N. Zeeb Rd.
Ann Arbor, MI 48106

Ethnic Differences in Alcohol Outcome Expectancies and Drinking Patterns

By

Fransing Daisy

A dissertation in partial fulfillment
of the requirements for the degree of

Doctor of Philosophy

University of Washington

1989

Approved by _____
(Chairperson of Supervisory Committee)

Program Authorized to Offer Degree Department of Psychology

Date June 7, 1989

University of Washington

Abstract

ETHNIC DIFFERENCES IN ALCOHOL OUTCOME EXPECTANCIES AND DRINKING PATTERNS

By Fransing Daisy

Chairperson of the Supervisory Committee:
Professor G. Alan Marlatt
Department of Psychology

The beliefs and attitudes about the effect of alcohol consumption upon behavior were compared using self-report measures of alcohol outcome expectancy, attitude toward drinking, and level of drinking habit within four different ethnic groups: Asian American, American Indian, Black American, and Caucasian. The purpose of the study was to investigate the association between alcohol outcome expectancies and attitudes toward drinking in relation to self-reported consumption patterns among ethnic groups as well as between men and women across ethnic groups. Two hundred and eighty nine college-age subjects were administered a questionnaire packet which included a quantity/frequency measure of drinking habit, the Alcohol Expectancy Questionnaire, an Attitudes Toward Drinking assessment and a demographic questionnaire. Group differences in self-reported drinking habit found that regardless of gender, the Caucasian and American Indian groups drank significantly more, the Asian American group significantly less, and the Black American group demonstrated an intermediate drinking habit. Group

differences in alcohol outcome expectancies found that American Indian and Caucasian groups had significantly stronger positive expectancies for anticipation of global, positive change, social and physical pleasure, and social assertiveness than did Asian American and Black American groups. The Caucasian group was found to have stronger positive expectancies for tension reduction than the Black American group; and the American Indian group was found to have stronger positive expectancies of arousal and feelings of power than the Black American group. Group differences in alcohol outcome expectancies were also found for men across ethnic groups. Men were found to have significantly stronger positive expectancies for anticipation of global, positive change, social and physical pleasure, tension reduction, and arousal with feelings of power than did women. Group comparisons on attitudes toward drinking found that men had significantly more positive attitudes toward drinking than did women. Finally, investigation of the relationship among alcohol outcome expectancies, attitudes toward drinking, ethnicity, and sex upon self-reported drinking habit found that expectation of social and physical pleasure, subject's attitude toward drinking, and not being of Asian American ethnicity provided the greatest level of discrimination for alcohol consumption. The findings are discussed in terms of the relationship of

cognitive factors to drinking habit within ethnic minority groups.

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Date June 7, 1989

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ACKNOWLEDGEMENTS

The author wishes to express her appreciation to Professor G. Alan Marlatt, who acted as Chairperson of the supervisory committee in addition to his roles as research supervisor and professional mentor. In addition, the author wishes to express her gratitude to Dr. Edmund Chaney, Dr. John Keating, Dr. George Lawrence, and Dr. Robert Kohlenberg for their supervision and guidance. My thanks to the following students who helped collect and code data as well as gather resource materials: Martha Christie, Keggie Curtis, Lisa Dekker, Chris Eng, Elleni Nagash, Elsa Siddine, Catherine Ruiz, Kari Yoshimura. My thanks to the following staff of the Addictive Behaviors Research Center who provided valuable assistance and support services: Julie Abbott, Ellen Williams, Don Woods. Finally, my deepest gratitude to my husband Bill Daisy, who provided unconditional support and encouragement during my entire doctoral program and to my daughter Saroj, who added another very worthy purpose to my goals.

Introduction

Research has demonstrated that alcohol outcome expectancies, an individual's beliefs about the effects of alcohol on their behavior, moods, and emotions, are related to behavior influenced by alcohol use (Marlatt & Rohsenow, 1980) as well as self-reports of alcohol consumption (Brown, 1985a; Brown, Goldman, & Christiansen, 1985; Brown, Goldman, Inn, & Anderson, 1980; Goldman, Brown, & Christiansen, 1987; Southwick, Steel, Marlatt, & Lindell, 1981). Alcohol outcome expectancies have been associated with adolescent and adult patterns of consumption ranging from nondrinking to chronic alcohol abuse (Brown et al., 1985; Christiansen, Goldman, & Brown, 1985). Modification of outcome expectancies has been shown to be effective in production of change in alcohol consumption patterns (Massey and Goldman, 1989). Outcome expectancies have also been found to be predictive of alcohol consumption outcome after alcoholism treatment (Brown, 1985b). Brown et al. (1980) and Mooney, Fromme, Kivlahan, & Marlatt (1987) found that gender contributed to variations in anticipated alcohol outcome expectancies. Alcohol outcome expectancies have also been found to differ as a function of personality characteristics of the drinker (Brown & Munson, 1987) and exposure to alcohol abuse within the family (Brown, Creamer, & Stetson, 1987).

Research has shown that when outcome expectancies are compared with demographic variables, expectancies improve the prediction of consumption patterns (Brown, 1985a; Christiansen & Goldman, 1983). When active consumption of alcohol is considered, research has found positive endorsement of socially-related outcome expectancies associated with consumption of alcohol (Roehling & Goldman, 1987). Some research investigators have suggested the need to examine the relationship of dose level and outcome expectancies (Southwick et al., 1981), the association of negative outcome expectancies and drinking habit (Leigh, 1987; Rohsenow, 1983) and, the effect of desirability upon outcome expectancies (Leigh, 1987, 1989) so as to improve and expand upon the conceptual model of alcohol expectancies and their association with drinking behavior.

Current investigations have not explored the association of ethnicity and outcome expectancies. These prior outcome expectancy studies have limited their focus to the Caucasian population. A study by Crawford (1984) investigating the expectancies of Scottish students found that students in different Western cultures appeared to have relatively similar expectancies about the effects of alcohol consumption. Conversely, Christiansen and Teahan (1987) found that Irish and Caucasian Americans differed in self-reported consumption patterns as well as anticipated

outcome expectancies. They suggested that variation in drinking habit was associated with difference in outcome expectancies found for these two different Western populations.

Another cognitive variable associated with alcohol consumption patterns is attitude toward drinking. According to current attitude theory, attitudes include both a set of beliefs about an object and an evaluative component regarding the beliefs (Fishbein & Ajzen, 1975). When expectancies and attitudes toward drinking are compared, assessment of alcohol outcome expectancies provides for identification and examination of the content of specific beliefs about alcohol consumption, whereas measurement of attitude toward drinking focuses on the relationship between beliefs and the evaluation of these beliefs regarding alcohol consumption.

Factors associated with attitudes toward drinking include approval of alcohol consumption, disagreement with alcohol regulation, and acceptance of intoxication (Biddle, Bank, Marlin, 1980; Wilks & Callan, 1984). Research studies have found that positive attitudes toward drinking are associated with moderate to heavier alcohol consumption for both men and women (Martin & Casswell, 1988; Perkins & Berkowitz, 1986; Ratliff & Burkhart, 1984). Cognitive

variables such as outcome expectancies and attitudes toward drinking might be influenced by cultural and personal beliefs as well.

Prior research has found that collegiate samples of men and women have similar positive attitudes toward drinking (Banks & Smith, 1980; Downs, 1987; Ratliff & Burkhart, 1984). Wechsler & McFadden (1979) have suggested that differences between the sexes have narrowed and consequently so have attitudes toward drinking. Adolescent women are more likely than their mothers to consume alcohol early in life, possibly a result of changes in women's roles, and the reduction of traditional sanctions against the consumption of alcohol by women (Wilks & Callan, 1984). However, Biddle et al. (1980) have suggested that parental attitudes toward drinking are similar to young adults. Research studies have also suggested that young adults attempt to accommodate parental and peer standards in a search for their own attitude (Biddle et al., 1980; Wilks & Callan, 1984). During this later developmental stage, young adults develop their own attitudes toward drinking and become more rejecting of the peer pressures to drink. For the young adult, the outcome of this process is the development of attitudes toward drinking similar to that of their parents (Biddle et al., 1980; Wilks & Callan, 1984).

Prior research studies have found ethnic variation in attitudes toward drinking. MacAndrew and Edgerton (1969) have suggested that outcome expectancies and attitudes about consumption differ across cultures, and that cultural beliefs appear to influence drinking behavior. More positive attitudes have been associated with the American Indian population (Forslund, 1978; Weibel-Orlando, 1984) and more negative attitudes correlated with the Asian American (Kitano & Chi, 1986/87; Sue., D., 1987; Sue, Zane, & Ito, 1979) and Black American populations (Caetano, 1984; Harford, 1985; Herd, 1985).

One ethnic population which has been subject to extensive alcohol research interest is the American Indian. Recently, research studies have sought explanations for the relatively heavier drinking style of American Indians compared with the general population. It appears that certain factors predispose an American Indian to have heavier drinking patterns. These factors can be divided into three categories: Sociocultural, physiological, and psychological.

Sociocultural research has investigated the cultural and social tolerance of alcohol consumption found in many American Indian communities (Leland, 1981; Medicine, 1982). In addition, studies have investigated acculturation

pressures, socioeconomic deprivation (Ferguson, 1976), and the effect of one hundred and fifty-one years of federally imposed alcohol prohibition (Beauvais & LaBoueff, 1985). Physiological research has examined possible genetic differences in the rate of ethanol metabolism, hypersensitivity to alcohol, and the rate of acetaldehyde metabolism. These studies have provided contradictory findings on whether the metabolism rates are fast or slow or whether the hypersensitivity to alcohol exists (Bennion & Li, 1976; Farris & Jones, 1978; Fenna, Mix, Schaefer, & Gilbert, 1971; Reed, Kalant, Gibbins, Kapur, & Rankin, 1976; Schaefer, 1981). These same biological factors have been used to explain both increased rates and decreased rates of alcoholism within American Indian and Asian American populations. Psychological explanations have focused on the investigation of demographic correlates (age, gender, cultural/religious orientation, and residence) of alcohol consumption (Guyette, 1982; Leland, 1981; Liban & Smart, 1982; May, 1982; Oetting, Beauvais, Edwards, Waters, Velarde, & Goldstein, 1982; Oetting, Beauvais, & Edwards, 1988; Weibel-Orlando, Weisner, & Long, 1984), the effect of interpersonal modeling (Bach & Bornstein, 1981; Escalante, 1980; Trimble, 1984), and the association of cognitive mediators, such as anticipation of enhanced socialization, tension reduction and positive attitudes toward alcohol consumption, with drinking pattern

(Beauvais & LaBoueff, 1985; Cockerham, 1977; Forslund, 1978; Hughes & Dodder, 1984; Oetting et al., 1988; Weibel, 1981; Weibel-Orlando, 1984; Weisner, Weibel-Orlando, & Long, 1984). It has also been suggested that American Indians demonstrate a unique heavier drinking style, exemplified by a rapid consumption of alcohol, non-responsibility for intoxicated, sometimes aggressive behavior, and an acquiescence to social pressure from a peer drinking group (Bach & Bernstein, 1981; MacAndrew & Edgerton, 1969).

