9-12-2014

Normative Beliefs about Drinking and Alcohol Use among Native American and non-Hispanic White College Students

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Recommended Citation

Hagler, Kylee. "Normative Beliefs about Drinking and Alcohol Use among Native American and non-Hispanic White College Students." (2014). https://digitalrepository.unm.edu/psy_etds/56

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NORMATIVE BELIEFS ABOUT DRINKING AND ALCOHOL USE AMONG NATIVE AMERICAN AND NON-HISPANIC WHITE COLLEGE STUDENTS

by

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THESIS

Submitted in Partial Fulfillment of the
Requirements for the Degree of

**Master of Science
Psychology**

The University of New Mexico
Albuquerque, New Mexico

August, 2014

Acknowledgements

I would like to express sincere gratitude towards my mentor and committee chair, Dr.

Kamilla Venner, for her encouragement and guidance throughout this process. Thank you

also to Dr. J. Scott Tonigan and Dr. Barbara McCrady for serving on my thesis

committee and providing helpful feedback.

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ABSTRACT

Excessive alcohol consumption among college students has been linked to many negative consequences (e.g. Chou et al., 2006). Normative beliefs about alcohol use have been associated with college alcohol use such that students who estimate higher drinking among peers and students who perceive higher approval for drinking from peers tend to drink more (e.g. Neighbors, Lee, Lewis, Fossos, & Larimer, 2007). However, many studies examining normative beliefs have been conducted with only non-Hispanic White (NHW) college students. The purpose of the present study was to examine the relationship between normative beliefs about drinking and four alcohol variables in a sample of Native American (NA) and NHW college students. One hundred forty-seven NA and 253 NHW undergraduate students enrolled at a large Southwestern university completed a short online survey assessing both their normative beliefs about alcohol and their own drinking behavior. Results indicated no significant differences in alcohol use behaviors between drinkers of either ethnicity. Three-step hierarchical linear regressions predicting drinking variables from normative beliefs indicated that estimated drinks per week of the participants' best friends was the most robust positive predictor of alcohol use variables. Results from this study can be used to inform future alcohol interventions for both NA and NHW college students.

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Chapter 1

Introduction

Due to heavy episodic drinking, college students are particularly at risk for experiencing the negative consequences of alcohol consumption. Instances of acute intoxication can lead to impaired driving, risky sexual behavior, increased aggression, and blackouts, among other undesirable events (e.g., Chou et al., 2006; Lewis, Rees, Logan, Kaysen, & Kilmer, 2010; Perkins, 2002). Aggregated results from the Monitoring the Future (MTF) National Survey reveal that alcohol is the most commonly used substance in the college population, with 69% of currently enrolled students reporting at least one instance of past 30-day consumption. Furthermore, 40% of individuals enrolled in a two- or four-year institution reported recent binge-drinking, defined as the consumption of five or more drinks in one sitting, on at least one occasion in the two weeks prior to survey completion, as compared to 29.9% of non-college peers (Johnston, O'Malley, Bachman, & Schulenberg, 2009). This is a conservative estimate of binge drinking, as neither gender differences nor lack of knowledge regarding standard drink size, a widespread issue among college populations, were taken into account (White et al., 2005). Using Wechsler, Dowdall, Davenport, and Rimm's (1995) widely accepted criteria for binge drinking, defined as five or more drinks in a row for males and four or more for females, it is possible that an even larger proportion of college students surveyed practiced heavy episodic drinking.

Empirical investigation has shown that college students who engage in heavy episodic drinking are differentially more likely to experience negative consequences associated with alcohol consumption. Welschsler, Lee, Kuo, and Lee (2000) found that

frequent binge drinkers were more likely than both non-binge drinkers and occasional

binge drinkers to experience a wide variety of detrimental consequences, including

missing class, forgetting events, requiring medical attention for an overdose, and getting

injured, suggesting that the regularity of binge drinking contributes to the incidence of

alcohol-related negative consequences. Furthermore, 48% of frequent binge drinkers

reported experiencing five or more alcohol-related problems, as compared to only 3.5%

of non-binge drinkers. Students who engage in binge drinking may be significantly more

likely to engage in other problematic substance use (Jones, Oeltmann, Wilson, Brener, &

Hill, 2001). In addition to binge drinking, many college students also practice pre-

partying and regularly consume high alcohol-content beverages, including malt liquor,

behaviors that have been positively associated with a rise in the occurrence of related

negative events (e. g. Chen & Paschall, 2003; LaBrie & Pedersen, 2008; Pedersen &

LaBrie, 2007). Given the significant risk posed to college students as a result of risky

drinking behaviors, there is a clear need for the development of more effective

intervention strategies.

Alcohol Consumption among NA Students

Although many research efforts have focused upon the documentation and

explanation of drinking behaviors and alcohol-related consequences among non-Hispanic

White (NHW) college students, there is a dearth of empirical information available

concerning alcohol consumption among Native American (NA) college students. In the

United States, NA students comprise only 0.9% of all students attending 4-year

universities (DeVoe & Darling-Churchill, 2008). Consequently, many investigations of

college drinking behavior either do not include NA students or collapse NA participants

into an aggregate "other" ethnic category with other underrepresented minority students, making patterns of alcohol consumption difficult to clearly discern. To date, only one study has examined NA alcohol consumption behaviors quantitatively across a large sample in a college setting. Ward and Ridolfo (2011) combined several years of data from a national survey on alcohol use at four-year universities across the United States to obtain a representative sample of NA students. The authors found that approximately 65% of NA students had consumed alcohol in the 30 days prior to assessment, and 41% met Welscher et al.'s (1995) criteria for binge drinking. These rates are nearly identical to those found in the general college population (e.g. Johnston et al., 2009).

Given the relatively small number of NA students enrolled in four-year universities, it is not surprising that research concerning alcohol use behaviors in this population is lacking. The preliminary quantitative investigation by Ward and Ridolfo (2011) indicates that NA students exhibit the same high rates of alcohol consumption and binge drinking as the general college population, yet little is known about what predicts these patterns of drinking. Predictors of binge drinking such as fraternity membership, high school binging practices, and age have been well established in samples of mostly NHW college students (Wechsler, Dowdall, Davenport, & Castillo, 1995; Wechsler, Kuh, & Davenport, 2009). However, several of these expected characteristics have not been found to be associated with NA college student binge drinking, suggesting that novel predictors specific to this group should be examined (Ward & Ridolfo, 2011). Furthermore, due to the small number of NA college students, even basic information about the incidence of alcohol-related consequences remains relatively unknown. Hughes and Dodder (1984) found that NA students at Oklahoma State University were

more likely to report some serious drinking consequences, including regretting behavior, concern about having a drinking problem, and arrest for DWI or public intoxication than their NHW counterparts. However, the narrow scope of this sample, which included only NA students from central Oklahoma tribes who considered themselves to be "cultural" NA, is an indication that the obtained results may not generalize to NA of different regional tribal affiliations. In addition, consequences such as regretting behavior may be indicative of reactions toward perceived disapproval for alcohol use among NA community members.

Although there is a dearth of information concerning the drinking practices of NA college students, empirical evidence regarding other subsets of the NA population further emphasize the need for focused research in this area. NA youth appear to be differentially at risk for the development of alcohol-related problems compared to their non-NA peers. Results from the 2001-2002 NIAAA-sponsored National Longitudinal Alcohol Epidemiologic Survey (NLAES) indicate that NA youth first consume alcohol at an average age of 15.4 years, significantly younger than all other ethnic groups surveyed (Chen, Dufour, & Yi, 2004). In addition, NA youth have been found to experience a higher incidence of drinking-related consequences, such as passing out from drinking, when they do consume alcohol. Elevated rates of alcohol-related consequences in NA youth populations can be attributed to frequent practice of risky drinking behaviors, including using multiple substances in the same time period, drinking and driving, and drinking mass quantities of alcohol (Beauvais, 1992). The formation of drinking beliefs and practices during young adulthood and years of college attendance may have

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important implications for the continuation of heavy drinking behaviors and development of alcohol-related problems in later adulthood.

Normative Beliefs about Alcohol Consumption

Several theoretical explanations have been posited to explain the prevalence of heavy drinking among college students. Social norm theorists assert that social reference groups exert a significant influence on the formation of an individual's beliefs and behavior patterns (e. g. Festinger, 1954). Two main types of social norms have been examined in relation to college drinking behavior. Descriptive norms, the most frequently studied type of normative belief, are defined as an individual's perception of the typical alcohol use behaviors of salient individuals within his/her reference group. Empirical examination suggests that perception of the drinking behaviors of an individual's social reference group is directly associated with the drinking behaviors of that individual. Students who perceive their peers to drink at a high level, regardless of actual drinking behavior, have been shown to display personal patterns of heavy alcohol consumption (Clapp & McDonnell, 2000). Furthermore, college students have been shown to systematically overestimate the amount that members of their peer groups drink, which is in turn correlated with personal high levels of drinking (Baer, Stacy, & Larimer, 1991; Perkins, Meilman, Leichlitler, Cashin, & Presley, 1999).

In addition to descriptive normative beliefs, researchers have begun to examine the effect of injunctive norms on college alcohol use. In contrast to descriptive norms, which concern perceptions of levels of drinking within a particular population, injunctive norms refer to the extent to which individuals perceive *approval* for various drinking behaviors from their family members or peers. Different types of alcohol-related

behaviors are generally perceived as being more or less accepted by a social reference group, with students tending to report that their peers would be less approving of very high-risk alcohol use behaviors such as driving after drinking (e. g. McCarthy, Lynch, & Pedersen, 2007). In contrast, Lewis et al. (2010) found that less severe drinking behaviors, such as drinking with friends, playing drinking games, and drinking to have fun were perceived as being generally accepted by the typical same-sex university student. LaBrie, Hummer, Neighbors, & Larimer (2010) reported a positive association between injunctive normative beliefs and incidence of alcohol-related consequences for a variety of perceived attitudes of distal (i.e., the typical student) and proximal (i.e., parents) reference groups. In addition to less severe drinking behaviors, research is needed to determine perceived approval for alcohol abstinence. Given the high rates of abstinence among many NAs, abstinent norms may be particularly relevant for NA students.

Normative Feedback Interventions

Neighbors, Lee, Lewis, Fossos, and Larimer (2007) found that injunctive and descriptive norms are among the most reliable predictors of alcohol use among college students. Capitalizing on this information and on the tendency for college students to overestimate peer drinking, normative feedback interventions have been developed as a strategy for reducing excessive alcohol consumption and related consequences among college student populations. In such interventions, participants receive accurate information on the drinking behavior of their peers in order to correct overestimations of peer alcohol use. In addition, participants are informed as to personal risk factors for alcohol problem development and are provided with a profile of statistics regarding their

own drinking behaviors (i.e., BAC, amount of money spent on alcohol; Walters & Neighbors, 2005). Normative feedback interventions operate primarily through the identification of self-other discrepancies, in which the deviance of the drinking behavior of an at-risk student from the norm of the typical student is highlighted. Both descriptive and injunctive normative feedback interventions have been implemented to varying degrees of success. In a review of the literature on normative feedback interventions, Lewis and Neighbors (2006) found that although personalized normative feedback has successfully reduced alcohol consumption and drinking-related consequences for several college samples, there are many considerations for improving the effectiveness of normative feedback interventions.

In an attempt to improve normative feedback interventions, researchers have begun to examine factors that influence the development of drinking-related normative belief systems. One factor that may be especially pertinent to members of ethnic minority groups, including NA, is degree of identification with the reference group. Social groups can be conceptualized in a number of ways. The proximity of the reference group to oneself is the most commonly examined mediator of the relationship between normative beliefs and drinking behavior. *Proximity* here refers to the closeness of the reference group to the individual. The most distal reference group is the *typical* college student, with race, gender, age, and ethnicity unspecified for this reference. More proximal reference groups include members of a team or fraternity, with the closest reference groups consisting of the individual's best friends and parents. The proximity of the reference group has a variety of implications for normative feedback interventions. Examining one type of reference group, fraternity and sorority group membership, has

been shown to be associated with a lesser degree of identification with the typical college student, which may serve to explain why some college-wide normative feedback interventions utilizing data from the typical student have been unsuccessful in this population (i. e. Carter & Kahnweiler, 2000; Schroeder & Prentice, 1998). In contrast, Larimer, Turner, Mallett, and Markman Geisner (2004) found that both injunctive and descriptive norms, when tailored to assess the beliefs of only the Greek population rather than the general student body, were predictive of alcohol use and related-consequences among fraternity members up to one year later. This finding suggests that tailoring normative feedback interventions to involve reference groups that are more proximally related to the individual may be beneficial to outcomes. However, it is possible that students are less likely to misperceive attitudes of parents and close friends, which could render normative education in regard to these individuals to be of limited value. Lewis and Neighbors (2006) emphasized the importance of establishing a balance between proximity of reference group and the amount of misperception that is likely to occur.

Although descriptive and injunctive normative beliefs about drinking have been examined in terms of college students, friends, and parents, less attention has been focused on the possible influence of the attitudes of other groups, such as at the cultural level. Historically, psychological research has focused attention on individual- (e.g. biology, personality, intelligence) and universal-level (e.g. behavioral principles) factors. The tripartite model of levels of analysis adds a group level to the analysis of human behavior focusing on culture and other important group membership variables. These variables may influence behavior, attitudes, and beliefs (Sue & Sue, 2008). For students who strongly identify with a specific cultural or ethnic group, perceptions of the typical

student may be in conflict with views of other cultural group members. Lewis and

Neighbors' (2006) examination of who is perceived to be the typical university student

further emphasizes the potential for discordance. Regardless of their own race, students

perceived the typical student to be non-Hispanic White. Cultural group factors may be

particularly relevant for NA college students, who may identify more strongly with other

NA group members than with the typical college student. Since there is some evidence to

suggest that proximity to the reference group is an influential factor in determining the

effectiveness of normative feedback interventions, it is possible that providing

information about the typical student's alcohol use to an NA student who does not

identify with this reference group will be less than optimally effective. To our

knowledge, there has been no research to date that examines perceived ethnic group

norms, perceived approval for drinking behavior, and the potential association of these

factors with the drinking behaviors of NA college students.

NA Alcohol Use Stereotypes

NA individuals are underrepresented in nearly all examinations of alcohol use

among college students. As previously stated, one quantitative analysis of a sample of

NA college students found rates of alcohol consumption and heavy drinking to be

comparable to rates found for NHW students (Ward & Ridolfo, 2011). Despite this

finding, pervasive misperceptions about NA drinking continue to color the

conceptualization of alcohol use in this population. Alcohol use disorders and the

incidence of alcohol-related problems in the NA community have been scrutinized by

many alcohol researchers and in popular culture. May (1994) highlighted several

inaccurate alcohol-related negative stereotypes that are commonly endorsed as true of

NAs. For example, the inaccurate belief that NAs metabolize alcohol at a slower rate than members of other ethnic groups is widely accepted, even within NA communities. Furthermore, an emphasis is placed on statistical findings that report high rates of alcohol dependence, especially among NA males (e. g. Robin, Long, Rassmussen, Albaugh, & Goldman, 1998). An excessively narrow emphasis on alcohol-related difficulties in NA communities fails to appreciate the significant alcohol-related strengths of this population. Despite an elevated incidence of alcohol-related problems, some NA tribes have high rates of complete abstinence from alcohol consumption (Spicer et al., 1991). In addition, wide tribal heterogeneity contributes to significant variance in acceptability and use of alcohol. Finally, given that NAs have among the highest abstinence rates of all ethnic groups, it is relevant to extend the normative alcohol literature to include norms for abstinent behavior.

Despite the potentially negative effect of drinking stereotypes on the formation of perceptions of alcohol use and psychological functioning of NAs, real concerns about the detrimental effect of excess alcohol consumption on some members of this population warrant significant attention. It is especially important to consider the high incidence of negative consequences experienced by NA youth who choose to consume alcohol (e. g. Beauvais, 1992). Insight into the drinking practices of NA college students has the potential to inform normative feedback interventions that are tailored to group level characteristics, with the goal of increasing effectiveness and cultural appropriateness for minority student populations. Nationally, graduation rates of NA students are much lower than students of other ethnicities. At UNM, only 22% of NA students who begin a four-year program of study go on to actually receive a degree (ASUNM Faculty Senate, 2012).

It is possible that, just as is evidenced in non-NA student populations, consequences related to alcohol consumption play a significant role in the failure to graduate of some NA individuals. More effective interventions can be developed once alcohol use behaviors and attitudes towards drinking are explicated in this population.