The few studies that have investigated the drinking patterns of young adult and adolescent American Indians have found a wide range in drinking styles varying from heavy daily drinking to infrequent consumption or abstinence (Cockerham, 1977; Hughes & Dodder, 1984; Liban & Smart, 1982; May, 1982; Rachal, Williams, Behan, Cavanaugh, Moore, & Eckerman, 1975; Weibel-Orlando et al., 1984; Welte & Barnes, 1987). Research targeting the collegiate population has generally found a higher reported use of alcohol by the American Indian population (Goldstein, Oetting, Edwards, & Garcia-Mason, 1979; Jones-Saumty, Hochhaus, Dru, & Zeiner, 1983; Strimbu, Schoenfeldt, & Sims, 1973). Other research has found similarities between the consumption patterns of collegiate American Indian and

Caucasian groups (Hughes & Dodder, 1984; Liban & Smart, 1982).

In contrast to the heavier drinking pattern of American Indians, the Asian American population is known for a low level of alcohol consumption. The alcohol consumption pattern of Asian Americans has also been attributed to physiological, cultural, and psychosocial factors. Research evidence suggests that Asian Americans differ from non-Asian Americans in physiological response to the ingestion of ethanol (Lee, 1986; Wolff, 1972). Some studies have reported that Asian Americans experience face flushing, discomfort, and dysphoria after consumption of alcohol (Ewing, Rouse, & Pellizzari, 1974; Miller, Goodwin, Jones, Garbielli, Pardo, Anand, & Hall, 1988; Park, Huang, Nagoshi, Yuen, Johnson, Ching, & Bowman, 1984; Schwitters, Johnson, R. C., Johnson, S. B., & Ahern, 1982; Suwaki & Ohara, 1985; Wolff, 1972). However, other investigations have reported conflicting evidence with only partial or no support for these results (Johnson, Nagoshi, Schwitters, Bowman, Ahern, & Wilson, 1984; Schaefer, 1981; Schwitters, Johnson, McClearn, & Wilson, 1982). At present, research studies have not provided a conclusive explanation for this apparent contradiction.

It has also been suggested that cultural factors are associated with the alcohol consumption pattern of Asian Americans. Kitano and Chi (1986/87) have suggested that different philosophies have influenced Asian American drinking patterns with moderation emphasized as the anticipated norm. Gender is correlated with variation in alcohol consumption patterns across Asian American groups. Specifically, men have been found to have a heavier consumption pattern and women a light or infrequent consumption pattern (Chi, Lubben, & Kitano, 1989; Sue et al., 1979). Recent studies that have investigated the association of alcohol consumption and national origin have found different patterns of alcohol consumption between genders within community samples. Specifically, Chinese American men have been found to have a light to moderate consumption pattern (Chu, 1972; Chi, Kitano, & Lubben, 1988; Lin T. Y., & Lin D. T. C., 1982; Sue, Kitano, Hatanaka, & Yeung, 1984; Yu & Liu, 1986/87) whereas Japanese American, Filipino American, and Korean American men have been found to have a moderate to heavier consumption pattern (Chi et al., 1989; Kitano & Chi, 1986/87; Lubben, Chi, & Kitano, 1988; Towle, 1988). Conversely, the consumption pattern of women is light if not infrequent (Chi et al., 1989; Kitano & Chi, 1986/87; Kitano, Lubben, & Chi, 1988; Sue et al., 1984). It has been suggested that the process of acculturation upon

generations raised in the United States will gradually increase the frequency and quantity of consumption by Asian Americans (Sue et al., 1979).

Investigations of the consumption patterns of adolescents and young adult Asian Americans have generally found an overall lighter consumption pattern when compared with Caucasian samples (Kitano, Hatanaka, Yeung, & Sue, 1984; Rachal et al., 1975; Sue et al., 1979; Wechsler & McFadden, 1979). When gender is investigated, young adult Asian American men have been found to have a moderate consumption pattern whereas women have been found to have a light, generally infrequent, consumption pattern (Rachel et al., 1975; Sue et al., 1979; Welte & Barnes, 1987).

Psychosocial factors associated with the alcohol consumption pattern of Asian Americans include the effect of interpersonal modeling and beliefs and attitudes toward alcohol consumption (Chi et al., 1989; Chi et al., 1988; Kitano & Chi, 1986/87; Kitano et al., 1988; Sue, D., 1987; Sue, S. et al., 1979; Towle, 1988). Research has suggested that heavier alcohol consumption by Asian American men is associated with socialization that includes alcohol consuming peers (Chi et al., 1989; Chi et al., 1988; Kitano et al., 1988; Towle, 1988). It has also been suggested that Asian Americans have less tolerant attitudes toward

heavier alcohol consumption for both men and women (Kitano & Chi, 1986/87; Sue, D., 1987; Sue, S. et al., 1979). Although moderate alcohol consumption by men is tolerated and acceptable, heavier consumption by men or consumption in general by women is not acceptable or anticipated by the community.

Research investigating the alcohol consumption patterns of Black Americans generally has found an infrequent and lighter consumption pattern for youth and a heavier and more frequent consumption pattern associated with adulthood (Caetano, 1984; Caetano & Herd, 1984). Unlike the general population, heavy and frequent alcohol consumption within the Black American community is not associated with youth. Research studies investigating consumption patterns of Black American youth have found a lighter and often abstinent consumption pattern for both men and women (Engs, 1977; Engs & Hanson, 1985; Rachal et al., 1975; Wechsler & McFadden, 1979; Welte & Barnes, 1987). When collegiate samples of Caucasians and Black Americans are compared, Black American men and women are found to have a lighter consumption pattern (Engs, 1977; Engs & Hanson, 1985; Wechsler & McFadden, 1979; Welte & Barnes, 1987).

The light consumption pattern of Black American youth has been associated with demographic and psychosocial variables. Demographic characteristics including, adherence to a religious value system (Caetano & Herd, 1984; Engs & Hanson, 1985; Harper, 1976; Herd, 1985), geographic location in the South (Caetano & Herd, 1984; Dawkins, 1976; King, 1982), residence in a rural or middle class urban locale (Dawkins, 1976; Harper, 1988; King, 1982), and college student status (Gaines, 1985; Humphrey, Stephens, & Allen, 1983) have all been correlated with a light consumption pattern within the young adult Black American population. Investigation of psychosocial correlates, such as peer association (Dawkins, 1976; Harford, 1985; Harper, 1988; Walfish, Wentz, Benzing, Brennan, & Champ, 1981), attitudes toward drinking (Caetano, 1984; Harford, 1985; Harper, 1976; Herd, 1985), and anticipated beliefs regarding the consumption of alcohol (Atkins, Klein, Mosley, 1987; Gaines, 1985; Harper, 1976; Harford, 1985), has suggested an association between these variables and a lighter and infrequent drinking habit. Specifically, studies have found that a pattern of light consumption is correlated with peer association with non drinkers (Walfish et al., 1981; Herd, 1985), negative attitudes toward drinking (Caetano, 1984; Herd, 1985), and less anticipation of enhanced social interaction and stress

reduction with the inception of alcohol consumption (Atkins et al., 1987; Gaines 1985; Harper, 1976).

This study is designed to improve upon past studies by the use of: (1) Four ethnic populations to investigate the association between alcohol outcome expectancies and attitudes toward drinking in relation to self-reported consumption pattern, and (2) alcohol outcome expectancies, attitudes toward drinking, and demographic variables to predict drinking habit.

The fundamental questions to be addressed by this study are:

(1) What is the effect of ethnicity on alcohol outcome expectancies within a collegiate population? On the basis of past research investigating the association of outcome expectancies of European and Caucasian American groups (Christiansen & Teahan, 1987; Crawford, 1984), it was predicted that the heaviest drinking samples, American Indians and Caucasians, would have the strongest positive expectancies followed by Black Americans, and Asian Americans.

(2) What is the effect of gender across ethnic groups on outcome expectancies? Based on past research by (Brown, 1985a; Brown et al., 1985; Brown et al., 1980; Mooney et

al., 1987), it was predicted that men would have stronger positive outcome expectancies than women.

(3) Do collegiate ethnic groups report variation in drinking patterns between ethnic groups? Past research has suggested variation in drinking patterns for American Indians, Asian Americans, Black Americans, and Caucasians (Engs, 1977; Strimbu et al., 1973; Welte & Barnes, 1987). It was predicted that American Indians and Caucasians would report the heaviest consumption pattern followed by Black Americans and Asian Americans.

(4) What is the effect of gender on personal and parental attitudes toward drinking? Based on past research by Perkins & Berkowitz (1986) and Ratliff & Burhart (1984), it was predicted that men and women would have similar attitudes toward drinking. It was also predicted that subject's personal attitudes toward drinking would be similar to parental attitudes toward drinking.

(5) What is the effect of ethnicity on personal and parental attitudes toward drinking? Prior research studies have suggested that American Indian and Caucasian ethnic groups have more positive attitudes toward drinking than Black American and Asian American ethnic groups (Caetano, 1984; Kitano & Chi, 1986/87, Sue et al., 1979; Weibel-Orlando, 1984). It was predicted that American Indians and Caucasians would have more positive attitudes toward drinking and Black Americans and Asian Americans would have

more negative attitudes toward drinking. Wilks & Callan (1984) have suggested that personal attitudes of young adults are similar to parental attitudes. It was also predicted that subject's personal attitudes would be similar to parental attitudes toward drinking.

(6) Which of alcohol outcome expectancies, attitudes toward drinking, and demographic variables are the best predictors of drinking habit? It has been suggested that alcohol outcome expectancies (Brown, 1985a; Christiansen & Goldman, 1983; Mooney et al., 1987), attitude toward drinking (Banks & Smith, 1980; Martin & Casswell, 1988), ethnicity (Atkins et al., 1987; Caetano, 1984; Chi et al., 1989; Weibel-Orlando, 1984), and gender (Mooney et al., 1987; Wechsler & McFadden, 1979) are strong predictors of drinking habit. It was predicted that outcome expectancies, attitudes toward drinking, ethnicity, and gender would each be significant predictors of drinking habit.

METHODS

Study Design and Overview

The present study assessed self reports of cognitive and behavioral reactions to alcohol use in different ethnic groups. Data were collected from two college samples of four different ethnic groups over a two year period of time. Subjects were enrolled in introductory psychology courses and voluntarily participated in the study in return for extra course credit. Sample one consisted of 147 subjects representing three ethnic groups: American Indians, Asian Americans, and Caucasians. The second sample consisted of 142 subjects representing four different ethnic groups: American Indians, Asian Americans, Black Americans, and Caucasians.

Subjects

Subjects for both samples consisted of 289 undergraduate and graduate students enrolled in lower division psychology courses at the University of Washington. All subjects indicated membership in one of the following four ethnic groups: Asian American, 93 (38 females and 55 males, representing eight separate ethnic subgroups), American Indian, 65 (32 females and 33 males, representing 34 different tribal groups), Caucasian, 95 (54 females and 41 males), and Black American, 36 (24 females and 12 males). Subjects were compared on several

demographic variables (Table 1). There were significant differences for age, with American Indians older (M=24.1) than the Black Americans (M=20.7), Asian Americans (M=20.0), or Caucasians (M=20.1). Social class differences resulted from significant differences between groups on father's education and father's occupational status. The Asian American, American Indian, and Black American samples were typically from the middle to lower middle class as assessed by Hollingshead's (1957) Index of Social Position, whereas the Caucasian sample was from the upper middle class. There were no significant differences across groups for educational level.

Procedures

Undergraduate research assistants administered questionnaire packets to subjects during small group sessions. Maximum time for administration of the questionnaire packet was one hour. A consent form and written instructions were included in the packet. No identifying information was solicited, thus subjects were assured of the confidentiality of their responses. Following administration, the research assistants answered questions and solicited comments regarding the content of the questionnaire packet.

Table 1

Demographic Variables Across Ethnic Groups

Demographic Variables	Asian (n=93)	American Indian (n=65)	Black (n=36)	Caucasian (n=95)	MS		F^a
Age $\bar{x}$	19.98^b	24.15^c	20.67^b	20.08^b	16.44	275.61	16.76^{***}
(SD)	(2.03)	(7.39)	(3.79)	(1.82)			
Education [d] $\bar{x}$	2.21^b	2.66^b	2.19^b	2.50^b	1.44	3.45	2.40
(SD)	(1.05)	(1.44)	(1.19)	(1.15)			
Father's [e] $\bar{x}$ Education (SD)	3.01^b (1.73)	3.26^b (1.81)	3.06^b (1.24)	2.04^c (1.13)	2.33	23.92	10.29^{***}
Father's [fg] $\bar{x}$ Occupation (SD)	3.09^b (1.80)	3.96^c (2.22)	3.50^b (2.30)	2.18^c (1.32)	3.19	41.44	12.97^{***}
Social [fh] $\bar{x}$ Position (SD)	33.14^b (16.36)	40.65^b (21.01)	36.19^b (17.14)	23.38^c (12.36)	274.96	3940.22	14.33^{***}

[a] Univariate F-ratios based on df = 3,285.
[b] Means with the same subscript do not differ at the .05 level by the Scheffe Procedure.
[c] Means with the same subscript do not differ at the .05 level by the Scheffe procedure.
[d] The range for this scale is: 1=Freshman; 2=Sophmore; 3=Junior; 4=Senior; 5=Graduate.
[e] The range for this scale is: 1=Graduate/Professional degree; 2=B.A.; 3=Partial College; 4=High School Diploma; 5=Partial High School; 6=Junior High; 7=< 7 Years of school.

Table 1 Continued

[f] Lower scores indicate higher status.
[g] The range for this scale is: 1=Executives/Professionals; 2=Business Managers; 3=Administrators; 4 Clerks/Technicians; 5=Skilled Manual Labor; 6=Semi-skilled Labor; 7=Unskilled Labor.
[h] The range for this scale is: Social class I (<17); Social Class II (18-27); Social Class III (28-43); Social Class IV (44-60); Social Class V (61-77).

*** $p < .0005$

Measures

As the measure of alcohol consumption, subjects were administered a Drinking Habit Questionnaire adapted from Cahalan, Cisin, and Crossley (1969), which assessed the frequency and quantity of alcohol consumed per occasion. Frequency of alcohol consumption was assessed with an item which provided a 10-point scale ranging from "three or more times a day" to "I have not had any alcoholic beverages during the past one month". Three items, each containing a 5-point scale ranging from "nearly every time" to "never", were used to assess quantity. These two components of drinking habit provided a quantitative index of alcohol consumption which classified a subject into separate drinking status categories. The classification system employed was the Volume/Maximum Index (Cahalan, et al., 1969). Subjects defined as abstainers drank less than once a year and those defined as infrequent drinkers drank at least once a year but less than once a month. Those subjects who drank at least once per month were categorized into one of nine categories based on a combination of the total number of drinks per month (volume) and maximum number drinks consumed on any one occasion (maximum). There are three levels on each of these variables. Volume is defined as Low (1.0 - 17.5 drinks per month), Medium (17.6 - 44.9 drinks per month), and High (45.0 or more drinks per month). The Maximum category is similarly

defined as Low (never drinks as many as 3-4 drinks per occasion), Medium (never drinks as many as 5-6 drinks per occasion), and High (drinks 5-6 drinks per occasion at least once in a while).

To provide a measure of alcohol outcome expectancies, subjects were administered the Alcohol Expectancy Questionnaire (AEQ) developed by Brown et al. (1980). The AEQ is a structured, 90-item questionnaire with an agree-disagree format and is designed to assess the positive effects attributed to moderate alcohol consumption (defined as a "few" or a "couple" drinks). The AEQ consists of six expectancy factors with high internal consistency, .72 to .92, (with a mean coefficient of .84), acceptable test-retest reliability (.64) (Brown, Christiansen, and Goldman, 1987), and was derived by both content analysis and factor analysis. Intercorrelations between the six alcohol-related expectancies demonstrated no more than moderate to moderately strong relationships (Table 2) which concurred with prior research (Brown et al., 1987) that reported similar results. For this study, the following expectancy factors were used: (1) Anticipation of global, positive change, (2) enhancement of sexual experience and performance, (3) enhancement of social and physical pleasure, (4) an increase in social assertiveness, (5)

Table 2

Pearson Correlation Matrix Between Alcohol Outcome Expectancy Factors

Scales	Global Positive Change	Sexual Enhance-ment	Social & Physical Pleasure	Social Assertive-ness	Tension Reduction	Arousal
Global Positive Change						
Sexual Enhancement	.69**					
Social & Physical Pleasure	.64**	.51**				
Social Assertiveness	.74**	.55**	.66**			
Tension Reduction	.74**	.50**	.69**	.68**		
Arousal with Feelings of Power	.21**	.05	.11*	.10*	.15*	

n=289.

* $p < .05$
** $p < .005$
*** $p < .0005$

anticipation of relaxation and tension reduction, and (6) anticipation of arousal with feelings of power.

An Attitudes Toward Drinking assessment (Sue, et al., 1979), was also administered to all subjects. This questionnaire requested subjects to rate on a seven-point scale their extent of agreement or disagreement with (a) attitudes toward drinking and (b) reasons for regulating or controlling drinking. The attitude questionnaire contained five items, asking subjects to rate their mothers and fathers as well as themselves concerning attitudes toward approval of drunkenness, morality of drinking, physical harmfulness of alcohol, and use of alcohol as a crutch to relieve tensions and feel confident. In previous use of this instrument, the items were found to be significantly related to consumption (Sue et al., 1979). To assess attitudes toward drinking, three separate variables containing five items per variable were utilized. These three attitudes towards drinking variables were: (1) Subject's own attitude toward alcohol consumption, (2) subject's perception of father's attitude toward drinking, and (3) subject's perception of mother's attitude toward drinking. Intercorrelations between the three attitudes toward drinking variables demonstrated weak to moderate relationships which were: Subject's attitude toward drinking correlated with mother's attitude toward drinking (r =.43, p <.005); subject's attitude toward drinking

correlated with father's attitude toward drinking (r =.29, p <.005); and mother's attitude toward drinking correlated with father's attitude toward drinking (r =.57, p <.005).

The final questionnaire solicited demographic information such as age, ethnic identification, educational level, and father's educational level and present employment status.

RESULTS

The relationship of alcohol outcome expectancies, attitudes toward drinking, and self-reported drinking habit were examined among the four ethnic groups as well as between males and females within the sample population of 289 college subjects.