Summary

Binge drinking is a significant problem among college students nationwide, and is highly related to the incidence of a variety of alcohol-related consequences. Social normative theory offers an explanation for why drinking occurs at an elevated rate in this population. Both descriptive norms, students' perceptions of how much their peer group is drinking, and injunctive norms, students' perceptions of how much their peer group approves of various alcohol-related behaviors, have been correlated with students' personal drinking behaviors. Normative feedback interventions are techniques designed to reduce rates of heavy drinking in the college population by providing accurate information about alcohol use norms. In an attempt to improve the effectiveness of such interventions, recent research has focused on discerning which factors determine the salience of various alcohol related norms. However, since most studies in this area have been conducted with NHW student samples, factors affecting the degree to which descriptive and injunctive norms influence the drinking behaviors and attitudes towards drinking of ethnic minority student groups are not known. NA students are of particular interest given the negative health consequences of alcohol abuse and dependence within several NA populations. It is possible that cultural factors unique to NA students may mediate the relationship between normative beliefs and alcohol use within this ethnic group.

Present Study

The present study sought to address gaps in the research literature concerning attitudes towards drinking and alcohol use behaviors of NA and NHW college students. Specifically, this study addressed (a) quantity and frequency of alcohol consumption among AI/AN and NHW students, (b) the incidence of alcohol-related consequences within these populations, (c) AI/AN and NHW students' normative beliefs regarding the alcohol use behaviors of several reference groups on the UNM campus (descriptive norms), (d) AI/AN and NHW students' perception of the acceptability of abstinence and various drinking behaviors within friend and family groups (injunctive norms), (e) the extent to which AI/AN and NHW students endorse stereotypical beliefs regarding AI/AN drinking, and (f) other cultural factors that may be associated with AI/AN and NHW student alcohol consumption and the formation of descriptive and injunctive normative beliefs about drinking.

Specific Aims

Aim I

Aim I examined the factor structure of the Injunctive Norms Questionnaire (INQ) using exploratory factor analysis, with the expectation that the underlying structure would be such that drinking behavior questions for each reference group would cluster. In addition, exploratory factor analyses were conducted with the Perceptions of American Indian Drinking (PAID) questionnaire. We expected that a unidimensional structure would emerge, with a single factor representative of the latent construct of stereotypical beliefs about NA drinking.

Aim II

Aim II examined descriptive statistics for each independent (descriptive normative beliefs, injunctive normative beliefs, Bicultural Ethnic Identity Scale (BEIS), Inclusion of In-Group in the Self (ISS), and endorsement of NA drinking stereotypes) and dependent variable of interest (Alcohol Use Disorders Identification Test (AUDIT) total score, Rutgers Alcohol Problem Index (RAPI) score, drinks per week (DPW), and binge drinking). Comparisons were then made between NA and NHW participants for each of the relevant descriptive variables. An additional goal of Aim II was to compute effect sizes between data in our sample to data available from the UNM College Office of Substance Abuse Prevention Fall 2013 Student Lifestyles Survey in order to assess for the presence of differences between our sample and existing UNM data.

Aim III

Aim III examined the relationship between descriptive and injunctive normative beliefs and four alcohol outcomes (AUDIT score, RAPI score, PAID scale score, and number of binge drinking days per week). We expected that both types of normative beliefs would add unique predictive power to each model. Product terms representing the interaction between ethnicity and each of the descriptive and injunctive normative beliefs variables were added to each model to assess for the presence of differential relationships between variables by ethnic identity.

Aim IV

Moderators of the relationship between descriptive and injunctive norms and the four alcohol outcomes were examined. Separate models were examined for NA and NHW participants. Moderators examined for NAs included endorsement of negative NA alcohol use stereotypes, as measured by the PAID scale, identification with the "typical"

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UNM student, as measured by the IIS, and bicultural ethnic identity, as measured by the

BEIS. The IIS was examined as a potential moderator for NHW participants.

Chapter 2

Method

Participants/ Procedure

Based upon Aim IV of the study, results from a power analysis using the

G*Power software indicated that a sample size of 120 NA and 120 NHW was required to

detect a medium effect size in the population. To allow for missing data, the target

sample size was 150 NA and 150 NHW, for a total sample size of 300 participants.

Because enrollment progressed more quickly than initially expected, the initial target

sample size was increased to allow up to 500 participants (250 NA and 250 NHW).

Participants were recruited from a large southwestern university with an

ethnically diverse student population. Email addresses of NA and NHW students were

obtained through the campus Office of the Registrar. Potential participants were solicited

through email messages advertising the study, which included a link to the online survey

as well as information regarding compensation for participation. Follow-up emails were

sent to students who did not participate until recruitment goals were reached, or until a

student had been contacted three times. Participants were also recruited through the

psychology department's online research participation system, a student newspaper, and a

free community newspaper. All NA and NHW undergraduate students currently enrolled

full-time at UNM were eligible to complete the online survey. In order to investigate

variables of interest in relation to "traditional" students immersed in the college

atmosphere, participant age was restricted to 18-30 years old. To evaluate how drinking

status affected outcome variables, participants were eligible to participate regardless of whether or not they were current alcohol consumers. Provided that participants met the abovementioned requirements, they were not excluded on the basis of any other characteristics. Participants received course credit as compensation for their participation if they were participating through the SONA psychology research system. All participants were given the option to provide their email address to be entered in a drawing for several gift cards from amazon.com and target.com. The total value of all gift cards awarded was $700.

Measures

  Drinking behavior. The Alcohol Use Disorders Identification Test (AUDIT) is a 10-item self-report questionnaire designed to assess alcohol use behavior (Saunders, Aasland, Babor, De La Fuente, & Grant, 1993). The first three questions address quantity and frequency of alcohol use; Question three, "How often do you have six or more drinks on one occasion?" is designed specifically to address binge drinking. The remaining questions (4-10) require participants to provide information regarding the frequency with which they experience a range of alcohol-related consequences using a five-point likert-scale ranging from "never" to "daily or almost daily." Possible scores on the AUDIT range from zero to 40. Convergent validity of the AUDIT with other well-established measures of risky alcohol use has been established in a number of research endeavors, and this measure has been shown to be appropriate for use in college student populations (e. g. Allen, Litten, Fertig, & Babor, 1997; Kokotailo, Egan, Gangnon, Brown, Mundt, & Fleming, 2004; Saunders et al., 1993).

Alcohol-related consequences. The Rutgers Alcohol Problem Index (RAPI; White & Labouvie, 1989) was administered to characterize the incidence of alcohol-related consequences in our sample. The RAPI consists of 23 items designed to quantify the occurrence of health-related and interpersonal consequences as a result of alcohol consumption in the last 90 days. Sample items include "had a fight, argument, or bad feelings with a friend," "kept drinking when you promised yourself not to," and "not being able to do your homework or study for a test". Participants indicated how often they had experienced each consequence in the past year, with a score of zero representing "never experienced," 1 representing "[experienced] 1-2 times," 2 representing "3-5 times," and 3 representing "more than 5 times." Consequently, possible scores on the RAPI range from zero to 69. Scores derived from the RAPI have been found to offer a valid representation of alcohol-related consequences experienced by college students (Lewis & Neighbors, 2004; White & Labouvie, 1989).

Descriptive norms. Descriptive normative beliefs about alcohol consumption were assessed using a modified version of the Drinking Norms Rating Form (DNRF; Baer, Stacy, & Larimer, 1991). Initially, the DNRF asks participants to report their own drinking behavior by noting the number of drinks they normally consume on each day of a typical week in the past month. In addition, participants stated the number of hours they typically drank for each day. This information was used to create the variable drinks per week (DPW), as well as to calculate the number of binge drinking episodes reported per week. Binge drinking was classified as four or more drinks in a sitting for females, and five or more drinks in a sitting for males (Wechsler et al., 1995).

Following the same format, participants were asked to describe their perceptions of the drinking behavior of four reference groups, including the typical same-sex UNM student, the typical same-sex NA student, the typical same-sex NHW student, and the participant's best friends. Estimates concerning typical students of the two ethnic backgrounds (NA and NHW) were added to Baer et al.'s (1991) original measure to assess for the presence of differential beliefs about patterns of alcohol use between students of different ethnic backgrounds at UNM's ethnically diverse campus. Psychometric evaluation of the DNRF has supported the validity of this form as a measure of student's beliefs about the drinking practices of selected reference groups on college campuses (Baer et al., 1991). Participants were then asked about the percentage of UNM students, both in general and within the two specific ethnic groups, they believed to be completely abstinent from alcohol.

Injunctive Norms. Injunctive normative beliefs about alcohol consumption and alcohol-related behaviors were assessed using a modified version of Baer's (1994) injunctive drinking norms measure (INQ). Participants were asked to rate how approving they perceived six different reference groups to be of seven alcohol use behaviors and related consequences. Reference groups included the typical UNM student, typical same-race UNM peer, typical different-race UNM peer, typical NA community member (completed by NA participants only), close friends, and the student's parents. The behaviors assessed ranged from less severe (played drinking games, drank alcohol with friends) to more severe (drank alcohol daily, drove a car after drinking, drank enough alcohol to pass out, drank alcohol every weekend). In addition, participants were asked to respond to a question asking them to rate how approving/disapproving the various

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reference groups would be if the participant were to completely abstain from alcohol use. Although Baer's (1994) initial injunctive norms measure only included four items addressing severe alcohol behaviors, recent research has demonstrated the merits of assessing injunctive normative beliefs for less severe alcohol behaviors that may occur more often in college student populations (Lewis et al., 2010). Participants responded on a seven-point likert-type scale, indicating to what degree they perceived approving or disapproving attitudes toward each alcohol behavior for each reference group. Possible responses ranged from one, indicating that participant thought the reference group would express strong disapproval, to seven, indicating that the participant would express strong approval. Scores on each set of questions were averaged to produce a mean approval score for each reference group. This measure has frequently been used to examine injunctive normative beliefs among college students, and is associated with a wide variety of alcohol-related behaviors (e. g. LaBrie et al., 2010; LaBrie, Napper, & Ghaidarov, 2012)

In addition to the adaptation of Baer's (1994) INQ, we also asked participants to describe the demographic characteristics they attributed to the typical UNM student. After completing the INQ, participants were asked to note what gender, age, and ethnicity they perceived were representative of the typical UNM student.

Identification with the typical UNM student. Because the salience of normative feedback depends largely on degree of identification with the peer reference group, the Inclusion of Ingroup in the Self was used to examine self-conceptualization in relation to a defined in-group (IIS; Tropp & Wright, 2001). On the ISS, participants are required to choose one of seven venn-diagrams to best represent how similar they feel they are to

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members of the chosen reference group. For the purpose of the present study, the reference group was designated "typical student at UNM." Each of the seven venn-diagrams consists of two circles that overlap to varying degrees, with one circle representing "self" and the other circle representing "typical UNM student". On one end, participants who indicated a complete lack of self-identification with the typical student were able to select the response option depicting two orthogonal circles. In contrast, participants who strongly identified with the typical student were able to select a pair of circles that were nearly overlapping. Possible responses on the IIS range from one, indicating no overlap, to seven, indicating a high degree of overlap. The IIS has been demonstrated to be a valid measure of in-group identification, and is positively correlated with measures of influence exerted by the in-group (Tropp & Wright, 2001). Furthermore, this measure may be especially appropriate for use with NA students, who may tend to conceptualize ideas in a non-linear fashion (Renfrey, 1992).

Bicultural ethnic identity. The Bicultural Ethnic Identity Scale (BEIS) was administered to NA participants to assess the degree of identification with both traditional NA and NHW worldviews. Developed by Moran, Fleming, Somervell, and Manson (1999) this measure is of particular utility for assessing ethnic identity among NA individuals who may also identify with the dominant NHW culture. The scale is composed of eight items. Each item consists of a two four-point likert-type scales that require the participant to quantify the extent to which he or she identifies with a variety of aspects of NA and NHW culture, including way of life, traditions, language, and spirituality. The questions are organized such that participants may rate a high (or low) level of identification with both NA and NHW culture for each item. For example, on

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question six, which asks, "When you are an adult, how involved do you think you will be in [White traditions and beliefs, NA traditions and beliefs]?" participants are provided with one likert-type scale for "White traditions and beliefs" and one for "NA traditions and beliefs," each ranging from "not at all" to "a lot." Rating "a lot" on the NHW scale does not preclude the participant from rating "a lot" on the NA scale, allowing for measurement of bicultural identity. Responses to the NA and NHW questions were summed separately and divided by the number of items pertaining to each ethnicity, yielding an average score of NA and NHW identity for each participant. In comparison with other measures of ethnic identity, the BEIS produces scores that are a valid representation of cultural ideals for NA adolescents (Moran et al., 1999). As this scale only pertains to individuals of NA heritage, the BEIS was not administered to NHW participants.

Stereotypical beliefs about NA drinking. In order to assess belief in assumptions about NA drinking, we devised a measure based on May's (1994) explication of common stereotypes concerning drinking behaviors within this population. The scale consists of 10 self-report items that require the participant to indicate the extent he or she believes the stated item to be true, regardless of whether or not he or she is familiar with the actual validity of the statement. Sample questions include "Most NAs have the same heavy-drinking style," "NAs metabolize alcohol at a slower rate than other ethnic groups," and "Alcohol use is part of the NA 'way of life'". Participants responded to each item using a five-point likert-type scale, ranging from "very untrue" to "very true." In order to attenuate possible response bias, three items on the scale have been reverse-coded such that an endorsement of "very true" indicates less stereotypical

assumptions. An exploratory factor analysis was conducted to determine the most accurate means of creating a summary score for this scale. Higher scores on the PAID suggest a more biased view of NA drinking behaviors.

Demographics. Demographic variables that could potentially moderate findings were assessed using a short self-report questionnaire. Demographic items required participants to record their sex, ethnicity, age, year in college, place of residence, and socioeconomic status. In addition, NA participants were asked whether they had ever resided on a NA reservation, and whether they are tribally enrolled.

Data Analytic Strategy

Data Cleaning

Data were cleaned using Tabachnick and Fidell's (2012) data cleaning recommendations. First, descriptive statistics were examined for each variable to ensure that all scale scores were within expected range and that scale means and standard deviations were plausible. Transformations were conducted to improve skewness and kurtosis indices for variables with non-normal distributions. Transformations significantly improved non-normality of data. Results from analyses conducted with transformed data were compared to results from analyses conducted with non-transformed data and were found to be equivalent. Thus, results from analyses conducted with non-transformed data are reported for ease of interpretation.

Missing Data

Missing data values were imputed at the item level using hot-deck imputation. Hot-deck imputation is a process by which missing values for a given item are predicted based upon values of other investigator-selected variables that are likely to influence the

value of the missing item (Myers, 2011). This procedure is recommended to address missing values when 10% or less of data are missing, regardless of the reason that data are missing (i.e., missing completely at random, missing at random, and missing not at random). In the present study, the SPSS HOTDECK macro (Myers, 2011) was used to impute the expected value of missing item-level data for each scale utilizing other, non-missing items from each scale. The HOTDECK macro organizes data such that a participant's missing data are imputed using data from another participant whose values on the other scale variables match those of the participant with missing data.

Statistical Outliers

Individual data points were considered to be statistical outliers if they deviated more than three standard deviations from the mean score on each variable. Using recommendations from Tabachnick and Fidell (2012), identified outliers were then winsorized to equal the highest response value that was within the bounds of three standard deviations above the mean value of the variable. For example, the mean score on the AUDIT was 4.86 ($SD = 5.03$). Thus, AUDIT scores greater than 19.96 were considered to be outlier values. For the AUDIT, 10 individuals were determined to have scores above 19.96. The highest AUDIT score that was less than 19.96 (the upper bound for outlier values) was 19, so the 10 individuals with outlier AUDIT scores were assigned this score.

Aim I

Exploratory factor analyses of the INQ and the PAID were conducted using SPSS version 21. Variable distributions were examined in order to determine the most

appropriate extraction method for each analysis. An orthogonal rotation method was utilized to allow for correlations between factors.

Aim II

We calculated descriptive statistics for each independent (descriptive normative beliefs, injunctive normative beliefs, two BEIS subscales, ISS score, and PAID score) and dependent variable of interest (AUDIT score, RAPI score, DPW, and binge drinking days per week). The mean and standard deviation of each variable were calculated for the sample as a whole, as well as separately for NA and NHW participants. Comparisons between NA and NHW responses were made for each variable of interest using independent samples t tests, with corrections for multiple comparisons applied. The BEIS was only completed by NA participants, and consequently was not included in the comparison process. To control for inflated alpha as a result of multiple comparison issues, statistical significance was set to a p value of .01 or lower.