In order to determine if data from the two different college samples could be combined, t-tests were used to compare samples for self-reported drinking habit, alcohol outcome expectancies, and attitudes toward drinking within the American Indian, Asian American, and Caucasian populations. The Black American subjects were not included because data from this group was only collected in the second sample. Two-tailed T-test results are reported in Table 3. No significant statistical differences were found, except for one alcohol expectancy factor (sexual experience and enhancement) within the American Indian sample. American Indians in sample one reported a significantly more positive outcome expectancy for sexual enhancement (M=9.60) than American Indians in sample two (M=8.33), t -2.91, $< p <$.005). It was decided to combine data from the two samples because only one of the six outcome expectancy factors for one of the three ethnic groups was found to be significant. The significant effect

Table 3

Mean Difference of Drinking Habit, Alcohol Outcome Expectancy, and Attitudes Toward Drinking Factors within Asian American, American Indian, and Caucasian Subjects for Study 1 v/s Study 2

Variables	Asian (n=93)	t	American Indian (n=65)	t	Caucasian (n=95)	t
Drinking Habit:						
Frequency per occasion						
Study 1 $\bar{x}$ (SD)	1.80(.81)	1.17	2.39(.88)	-.24	2.40(.72)	1.43
Study 2 $\bar{x}$ (SD)	2.04(.77)		2.33(.83)		2.62(.60)	
Frequency over time						
Study 1 $\bar{x}$ (SD)	1.68(.69)	.99	2.03(.75)	.58	2.19(.66)	1.35
Study 2 $\bar{x}$ (SD)	1.85(.61)		2.15(.77)		2.38(.60)	
Alcohol Outcome Expectancies						
(1) Global, Positive Change						
Study 1 $\bar{x}$ (SD)	36.04(6.52)	-.93	38.51(6.78)	-1.73	37.70(6.72)	-.64
Study 2 $\bar{x}$ (SD)	34.81(5.67)		35.70(6.24)		36.87(5.23)	
(2) Sexual Experience & Performance						
Study 1 $\bar{x}$ (SD)	8.89(2.10)	-1.05	9.60(1.96)	-2.91**	9.17(2.11)	-.98
Study 2 $\bar{x}$ (SD)	8.42(2.16)		8.33(1.47)		8.76(1.84)	
(3) Social & Physical Pleasure						
Study 1 $\bar{x}$ (SD)	14.40(2.85)	-1.27	15.77(2.12)	-1.61	15.53(2.66)	-.49
Study 2 $\bar{x}$ (SD)	13.66(2.62)		14.87(2.42)		15.26(2.37)	

Table 3 Continued

Variables	Asian (n=93)	t	American Indian (n=65)	t	Caucasian (n=95)	t
(4) Social Assertiveness						
Study 1 $\bar{x}$ (SD)	16.44(3.85)	-1.04	17.54(3.23)	-.13	18.30(3.52)	.38
Study 2 $\bar{x}$ (SD)	15.63(3.41)		17.43(3.71)		18.58(3.49)	
(5) Tension Reduction						
Study 1 $\bar{x}$ (SD)	13.67(2.79)	-.39	14.60(2.53)	-.64	14.74(2.67)	-.70
Study 2 $\bar{x}$ (SD)	13.45(2.60)		14.20(2.51)		14.34(2.75)	
(6) Arousal with Feelings of Power						
Study 1 $\bar{x}$ (SD)	3.09(.67)	-.44	3.06(.76)	.58	3.03(.71)	-1.18
Study 2 $\bar{x}$ (SD)	3.03(.72)		3.17(.75)		2.87(.62)	
Attitudes Toward Drinking						
Subject's Attitude						
Study 1 $\bar{x}$ (SD)	17.71(5.47)	-1.09	18.29(4.27)	.27	18.79(4.54)	-1.01
Study 2 $\bar{x}$ (SD)	16.53(4.56)		18.57(4.12)		17.76(5.22)	
Mother's Attitude						
Study 1 $\bar{x}$ (SD)	14.67(4.60)	.31	16.42(6.62)	.25	17.73(5.90)	-2.26
Study 2 $\bar{x}$ (SD)	15.00(5.47)		16.86(7.16)		16.79(6.59)	
Father's Attitude						
Study 1 $\bar{x}$ (SD)	17.33(5.11)	-.03	17.91(5.14)	-.25	18.78(5.69)	-.89
Study 2 $\bar{x}$ (SD)	17.30(5.38)		17.52(6.76)		17.58(7.43)	

** $p < .005$

for the sexual enhancement factor could possibly be attributed to chance.

After combining data sets, demographic characteristics of the drinking habit variable were explored. Subsequently, the relationship between the cognitive drinking factors, alcohol outcome expectancies, and attitudes toward drinking were assessed in relation to the effects of ethnicity and sex. Finally, the relationship among alcohol outcome expectancies, attitudes toward drinking, ethnicity, and sex upon self-reported drinking habit was explored.

Demographic Correlates of Drinking Habit

The drinking habit variable divides drinking into two factors: Frequency of occasions of alcohol consumption and quantity consumed per occasion. Investigation of the relationship between frequency and quantity resulted in a significantly high correlation across ethnic groups. A Pearson product-moment correlation demonstrated a significant relationship between the frequency and quantity of alcohol consumption (r=.85, p <.001). Subjects who drank more per occasion also drank more over time. Subsequently, independent analysis of the relationship between factors within ethnic groups also resulted in significantly high correlations. The Pearson product-

moment correlation for the Caucasian group was r=.80, p <.001, for the Asian American group was r=.89, p <.001, and for the American Indian group was r=.85, p <.001. (The Black American group was not included because of small sample size.) Regardless of ethnic group, those subjects who drank more per occasion also drank more over time.

Due to these correlations across and within ethnic groups, the frequency and quantity components of the alcohol consumption variable were combined into one variable of overall drinking habit with three levels (light, moderate, and heavy). Light drinkers consisted of those subjects who were abstainers (drank less than once a year) as well as infrequent drinkers (drank less than once a month but at least once a year). Moderate drinkers reported never drinking more than 5-6 drinks per occasion and never drinking more than 44.9 drinks per month. Heavy drinkers were those subjects who drank more than 5-6 drinks per occasion at least once in a while and more than 45.0 or more drinks per month. Subsequent analysis of the drinking variable considered level of drinking but did not investigate frequency of drinking separate from quantity per occasion.

Drinking level differences among ethnic groups and between genders within ethnic groups were assessed

utilizing chi-square analysis. The results are shown in Table 4. The Asian American group was found to have similar proportions of subjects within all three drinking levels, i.e., light (37.3%), moderate (35.8%), and heavy (26.9%), with the Caucasians having a significantly higher proportion of subjects in the heavier drinking group (59.3%) and a significantly lower proportion in the moderate (30.2%) and light drinking (10.5%) groups (X^2=21.36, df=6, p <.0001). The American Indian group was found to have a significantly higher proportion of heavier drinkers (60.3%), a significantly lower proportion of moderate drinkers (15.5%), and a higher proportion of light drinkers (24.1%), with the Black American group having similar proportions of moderate (40.7%) and heavier drinkers (48.1%), and a lower proportion of light drinkers (11.1%) (X^2=7.03, df=6, p <.03). The American Indian group was found to have a significantly higher proportion of heavy drinkers (60.3%) when compared with the Asian American (26.9%) group (X^2=14.80, df=6, p <.0006). Significant differences were not found between the Caucasian and Black American groups (X^2=1.15, df=6, p <.56).

Chi-square analyses were conducted to assess gender differences within ethnic groups. A significantly higher proportion of male heavier drinkers were found in American

Table 4

Drinking Level Differences Between Four Ethnic Groups and Between Gender Within Ethnic Groups

Variables	Asian (n=67)	American Indian (n=58)	Black (n=27)	Caucasian (n=86)	DF	X^2
Combined Male & Female	%	%	%	%		
Light	37.3	24.1	11.1	10.5	6	30.25***
Moderate	35.8	15.5	40.7	30.2		
Heavy	26.9	60.3	48.1	59.3		
Males						
Light	35.6	24.1	9.1	10.3	2	18.05*
Moderate	33.3	10.3	27.3	20.5		
Heavy	31.1	65.5	63.6	69.2		
Females						
Light	40.9	24.1	12.5	10.6	2	15.33*
Moderate	40.9	20.7	50.0	38.3		
Heavy	18.2	55.2	37.5	51.1		

* $p < .05$
** $p < .005$
*** $p < .0005$

Indians (65.5%) as compared to Asian American males (31.1%), with the American Indian males having a significantly lower proportion of moderate drinkers (10.3%) than the Asian American males (33.3%) (X^2=9.25, df=6, p <.009). Caucasian males were found to have a significantly higher proportion of heavier drinkers (69.2%) and a significantly lower proportion of light drinkers (10.3%) when compared with the Asian American males (X^2=13.09, df=6, p <.001). Significant differences were not found between the Black American and American Indian males (X^2=2.43, df=6, p <.30), between the Caucasian and American Indian males (X^2=3.08, df=6, p <.21), between the Asian American and Black American males (X^2=4.63, df=6, p <.10), and between the Caucasian and Black American males (X^2=.23, df=6. p <.89).

When Asian American females and American Indian females were compared, American Indian females were found to have a significantly higher proportion of heavier drinkers (55.2%) and a significantly lower proportion of moderate (20.7%) or light drinkers (24.1%) than the Asian American females (X^2=7.22, df=2, p <.03). Caucasian females were found to have a significantly higher proportion of heavier drinkers (51.1%) and a significantly lower proportion of light drinkers (10.6%) than the Asian American females, with both the Asian American (40.9%) and

Caucasian (38.3%) females having a similar proportion of moderate drinkers (X^2=10.79, df=2, p <.004). No significant differences were found between the Black American and American Indian females (X^2=4.20, df=2, p <.12), between the Caucasian and American Indian females (X^2=3.89, df=2, p <.14), between the Asian American and Black American females (X^2=4.07, df=2, p <.13), and between the Caucasian and Black American females (X^2=.89, df=2, p <.64).

In summary, frequency and quantity of alcohol consumption as well as level of drinking were different variables among ethnic groups and between sexes within ethnic groups. Generally, the Caucasian and American Indian groups drank significantly more, the Asian American group significantly less, and the Black American group demonstrated an intermediate drinking habit. Chi-square frequency proportions can be found in Figure 1 for each of the ethnic groups as well as for gender within ethnic group.

The Effect of Ethnicity and Sex upon Alcohol Outcome Expectancies

Alcohol outcome expectancy scores were analyzed with a 4 x 2 (ethnicity x sex) MANOVA with Wilks' Lambda utilized as the criterion variable. The MANOVA and associated

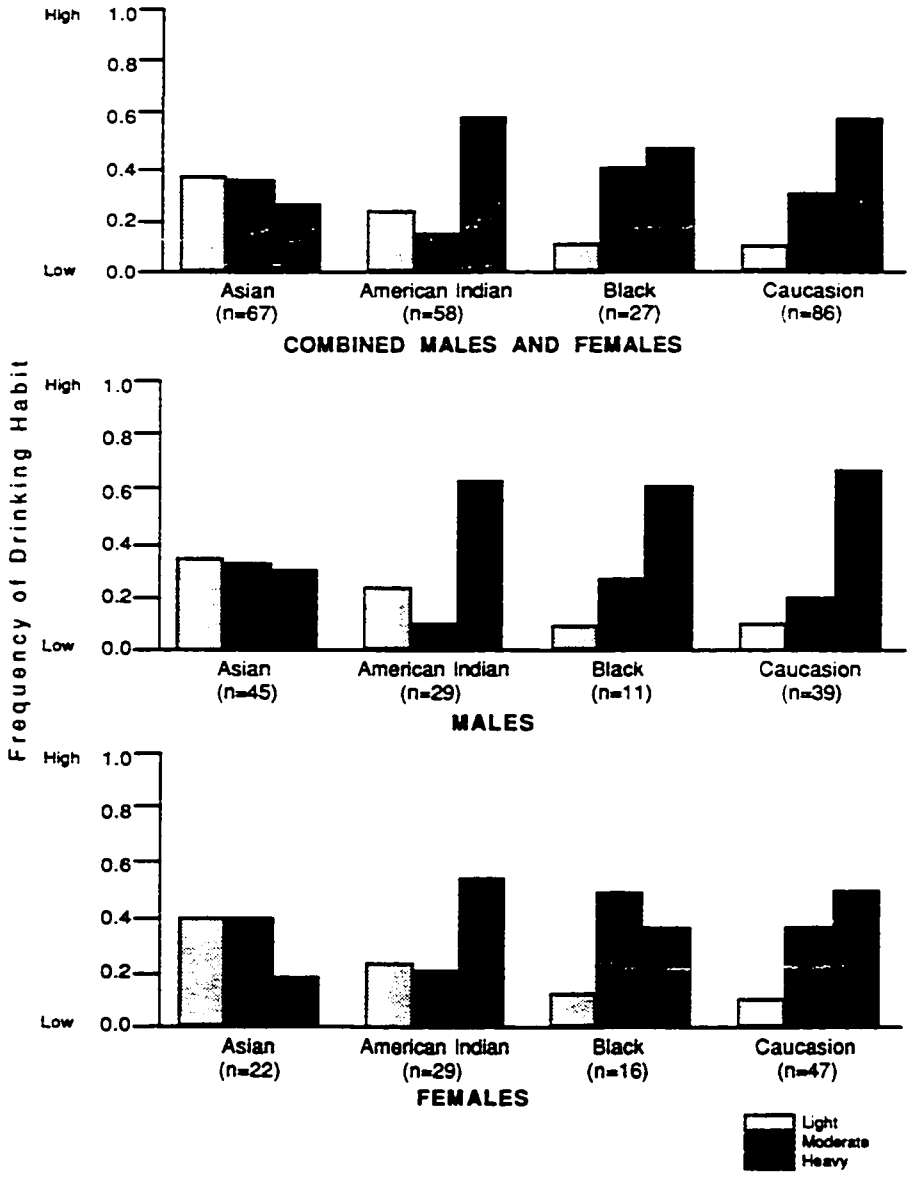

Figure 1.
Relationship among drinking habit, ethnicity, and gender.

univariate analyses results are found in Table 5. A main effect for sex was found to be significant, (F (9,256)=3.40, p <.001). A main effect for ethnicity was also found to be significant, (F (27,774)=1.99, p <.002). No significant sex by ethnicity interactions were found.

Gender and Alcohol Outcome Expectancies

One-way analyses of variance indicated that men had significantly stronger positive expectancies (M=37.69) than women (M=35.03) for anticipation of global, positive change, (factor 1), (F (1,287)=13.30, p <.0003). One-way analyses of variance also indicated that men had stronger expectancies (M=15.21) than women (M=14.47) for enhancement of social and physical pleasure (factor 3), (F (1,287)=5.74, p <.02). One-way analyses indicated that men had stronger expectancies (M=14.44) than women (M=13.63) for anticipation of relaxation and tension reduction (factor 5), (F (1,287)=6.67, p <.01). Finally, one-way analyses of variance indicated that men (M=3.13) had stronger expectancies than women (M=2.87) for anticipation of arousal with feelings of power (factor 6), (F (1,287)=9.69, p <.002). Alcohol expectancy factor 2 (anticipation of sexual enhancement) and factor 4 (anticipation of social assertion) were not significantly affected by sex. Means can be found in Figure 2 for each of the expectancy scales.

Table 5

Gender, Ethnicity, and Alcohol Outcome Expectancies

Variable	Source	DF		F
Alcohol Outcome Expectancies	Ethnicity	27.0	774.00	1.99**
	Sex	9.0	256.00	3.40**
	Sex by Ethnicity	27.0	748.29	.88

Univariate Analyses for Gender, Ethnicity & Alcohol Outcome Expectancies

Alcohol Outcome Expectancies Variables	Source	DF		MS	F
Global Positive Change	Sex	1	287	38.45 511.39	13.30***
	Ethnicity	3	285	39.12 132.67	3.39*
Sexual Enhancement	Sex	1	287	3.96 14.14	3.57
	Ethnicity	3	285	3.99 3.82	.96
Social & Physical Pleasure	Sex	1	287	7.01 40.24	5.74*
	Ethnicity	3	285	6.80 38.11	5.60**
Social Assertiveness	Sex	1	287	13.61 51.90	3.81
	Ethnicity	3	285	12.50 131.69	10.53***
Tension Reduction	Sex	1	287	7.13 47.53	6.67*
	Ethnicity	3	285	7.01 31.75	4.53**

Table 5 Continued

Univariate Analyses for Gender, Ethnicity & Alcohol Outcome Expectancies

Alcohol Outcome Expectancies Variables	Source	DF		MS	F
Arousal with Feelings of Power	Sex	1	287	.49	4.73	9.69**
	Ethnicity	3	285	.49	1.53	3.11*

Note. Wilks' Lambda utilized as criterion variable.

* $p < .05$ ** $p < .005$ *** $p < .0005$

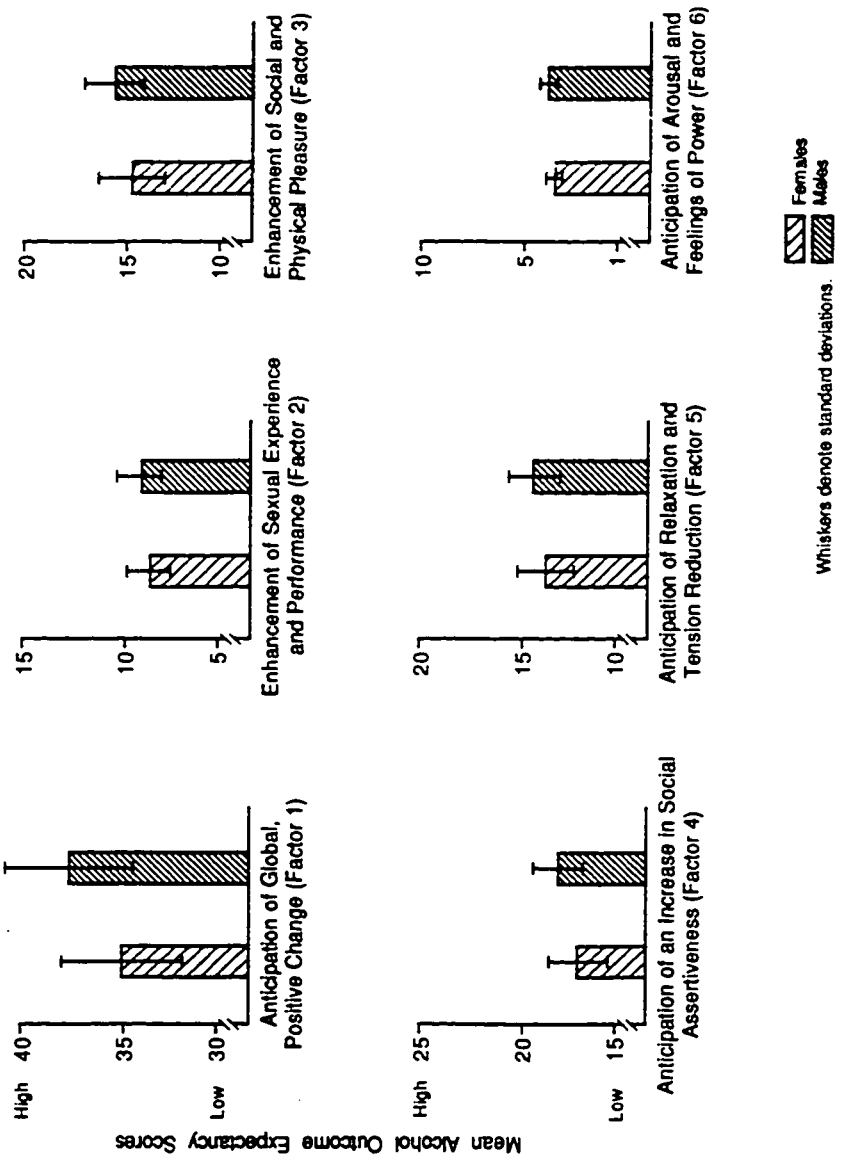

Figure 2.
Means and standard deviations for gender and alcohol outcome expectancies.

Ethnicity and Alcohol Outcome Expectancies

One-way analyses of variance indicated that American Indians (M=37.21) and Caucasians (M=37.37) had significantly stronger positive expectancies for global,positive change (factor 1) than Asian Americans (M=35.54) or than Black Americans (M=34.05) who demonstrated the least positive anticipated global, positive change, (F (3,285)=3.39, p <.02). One-way analyses of variance also indicated that American Indians (M=15.35) and Caucasians (M=15.42) had significantly stronger positive expectancies for social and physical pleasure (factor 3) than Black Americans (M=14.22) and Asian Americans (M=14.10), (F (3,285)=5.60, p <.001). One-way analyses of variance indicated that American Indians (M=17.49) and Caucasians (M=18.41) had significantly stronger positive expectancies for social assertiveness (factor 4) than Black Americans (M=15.19) and Asian Americans (M=16.11), (F (3,285)=10.53, p <.001). One-way analyses of variance indicated that Caucasians also had significantly stronger positive expectancies for tension reduction (M=14.58) (factor 5) with Black Americans indicating the least positive expectancy (M=13.0) and American Indians (M=14.41) and Asian Americans (M=13.58 indicating an intermediate level of anticipated tension reduction, (F (3,285)=4.53, p <.004). Finally, one-way analyses of variance indicated that the American Indians

had significantly stronger positive expectancies of arousal and feelings of power (factor 6) (M=3.11), than the Black Americans (M=2.70), with the Asian Americans (M=3.06) and Caucasians (M=2.97) indicating an intermediate level (F (3,285)=3.11, p <.03). Alcohol expectancy factor 2 (anticipation of sexual enhancement) was not significant. Means across ethnic groups can be found in Figure 3 for each of the expectancy scales.