An additional goal of Aim II was to compute effect sizes between data obtained from our sample and data available from the COSAP SLS. A list of selected comparison variables is presented in Appendix A. Comparisons were made using Cohen's d effect size calculations.

Aim III

Four proposed models examining the relationship between injunctive and descriptive norms and AUDIT, RAPI, DPW, and binge drinking days per week were tested. Each model was tested using hierarchical multiple linear regression analysis, with demographic variables including ethnicity, sex, and age entered as predictor variables in the first step. In step two, injunctive and descriptive normative beliefs were added as

predictors of the relevant outcome for each model. Finally, product terms representing the interaction between ethnicity and each of the normative belief variables were added to each model to assess for potential moderating effects of ethnicity on the relationship between normative beliefs and drinking outcomes. All continuous variables in the hierarchical linear regression models were mean-centered to aid in the interpretation of model intercepts and to reduce multicollinearity between predictor variables. Figure one provides a visual representation of the four models tested in Aim III.

Aim IV

Aim IV examined potential moderators of the relationship between descriptive and injunctive norms and AUDIT total score, RAPI total score, DPW, and number of binge drinking days per week. Separate models were proposed for NA and NHW participants. Moderators that were examined for NAs included PAID total score, IIS total score, and both BEIS subscales ("Indian way of life" and "White way of life"). The IIS was examined as a potential moderator for the NHW sample. All continuous predictor variables were mean-centered prior to the calculation of interaction terms, and mean-centered predictors were utilized in all analyses to aid in the interpretation of intercepts and to reduce multicollinearity. Figures two, three, and four provide a visual representation of the models tested in Aim IV.

Chapter 3

Results

Study participation

Five hundred NHWs and 1311 NAs were invited to participate in the study via email addresses obtained from the UNM Office of the Registrar. In addition, all students

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currently enrolled in psychology classes that offered course credit for research

participation were able to view information about the study and had the option to

participate through the psychology department's research website. The reason for the

discrepancy between number of NHW students emailed and number of NA students

emailed was that the majority of students who participated through the psychology

department's research website were NHW, thus less email recruitment was necessary for

this group. The study was also advertised in the Daily Lobo student newspaper and in the

Alibi, a local, free weekly newspaper distributed throughout the city. A total of 588

individuals consented to begin the online survey. Of these, 472 individuals completed

the entire survey. Data from the 472 participants were examined for violations of

inclusion and exclusion criteria. Responses from 43 Hispanic, 8 Asian/Pacific Islander,

and three Black/African American individuals were removed from the dataset. An

additional 16 participants identified as "other" (e.g. mixed race) or did not specify their

ethnicity, and were removed from subsequent analyses. Eight participants specified their

age as being outside the 18-30 year old range required for inclusion. Specifically, three

NHW and one NA indicated their age as "0" and three NHW and one NA reported being

older than 30. One NHW participant was excluded due to having missing values for all

questions on two of the dependent variables (AUDIT and RAPI). Thus, the resulting

sample size was 393 (147 NA and 246 NHW individuals).

Aim I

     Exploratory factor analysis of the INQ. Baer's (1994) questionnaire assessing

perceived approval for four high-risk alcohol use behaviors was expanded to include

three additional alcohol use behaviors. Two added items addressed perceived approval

for potentially more normative alcohol use behaviors among college students (drinking with friends and playing drinking games), and one additional item addressed perceived approval for complete abstinence from alcohol. In addition, social groups referenced on the INQ were expanded to include the typical UNM student, the typical different-race UNM peer, the typical same-race UNM peer, best friends, parents, and, for NA participants, the typical NA community member. First, individual item distributions were examined for each of the six reference groups. For the first reference group, typical UNM student, two individual items, "[How would the typical UNM student respond if they knew you] drank alcohol every weekend" and "completely abstained from drinking alcohol" were normally distributed. However, "drank alcohol daily," "drove a car after drinking," and "drank enough alcohol to pass out" were positively skewed and "drank with friends" and "played drinking games" were negatively skewed. Costello and Osborne (2005) recommend utilizing the "principal axis factoring" method of extraction in SPSS when data are not normally distributed. Direct oblimin rotation, an oblique rotation method, was selected to allow factors to correlate. Thus, an exploratory factor analysis was conducted in SPSS for each of the six reference groups using principal axis factoring with direct oblimin rotation.

For the typical UNM student reference group, examination of a scree plot indicated a two-factor solution (Costello & Osborne, 2005). With a cutoff of .40 for inclusion of an item in factor interpretation, 6 out of the 7 items loaded on one of the two factors. One item "how would the typical student respond if they knew you completely abstained from drinking alcohol" displayed poor communality and was excluded from subsequent analyses. Factor loadings for the revised scale including the remaining six

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items are indicated in table one. For ease of interpretation, loadings under .40 are not displayed. The first factor consisted of three items, "played drinking games", "drank with friends", and "drank every weekend," representing relatively less serious drinking behaviors as compared to the three items loading on the second factor. Items loading on the second factor included "drank alcohol daily", "drove a car after drinking" and "drank enough alcohol to pass out", and these items represented comparatively more serious drinking behaviors. Internal consistency values were in the "good" range for both factors ($\alpha = .88$ for factor 1 and $\alpha = .76$ for factor 2). The two factors were correlated at $r = .45$, and together explained 65% of the variance in scores. Due to the correlation between factors, a mean perceived approval score was calculated for the "typical UNM student" reference group by summing perceived approval ratings for the six drinking behaviors and dividing by six. Internal consistency for this total scale score was $\alpha = .81$.

Identical two-factor structures emerged for three of the five additional reference groups, including different-race UNM peer, same-race UNM peer, and best friends, with one factor consisting of the three items representing less serious drinking behaviors and a second factor consisting of the three items representing relatively more serious drinking behaviors. In all three reference groups, the item "completely abstained from drinking alcohol" displayed poor communality and was excluded from subsequent analyses. Factor loadings for these three reference groups are displayed in table one. Internal consistency values were $\alpha = .89$ for factor 1 and $\alpha = .83$ for factor 2 for different-race UNM peer, $\alpha = .89$ and $\alpha = .85$ for same-race UNM peer, $\alpha = .90$ and $\alpha = .81$ for best friends. Correlations between factors were $r = .44$ for different-race UNM peer, $r = .40$ for same-race UNM peer, and $r = .46$ for best friends. Thus, mean perceived approval

scores were created from all six items for these three reference groups using the same strategy as in the typical UNM student reference group. Internal consistency values for the 6-item scales were $\alpha = .85$ for different-race UNM peer, $\alpha = .84$ for same-race UNM peer, and $\alpha = .85$ for best friends.

For the reference group parents, three initial factors were extracted. The third factor consisted of only one item with poor communality, "completely abstained from drinking", and consequently this item was excluded from further analyses. The resultant factor structure consisted of two factors identical to those that had been identified in analyses of the four previous reference groups. Factor loadings for parents are displayed in table one. The two factors were correlated at $r = .40$. Internal consistency was $\alpha = .90$ for factor 1, $\alpha = .91$ for factor 2, and $\alpha = .84$ for all six items combined.

For the reference group NA community member, the item "completely abstained from drinking" again displayed poor communality. However, removal of this item resulted in a single-factor structure for the remaining 6 items. Factor loadings are displayed in table two. Internal consistency of this six item scale was $\alpha = .92$.

Exploratory factor analysis of the PAID scale. An exploratory factor analysis was conducted on the 10 initial PAID items. Examination of individual item distributions indicated that not all items were normally distributed. Therefore, exploratory factor analysis was conducted in SPSS using principal axis factoring extraction with direct oblimin rotation. Initially, a three-factor solution was fit to the data. However, upon inspection of the factor structure, the third factor consisted of only one item, "Native American tribes differ greatly in attitudes towards alcohol use". Factors consisting of fewer than three items are considered to be unstable (Costello & Osbourne, 2005). This

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item was removed and a second exploratory factor analysis was conducted, again yielding a three-factor solution. The third factor consisted of only one item, "NAs metabolize alcohol at a slower rate than members of other ethnic groups". Consequently, this item was removed from the scale and a third exploratory factor analysis was conducted. Examination of internal consistency indicated that removal of both items resulted in higher scale internal consistency. The third exploratory factor analysis yielded a two-factor solution. One item loading on factor one, "environmental factors such as income and age greatly influence Native American drinking" (recoded), was not functioning as hypothesized. This item had a negative factor loading, indicating that individuals who tended to score high on this item tended to score low on factor one. Thus, this item was removed from the scale and a fourth exploratory factor analysis was conducted. This analysis yielded a two-factor structure that explained 40% of the total variance in scores. A cut-off of .4 was used to qualify an item for inclusion in a factor. Four items, including "NA men have a higher rate of alcohol dependence than men in the general U.S. population," "on average, NA youth begin drinking at a younger age than youth of other ethnic backgrounds," "NA men have a harder time overcoming alcohol dependence than men of other ethnic backgrounds," and "alcohol dependence is the number one health problem in NA communities" loaded on factor one. This factor appeared to represent the belief that NAs are at high risk for developing serious alcohol problems. Three items, including "most NAs have the same heavy drinking style", "Alcohol use is part of the NA way of life", and "Many NA do not drink alcohol" (recoded), loaded on factor two. This factor appeared to represent the belief that alcohol use is common in all NA communities. Factor loadings for the PAID are presented in

Table 3 (loadings less than .4 are not displayed). Internal consistency values were $\alpha = .77$

and $\alpha = .60$ for factor one and factor two, respectively. The two factors were correlated

at $r = .53$. Due to the correlation between factors, a single PAID total score was

calculated by summing all 7 items and was used in subsequent analyses. Internal

consistency of this scale was $\alpha = .74$.

Convergent and divergent validity of the PAID scale were evaluated by

examining the relationship between PAID total score and several other variables of

interest. For NHWs, PAID total score was significantly positively correlated with

estimated DPW of the typical NA student ($r = .24$, $p < .001$). For NAs, PAID total score

was also significantly positively correlated with estimated DPW of the typical UNM

student ($r = .22$, $p = .007$). Interestingly, PAID total score was significantly correlated

with the "Indian way of life" subscale of the BEIS such that higher identification with the

"Indian way of life" was correlated with lower PAID total score ($r = .18$, $p = .035$), while

PAID total score was significantly correlated with the "White way of life" subscale of the

BEIS such that higher identification with the "White way of life" was associated with

higher PAID total score ($r = -.28$, $p = .001$).

Aim II

Demographic information. Participants included in data analyses were 147 NA

(78.6% female) and 246 NHW (67.8% female) individuals. NAs reported an average age

of 21 ($SD = 2.45$). Ninety-five percent of NA individuals indicated that they were tribally

enrolled and 67.3% had ever lived on an NA reservation. Currently, 60.6% of NAs

reported living in a house or apartment off campus, 32.7% in a residence hall, 4.8% on a

NA reservation, and 1.4% in a fraternity or sorority house. NA students were evenly split

between the four college years; 23.1% were freshmen, 26.5% sophomores, 24.5% juniors, and 24.5% seniors. NAs most commonly designated their current economic status as "working class", "working middle class", or "middle class" (29.9%, 38.1%, and 25.2%, respectively). Most NAs (80.3%) learned English as their first spoken language. Only 4.8% reported learning a NA language first, and 14.3% indicated that they had learned both English and a NA language at the same time.

NHW participants reported an average age of 20 (*SD* = 2.65). The distribution of housing for NHWs was similar to that of NAs. Living in a house or apartment off campus was most common; 67.1% of NAs indicated that this was their housing situation. Thirty-one percent of NAs indicated that they lived in residence halls on campus, and 1.2% in a fraternity or sorority house. Thirty-nine percent of NAs were freshmen, 21.1% sophomores, 16.7% juniors, and 22.4% seniors. As with NA students, a majority of NAs classified their current economic status as with "working class", "working middle class", or "middle class" (33.7%, 19.4% and 29.7%, respectively). Ninety-eight percent of NHWs indicated that English was the first language they had learned.

Alcohol Use. Alcohol use was conceptualized using four variables: AUDIT total score, RAPI total score, drinks per week (DPW), and number of binge drinking episodes per week for those who reported consuming at least one drink in a typical week. For the total sample, the mean AUDIT score was 4.78 (*SD* = 4.76) and the mean RAPI score was 4.01 (*SD* = 6.44). On average, participants consumed 3.40 (*SD* = 4.88) drinks per week and those who reported consuming at least one drink per week had .63 (*SD* = .91) binge drinking episodes per week. Comparisons between NAs and NHWs on alcohol variables are presented in table four. Statistical significance was set to a *p* value of .01 to correct

for multiple comparisons. NAs and NHWs differed only on DPW, such that NAs

consumed significantly fewer DPW than their NHW counterparts. Alcohol abstinence

was defined as reporting zero DPW in a typical week in the past month on the DNRF.

Forty-four percent (*n* = 107) of NHWs and 50.3% (*n* = 74) of NAs were abstinent. A chi-

square test revealed no significant differences between ethnic groups in the percentage of

individuals reporting past month abstinence (x^2 = 1.74, *p* = .21).

Descriptive normative beliefs about alcohol use. Descriptive normative beliefs

about alcohol use were obtained for four reference groups. Participants were asked to

indicate how many drinks (if any) they thought the typical UNM student, the typical NA

student, the typical NHW student, and their best friends usually consumed on each night

of the week in a typical month. Overall, participants estimated that the typical UNM

student consumed 11.55 (*SD* = 8.68) DPW, the typical NA student 12.47 (*SD* = 10.65)

DPW, the typical NHW student 12.11 (*SD* = 9.47) DPW, and their best friends 8.24 (*SD*

= 9.68) DPW. In addition, the overall sample estimated that 30.75% (*SD* = 19.81) of the

general UNM student body, 29.13% (*SD* = 22.42) of the UNM NA student population,

and 28.98% (*SD* = 19.97) of the UNM NHW student population completely abstained

from consuming alcohol. Comparisons between NA and NHW participants on

descriptive normative beliefs are presented in table five. Significance was set to a *p*-

value of .01 to correct for multiple comparisons. No significant differences were found

in estimated DPW between ethnic groups for any of the four reference groups. Cohen's *d*

effect sizes were calculated to characterize within-group differences of estimated DPW

between the four reference groups. For NAs, the effect sizes between estimated DPW of

the typical UNM student and estimated DPW of the typical NA UNM student and

between estimated DPW of the typical UNM student and estimated DPW of the typical

NHW UNM student were small ($d = .10$ and $d = .06$, respectively). The effect size

between estimated DPW of the typical UNM student and estimated DPW of the

participant's best friends was small-to-medium ($d = .25$). For NHWs, the effect sizes

between estimated DPW of the typical UNM student and estimated DPW of the typical

NA UNM student and between estimated DPW of the typical UNM student and

estimated DPW of the typical NHW UNM student were small ($d = .09$ and $d = .06$,

respectively). The effect size between estimated DPW of the typical UNM student and

estimated DPW of the participant's best friends was small-to-medium ($d = .43$).

Injunctive normative beliefs about alcohol use. An average perceived approval

for alcohol use behaviors score was calculated for each reference group. Overall,

participants perceived the typical UNM student to be the most approving of alcohol use

behaviors, with a "neutral" perceived approval rating for this reference group ($M = 3.64$,

$SD = 0.98$). Participants rated their friends and parents as less approving of alcohol use

behaviors, with average perceived approval rated as 2.88 ($SD = 1.15$) and 1.74 ($SD =$

1.74), respectively. NA participants rated the average perceived approval for alcohol use

behaviors from the typical member of their NA community as 2.56 ($S. D. = 1.23$).

Differences in perceived approval ratings between NAs and NHWs are presented in table

six. Significance was set to a p-value of .01 to correct for multiple comparisons.

Significant differences by participant ethnicity were found in perceived approval ratings

for four reference groups. NA participants indicated that the typical UNM student, the

typical same-race UNM peer, the typical different-race UNM peer, and their parents

would be less approving of their alcohol use behaviors than did NHW participants. For

NAs, effect sizes between perceived approval of the typical UNM student and perceived approval of the typical same-race UNM peer and between perceived approval of the typical UNM student and perceived approval of the typical different-race UNM peer were small-to-medium and small, respectively ($d = .32$ and $d = .16$, respectively). The effect size between perceived approval of the typical same-race UNM peer and the typical different-race UNM peer was small ($d = .16$). The effect size between perceived approval of the typical UNM student and the NA students' best friends was large ($d = .52$). The effect size between perceived approval of the typical UNM student and the NA students' parents was large ($d = 2.08$). For NHW, effect sizes between perceived approval of the typical UNM student and perceived approval of the typical same-race UNM peer and between perceived approval of the typical UNM student and perceived approval of the typical different-race UNM peer were small ($d = .04$ and $d = .14$, respectively). The effect size between perceived approval of the typical same-race UNM peer and the typical different-race UNM peer was small ($d = .11$). The effect size between perceived approval of the typical UNM student and the NA students' best friends was large ($d = .58$). The effect size between perceived approval of the typical UNM student and the NA students' parents was large ($d = 1.94$).