The Effect of Ethnicity and Sex upon Attitudes Toward Drinking

Three attitudes toward drinking scores, consisting of subject's attitude and subject's perception of both parent's attitudes, were analyzed with a 4 x 2 (ethnicity x sex) MANOVA with Wilks' Lambda utilized as the criterion variable. The MANOVA and associated univariate analyses results are found in Table 6. A main effect for sex was found to be significant, (F (9,256)=3.40, p <.001). There was no significant main effect found for ethnicity and there was no significant sex by ethnicity interaction.

Gender and Attitudes Toward Drinking

One-way analyses of variance indicated that men had significantly more positive attitudes toward drinking than did women, (F (1,281)=14.54, p <.002). Gender effects on subject's perceptions of parental attitudes, mother's and

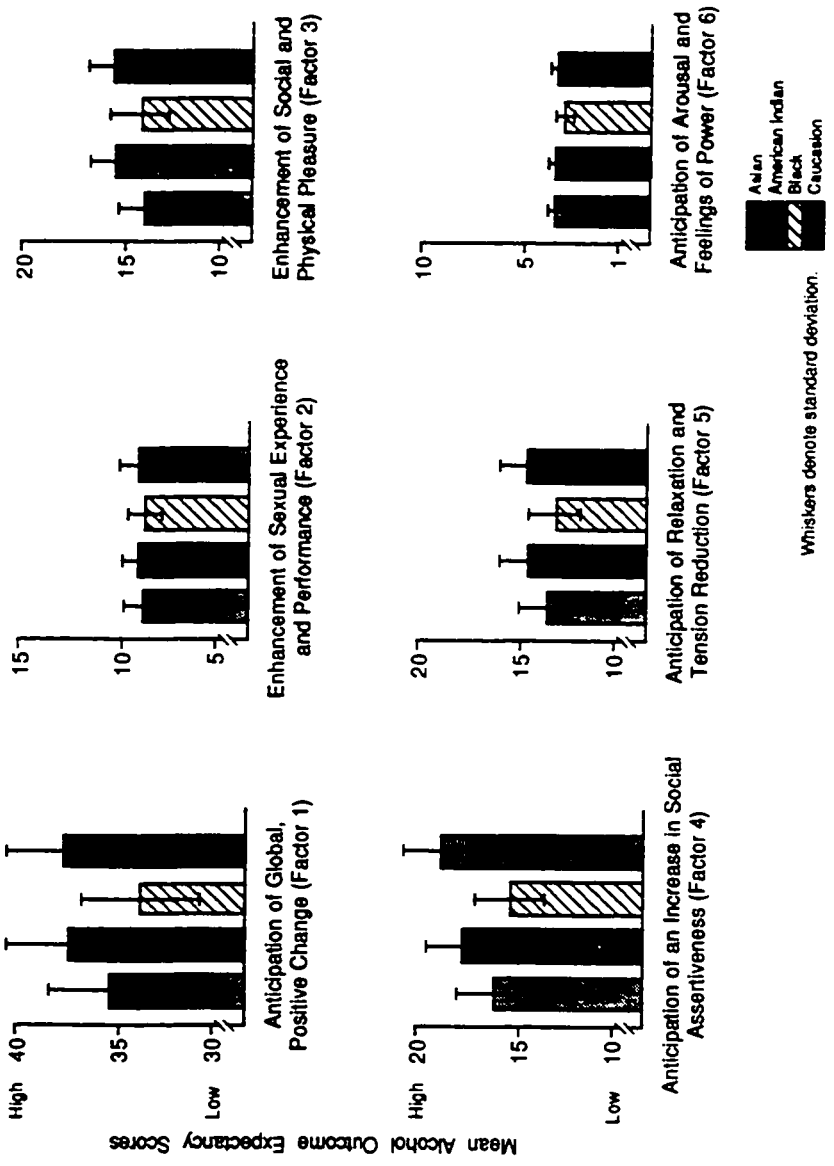

Figure 3.
Means and standard deviations for ethnicity and alcohol outcome expectancies.

Table 6

Gender, Ethnicity, and Attitudes Toward Drinking

Variables	Source	DF		F
	Ethnicity	27.0	774.00	1.99
	Sex	9.0	256.00	3.40**
	Sex by Ethnicity	27.0	748.29	.88

Univariate Analyses for Gender, Ethnicity, and Attitudes Toward Drinking

Variables	Source	DF		MS	F
Subject's Attitude	Sex	1	281	24.16	351.42	14.54***
	Ethnicity	3	279	24.97	58.07	2.33
Mother's Attitude	Sex	1	278	9.16	37.76	.24
	Ethnicity	3	276	37.23	77.04	2.07
Father's Attitude	Sex	1	272	.08	35.42	.002
	Ethnicity	3	270	14.52	14.98	.42

Note. Wilks' Lambda utilized as criterion variable.

* $p < .05$
** $p < .005$
*** $p < .0005$

father's, were not found to be significant. Means for each of the attitude toward drinking factors can be found in Figure 4.

The Effect of Alcohol Outcome Expectancies, Attitudes Toward Drinking, Ethnicity, and Sex Upon Drinking Habit

A stepwise discriminant function analyses was conducted utilizing alcohol outcome expectancies, attitudes toward drinking, gender, and ethnicity to assess which of the variables best predicted drinking habit. The analyses utilized the minimization of Wilks' Lambda as the criterion. The discriminating variables included the six variables of alcohol outcome expectancies: (1) Anticipation of global, positive change, (2) enhancement of sexual experience and performance, (3) enhancement of social and physical pleasure, (4) an increase in social assertiveness, (5) anticipation of relaxation and tension reduction, and (6) arousal with feelings of power; the three variables of attitudes toward drinking: Subject's attitude toward drinking, subject's perception of mother's attitude toward drinking, and subject's perception of father's attitude toward drinking; ethnicity and gender, two demographic categories. Dummy variable coding was used for the ethnicity variable. The measure of drinking

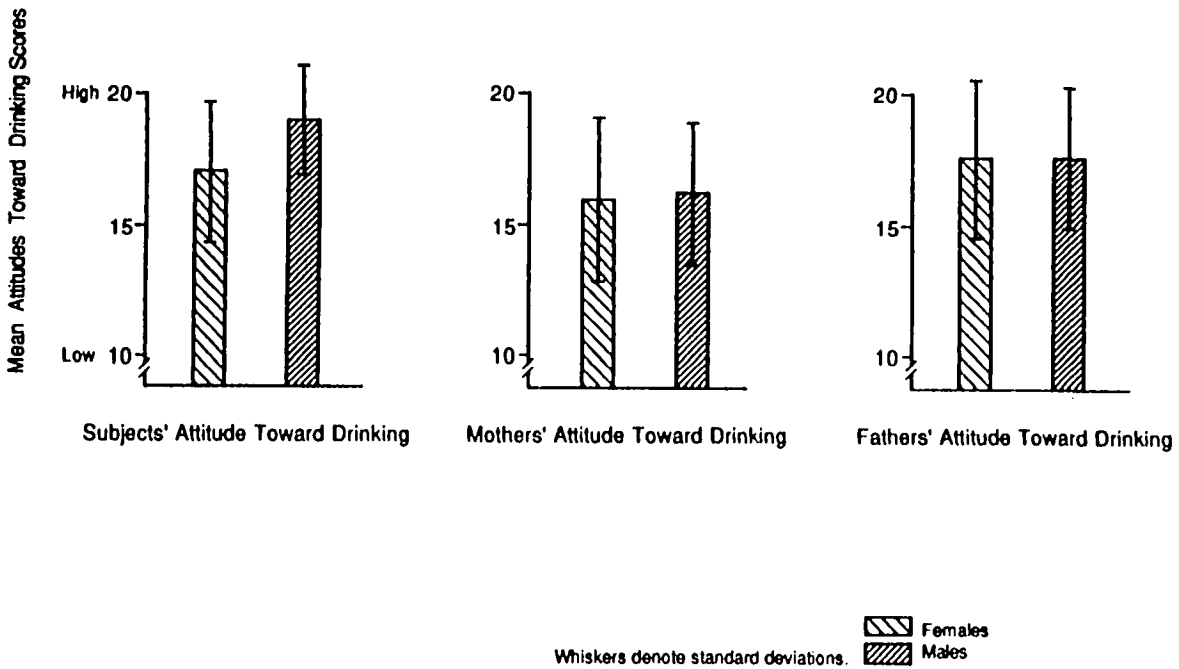

Figure 4.
Means and standard deviations for gender and attitudes toward drinking.

behavior was the three category self-reported level of alcohol consumption.

Table 7 presents the results of the discriminant functions analyses and those variables that contributed significantly to the discriminant analyses. One of the six alcohol outcome expectancy variables contributed significantly, anticipation of social and physical pleasure, (F (1,222)=23.72, p <.0001). Two of the ethnic demographic categories, being of Asian American ethnicity, (F (1,221)=16.17, p <.0001) and being of American Indian ethnicity, (F (8,219)=10.48, p <.0001) contributed significantly. Finally, one of the three attitude toward drinking variables, subject's attitude toward drinking (F (6,220)=12.83, p <.0001) contributed significantly. Those variables that did not contribute significantly included the other alcohol outcome expectancy factors: Anticipation of global positive change, anticipation of sexual enhancement, anticipation of social assertiveness, anticipation of tension reduction, and anticipation of physical arousal; two of the three attitudes toward drinking variables: Subject's perception of mother's attitude toward drinking and subject's perception of father's attitude toward drinking; and three of the demographic variables; being of Black American ethnicity, being of Caucasian background, and gender.

Table 7

Results of Stepwise Discriminant Functions Analyses

Variable Class	Step	Cummulative Wilks' Lambda	DF		F to enter
Anticipation of Social and Physical Pleasure (Factor 3 Expectancy)	1	.82	1	222	23.72***
Asian Ethnicity	2	.76	1	221	16.17***
Subjects Attitude Toward Drinking	3	.72	1	220	12.83***
American Indian	4	.70	1	219	10.48***
Sex			1	218	2.01***
Mother's Attitude Toward Drinking			1	217	1.34
Father's Attitude Toward Drinking			1	216	.52
Anticipation of Global, Positive Change (Factor 1 Expectancy)			1	215	1.25
Anticipation of Sexual Enhancement (Factor 2 Expectancy)			1	214	.96
Anticipation of Social Assertiveness (Factor 4 Expectancy)			1	213	.31
Anticipation of Tension Reduction (Factor 5 Expectancy)			1	212	.05

Table 7 Continued

Variable Class	Step	Cummulative Wilks' Lambda	DF	F to enter
Anticipation of Physical Arousal (Factor 6 Expectancy)		1	211	.29
Caucasian Ethnicity		1	210	.45
Black Ethnicity		1	209	.45

*** $p < .0005$

The relationship between the discriminating variables and the first canonical discriminant function is shown in Table 8. (The second canonical function accounted for a minimal 3% of the variance and consequently will not be discussed further.) The first canonical function accounted for 38% of the variance. The variable with the highest loading on the first canonical function was alcohol outcome expectancy factor - anticipation of social and physical pleasure (r=.75). Other high loading variables were subject's attitude toward drinking (r=.56) and not being of Asian American ethnicity (r=-.54). The discriminant function analyses correctly classified 62.2% of the cases

Table 8

Correlations Between Canonical Discriminant Functions and Discriminating Variables

Variables	Function 1
Alcohol Outcome Expectancies: Anticipation of Social and Physical Pleasure	.75
Attitude Toward Drinking: Subject's Attitude	.56
Asian Ethnicity	.54
American Indian Ethnicity	.17
Caucasian Ethnicity	.27
Alcohol Outcome Expectancies: Anticipation of Tension Reduction	.38
Anticipation of Social Assertiveness	.38
Anticipation of Global, Positive Change	.37
Attitude Toward Drinking: Mother's Attitude	.24
Alcohol Outcome Expectancies: Anticipation of Sexual Enhancement	.23
Black American Ethnicity	.11
Attitude Toward Drinking: Father's Attitude	.20
Alcohol Outcome Expectancies: Anticipation of Physical Arousal	.01
Sex	.03

DISCUSSION

This study examined the relationship of ethnicity and gender upon alcohol outcome expectancies, attitudes toward drinking, and self-reported drinking habit of four different college age ethnic groups: Asian American, American Indian, Black American, and Caucasian. In contrast with past studies of alcohol outcome expectancy and drinking habit (Brown et al., 1980), the study investigated the relationship of ethnicity and gender upon outcome expectancies. The study also examined the association of gender and ethnicity upon attitudes toward drinking and the relationship of outcome expectancies and attitudes toward drinking upon drinking habit.

Drinking Habit

As predicted, Caucasians and American Indians were found to have heavier drinking habits than Black Americans and Asian Americans. Specifically, both Caucasian and American Indian men and women were found to have a significantly heavier drinking pattern. However, when level of drinking habit was considered, it was of moderate intensity when compared with the consumption patterns of research studies that have investigated community samples (Caetano, 1984; Escalante, 1980; Weisner et al., 1984). Specifically, both Asian American and Black American men and women were found

to have a generally infrequent and lighter consumption pattern per occasion. Consequently, the study provided support for research investigations that have found a lighter consumption pattern for Asian American and Black American young adult populations than other ethnic groups (Caetano, 1984; Engs, 1977; Kitano et al., 1984; Rachal et al., 1975).

Cognitive Mediators of Alcohol Consumption

Alcohol Outcome Expectancies. As predicted, men had stronger alcohol outcome expectancies than did women. Specifically, men showed more positive expectancies for the more general global expectancies (global, positive change and social and physical pleasure) than did women. Goldman et al. (1987) suggested that endorsement of these more general outcome expectancies indicate beliefs that alcohol is magically transforming or enhancing of a broad range of physical and social experiences. The study also found that men anticipated more positive effects of tension reduction and arousal with feelings of power than did women. Anticipation of tension reduction and arousal with feelings of power has been consistently correlated with a heavier alcohol consumption pattern. In the study, men were found to have a heavier drinking pattern as well as more positive outcome expectancies than were women.

As predicted, American Indians and Caucasians anticipated stronger positive outcomes than did Black Americans and Asian Americans. Specifically, American Indians and Caucasians had stronger positive outcome expectancies for global, positive change. Prior studies have found more positive outcome expectancies associated with heavier alcohol consumption (Brown, 1985a; Brown et al., 1985). The American Indian and Caucasian groups also reported a heavier alcohol consumption pattern. The results also showed that Caucasian and American Indian groups anticipated more social and physical pleasure. Consumption of alcohol by the American Indian has been perceived as a social lubricant for the otherwise more reticent tribal individual (Beauvais & LaBoueff, 1985). Consequently, anticipation of more positive social and physical pleasure may be an expected and possibly desired outcome of alcohol consumption by many American Indians. Prior investigations of outcome expectancies have also resulted in findings of more positive anticipation of social and physical pleasure by Caucasian samples (Christiansen et al., 1985; Christiansen & Teahan, 1987; Mooney et al., 1987). Caucasians and American Indians were also found to have higher expectancies of social assertion. Forslund (1978) found that both American Indians and Caucasians utilized alcohol consumption to facilitate interpersonal expressiveness and social interaction. The

pursuit of social enhancement as well as social conviviality appears to be an anticipated outcome of alcohol consumption for both Caucasians and American Indians.

Stronger positive expectancies of tension reduction were also found for the Caucasians in the study. For Caucasians, alcohol consumption appears to be a coping mechanism, which if not curtailed, may result in a future problem drinking pattern. Brown et al. (1985) have suggested that expectancy of tension reduction by young adults is a strong predicator of a problematic drinking pattern. Caucasians endorsing more positive outcome expectancies of tension reduction and reporting a heavier consumption pattern, might therefore benefit from prevention programs targeting alternative methods of stress reduction and coping behavior.

Results also showed that American Indians had stronger positive expectancies of arousal with feelings of power than the Black American group. MacAndrew and Edgerton (1969) have suggested that the inappropriate aggressive acting-out behavior associated with alcohol consumption by American Indians is a learned behavior established during the era of western expansion and reinforced by the imposition of prohibition laws. Latency of change in

consumption behavior by American Indians has been correlated with isolation from non-Indian society, both self-selected and environmental (residence on rural reservations), as well as with implementation of a paternalistic government policy which regulated and enforced prohibition of alcohol consumption of American Indians until 1953. The study suggests that anticipation of arousal by American Indians remains a salient reason for alcohol consumption and is not negatively impacted by higher academic status.

Asian Americans and Black Americans were found to have less anticipation of positive outcome expectancies. Caetano (1984), Kitano et al., (1984), and Sue et al., (1979) found that young adult Black Americans and Asian Americans reported less positive expectancies of social enhancement and stress reduction as well as a lighter consumption pattern when compared with non Asian and Black American young adult populations. Although some evidence of variation in physiological reaction to alcohol consumption has been found for the Asian American population, inconclusive findings prompt continued investigation of the contribution of psychosocial factors (Schaefer, 1981). The present study suggests that anticipation of less positive alcohol outcome expectancies

may be associated with the lighter consumption pattern of Asian Americans and Black Americans.

Attitudes Toward Drinking. Men were found to have more positive attitudes toward drinking than women. Specifically, men reported more favorable attitudes toward drinking and more disagreement with reasons for regulating or controlling alcohol consumption. This finding was unexpected. One possible explanation is that the heavier consumption pattern of men is associated with more positive attitudes toward drinking. Martin & Casswell (1988) found that heavier alcohol consumption was associated with more positive attitudes toward drinking. Compared to women, men in the study appeared to be: More accepting of drunkenness, morally accepting of alcohol consumption, and more inclined to perceive alcohol consumption as a method to relieve tension and enhance feelings of confidence. Although some research studies have suggested an equalization of attitudes toward drinking between men and women (Downs, 1987; Ratliff & Burkhart, 1984), the present study suggests that differences continue to exist in some student populations.

Attitudes toward drinking and alcohol outcome expectancies, both of which are cognitive factors associated with alcohol consumption, were strongly and

positively endorsed by men in the study. Although ethnic variation was found for alcohol outcome expectancies, no significant ethnic difference was found for attitudes toward drinking.

The Prediction of Drinking Habit

When alcohol outcome expectancies, attitudes toward drinking, ethnicity, and gender were subjected to discriminant function analysis, to assess their combined effect on drinking habit, it was found that one group of discriminating variables accounted for a significant, although moderate, amount of the variance. Those discriminating variables that accounted for the largest portion of the variance consisted of anticipation of social and physical pleasure, subject's attitudes toward drinking, and a demographic variable, not being of Asian American ethnicity. Specifically, anticipation of global, social, and physical pleasure has been perceived as a strong reinforcer for the initiation of alcohol consumption. Although this finding suggests that the remaining alcohol outcome expectancy factors do not contribute significantly to the prediction of drinking habit, moderately strong intercorrelations were found among the six expectancy factors in the study. Leigh (1989) has suggested that the AEQ may actually be measuring a single, general global expectancy which encompasses a belief that alcohol is

capable of enhancing a broad range of physical and social experiences. Consequently, an alternative explanation might conclude that regardless of which, at least one of the expectancy factors contributes significantly to the prediction of drinking habit.

The association of positive attitudes toward drinking with alcohol consumption has been found in prior research studies (Martin & Casswell, 1988; Ratliff & Burkhart, 1984). Favorable attitudes toward drinking as well as disagreement with regulation or control of alcohol consumption appear to be salient factors associated with the consumption of alcohol. Conversely, being of Asian American ethnicity appears to have a negative association with alcohol consumption. Prior research investigating the alcohol consumption pattern of Asian Americans has found a generally lighter consumption pattern than that of non-Asian Americans (Sue et al., 1979). When combined, anticipation of social and physical pleasure, positive attitudes toward drinking, and not being of Asian American ethnicity appear to provide the greatest level of discrimination for alcohol consumption; maximally accounting for 38% of the variance in the three level drinking habit variable.

Future Directions

This study investigated the alcohol outcome expectancies and attitudes toward drinking of American Indians, Asian Americans, Black Americans, and Caucasians in relation to self-reported drinking habit. Future research investigating ethnic variation of collegiate populations would benefit from further analysis of subgroup differences for the American Indian and Asian American groups as well as the Black American group. Research studies utilizing community samples of American Indians and Asian Americans have respectively found variation in drinking habit based on tribal affiliation/national origin (Chi et al., 1989; Weibel-Orlando, 1984), residence (rural/urban) (Weisner et al., 1984; Towle, 1988), generation (Kitano et al., 1984); Sue et al., 1979; Weibel-Orlando, 1984), and acculturation (May, 1982; Sue et al., 1979). Correlates of drinking habit associated with Black American community populations have included religious affiliation (Caetano & Herd, 1984; Engs & Hanson, 1985), rural/urban residence (Dawkins, 1976; Harper, 1988; King, 1982), and geographic location (Caetano & Herd, 1984; Dawkins, 1976; King, 1982). Although solicitation of collegiate samples containing subgroup variability as well as specific demographic characteristics for American Indian, Asian American, and Black American groups are difficult to attain, this information would provide a

clearer understanding of the variation between and within ethnic minority groups in relation to pattern and style of alcohol consumption.