Perceived approval for abstinence was assessed separately as this item did not load with other items in the INQ exploratory factor analysis. For the overall sample, participants indicated that their parents would be most approving if they completely abstained from drinking alcohol ($M = 5.51$, $SD = 2.07$), followed by their best friends ($M = 4.45$, $SD = 1.84$), the typical same-race UNM student ($M = 4.05$, $SD = 1.47$), the typical-different race UNM student ($M = 3.55$, $SD = 1.84$), and the typical UNM student

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(M = 3.82, SD = 1.46). NA students indicated that the typical member of their NA community would be somewhat approving of complete alcohol abstinence (M = 4.72, SD = 2.03).

Ethnic comparisons on perceived approval for abstinence are presented for five reference groups in table seven. Results for all reference groups except parents indicated that NAs perceived significantly more approval for abstinence than NHWs. In general, NAs perceived that the typical UNM student, typical same-race UNM peer, typical different-race UNM peer, and their best friends would be somewhat approving of alcohol abstinence, while NHWs perceived that these reference groups would feel neutral or slightly disapproving of alcohol abstinence.

Who is the "typical" UNM student? Overall, participants most frequently indicated that they believed the "typical" UNM student was White (46.1%). The second most commonly indicated ethnicity was Hispanic (38.7%). Fifty-two percent of participants believed that the sex of the "typical" UNM student was female. On average, participants indicated that they believed the typical student was 20.31 ($S. D.$ = 2.58) years old.

Identification with the "typical" UNM student. On the ISS, participants indicated that they perceived themselves as being somewhat different from the "typical" UNM student (mean = 3.12, $S. D.$ = 1.50). An independent-samples t test revealed no significant differences between NAs and NHWs' perception of their identification with the typical UNM student (t = -1.55, p < .12).

Bicultural Ethnic Identity. Moran, Fleming, Somervell, and Manson (1999) conducted exploratory and confirmatory factor analyses of the BEIS. The authors

recommend that an average "White way of life" score be calculated from six of the eight items proposed to address this construct and that an average "Indian way of life" score be calculated from all eight items proposed to address this construct. Thus, for NA participants, the average "White way of life" score was 3.14 (*S. D.* = .665) and the average "Indian way of life" score was 2.78 (*S. D.* = .81). Scores equal to or below the 33rd percentile (2.5 for "Indian way of life" and 3 for "White way of life") were considered to be "low" ratings for either way of life. Scores equal to or above the 67th percentile (3.25 for "Indian way of life" and 3.5 for "White way of life") were considered to be high ratings for either way of life. The distribution of individuals in terms of how they identified with either way of life is presented in table eight. Eighty-seven NA participants scored in either the lower third or the upper third of responses. Participants most frequently indicated that they identified strongly with the "White way of life" only, followed by the "Indian way of life" only.

      Endorsement of negative NA drinking stereotypes. A PAID total score was calculated by summing scores on the seven items identified in the exploratory factor analysis of this scale, with possible scores ranging from 7 to 35. The average PAID score for the total sample was 22.25 (*SD* = 5.05). An independent samples *t* test was conducted to test for differences in PAID total score by ethnicity. NAs had an average PAID total score of 21.81 (*SD* = 5.42) and NHWs had an average PAID total score of 22.52 (*SD* = 4.80). No significant difference was observed between ethnic groups on PAID total score (t (275) = 1.29, p = .20). Individual item means were examined for both ethnic groups and independent samples *t* tests were conducted to test for significant differences between ethnic groups at the item level. Item means and independent samples *t*-test results for

item-level comparisons are presented in table nine. To control for type-I error, statistical significance was set to $p < .01$. The only item that was significantly different between ethnic groups was "alcohol use is part of the NA way of life", such that NAs tended to disagree with this item more strongly than NHWs.

Comparisons to COSAP data set.

An additional goal of aim II was to compare data collected as part of the Fall 2013 COSAP Student Lifestyles Survey (SLS) to data collected in the present study. To permit accurate comparisons, only data from students identifying as either NA or NHW on the COSAP SLS were examined. The COSAP SLS sample consisted of 396 NHW students and 70 NA students. Cohen's d effect sizes were calculated to examine differences between the two samples on relevant variables. COSAP SLS participants consumed fewer DPW ($M = 2.92$) than participants in the current sample ($M = 3.40$), although effect size was small ($d = .10$). There was a larger discrepancy between estimated DPW of the typical UNM student in the COSAP SLS sample ($M = 6.68$) and estimated DPW of the typical UNM student in this sample ($M = 12.04$, $d = .75$). To permit comparisons between variables addressing experience of negative alcohol-related consequences, responses from three RAPI items in the present sample and responses to corresponding questions in the COSAP SLS sample were recoded to indicate whether or not students had experienced the consequence at all in the past year. The percentage of students who reported getting in a fight in the past year due to drinking was similar across samples (32.5% in the present sample vs. 27.6% in the COSAP SLS sample), as was the percentage of students who reported missing a class due to drinking (27.8% in the current sample vs. 29.5% in the COSAP sample). Students in the present sample were more

likely to report not being prepared or performing poorly on a test due to alcohol

consumption (30.2%) compared to students in the COSAP SLS sample (19%). However,

the reason for the higher percentage of individuals performing poorly on a test due to

drinking in our sample may be attributable to item wording, as the RAPI item addressing

this consequence in our sample also included "missing a homework assignment" as part

of the consequence. Unfortunately, variables in the COSAP SLS addressing injunctive

normative beliefs about alcohol use were not comparable to injunctive normative beliefs

variables in the present sample, as likert-type response scales for these questions had

different ranges between surveys.

Aim III

Preliminary analyses. Based upon data gathered from the DNRF, there were four

potential predictor variables available that addressed descriptive normative beliefs about

drinking, including estimated DPW for the typical UNM student, the typical NA UNM

student, the typical NHW UNM student, and the participant's best friends. A three-step

approach was used to determine which of these predictors to include in the four

subsequent regression models. First, it was determined that it would make theoretical

sense to consider eliminating one or more of the predictor variables, as they were

potentially redundant to one another. Second, zero-order correlations were examined

between the four predictors. Estimated DPW for the typical UNM student was highly

correlated with both estimated DPW for the typical NA UNM student ($r = .73$) and

estimated DPW for the typical NHW UNM student ($r = .85$). In addition, estimated

DPW for the typical NA UNM student and estimated DPW for the typical NHW UNM

student were highly correlated with one another ($r = .74$). Thus, responses on these

variables were averaged to generate a combined variable representing the estimated DPW for the typical UNM student. Estimated DPW of participants' best friends was less correlated with any of the other three variables ($r = .40$, $r = .44$, and $r = .48$ with estimated DPW of the typical NHW UNM student, estimated DPW of the typical NA UNM student, and estimated DPW of the typical UNM student, respectively). Thus, this item was retained as a separate predictor variable for subsequent analyses.

Based upon data gathered from the INQ, there were six potential variables that could be used as predictors representing the construct of injunctive normative beliefs, including perceived approval of the typical UNM student, the typical same-race UNM peer, the typical different-race UNM peer, the participant's best friends, and the participant's parents. Using an initial cut-off value of $r = .70$ or greater, none of the INQ variables were highly correlated with one another. Thus, all six INQ variables were retained as predictors. Upon examination of potential demographic predictor variables, age was highly correlated with year in college ($r = .72$). Given that age provided a wider range of responses than year in college, age was included as a demographic predictor and year in college was excluded. All continuous variables were mean-centered prior to analysis to aid in intercept interpretation.

Hierarchical linear regression for the total sample: AUDIT outcome. The first regression model examined potential predictors of total AUDIT score for the total sample. Results are presented in table 10. Demographic variables that were hypothesized to influence AUDIT score, including ethnicity, sex, and age, were entered in step one of a three-step hierarchical linear regression. The overall ANOVA test for step one was not significant, suggesting that this model did not adequately fit the data (*F*

$(3, 375) = 2.00$, $p = .114$). None of the demographic predictors significantly predicted AUDIT total score. In step two, two descriptive normative beliefs (estimated DPW of the typical UNM student and estimated DPW of the participant's best friends) and five injunctive normative beliefs (perceived approval of typical UNM student, same-race UNM peer, different-race UNM peer, best friends, and parents) were added as predictor variables. The overall ANOVA test for model fit in step two was statistically significant, indicating good model fit ($F(10, 375) = 14.77$, $p < .001$). R^2 significantly increased by .27 from step one to step two ($F_{change}(7, 365) = 19.94$, $p < .001$). Only estimated DPW of the participant's best friends and perceived approval of the participant's best friends were predictive of AUDIT total score such that estimating a higher DPW for the participant's best friends and estimating higher perceived approval of the participant's best friends were predictive of a higher AUDIT score.

For step three, interaction terms were added into the model for each of the seven normative beliefs variables. Interaction terms were created by multiplying ethnicity by each of the seven mean-centered normative beliefs variables. The overall ANOVA test for step three was statistically significant, indicating good model fit ($F(17, 375) = 9.44$, $p < .001$), although R^2 did not increase significantly from step two to step three ($F_{change}(7, 358) = 1.59$, $p = .138$). The main effect of estimated DPW of the participant's best friends was statistically significant, as was the main effect of perceived approval of the participant's best friends. The interaction between ethnicity and estimated DPW of the participant's best friends was statistically significant, suggesting that the relationship between estimated DPW of the participant's best friends and AUDIT total score functioned differently between NAs and NHWs. This significant interaction was probed

utilizing the simple slopes method (Aiken & West, 1991). The relationship between

estimated DPW of the participant's best friends was stronger for NHWs ($b = .25$, $p < .01$)

than for NAs ($b = .12$, $p = .01$). Figure five illustrates the simple slopes for each ethnic

group (Preacher, Curran, & Bauer, 2006).

Assumptions of multiple regression including independence of errors,

multicollinearity, homoscedasticity, normality of residuals were examined for the AUDIT

model. The AUDIT model had a Durbin-Watson statistic value of 1.70, indicating that

the assumption of independent errors was met. Variance inflation factor (VIF) provides

an index of multicollinearity. In general, VIF values greater than 10 are cause for

concern (Myers, 1990). All predictor variables had VIF values below four, suggesting

that multicollinearity was not a significant concern in this model. Examination of

casewise diagnostics indicated that approximately 1.6% ($n = 6$) of individuals had

AUDIT total scores with standardized residual values over three. A scatterplot of the

standardized predicted values and the standardized residuals suggested some evidence of

heteroscedasticity. Examination of a histogram of regression standardized residuals and a

normal P-P plot of standardized residuals indicated some non-normality of residuals, with

the histogram indicating a slight positive skew.

Hierarchical linear regression for the total sample: RAPI outcome. A second

hierarchical linear regression model was estimated for the RAPI as a dependent variable.

Results are presented in table 11. Entering the three demographic variables in step one

revealed no significant effect of any of the three predictors on total RAPI score, nor was

the overall ANOVA evaluating model fit significant (F (3, 364) = .84, $p = .471$). The

seven normative beliefs variables were entered in step two. The overall ANOVA for step

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two was statistically significant, indicating adequate model fit (F (10, 364) = 6.14, $p <$ .001). R^2 significantly increased by .14 from step one to step two (F_{change} (7, 354) = 8.36, $p < .001$). Only estimated DPW of the participant's best friends and perceived approval of the participant's best friends were significantly predictive of RAPI total score. Both variables positively predicted RAPI scores, such that higher ratings on either were associated with experiencing more negative alcohol-related consequences. Interaction terms representing the potential interaction between ethnicity and each of the mean-centered normative beliefs variables were entered in step three of the model. The overall ANOVA for step three was statistically significant (F (17, 364) = 3.92, $p < .001$), although R^2 did not significantly increase between step two and step three (F_{change} (7, 347) = .90, $p = .51$). There were no significant interactions found between ethnicity and any of the seven normative beliefs variables. In step three, only estimated DPW of the participant's best friends was predictive of RAPI score such that estimating higher DPW of the participant's best friends was predictive of higher RAPI total score.

This model had a Durbin-Watson statistic value of 1.75, indicating that the assumption of independent errors was met. All predictor variables had VIF values under five, suggesting that there were no significant issues related to multicollinearity in this model. Casewise diagnostics indicated that 3% ($n = 11$) of individuals had standardized residual values over three. Examination of a scatterplot of regression standardized predicted values and regression standardized residuals evidenced some heteroscedasticity. A histogram of the distribution of standardized residual values and a normal P-P plot of standardized residual values indicated some degree of non-normality of residuals, with the histogram indicating a moderate positive skew.

Hierarchical linear regression for the total sample: DPW outcome. Sex,

ethnicity, and age were again entered as predictors in step one of the hierarchical linear

regression model predicting DPW. Results from this model are presented in table 12.

The overall ANOVA test for step one indicated that this model provided an adequate fit

to the data (F (3, 375) = 3.59, p = .014). Age significantly predicted DPW such that

women reported fewer DPW than did men. Ethnicity also significantly predicted DPW

such that NA students reported consuming significantly fewer DPW than NHWs.

Normative beliefs predictors were entered in step two. The overall ANOVA for step two

was significant (F (10, 375) = 19.38, p < .001), and R^2 significantly increased by .32 from

step one to step two (F_{change} (7, 365) = 25.44, p < .001). Estimated DPW of the typical

UNM student, estimated DPW of the participant's best friends, perceived approval of the

participant's best friends, and perceived approval for drinking of the participant's parents

significantly predicted DPW such that higher values of each of the three predictor

variables was associated with higher reported DPW of the participant. Interestingly,

perceived approval of the participant's same-race peers was significantly negatively

predictive of DPW, such that lower perceived approval from this reference group was

associated with higher reported DPW of the participant. Step three again tested

interaction effects between reported ethnicity and each of the seven normative belief

variables. The overall model fit was significant (F (17, 375) = 13.54, p < .001), and R^2

significantly increased by .04 from step two to step three (F_{change} (7, 358) = 3.74, p =

.001). The main effects of estimated DPW of the typical UNM student, estimated DPW

of the participant's best friends, and perceived approval of the participants' parents

remained significant predictors of DPW, as did ethnicity. Perceived approval of the

typical same-race peer was a significant predictor of DPW such that higher perceived

approval of the typical same-race peer was associated with fewer DPW. A significant

interaction was found between ethnicity and estimated DPW of the participant's best

friends. The relationship between estimated DPW of the participant's best friends and the

participant's own DPW was positive and significant for NHWs ($b = .27$, $p < .001$). This

relationship was not significant for NAs ($b = .08$, $p = .06$). Figure 6 illustrates the simple

slopes for each ethnic group.

This model had a Durbin-Watson statistic value of 1.75, indicating that the

assumption of independent errors was met. All predictor variables had VIF values under

five, suggesting that there were no significant issues with multicollinearity in this model.

Casewise diagnostics indicated that 1.6% ($n = 6$) of individuals had standardized residual

score values over three. A scatterplot of the regression standardized predicted values and

the regression standardized residuals indicated some evidence of heteroscedasticity. A

histogram of the regression standardized residuals and a normal P-P plot indicated that

residuals were generally normally distributed, with the histogram indicating slight

positive skew.

Hierarchical linear regression: Binge drinking outcome for drinkers only. A

fourth hierarchical regression model was tested with number of binge drinking days per

week as the dependent variable. Results are presented in table 13. This model was tested

for only those participants who reported at least one DPW ($n = 201$). In step one

ethnicity, sex, and age were entered as predictors. Overall model fit for step one was not

significant ($F (3, 200) = 1.55$, $p = .203$), nor did any of the three demographic variables

significantly predict number of binge days per week. The seven normative beliefs

variables were entered as predictors in step two. This model fit the data well overall (F (10, 200) = 6.61, $p <$ .001). R^2 significantly increased by .22 from step one to step two (F_{change} (7, 190) = 8.61, $p <$ .001). In this step, both estimated DPW of the typical UNM student and estimated DPW of the participant's best friends significantly predicted number of binge drinking days such that participants who made higher estimations on both variables tended to report more binge drinking days per week. In the final step, seven interaction terms were entered to test for potential interactions between ethnicity and each of the normative beliefs variables. The overall model fit was significant (F (17, 200) = 5.20, $p <$ .001), and R^2 significantly increased by .07 from step two to step three (F_{change} (7, 183) = 2.61, $p =$ .01). Estimated DPW of the participant's best friends was significantly predictive of number of binge drinking days per week such that participants who estimated higher DPW of their best friends tended to report more binge drinking days per week. There was a significant interaction between perceived approval of a typical same-race UNM peer and ethnicity. The relationship between perceived approval of a typical same-race UNM peer and number of binge drinking days per week such that higher perceived approval of a typical same-race UNM peer was negatively associated with number of binge drinking days per week for NHWs ($b =$ -.30, $p <$ .01) and was not associated with number of binge drinking days for NAs ($b =$ .16, $p <$ .23). The simple slopes for each ethnic group are presented in figure seven.

This model had a Durbin-Watson statistic value of 1.76, suggesting that the assumption of independent errors was met. All predictor variables had VIFs lower than five, indicating that there were no significant issues related to multicollinearity in this model. Casewise diagnostics indicated that only one individual had a standardized

residual score value larger than three. Examination of a scatterplot of regression standardized predicted values and regression standardized residuals evidenced some degree of heteroscedasticity. A histogram and normal P-P plot of regression standardized residuals indicated that residuals were generally normally distributed, with the histogram indicating slight positive skew.

Post-Hoc Analyses. Given the high percentage of abstainers in the present sample and the positive skew of the dependent variables of interest, analyses for alcohol use variables were conducted with individuals who reported consuming zero DPW on the DNRF excluded. Using this criterion, 73 NAs and 139 NHWs were classified as current drinkers. For drinkers, the mean total AUDIT and RAPI scores were 7.25 (SD = 4.61) and 6.76 (SD = 8.48), respectively. Mean DPW for drinkers in the sample was 6.30 (SD = 5.08). Comparisons between NA who reported consuming at least one DPW and NHW who reported consuming at least one DPW are presented in table 14. To correct for the probability of a type I error, a p value of less than .01 was required for statistical significance. Thus, no significant differences were found between NA drinkers and NHW drinkers on any of the four alcohol outcome variables.

Hierarchical linear regression: AUDIT outcome for drinkers only. The hierarchical linear regression model predicting AUDIT score in Aim III was repeated excluding abstainers. Results from this model are presented in table 15. Ethnicity, sex, and age were entered in step one of the model. The overall ANOVA for this step indicated that the model did not fit the data well (F (3, 200) = .16, p = .924). None of the three demographic variables significantly predicted AUDIT scores for drinkers. In step two, seven normative beliefs variables were again added as predictors. This model fit the

data well (F (10, 200) = 3.43, p < .001), and R^2 increased significantly by .15 from step

one to step two (F_{change} (7, 190) = 4.82, p < .001). In this step, only estimated DPW of the

participant's best friends predicted AUDIT scores such that drinkers who estimated

higher DPW for their best friends tended to have higher AUDIT scores. Seven

interaction terms representing potential interactions between normative beliefs variables

and ethnicity were entered in step three. The overall fit of the model was statistically

significant, indicating adequate model fit (F (17, 200) = 2.44, p < .001), although the

variance explained by the model did not significantly increase from step two to step three

(F_{change} (7, 183) = 1.05, p = .400). None of the interaction terms were statistically

significant. Estimated DPW of the participant's best friends remained the only significant

predictor of AUDIT score such that individuals who estimated higher DPW for their best

friends tended to drink more.

Assumptions of multiple regression including independence of errors,

multicollinearity, homoscedasticity, normality of residuals were examined for the AUDIT

model including only drinkers. The model had a Durbin-Watson statistic value of 1.86,

indicating that the assumption of independent errors was met. Analysis of the variance

inflation factors (VIF) indicated no significant issues related to multicollinearity, as all

predictor variables had VIFs under five. Examination of casewise diagnostics did not

indicate that any individuals had standardized residual values over three. A scatterplot of

the standardized predicted values and the standardized residuals suggested that

heteroscedasticity had improved from the AUDIT analyses conducted with the entire

sample, and that the assumption of homoscedasticity was now met. Both a histogram and

a normal P-P plot of the standardized residuals suggested that residual values were approximately normally distributed.

Hierarchical linear regression: RAPI outcome for drinkers only. The hierarchical linear regression model predicting RAPI score in Aim III was repeated utilizing data from only those individuals who reported at least one DPW. Results are presented in table 16. None of the three steps provided a model with an adequate fit to the data ($F (3, 190) = .32, p = .811; F (10, 190) = 1.53, p = .133; F (17, 190) = 1.13, p = .333$, for model one, model two, and model three, respectively). In step one, none of the three demographic variables (ethnicity, age, and sex) significantly predicted RAPI score for drinkers. In step two, only estimated DPW of the participant's best friends predicted RAPI score such that individuals who indicated that their friends drank more per week tended to have higher RAPI scores. This relationship remained significant in step three. The addition of seven interaction terms representing potential interactions between normative beliefs and ethnicity in step three did not indicate any significant interactions.

This model had a Durbin-Watson statistic value of 1.82, indicating that the assumption of independent errors was met. None of the predictor variables had a VIF value above five, suggesting that there were no significant multicollinearity issues in this model. Casewise diagnostics did not identify any individuals having standardized residual score values above three. Examination of a scatterplot of regression standardized predicted values and regression standardized residuals. Examination of a histogram and a normal P-P plot of regression standardized residuals evidenced non-normality of residuals, with the histogram indicating moderate positive skew.

Hierarchical linear regression: DPW outcome for drinkers only. The

hierarchical linear regression predicting DPW was repeated utilizing data from only those

participants who reported consuming at least one DPW. Results are reported in table 17.

In step one, the overall model fit was not significant, suggesting that this model did not

provide adequate fit to the data (F (3, 200) = 2.22, p = .087). None of the three

demographic variables (ethnicity, sex, age) significantly predicted DPW. Seven

normative beliefs variables were entered into the model in step two. The overall model

fit was significant (F (10, 200) = 10.95, p < .001). R^2 significantly increased by .33 from

step one to step two (F_{change} (7, 190) = 14.24, p < .001). Both estimated DPW of the

typical UNM student and estimated DPW of the participant's best friends predicted DPW

such that participants who made higher estimates for each of these variables tended to

drink more. Interaction terms between ethnicity and each of the seven normative beliefs

variables were entered in step three. The overall model fit was significant (F (17, 200) =

7.99, p < .001) and R^2 significantly increased by .06 from step two to step three (F_{change}

(7, 183) = 2.75, p = .010). Two significant interactions were found. Both estimated

DPW of the typical UNM student and estimated DPW of the participant's best friends

remained statistically significant predictors of DPW such that participants who made

higher estimates for each of these variables tended to report higher DPW. One interaction

was found between perceived approval of the typical UNM student and ethnicity and

another between perceived approval of the typical same-race UNM peer and ethnicity.

The interaction between perceived approval of the typical UNM student and ethnicity

functioned such that perceived approval of the typical UNM student negatively predicted

DPW for NA students (b = -2.17, p = .01) but did not predict DPW for NHW students (b

= .79, p = .23). The simple slopes for both ethnic groups are presented in figure eight.

The interaction between perceived approval of a typical same-race UNM peer and

ethnicity functioned such that perceived approval of a typical same-race UNM peer

negatively predicted DPW for NHW drinkers (b = -2.16, p < .001) but did not predict

DPW for NA drinkers (b = .80, p = .24). The simple slopes for both ethnic groups are

presented in figure nine.

Aim IV

      ISS Moderation: AUDIT outcome for NHW only. The ISS was tested as a

potential moderator of the relationship between estimated DPW of the typical UNM

student and perceived approval of the typical UNM student and AUDIT total score in a

three-step hierarchical linear regression. All continuous variables were initially mean

centered based upon mean scores in the NHW group (n = 225). Regression results are

presented in table 18. In step one sex and age were entered as demographic predictors.

The overall ANOVA test for model fit was not significant (F (2, 224) = .40, p = .67).

The seven normative beliefs variables and the ISS were entered as predictors of AUDIT

score in step two. The overall ANOVA for step two was significant, indicating good

model fit (F (10, 224) = 11.41, p < .001), and R^2 significantly increased by .34 from step

one to step two (F_{change} (8, 214) = 14.11, p < .001). In step two, only estimated drinks per

week of the participant's best friends predicted AUDIT score such that NHW students

who estimated higher DPW for their best friends tended to have higher AUDIT scores.

Two interaction terms representing the potential interaction between ISS score and

estimated DPW of the typical UNM student and ISS score and perceived approval for

drinking of the typical UNM student were added in step three. The overall model fit was

significant (F (12, 224) = 9.83, p < .001), although R^2 did not significantly increase from

step two to step three (F_{change} (2, 212) = 1.59, p = .21). In step three both estimated DPW

of the participant's best friends and ISS were significantly predictive of total AUDIT

score such that higher estimated DPW of the participant's best friends and a higher level

of identification with the typical UNM student were predictive of a higher AUDIT score.

None of the two interaction terms was statistically significant.

The model predicting AUDIT scores for NHW had a Durbin-Watson statistic

value of 1.80, indicating that the assumption of independent errors was met. Analysis of

the VIF for each item indicated no significant multicollinearity issues, as all VIF values

were less than three. Examination of casewise diagnostics indicated that two individuals

had standardized residual values over three. A scatterplot of the standardized predicted

values and the standardized residuals suggested some heteroscedasticity. Both a

histogram and a normal P-P plot of the standardized residuals suggested some non-

normality of residuals in this model, with the histogram indicating some positive skew in

the distribution of residuals.

ISS Moderation: RAPI outcome for NHW only. The ISS was tested as a

potential moderator of the relationship between estimated DPW of the typical UNM

student and RAPI total score, and perceived approval of the typical UNM student and

RAPI total score in a second three-step hierarchical linear regression. Results are

presented in table 19. Sex and age were entered as predictors in step one. The overall

model fit for step one was not significant (F (2, 218) = .23, p = .79), nor did either of the

demographic variables predict RAPI total score for NHW. The seven normative beliefs

variables and ISS total score were entered as predictors in step two. The overall model fit

for this step was significant, suggesting an adequate fit to the data (F (10, 218) = 5.21, p

< .001). R^2 significantly increased by .20 from step one to step two (F_{change} (8, 208) =

6.51, p < .001). In step two, perceived approval of the participant's parents was predictive

of RAPI total score such that higher perceived approval of the participant's parents was

predictive of higher RAPI total score. ISS total score was also predictive of RAPI total

score such that individuals reporting higher identification with the typical UNM student

tended to have higher RAPI scores. The two interaction terms representing the potential

interaction between ISS total score and estimated DPW of the typical UNM student and

ISS total score and perceived approval of the typical UNM student were added to the

model in step three. Overall model fit was significant (F (12, 218) = 5.21, p < .001), and

R^2 significantly increased by .03 from step two to step three (F_{change} (2, 206) = 4.15, p =

.02). In step three, estimated DPW of the participant's best friends was a statistically

significant predictor such that higher estimated DPW of the participant's best friends was

associated with higher RAPI total score. The main effect of ISS total score remained

statistically significant, and both interaction terms were statistically significant. To probe

the interaction terms, simple slopes were estimated for three values: one standard

deviation below the mean of the mean-centered ISS total score for NHW (-1.46), the

mean of the mean-centered ISS total score for NHW (0.00), and one standard deviation

above the mean of the mean-centered ISS total score for NHW (1.46; Aiken and West,

2001). For the interaction between ISS total score and estimated DPW of the typical

UNM student none of the three simple slopes were statistically significant (b = .09, SE =

.06, p = .17 for "low" ISS total score, b = -.03, SE = .06, p = .59 for mean ISS total score,

and b = -.15, SE = .09, p = .09 for "high" ISS total score, respectively). The simple

slopes at each of the three levels of ISS total score are presented in figure 10. The ISS functioned as a moderator such that the relationship between estimated DPW of the typical UNM student and RAPI score became negative as identification with the typical UNM student increased. For the interaction between ISS total score and perceived approval of the typical UNM student, none of the three simple slopes were statistically significant ($b = -.75$, $SE = .72$, $p = .30$ for "low" ISS total score, $b = .43$, $SE = .64$, $p = .51$ for mean ISS total score, and $b = 1.61$, $SE = .86$, $p = .06$ for "high" ISS total score, respectively). The simple slopes at each of the three levels of ISS total score are presented in figure 11. The ISS functioned as a moderator such that the relationship between perceived approval of the typical UNM student and RAPI total score became more positive as identification with the typical UNM student increased.

This model had a Durbin-Watson statistic value of 1.66, indicating that the assumption of independent errors was met. Analysis of the VIF for each predictor did not indicate any significant issues related to multicollinearity, as all VIF values were less than three. Examination of casewise diagnostics indicated that four individuals had standardized residual values over three. A scatterplot of the standardized predicted values and the standardized residuals evidenced some degree of heteroscedasticity. Both a histogram and a normal P-P plot of the standardized residuals suggested non-normality of residuals in this model, with the histogram indicating some positive skew in the distribution of residuals.

ISS Moderation: DPW outcome for NHW only. The ISS was tested as a potential moderator of the relationship between estimated DPW of the typical UNM student and the participant's own DPW, and between perceived approval of the typical

UNM student and the participant's own DPW in a third three-step hierarchical linear

regression model. Results are presented in table 20. Age and sex were entered as

predictors in step one. The overall model fit in step one was not significant (F (2, 224) =

1.05, p = .35), nor were either of the demographic variables significantly predictive of

DPW. The seven normative beliefs variables and ISS total score were entered as

predictors in step two. The overall model fit in step two was significant (F (10, 224) =

19.42, $p < .001$), and R^2 significantly increased by .47 from step one to step two (F_{change}

(8, 214) = 23.79, $p < .001$). In step two, estimated DPW of the typical UNM student and

estimated DPW of the participant's best friends were predictive of DPW such that higher

estimations for both variables were predictive of higher DPW for the participant. Higher

perceived approval of the participant's parents was significantly predictive of higher

DPW, while higher perceived approval of a typical same-race UNM peer was

significantly predictive of lower DPW. ISS total score was predictive of DPW such that

higher identification with the typical UNM student was associated with higher DPW.

Two interaction terms were added in step three to test for interactions between ISS total

score and estimated DPW of the typical UNM student, and between ISS total score and

perceived approval of the typical UNM student. The overall model fit for step three was

statistically significant (F (12, 224) = 16.08, $p < .001$), although R^2 did not significantly

increase from step two to step three (F_{change} (2, 212) = .15, p = .86). In step three, both

estimated DPW of the typical UNM student and estimated DPW of the participant's best

friends remained significantly positively predictive of DPW. Higher perceived approval

of a typical same-race UNM peer remained negatively associated with DPW, while

higher perceived approval of the participant's parents remained positively associated with

DPW. The main effect of ISS total score was significant such that higher identification with the typical UNM student was associated with higher DPW, although neither of the two interaction terms was statistically significant.

The model predicting DPW for NHW had a Durbin-Watson statistic value of 1.73, indicating that the assumption of independent errors was met. All VIF values for predictor variables were lower than three, suggesting no significant issues with multicollinearity. Only two individuals were identified as having standardized residual score values over three. A scatterplot of the standardized predicted values and the standardized residuals evidenced some degree of heteroscedasticity. Both a histogram and a normal P-P plot of the standardized residuals indicated that residuals were generally normally distributed.