It has recently been suggested that investigation of alcohol outcome expectancies might be enhanced by expanding the model to include an evaluative component (Leigh, 1987). Without assessing the value attached to alcohol outcome expectations, it is difficult to assess the desirability of specific outcome expectancies. In the study, although both Caucasians and American Indians had more positive outcome expectancies, evaluation of the desirability of outcome expectancy may have provided additional information regarding group difference.

It has also been suggested that investigation of the influence of dose level (Southwick et al., 1981) and negative outcome expectancies (Rohsenow, 1983) might provide a clearer understanding of the association between drinking habit and alcohol outcome expectancies. In the study, investigation of dose level and the anticipation of negative expectancies might have provided additional information about ethnic group differences and characteristics associated with variation in consumption patterns.

Although the present findings are limited to a college population, prior research studies have not investigated the association between alcohol outcome expectancies and drinking habit of ethnic minority collegiate populations. The results of the study might assist the development of further hypotheses regarding the development and maintenance of drinking habit and the impact of cognitive factors upon alcohol consumption within ethnic minority groups. It has been suggested that specific alcohol outcome expectancies are associated with different patterns and styles of alcohol consumption. By investigating ethnic variation in alcohol outcome expectancies, it might be possible to better understand the relationship of these cognitive factors upon the variation in consumption level exhibited by ethnic minority groups. Perhaps by acquiring additional knowledge and an improved understanding of ethnic difference in alcohol consumption, it might be possible to develop intervention strategies which might either attempt to modify existing anticipated cognitive effects associated with alcohol consumption or provide alternative methods of attaining desired effects without the use of heavy alcohol consumption.

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Demographic Questionnaires

ASIAN AMERICAN DEMOGRAPHIC QUESTIONNAIRE

1. Age _____

2. Sex (circle one): Male Female

3. Education (year in school-circle one):

   Freshman Sophomore Junior Senior Graduate Other

THE FOLLOWING FIVE QUESTIONS (4-8) ARE ABOUT YOUR FAMILY BACKGROUND. THESE QUESTIONS DEAL WITH THE FATHER AND/OR MOTHER WITH WHOM YOU LIVED THE MOST UNTIL THE AGE OF 18, EVEN IF THEY WERE NOT YOUR NATURAL (BIOLOGIC) FATHER AND/OR MOTHER.

Please indicate (check) the highest level of education completed:

4. Mother	5. Father	
____	____	graduate degree (Masters, Ph.D.)
____	____	college degree
____	____	partial college training (1-3 years of college)
____	____	high school degree
____	____	partial high school training (grade 10 or 11 completed)
____	____	junior high school completed (grades 7-9 completed)
____	____	less than 7 years of school

6. What type of work did the father you lived with the longest do most of the time you were growing up?

   _____

7. What type of work did the mother you lived with the longest do most of the time you were growing up?

   _____

8. How would you describe the general drinking habits of each of your parents?

	Father	Mother
Don't know	_____	_____
Non-drinker	_____	_____
Occasional or light social drinker	_____	_____
Moderate or average social drinker	_____	_____
Frequent or heavy social drinker	_____	_____
Alcoholism problem	_____	_____

9. Prior to college, did you live with parents who were:
   of the same ethnicity? Yes ____ No ____
   -or-
   of different ethnic backgrounds? Yes ____ No ____

10. Your ethnicity (circle one):
    a. Asian Indian (From the countries of: Indian, Pakistan, Nepal, Sri Lanka, Afghanistan, Bengladesh, Bhutan, Sikkim)
    b. Chinese
    c. Filipino
    d. Japanese
    e. Korean
    f. Pacific Islander
    g. Southeast Asian
    h. other (please specify): _____

11. With whom did you have your first drink? Check the appropriate category:
    Friends _____ Relatives _____ By yourself _____ Other _____

12. How much do you weigh? Estimate weight without clothes and shoes: _____lbs.

BLACK AMERICAN DEMOGRAPHIC QUESTIONNAIRE

1. Age _____

2. Sex (circle one): Male Female

3. Education (year in school-circle one):

Freshman Sophomore Junior Senior Graduate Other

THE FOLLOWING FIVE QUESTIONS (4-8) ARE ABOUT YOUR FAMILY BACKGROUND. THESE QUESTIONS DEAL WITH THE FATHER AND/OR MOTHER WITH WHOM YOU LIVED THE MOST UNTIL THE AGE OF 18, EVEN IF THEY WERE NOT YOUR NATURAL (BIOLOGIC) FATHER AND/OR MOTHER.

Please indicate (check) the highest level of education completed:

4. Mother	5. Father	
____	____	graduate degree (Masters, Ph.D.)
____	____	college degree
____	____	partial college training (1-3 years of college)
____	____	high school degree
____	____	partial high school training (grade 10 or 11 completed)
____	____	junior high school completed (grades 7-9 completed)
____	____	less than 7 years of school

6. What type of work did the father you lived with the longest do most of the time you were growing up?

_____

7. What type of work did the mother you lived with the longest do most of the time you were growing up?

_____

8. How would you describe the general drinking habits of each of your parents?

	Father	Mother
Don't know	_____	_____
Non-drinker	_____	_____
Occasional or light social drinker	_____	_____
Moderate or average social drinker	_____	_____
Frequent or heavy social drinker	_____	_____
Alcoholism problem	_____	_____

9. With whom did you have your first drink? Check the appropriate category:

Friends _____
Relatives _____
By yourself _____
Other _____

10. How much do you weigh? Estimate weight without clothes and shoes: _____ lbs.

CAUCASIAN DEMOGRAPHIC QUESTIONNAIRE

1. Age _____

2. Sex (circle one): Male Female

3. Education (year in school-circle one):

   Freshman Sophomore Junior Senior Graduate Other

THE FOLLOWING FIVE QUESTIONS (4-8) ARE ABOUT YOUR FAMILY BACKGROUND. THESE QUESTIONS DEAL WITH THE FATHER AND/OR MOTHER WITH WHOM YOU LIVED THE MOST UNTIL THE AGE OF 18, EVEN IF THEY WERE NOT YOUR NATURAL (BIOLOGIC) FATHER AND/OR MOTHER.

Please indicate (check) the highest level of education completed:

4. Mother	5. Father	
_____	_____	graduate degree (Masters, Ph.D.)
_____	_____	college degree
_____	_____	partial college training (1-3 years of college)
_____	_____	high school degree
_____	_____	partial high school training (grade 10 or 11 completed)
_____	_____	junior high school completed (grades 7-9 completed)
_____	_____	less than 7 years of school

6. What type of work did the father you lived with the longest do most of the time you were growing up?

   _____

7. What type of work did the mother you lived with the longest do most of the time you were growing up?

   _____

8. How would you describe the general drinking habits of each of your parents?

	Father	Mother
Don't know	_____	_____
Non-drinker	_____	_____
Occasional or light social drinker	_____	_____
Moderate or average social drinker	_____	_____
Frequent or heavy social drinker	_____	_____
Alcoholism problem	_____	_____

9. With whom did you have your first drink? Check the appropriate category:

Friends _____
Relatives _____
By yourself _____
Other _____

10. How much do you weigh? Estimate weight without clothes and shoes: _____ lbs.

NATIVE AMERICAN DEMOGRAPHIC QUESTIONNAIRE

1. Age _____

2. Sex (circle one): Male Female

3. Education (year in school-circle one):

Freshman Sophomore Junior Senior Graduate Other

THE FOLLOWING FIVE QUESTIONS (4-8) ARE ABOUT YOUR FAMILY BACKGROUND. THESE QUESTIONS DEAL WITH THE FATHER AND/OR MOTHER WITH WHOM YOU LIVED THE MOST UNTIL THE AGE OF 18, EVEN IF THEY WERE NOT YOUR NATURAL (BIOLOGIC) FATHER AND/OR MOTHER.

Please indicate (check) the highest level of education completed:

4. Mother	5. Father	
_____	_____	graduate degree (Masters, Ph.D.)
_____	_____	college degree
_____	_____	partial college training (1-3 years of college)
_____	_____	high school degree
_____	_____	partial high school training (grade 10 or 11 completed)
_____	_____	junior high school completed (grades 7-9 completed)
_____	_____	less than 7 years of school

6. What type of work did the father you lived with the longest do most of the time you were growing up?

_____

7. What type of work did the mother you lived with the longest do most of the time you were growing up?

_____

8. How would you describe the general drinking habits of each of your parents?

	Father	Mother
Don't know	_____	_____
Non-drinker	_____	_____
Occasional or light social drinker	_____	_____
Moderate or average social drinker	_____	_____
Frequent or heavy social drinker	_____	_____
Alcoholism problem	_____	_____

9. Prior to college, did you live with parents who were:
   of same ethnicity? Yes ____ No ____
   -or-
   of different ethnic background? Yes ____ No ____

10. During your high school years (9-12 or 10-12) did you attend:
    an American Indian boarding school? Yes ____ No ____
    -or-
    a public school? Yes ____ No ____

    If you attended a public school, did it have a majority American Indian student body? Yes ____ No ____

11. Your ethnicity (circle one), and note tribe:
    a. Alaskan Native
    b. Aleut
    c. American Indian
    d. Canadian Indian
    e. Eskimo
    f. other (please specify): _____
    Tribe: _____

12. With whom did you have your first drink? Check the appropriate category:
    Friends _____ Relatives _____ By yourself _____ Other _____

13. How much do you weigh? Estimate weight without clothes and shoes: _____lbs.

Vita

Fransing Daisy

Date and Place of Birth: October 1, 1950
Seattle, Washington

Education and Degrees:

Ph.D., Psychology Summer, 1989	University of Washington Seattle, Washington
M. Ed., Educational Psychology Summer, 1976	University of Washington Seattle, Washington
Psychology Intern 1987-1988	Veterans Administration Medical Center Department of Medicine and Surgery Seattle, Washington
Doctoral Candidate Clinical Psychology 1987-1989	University of Washington Seattle, Washington
B.A., Sociology/Anthropology Spring, 1972	Western Washington University Bellingham, Washington