ISS Moderation: Binge drinking outcome for NHW drinkers only. The ISS was tested as a potential moderator of the relationship between estimated DPW of the typical UNM student and the number of binge drinking days reported per week, and between perceived approval of the typical UNM student and the number of binge drinking days reported per week in a fourth three-step hierarchical linear regression model. This model was estimated only for those NHW who reported consuming at least one DPW ($n = 125$). Results are presented in table 21. Age and sex were entered as predictors of the number of binge drinking days per week in step one. Overall model fit for step one was not significant ($F (2, 124) = .55, p = .58$), nor were either of the demographic variables predictive of number of binge days reported per week. The seven normative beliefs variables and ISS total score were entered as predictors in step two. The overall fit of this model was statistically significant ($F (10, 124) = 5.91, p < .001$),

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and R^2 significantly increased by .33 from step one to step two (F_{change} (8, 114) = 7.20, p < .001). In step two, estimated DPW of the participant's best friends was significantly predictive of number of binge days such that participants who reported higher estimated DPW for their best friends tended to report more binge days per week. Perceived approval of the typical same-race UNM student was predictive of number of binge days per week such that participants who reported higher perceived approval of the typical same-race UNM peer tended to report fewer binge drinking days per week. Two interaction terms, one representing the potential interaction between ISS total score and estimated DPW of the typical UNM student and the other representing the potential interaction between ISS total score and perceived approval of the typical UNM student, were entered in step three. The overall model fit for step three was significant (F (12, 124) = 5.69, p < .001), and R^2 significantly increased by .04 from step two to step three (F_{change} (2, 112) = 3.37, p = .04). Estimated DPW of the participant's best friends was significantly positively predictive of number of binge drinking days per week. The interaction between ISS total score and estimated DPW of the typical UNM student was significant. To probe this interaction, simple slopes were estimated for three values: one standard deviation below the mean of the mean-centered ISS total score for NHW drinkers (-1.44), the mean of the mean-centered ISS total score for NHW drinkers (0.00), and one standard deviation above the mean of the mean-centered ISS total score for NHW drinkers (1.44). The simple slope for "low" identification with the typical UNM student was statistically significant (b = .03, SE = .01, p = .01), while the simple slopes for mean identification with the typical UNM student and "high" identification with the typical UNM student were not significant (b = .01, SE = .01, p = .45 and b = -.02, SE =

.02, $p = .29$, for mean and "high" identification, respectively). The simple slopes for each level of identification with the typical UNM student are presented in figure 12. The interaction functioned such that the relationship between estimated DPW of the typical UNM student and number of binge drinking days per week became more negative as participants indicated more identification with the typical UNM student.

ISS Moderation: AUDIT model for NA only. The ISS was tested as a potential moderator of the relationship between estimated DPW of the typical UNM student and AUDIT total score, and between perceived approval of the typical UNM student and AUDIT total score in a three-step hierarchical linear regression using data from only NA students. Results are presented in table 22. Age and sex were entered as predictors in step one. The overall model fit for step one was significant ($F (2, 129) = 4.72, p = .01$). Age significantly predicted AUDIT score such that NAs who were older tended to report higher AUDIT scores. Step two included the seven normative beliefs variables, an additional injunctive normative beliefs variable representing perceived approval of the NA participant's NA community, and ISS total score as predictors. The overall model fit was significant in step two ($F (11, 129) = 5.03, p < .001$), and R^2 significantly increased by .25 from step one to step two ($F_{change} (9, 118) = 4.82, p < .001$). In step two reporting older age was significantly associated with having a higher AUDIT score. Estimated DPW of the participant's best friends and perceived approval of the participant's best friends were predictive of AUDIT score such that higher estimated DPW of the participant's best friends and higher perceived approval of the participant's best friends were associated with higher AUDIT score. Perceived approval of the typical UNM student was significantly associated with AUDIT score such that higher perceived

approval of the typical UNM student was related to having a lower AUDIT score. Two interaction terms representing potential interactions between ISS total score and estimated DPW of the typical UNM student, and between ISS total score and perceived approval of the typical UNM student, were entered in step three. Overall model fit for this step was statistically significant (F (13, 129) = 4.19, $p < .001$), although R^2 did not significantly increase from step two to step three (F_{change} (2, 116) = .04, $p < .96$). In this step age remained significantly predictive of AUDIT score such that participants reporting older age tended to have higher AUDIT scores. Estimated DPW of the participant's best friends and perceived approval of the participant's best friends remained significant positive predictors of AUDIT score, while perceived approval of the typical UNM student remained a significant negative predictor of AUDIT score. Neither of the two interaction terms was statistically significant.

The model predicting AUDIT scores for NA participants had a Durbin-Watson statistic value of 2.17, suggesting that the assumption of independent errors was met. All VIF values for predictors were under three, indicating that there were no significant multicollinearity concerns in this model. Casewise diagnostics indicated that only one individual had a standardized residual score greater than three. A scatterplot of the standardized predicted values and the standardized residuals evidenced some degree of heteroscedasticity. Both a histogram and a normal P-P plot of the standardized residuals indicated that residuals were somewhat non-normal, with the histogram indicating a slight positive skew.

ISS Moderation: RAPI outcome for NA only. The ISS was tested as a moderator of the relationship between estimated DPW of the typical UNM student and

RAPI total score, and between perceived approval of the typical UNM student and RAPI

total score in a three-step hierarchical linear regression model utilizing data from NA

only. Results are presented in table 23. In step one of the model, age and sex were

entered as predictors of RAPI total score. The overall model fit in step one was not

significant (F (2, 125) = 2.76, p = .07). Participant age significantly predicted RAPI total

score such that NAs who were older tended to report higher RAPI scores. The eight

normative beliefs variables and ISS total score were entered as predictors in step two of

the model. Overall model fit was statistically significant (F (11, 125) = 2.50, p = .01) and

R^2 significantly increased by .15 from step one to step two (F_{change} (9, 114) = 2.38, p =

.02). In step two, age remained a significant positive predictor of RAPI score. Both

estimated DPW of the participant's best friends and perceived approval of the

participant's best friends predicted RAPI score such that higher estimated DPW of the

participant's best friends and higher perceived approval of the participant's best friends

was associated with higher RAPI total score. Two interaction terms representing potential

interactions between ISS total score and estimated DPW of the typical UNM student, and

between ISS total score and perceived approval of the typical UNM student, were entered

in step three of the model. Overall model fit was significant (F (13, 125) = 2.14, p = .02),

although R^2 did not significantly increase from step two to step three (F_{change} (2, 112) =

.32, p = .73). Age remained a significant positive predictor of RAPI total score in this

model, as did estimated DPW of the participant's best friends and perceived approval of

the participant's best friends. Neither of the two interaction terms was statistically

significant.

The model predicting RAPI scores for NA participants had a Durbin-Watson statistic value of 2.12, indicating that the assumption of independent errors was met. All VIF values for all predictors were less than three, suggesting that there were no significant multicollinearity issues. Casewise diagnostics indicated that three participants had RAPI scores with standardized residual values greater than three. A scatterplot of the standardized predicted values and the standardized residuals evidenced some degree of heteroscedasticity. Both a histogram and a normal P-P plot of the standardized residuals indicated that residuals were non-normal, with the histogram indicating a moderate positive skew.

ISS Moderation: DPW outcome for NA only. The ISS was tested as a moderator of the relationship between estimated DPW of the typical UNM student and the participant's own DPW, and between perceived approval of the typical UNM student and the participant's own DPW in a three-step hierarchical linear regression model utilizing data from NA only. Age and sex were tested as predictors of DPW in step one. Results are presented in table 24. Overall model fit for this step was not statistically significant (F (2, 127) = 2.67, p = .07). Sex was a significant predictor of DPW such that women tended to report fewer DPW than did men. The eight normative beliefs variables and ISS total score were entered as predictors in step two. Overall model fit was significant (F (11, 129) = 4.20, p < .001), and R^2 significantly increased by .24 from step one to step two (F_{change} (9, 118) = 4.40 p < .001). In this model, women still tended to report significantly fewer DPW than did men. Both estimated DPW of the typical UNM student and estimated DPW of the participant's best friends predicted DPW such that higher estimations on both variables were associated with higher DPW. Interestingly,

both higher perceived approval of the typical UNM student and higher perceived approval of the typical same-race UNM peer were significantly associated with reporting lower DPW in this step. Two interaction terms representing the potential interaction between ISS total score and estimated DPW of the typical UNM student and ISS total score and perceived approval of the typical UNM student were entered in step three of the model. Overall model fit was statistically significant (F (13, 129) = 3.657, $p < .001$), though R^2 did not significantly increase from step two to step three (F_{change} (2, 116) = .77 $p = .46$). Sex remained a significant predictor of DPW such that females tended to report fewer DPW. Both estimated DPW of the typical UNM student and estimated DPW of the participant's best friends remained significant positive predictors of DPW. Perceived approval of the typical UNM student remained a significant negative predictor of DPW while perceived approval of the typical same-race UNM peer did not. Neither interaction term was statistically significant.

The model predicting DPW for NA only had a Durbin-Watson statistic value of 2.20, indicating that the assumption of independent errors was met. VIF values for all predictor variables were under three, suggesting that there were no significant concerns related to multicollinearity in this model. Only two individuals were indicated by casewise diagnostics as having standardized residual values over three. A scatterplot of the standardized predicted values and the standardized residuals evidenced some degree of heteroscedasticity. Both a histogram and a normal P-P plot of the standardized residuals evidenced slight non-normality of residuals, with the histogram indicating a slight positive skew.

ISS Moderation: Binge drinking outcome for NA only. Only 66 NAs reported consuming at least one DPW and had sufficient data to be included in this analysis. Tabachnick and Fidell (2001) recommended that at least 10-20 individuals be included for every one predictor in a regression analysis. Given that the three-step hierarchical linear regression model testing for potential moderation effects of the ISS on number of binge drinking days in NA participants included 13 predictor variables in step three, this test was severely underpowered. Thus, results from this model are not reported.

PAID moderation analyses. The second potential moderator of the relationship between normative beliefs and drinking-related outcomes that was tested for NA participants was PAID total scale score. This potential interaction was tested at three predictor variables: estimated DPW of the typical NA student, perceived approval of the typical same-race (NA) peer, and perceived approval of a typical member of the participant's NA community. To test the interaction between PAID score and estimated DPW of the typical NA student, the combined variable representing estimated DPW of the typical UNM student, which had been created by averaging across estimated DPW of the typical UNM student, estimated DPW of the typical NA student, and estimated DPW of the typical UNM student, was again separated into the three different variables. To reduce issues of multicollinearity between the three variables and to prevent analyses from being underpowered, only estimated DPW of the typical NA student was utilized as a predictor in the four PAID moderation analyses.

PAID moderation: AUDIT outcome with NA only. PAID total score was tested as a potential moderator of the relationship between normative beliefs and AUDIT total score for NAs in a three-step hierarchical linear regression model. Results are

presented in table 25. Age and sex were entered as predictors in step one. Overall model fit for this step was significant (F (2,133) = 4.25, p = .016), and age significantly predicted AUDIT scores such that NA individuals who were older tended to have higher AUDIT scores. The eight normative beliefs and PAID total score were entered as predictors in step two of the model. Overall model fit was statistically significant (F (11, 133) = 5.07, p < .001), and R^2 significantly increased by .253 from step one to step two (F_{change} (9, 122) = 4.99, p < .001). Age remained a significant predictor of AUDIT score such that NAs were older tended to have higher AUDIT scores. Both estimated DPW of the participant's best friends and perceived approval of the participant's best friends were significant positive predictors of AUDIT score. The three PAID interaction terms were entered in step three. Overall model fit in step three was statistically significant (F (14, 133) = 4.11, p < .001), although R^2 did not significantly increase from step two to step three (F_{change} (3, 119) = .71, p = .550). Age, estimated DPW of the participant's best friends, and perceived approval of the participant's best friends remained significant positive predictors of AUDIT total score. None of the three PAID interaction terms was statistically significant.

This model had a Durbin-Watson statistic value of 1.82, indicating that the assumption of independent errors was met. None of the predictor variables had VIF values above three, suggesting that there were no significant issues related to multicollinearity in this model. Casewise diagnostics did not indicate that any individuals had standardized residual scores over three. A scatterplot of the standardized predicted values and the standardized residuals evidenced some degree of heteroscedasticity. Both a histogram and a normal P-P plot of the standardized residuals

evidenced slight non-normality of residuals, with the histogram indicating a slight

positive skew.

PAID moderation: RAPI outcome for NA only. PAID total score was tested as

a potential moderator of the relationship between normative beliefs and RAPI total score

for NAs in a three-step hierarchical linear regression model. Results are presented in

table 26. Age and sex were entered as predictors in step one. Overall model fit for step

one was not statistically significant (F (2, 129) = 3.00, p = .053). Age significantly

predicted RAPI score such that older NAs tended to have higher RAPI scores. The eight

normative beliefs variables and PAID total score were entered as predictors in step two.

Overall model fit was significant (F (11, 129) = 3.11, p = .001), and R^2 significantly

increased by .18 from step one to step two (F_{change} (9, 118) = 3.04, p = .003). Age

remained a significant positive predictor of RAPI total score. Both estimated DPW of the

participant's best friends and perceived approval of the participant's best friends

significantly predicted RAPI score such that higher estimated DPW of the participant's

best friends and higher perceived approval of the participant's best friends were both

associated with higher RAPI score. The three PAID interaction terms were entered in

step three. Overall model fit for step three was statistically significant (F (14, 129) =

2.53, p = .003), although R^2 did not significantly increase from step two to step three

(F_{change} (3, 115) = .54, p = .658). Age remained a significant positive predictor of RAPI

score, as did estimated DPW of the participant's best friends and perceived approval of

the participant's best friends. PAID total score significantly predicted RAPI total score

such that NAs who endorsed a higher level of stereotypical beliefs about NA drinking

tended to report experiencing more negative consequences related to alcohol consumption. None of the three PAID interaction terms was statistically significant.

This model had a Durbin-Watson statistic value of 2.08, indicating that the assumption of independent errors was met. None of the predictor variables had VIFs above three, suggesting that there were no significant multicollinearity issues in this model. Casewise diagnostics indicated that three individuals (2 %) had standardized residual score values over three. A scatterplot of the standardized predicted values and the standardized residuals evidenced some degree of heteroscedasticity. Both a histogram and a normal P-P plot of the standardized residuals evidenced some non-normality of residuals, with the histogram indicating a moderate positive skew.

PAID moderation: DPW outcome for NA only. PAID total score was tested as a potential moderator of the relationship between normative beliefs and a third drinking outcome, DPW. Age and sex were entered as predictors in step one of a three-step hierarchical linear regression model. Results are presented in table 27. Overall model fit for step one was not statistically significant (F (2, 133) = 2.87, p = .06). Sex significantly predicted DPW such that NA women tended to report fewer DPW than did NA men. The eight normative beliefs variables and PAID total score were entered as predictors in step two of the model. Overall model fit was significant (F (11, 133) = 3.35, p < .001), and R^2 significantly increased by .19 from step one to step two (F_{change} (9, 122) = 3.36, p = .001). Sex remained a significant predictor of DPW such that women tended to report fewer DPW. Estimated DPW of the participant's best friends significantly predicted DPW such that higher estimated DPW of the participant's best friends was associated with reporting more DPW. The three PAID interaction terms were added as predictors in step three of

the model. Overall model fit was significant (F (14, 133) = 2.68, p = .002), although R^2 did not significantly increase from step two to step three (F_{change} (3, 119) = .39, p = .76). Sex remained a significant predictor of DPW such that NA women tended to report fewer DPW. Estimated DPW of the participant's best friends also remained a significant positive predictor of DPW. None of the three interaction terms was statistically significant.

This model had a Durbin-Watson statistic value of 2.22, suggesting that the assumption of independent errors was met. All predictor variables had VIFs under three, indicating no significant issues related to multicollinearity in this model. Casewise diagnostics indicated that only two NA participants (1 %) had standardized residual values larger than three. A scatterplot of the standardized predicted values and the standardized residuals evidenced some degree of heteroscedasticity. Both a histogram and a normal P-P plot of the standardized residuals evidenced some non-normality of residuals, with the histogram indicating a moderate positive skew.

PAID moderation: binge drinking outcome for NA only. Based upon Tabachnick and Fidell's (2012) recommendations concerning power in regression analyses, the model testing PAID total score as a moderator of the relationship between normative beliefs and number of binge drinking days per week required data from a minimum of 140 individuals. Only 64 NAs both reported consuming at least one DPW and had sufficient data to be included in this model. Thus, this model was severely underpowered and results are not reported.

BEIS moderation analysis. The "White way of life" and "Indian way of life" subscales of the BEIS were tested as potential moderators of the relationship between

normative beliefs and drinking-related outcomes. The "White way of life" subscale was tested as a potential moderator at one predictor variable: estimated DPW of the typical NHW student. The "Indian way of life" subscale was tested as a potential moderator at three predictor variables: estimated DPW of the typical NA student, perceived approval of the typical same-race (NA) peer, and perceived approval of the typical member of an NA participant's NA community. The combined variable representing estimated DPW of the typical UNM student was again separated into the three component variables representing estimated DPW of the typical UNM student, estimated DPW of the typical NA student, and estimated DPW of the typical NHW student. To reduce issues of multicollinearity and test a more parsimonious model, estimated DPW of the typical UNM student was not included as a predictor in subsequent BEIS moderation analyses.

BEIS moderation: AUDIT outcome for NA only. The two BEIS subscales were tested as potential moderators of the relationship between normative beliefs and AUDIT total score. Results are presented in table 28. Age and sex were entered as predictors in step one. Overall model fit for step one was statistically significant (F (2, 129) = 5.08, p = .008). Age significantly predicted AUDIT score such that older NAs tended to have higher AUDIT scores. The nine normative beliefs variables and two BEIS subscales were entered as predictors in step two. Overall model fit was statistically significant (F (13, 129) = 5.61, $p < .001$) and R^2 significantly increased by .31 from step one to step two (F_{change} (11, 116) = 5.36, $p < .001$). Age remained a significant positive predictor of AUDIT total score. Both estimated DPW of the typical NHW student, estimated DPW of the participant's best friends, and perceived approval of the participant's best friends were significant positive predictors of AUDIT total score. Estimated DPW of the typical

NA student was a significant predictor of AUDIT score such that higher estimated DPW of the typical NA student was associated with having a lower AUDIT score. Perceived approval of the typical UNM student was a significant predictor of AUDIT score such that higher perceived approval of the typical UNM student was associated with having a lower AUDIT score among NAs. The four BEIS interaction terms were entered as predictors in step three of the model. Overall model fit was significant (F (17, 129) = 5.14, $p < .001$), and R^2 significantly increased by .05 from step two to step three (F_{change} (4, 112) = 2.59, $p = .041$). Age, estimated DPW of the typical NHW student, estimated DPW of the participant's best friends, and perceived approval of the participant's best friends remained significant positive predictors of total AUDIT score. Estimated DPW of the typical NA student and perceived approval of the typical UNM student remained significant negative predictors of AUDIT total score. The "Indian way of life" subscale of the BEIS was predictive of AUDIT total score such that NAs who identified more strongly with being NA tended to have lower AUDIT scores. Of the four interaction terms, only the interaction between the "Indian way of life" subscale of the BEIS and estimated DPW of the typical NA student was significant. To probe this interaction, simple slopes were estimated for three values: one standard deviation below the mean of the mean-centered "Indian way of life" scale (-.806), the mean of the mean-centered "Indian way of life" scale, and one standard deviation the mean-centered "Indian way of life" scale (.806). The simple slope for "low" identification with an "Indian way of life" was not statistically significant ($b = -.04$, $SE = .07$, $p = .64$). The simple slopes for mean identification and "high" identification with an "Indian way of life" were both statistically significant ($b = -.18$, $SE = .06$, $p = .002$ and $b = -.31$, $SE = .07$, $p < .001$, for

mean identification and "high" identification, respectively). The three simple slopes are presented in figure 13. The interaction functioned such that the negative relationship between estimated DPW of the typical NA student and AUDIT total score was stronger for NAs who identified more strongly with an "Indian way of life".

This model had a Durbin-Watson statistic value of 1.76, indicating that the assumption of independent errors was met. All predictors had VIFs below three, suggesting that there were no significant issues with multicollinearity in this model. Casewise diagnostics indicated that only one individual (1 %) had a standardized residual score value above three. A scatterplot of the regression standardized predicted values and the regression standardized residuals suggested mild heteroscedasticity. Both a histogram and a normal P-P plot of the standardized residuals evidenced slight non-normality of residuals, with the histogram indicating a slight positive skew.

BEIS moderation: RAPI outcome for NA only. The two BEIS subscales were tested as potential moderators of the relationship between normative beliefs and RAPI total score in a three-step hierarchical linear regression model. Results are presented in table 29. Age and sex were entered as predictors in step one. Overall model fit was not significant (F (2, 125) = 3.02, p = .053). Age was a significant predictor of RAPI total score such that older NAs tended to have higher RAPI scores. The eight normative beliefs variables and two BEIS subscales were entered as predictors in step two. Overall model fit was statistically significant (F (13, 125) = 2.65, p = .003) and R^2 significantly increased by .19 from step one to step two (F_{change} (11, 112) = 2.50, p = .007). Age remained a significant positive predictor of RAPI total score. Both estimated DPW of the typical NHW student, estimated DPW of the participant's best friends, and perceived

approval of the participant's best friends were significant predictors of RAPI total score such that higher estimates for each variable were associated with higher RAPI total score. Estimated DPW of the typical NA student was significantly negatively associated with RAPI total score. The four BEIS interaction terms were entered in step three of the model. Overall model fit was statistically significant (F (17, 125) = 2.38, p = .004), although R^2 did not significantly increase from step two to step three (F_{change} (4, 108) = 1.39, p = .241). Age, estimated DPW of the typical NHW student, and perceived approval of the participant's best friends remained significant positive predictors of RAPI total score. Estimated DPW of the typical NA student remained a significant positive predictor of RAPI total score. Perceived approval of the typical UNM student was a significant predictor of RAPI total score such that higher perceived approval of the typical UNM student was associated with having a lower RAPI score among NAs. None of the four BEIS interaction terms was statistically significant.

This model had a Durbin-Watson statistic value of .92, suggesting that the assumption of independent errors was met. All predictor variables had VIFs below three, indicating that there were no significant multicollinearity issues in this model. Casewise diagnostics indicated that two individuals (2 %) had standardized residual values above three. A scatterplot of the regression standardized predicted values and the regression standardized residuals suggested some heteroscedasticity. Both a histogram and a normal P-P plot of the standardized residuals evidenced some non-normality of residuals, with the histogram indicating a moderate positive skew.

BEIS moderation: DPW outcome for NA only. The two BEIS subscales were tested as potential moderators of the relationship between normative beliefs and DPW in

a three-step hierarchical linear regression model. Results are presented in table 30. Age

and sex were entered as predictors in step one. Overall model fit was not significant (F

$(2, 129) = 2.56, p = .08$). Neither demographic variable was a significant predictor of

DPW. The eight normative beliefs variables and two BEIS subscales were entered as

predictors in step two. Overall model fit was significant ($F (13, 129) = 5.70, p < .001$)

and R^2 significantly increased by .19 from step one to step two ($F_{change} (11, 116) = 6.06, p$

$< .001$). Both estimated DPW of the typical NHW student and estimated DPW of the

participant's best friends were significant predictors of DPW such that NAs who made

higher estimates for each of these variables tended to report more DPW. Both estimated

DPW of the typical NA student and perceived approval of the typical UNM student were

significant predictors of DPW such that higher estimates on each of these variables were

associated with consuming fewer DPW.   The four BEIS interaction terms were added as

predictors in step three. Overall model fit was statistically significant ($F (17, 129) =$

$5.11, p < .001$), although R^2 did not significantly increase from step two to step three

($F_{change} (4, 112) = 2.33, p = .060$). Both estimated DPW of the typical NHW student and

estimated DPW of the participant's best friends remained significant positive predictors

of DPW, and estimated DPW of the typical NA student and perceived approval of the

typical UNM student remained significant negative predictors of DPW. The interaction

between the "Indian way of life" subscale of the BEIS and perceived approval of the

typical same-race (NA) UNM student was statistically significant. To probe this

interaction, simple slopes were estimated for three values: one standard deviation below

the mean of the mean-centered "Indian way of life" scale (-.806), the mean of the mean-

centered "Indian way of life" scale, and one standard deviation the mean-centered

"Indian way of life" scale (.806). The simple slope for "low" identification with an "Indian way of life" was not statistically significant (b = .16, SE = .58, p = .778), nor was the simple slope for mean identification with an "Indian way of life" (b = -.69, SE = .44, p = .122). The simple slope for "high" identification with an "Indian way of life" was statistically significant (b = -1.54, SE = .65, p = .019). The simple slopes for each of the three levels of identification with an "Indian way of life" are presented in figure 14. The interaction functioned such that stronger identification with an "Indian way of life" predicted a stronger negative relationship between perceived approval of the typical same-race (NA) student and DPW.

This model had a Durbin-Watson statistic value of 2.06, indicating that the assumption of independent errors was met. All predictor variables had VIFs less than or equal to five, suggesting that there were no significant issues related to multicollinearity in this model. Casewise diagnostics indicated that only one individual (1 %) had a standardized residual score value above three. A scatterplot of the regression standardized predicted values and the regression standardized residuals suggested some heteroscedasticity. Both a histogram and a normal P-P plot of the standardized residuals evidenced slight non-normality of residuals, with the histogram indicating a slight positive skew.

BEIS moderation: Binge drinking outcome for NA only. Based upon Tabachnick and Fidell's (2012) recommendations concerning power in regression analyses, the model testing the two BEIS subscales as moderators of the relationship between normative beliefs and number of binge drinking days per week required data from a minimum of 170 participants. Only 66 NA individuals reported consuming at

least one DPW and had sufficient data to be included in this analysis. Thus, this model

was severely underpowered and results are not reported.

<div align="center">Chapter 4</div>

<div align="center">**Discussion**</div>

The well-documented detrimental effects of heavy alcohol use among college

students illustrate the importance of understanding predictors of drinking and other

alcohol outcomes in this population. The purpose of the present study was to examine

descriptive and injunctive normative beliefs about drinking among NA and NHW

undergraduate students at a large, ethnically-diverse Southwestern university. In

addition, we examined the relationship between normative beliefs and four alcohol-

related outcomes, and tested for interaction effects by ethnicity. Finally, we examined

potential moderators of the relationship between normative beliefs and alcohol-related

outcomes separately for both ethnic groups including identification with the typical

college student, ethnic identity, and belief in negative stereotypes about NA drinking.

Aim I: Exploratory factor analyses of INQ and PAID

Aim I consisted of initial exploratory factor analyses of two measures, the INQ

and the PAID, for the purpose of informing scale construction for subsequent analyses.

Baer's (1994) original version of the INQ provided the first psychometrically sound

measure of injunctive normative beliefs related to drinking. One limitation of the original

version of the INQ is that the four alcohol-related behaviors addressed (drinking alcohol

daily, driving after drinking, drinking enough alcohol to pass out, and driving a car after

drinking) were relatively serious in nature. In the present sample, only 3.3% of

participants indicated on the AUDIT that they consumed alcohol four or more times per

week and only 8.4% of participants indicated on the RAPI that they had passed out as a result of drinking in the past year. The relatively low incidence of these serious alcohol-related behaviors in this sample suggests that the INQ may not adequately assess perceived approval for more normative drinking behaviors among college student populations. The addition of three alcohol-related behaviors (playing drinking games, drinking with friends, and complete abstinence from alcohol) to the INQ in the present study resulted in the extraction of two separate factors, one representing perceived approval for relatively less serious drinking behaviors (playing drinking games, drinking with friends, and drinking alcohol every weekend), and one for relatively more serious drinking behaviors (drinking alcohol daily, driving after drinking, and drinking enough to pass out). Interestingly, perceived approval for abstinence did not load together with other INQ variables, suggesting that alcohol abstinence may be a separate construct that is not appraised in a manner similar to drinking behaviors. Despite evidence from the exploratory factor analysis conducted in the present study suggesting that one item on Baer's (1994) original INQ (drinking alcohol every weekend) does not represent the same construct as the other three original items, most injunctive normative beliefs research to date has combined the original four INQ items to create a mean perceived approval score (e.g. Neighbors et al., 2007). Further clarity regarding the effect of injunctive normative beliefs on participant's own drinking behavior would likely be gained by separately examining perceived approval for drinking behaviors that vary in severity, and by examining perceived approval for a greater variety of drinking behaviors.

Initial exploratory factor analysis of the PAID scale resulted in a seven-item, two-factor scale representing stereotypical beliefs regarding NA drinking behavior. However,

the two factors were significantly correlated, so all seven items were summed into a total scale score for regression analyses. The three excluded items may not have functioned as hypothesized for a variety of reasons. For example, the item "NAs metabolize alcohol differently" may not have functioned in a similar manner to other PAID items because participants did not know the meaning of the word "metabolize". In addition, for items such as "NA tribes differ greatly in attitudes towards alcohol use" it was not clear that stronger endorsement of this item as false corresponded to higher negative stereotypical beliefs regarding NA drinking. Endorsing this item as being false may have indicated that a participant believed all NA tribes had a similar negative attitude towards alcohol use, constituting a "positive" stereotype, rather than a similar positive attitude towards alcohol use. Initial data concerning the internal consistency and convergent validity of the PAID scale were promising, indicating that this measure may be useful in conceptualizing stereotypical beliefs regarding NA drinking.

Aim II: Description of sample

Part one of aim II characterized our sample, including drinking behavior, descriptive normative beliefs, injunctive normative beliefs, identification with the typical student, and endorsement of stereotypical beliefs regarding NA drinking. Compared to data from college student participants in the Monitoring the Future National Survey, participants in the present sample were more likely to report that they had not consumed alcohol in the past 30 days (46% abstinent in our sample vs. 31% abstinent in the Monitoring the Future sample; Johnston et al., 2009). The percentage of NAs reporting past month alcohol consumption in the present study was somewhat lower than Ward and Ridolfo's (2011) seminal quantitative examination of drinking behavior among NA

college students (49.7% in our sample vs. 65% in Ward and Ridolfo's sample). One

reason for this may be heterogeneity in drinking practices between tribes from different

geographical regions (e.g. Spicer et al., 1991). Despite less alcohol consumption overall,

the mean total AUDIT score for all students in this sample who reported consuming at

least one DPW ($M = 7.25$) was comparable to previous research that reported a mean

AUDIT score of 7.61 in a sample of 1327 college student drinkers from 9 universities

across the United States (Zamboanga, Schwartz, Ham, Borsari, and Van Tyne, 2010).

Approximately 39.2% of drinkers in our sample reported at least one instance of past-

month binge drinking, directly comparable to Johnston et al.'s finding that 40% of

students surveyed engaged in recent binge drinking. Furthermore, there were no

significant differences in drinking variables found between NA and NHW drinkers in this

sample, suggesting that NA and NHW college students who choose to drink engage in

similar hazardous drinking practices compared both to each other and to other college

student samples. This finding is especially important in the consideration of stereotypical

beliefs regarding NA drinking, as it provides empirical evidence from one sample that

NA students are not drinking with greater frequency or intensity as compared to NHW

students. Fortunately, both NA and NHW college students in our sample reported higher

rates of abstinence than had been previously reported in such samples.

Part two of aim II characterized the normative beliefs about drinking of our

sample. Findings related to descriptive normative beliefs further confirmed the well-

established finding that college students make large normative misperceptions regarding

how much alcohol is consumed by a typical university student (e.g. Baer et al., 1991;

Perkins et al., 1999). Compared to their own reported DPW, NHW participants

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overestimated how much the typical NHW student drinks by 9.06 DPW and NA participants overestimated how much the typical NA student drinks by 8.59 DPW. Also consistent with the extant literature, participants in our sample offered lower estimates of drinking for their best friends in comparison to the typical UNM student (Lewis & Neighbors, 2006). Injunctive normative beliefs about drinking followed a similar pattern such that both NA and NHW students perceived the typical UNM student as being more permissive than their best friends, and perceived their parents as being least permissive. The present study was the first study to date to assess perceived approval for drinking from NA students' NA community. NA students rated the typical member of their community as being less permissive than their best friends but more permissive than their parents. Future research in this area should expand upon the topic of perceived approval for drinking among members of NA students' NA community by addressing perceived approval from specific community groups, such as NA elders and peers from reservation communities. Expansion of injunctive normative beliefs research in this area is a promising area for exploration given that other researchers have found stronger associations between perceived normative beliefs regarding the drinking behaviors of specific groups of which the participant is a member, such as a fraternity, and personal drinking behaviors than between perceived normative beliefs of the typical student and personal drinking behaviors (e.g. Larimer et al., 2004).

Our examination of injunctive normative beliefs about drinking was also novel in that we assessed perceived approval for alcohol abstinence. To our knowledge, no previous study in the area of normative beliefs has examined this construct. In general, participants indicated that their parents would approve of complete alcohol abstinence,

and that other reference groups would either approve or feel neutral towards alcohol abstinence. Interestingly, perceived approval for alcohol abstinence increased as proximity of the reference group increased. This finding corresponds with participants making higher estimates of DPW for the typical student reference groups than their best friends, and perhaps functions such that participants may have perceived their best friends as being more accepting of abstinence in accordance with their lower levels of drinking. Further research should investigate the mechanisms by which NAs come to perceive higher approval for alcohol abstinence than do NHWs. These ethnic differences in perceived approval for abstinence were notable; especially given that NAs and NHWs did not significant differ in their own rates of alcohol abstinence.

Aim II also yielded interesting results concerning who participants perceived to be the typical UNM student, as well as addressing participant's perceived similarity to the typical UNM student. Actual UNM enrollment records indicate that 45% of undergraduate degree-seeking students in Fall 2013 identified as "Hispanic", compared to 37% who identified as "White" (University of New Mexico Fall 2013 Enrollment Report, 2013). This larger proportion of Hispanic students was not represented in our sample's perception of the typical UNM student. Even at a "minority-majority" university where most students do not identify as NHW, participants in this sample were most likely (45.8%) to indicate that they thought the typical UNM student was "White." The actual average age of undergraduate, degree-seeking students at UNM is 23.48. Participants in our sample perceived the "typical UNM student" as younger than the actual average age, estimating that the "typical UNM student" was 20.31. A majority correctly perceived the typical student as being female; UNM records indicate that 56% of undergraduate,

degree-seeking students in Fall 2013 were female. Furthermore, participants indicated that they perceived themselves as being somewhat different than the typical UNM student on the ISS.

These findings underscore the importance of empirically examining who students consider to be the typical college student, as only 167 of the 393 study participants were of the same sex and ethnicity of the perceived typical student (NHW females). Identity as it relates to perceptions of the typical college student is particularly important for institutions in "minority-majority" states such as New Mexico. In a predominately Hispanic-serving institution such as UNM, where there are approximately equal numbers of NHW and Hispanic students, researchers interested in the effect of normative perceptions of the typical student must ensure that they understand "who" participants are referencing. Most examinations of normative drinking beliefs have been conducted at institutions with predominately non-Hispanic White populations, indicating a dearth of attention to who is considered to be the typical student for normative beliefs research conducted at "minority-majority" universities. Researchers who erroneously assume that study participants conceptualize the typical student as being similar to themselves may fail to appreciate the differential effects that normative beliefs regarding the typical student may have on drinking behavior.

Aim II also investigated the functioning of individual items on the PAID scale. Several initial conclusions can be drawn from this examination. Most notably, responses of NA participants did not significantly differ from NHW participants for all but one PAID item. This suggests that group membership and presumed closer proximity to a group is not necessarily sufficient to correct erroneous stereotypical beliefs. However,

the negative correlation between endorsing high "Indian way of life" on the BEIS and PAID total score may indicate that stronger NA cultural identification is associated with a more accurate and unbiased view of NA drinking. Furthermore, although PAID total score was not significantly correlated with reported DPW of NA participants, further research is needed to determine what other negative health outcomes for NAs, if any, are associated with higher endorsement of stereotypical beliefs regarding NA drinking. It is possible that higher PAID total score among NAs is indicative of higher levels of internalized racism. Jones (2000) described internalized racism as "acceptance by members of the stigmatized races of negative messages about their own abilities and intrinsic worth." Poupart (2003) and others (e.g. BraveHeart, 1995) have conceptualized internalized racism/oppression among NAs as being related to health disparities including high rates of depression, suicide, and alcohol problems in some NA communities. Future research should examine the relationship between PAID scale scores and NA health outcomes within a framework of internalized racism/oppression.

Aim III: Predicting drinking behavior from normative beliefs

Preliminary analyses conducted for aim III support previous work suggesting that proximity of the reference group is most salient. Results indicated that, despite the tendency for both NA and NHW participants to estimate DPW consumed by the typical NA UNM student as higher than DPW consumed by the typical UNM student, and DPW of the typical UNM student as higher than DPW consumed by the typical NHW UNM student, these three variables were highly correlated. In contrast, estimated DPW of the participant's best friends was not strongly correlated with estimated DPW of the typical UNM student. Future studies should consider the utility of having participants make

race/ethnicity-specific estimations of DPW of the typical student at their university, especially when research is conducted in university settings with diverse racial/ethnic composition.

In contrast, preliminary Aim III analyses revealed the utility of assessing injunctive normative beliefs for a variety of different reference groups. While other examinations of injunctive normative beliefs have generally assessed perceived approval of only one or a few reference groups (e.g. the typical student, the participant's close friends, and the participant's parents), the lack of very high correlations between perceived approval of the six different reference groups included in the present study suggests that examining this construct across a multitude of reference groups can potentially add to the predictive value of injunctive normative beliefs.

Aim III examined the utility of descriptive and injunctive normative beliefs in predicting four alcohol-related outcomes, and then tested for differential effects of normative beliefs on alcohol outcomes by ethnic group membership. Regression models were tested for the entire sample and then for only those participants who reported consuming at least one DPW in a typical week. For models tested using the entire sample, the only common predictor of each of the four alcohol-related outcomes was estimated DPW of the participant's best friends. Although it was expected that estimated DPW of the typical UNM student would also significantly predict drinking outcomes, the finding that proximal reference groups (e.g. best friends) are stronger predictors of student's personal drinking behaviors than distal reference groups (e.g. the typical student) is concordant with research findings in the extant literature (Kypri & Langley, 2003; Thombs, Wolcott, & Farkash, 1997).

Injunctive normative beliefs also did not consistently predict drinking outcomes as expected, with only perceived approval of drinking by the participant's best friends positively predicting AUDIT score and perceived approval of the participant's parents positively predicting DPW. Interestingly, perceived approval of the typical same-race UNM peer was negatively predictive of DPW. While the negative relationship between perceived approval of the typical same-race UNM peer and DPW may seem contrary to expectations, Neighbors et al. (2008) found that injunctive normative beliefs for more distal groups (e.g. typical college student) were negatively related to participant's own DPW when entered in a regression model with more proximal reference groups (e.g. best friends). This is also consistent with the finding that perceived approval of parents, a close proximal reference group, was positively predictive of DPW in the same model. In general, main effects in the regression models predicting the four drinking outcomes for drinkers were consistent with the assertion that proximal reference groups (e.g. best friends) more strongly predict drinking outcomes.

The initial significant interactions between ethnicity and normative beliefs found when the four regression models were tested using data from the entire sample were no longer significant when the four models were tested again after removing abstainers. This finding further supports the hypothesis that NA and NHW college student drinkers represent a relatively homogeneous group with regard to the relationship between normative beliefs and drinking outcomes. In addition, initial interaction effects may have been influenced by the higher proportion of NA abstainers compared to NHW abstainers.

Interactions between ethnic group membership and injunctive normative beliefs were found for two outcomes for participants reporting at least one DPW. For the model

predicting DPW for drinkers, perceived approval of the typical UNM student was significantly negatively predictive of DPW for NA drinkers but not for NHW drinkers; Perceived approval of the typical same-race student was significantly negatively predictive of DPW for NHW drinkers but not for NA drinkers. For the model predicting number of binge drinking days per week for drinkers, perceived approval of the typical same-race student was negatively predictive of binge drinking for NHW drinkers but not for NA drinkers. Since the present study was the first study to address ethnic differences between NA and NHW college students, replication of these findings is needed to ensure that these interactions are not the result of spurious, sample-specific effects.

Aim IV: Testing ISS as a moderator of the relationship between normative beliefs and drinking outcomes

First, the ISS was tested as a moderator of the relationship between normative beliefs and drinking outcomes for NHW students. In accordance with the theory that proximal reference groups more strongly influence drinking behavior, the main effect of estimated DPW of the participant's best friends was a significant positive predictor of all four drinking outcomes (AUDIT, RAPI, DPW, and number of binge drinking days per week). Estimated DPW of the typical UNM student and perceived approval of the NHW participants' parents were additional positive predictors of DPW. Consistent with previous findings regarding perceived approval of distal reference groups (e.g. Chawla, Neighbors, Lewis, Lee, & Larimer, 2007), perceived approval of the typical UNM student was negatively associated with NHWs' own DPW. Finally, NHW students' identification with the typical UNM student (ISS score) was a positive predictor of AUDIT score, DPW and number of binge drinking days per week; this finding is logical

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within the extant literature given that participants greatly overestimated how much the typical UNM student drank.

Estimated DPW of the typical UNM student and ISS total score interacted in a manner contrary to prediction for two NHW drinking outcomes (RAPI total score and binge drinking days). For both outcomes, the relationship between estimated DPW of the typical UNM student and the outcome became more negative as identification with the typical UNM student increased. The significant interaction between identification with the typical UNM student and perceived approval of the typical UNM student functioned as expected, such that there was a stronger positive association between perceived approval of the typical UNM student and RAPI total score for NHWs who identified more strongly with the typical UNM student. Results from this interaction indicate that high ISS may be a risk factor for experiencing negative alcohol-related consequences.

The ISS was then tested as a moderator of the relationship between normative beliefs and drinking outcomes for NA participants. Interestingly, demographic variables were more relevant for NAs than for NHWs, as age negatively predicted both AUDIT and RAPI total score and NA women consumed significantly fewer DPW than NA men. This finding supports Ward and Ridolfo's (2011) conclusion that demographic predictors of drinking may function differently for NAs than for NHWs, and is in line with the finding that age negatively predicted binge drinking in this previous sample. Estimated DPW of the NA participants' best friends was again a significant positive predictor of AUDIT, RAPI, DPW, and number of binge drinking days per week. Perceived approval of the participant's best friends was also a significant positive predictor of AUDIT score and RAPI score. Again consistent with previous findings, perceived approval of the

typical UNM student was a significant negative predictor of AUDIT score and DPW. Contrary to expectation, ISS total score was a significant negative predictor of binge drinking for NAs.

Empirical research investigating the moderating effect of identification with the typical college student on the relationship between normative beliefs and drinking outcomes is in a nascent stage, with only one previous study directly examining this construct. Lewis et al. (2010) found that higher identification with the typical student was associated with a negative relationship between perceived approval of the typical student for less severe drinking behaviors and the likelihood of having experienced no consequences related to drinking, while lower identification with the typical student was associated with a positive relationship between more severe drinking behaviors and the likelihood of having experienced no consequences related to drinking. Considering injunctive normative beliefs, initial examination of the moderating effects of the ISS for NHWs would support the hypothesis that a low identification with the typical student is protective, given that perceived approval of the typical UNM student was a stronger positive predictor of RAPI total score for NHWs who identified more strongly with the typical UNM student. However, it is less clear how identification with the typical student differentially affects the relationship between descriptive normative beliefs and drinking outcomes, and explication of this interaction should be a goal of future research. Furthermore, identification is a complex construct, and future examinations of this topic would benefit from examining on what dimensions participants consider themselves to be similar to the typical student (e.g. grades, drinking behavior, demographic characteristics).

Aim IV: Testing PAID as a moderator of the relationship between normative beliefs and drinking outcomes for NA participants

The PAID was tested as a moderator of the relationship between normative beliefs and drinking outcomes. Normative beliefs of NA participants' best friends continued to be the most robust predictors of drinking outcomes, with estimated DPW of the participants' best friends positively predicting all three tested drinking outcomes (AUDIT, RAPI, and DPW), and perceived approval of the participants' best friends positively predicting AUDIT and RAPI total score. Age was a significant positive predictor of AUDIT and RAPI total score, and NA women consumed significantly fewer drinks than NA men. PAID total score did not significantly moderate the relationship between normative beliefs and any of the three tested drinking outcomes. However, PAID total score was a significant positive predictor of alcohol consequences, indicating a potential association between internalized stereotypical beliefs and drinking outcomes. Although, to our knowledge, no previous studies have examined the effects of internalized ethnicity-related stereotypical beliefs on drinking behavior, several studies have examined the effect of gender-related stereotypical beliefs on drinking behavior. Ricciardelli, Connor, Williams, and Young (2001) found that positive femininity, a construct consisting of stereotypical beliefs of women as being nurturing and focused on caring for children, was negatively associated with high-risk drinking among Australian university women. Findings such as these indicate that stereotypes are potentially associated with drinking behavior, and this research should be further extended to ethnicity-related drinking stereotypes and to the refinement of instruments such as PAID to measure this construct.

Aim IV: Testing BEIS as a moderator of the relationship between normative beliefs and drinking outcomes for NA participants

The BEIS was tested as a moderator of the relationship between normative beliefs and drinking outcomes for NAs. Estimated DPW of the typical NHW student and perceived approval of the participants' best friends was a significant positive predictor of all three alcohol-related outcomes (AUDIT, RAPI, DPW). Estimated DPW of the typical NA student was a significant negative predictor of AUDIT and RAPI total score. Consistent with other models, perceived approval of the typical UNM student was a significant negative predictor of all three alcohol-related outcomes. Two interaction effects were found. First, the "Indian way of life" subscale of the BEIS was a moderator of the relationship between estimated DPW of the typical NA student and AUDIT score such that the relationship between these two variables became more negative as identification with an "Indian way of life" increased. Second, the "Indian way of life" subscale of the BEIS was a moderator of the relationship between perceived approval of the typical same-race (NA) UNM peer and DPW such that the relationship between the two variables became more negative as identification with an "Indian way of life" increased. Thus, higher identification with an "Indian way of life" initially appeared to be a protective factor.

One possible explanation for the unexpected BEIS interaction results concerns the nature of the items comprising the "Indian way of life" subscale of the BEIS. Items on this subscale are consistent with a traditional NA way of life including traditional NA family activities and traditional NA spiritual beliefs. Given that on average NA students identified slightly more strongly with a "White way of life", NA students may perceive

the typical NA student at UNM as not being "traditionally NA". Thus, higher scores on the "Indian way of life" subscale of the BEIS may actually be indicative of less identification with the typical NA student. Greater identification with a "White way of life" may also explain why estimated DPW of the typical NA student was negatively related to alcohol outcomes, as the typical NA student may have been conceptualized by NA participants as being a more distal reference group than the typical NHW student. However, it should be noted that identification with the typical NA student and with the typical NHW student were not directly assessed. Thus, explanations for the unexpected findings in the BEIS moderation models are speculative in nature. Future research should directly address identification with typical student of specified race.

Limitations

One limitation to the present study was that data were collected at a single time-point, precluding conclusions as to the temporal order of the relationship between normative beliefs and alcohol outcomes. It is likely that the relationship between normative beliefs and a student's personal drinking behavior is complex, with the student's own drinking potentially influencing the development of normative beliefs. Longitudinal examination of normative beliefs about drinking that is initiated before students first consume alcohol would explicate the influence that normative beliefs have on drinking behavior after it is initiated and vice versa.

Previous research has indicated the presence of gender differences in normative beliefs about drinking, with males tending to view peers as having more permissive attitudes than females (e.g. Adams & Nagoshi, 1999). Unfortunately, the small number of males, and especially NA males, in the present sample did not permit comparisons of

regression models by gender. Comparisons were made between demographic information in the present sample to the Fall 2013 UNM Enrollment Report to determine the representativeness of the sample. NA males were underrepresented in the present sample; 21.4% of NA participants were male, compared to 37.5% of NA undergraduate students in Fall 2013. NHW males were also underrepresented in the present sample; 32.2% of NHW participants were male, compared to 45.6% of NHW undergraduate students in Fall 2013. One possible reason for this is the relative overrepresentation of female students in psychology courses, a main source of SONA recruitment. Tribal heterogeneity also precludes generalization of results to NA college students in other geographic regions.

Another limitation was that there were not sufficient participants to test moderation models from Aim IV with drinkers only from each ethnic group. Given that interaction terms in regression analyses changed significantly between models including the entire sample and models including only drinkers in Aim III analyses, future studies should test Aim IV models with only drinkers to ensure that significant relationships hold.

A final limitation concerns the predictive value of normative beliefs in general. While significant relationships were consistently found between several normative beliefs variables (e.g. estimated DPW of the participant's best friends) and drinking outcomes, the most robust model, the prediction of DPW for NHW participants, only explained 45% of the total variance in drinking outcome. Many other factors have been demonstrated to influence college student drinking, including alcohol expectancies, emotional states, accessibility of alcohol, and fraternity membership (e.g. Baer, 2002; Butler, Dodge, &

Faurote, 2010; Weitzman, Nelson, & Wechsler, 2003). Thus, explication of patterns found between normative beliefs variables and drinking outcomes should not be held as a full and complete interpretation of the many factors that contribute to the incidence of drinking among college students.

Implications and Future Directions

As has been proposed in previous research (e.g. LaBrie et al., 2010), results from the present study support tailoring normative feedback interventions. Given that estimated DPW of the participants' best friends was the most robust predictor of drinking outcomes, future research should test the efficacy of incorporating specific descriptions of the drinking behavior of proximal reference groups such as best friends into normative feedback interventions. Although the present study did not find large effect sizes between estimated DPW of the typical NA student, estimated DPW of the typical NHW student, and estimated DPW of the typical UNM student, Larimer and colleagues (2009) found that students differentially estimated DPW of the typical same-race student compared to the general typical student (race not specified). This finding further supports the tailoring of descriptive normative feedback to potentially increase the relevance of information presented.

Offering ethnicity-specific normative feedback may also particularly benefit NA college students. Though findings are mixed (see Hawkins, Cummins, & Marlatt, 2004 for a review), some studies have shown that cultural identification, in particular bicultural ethnic identity, is protective against substance use problems among NA youth (e.g. Thurman & Green, 1997). This finding, combined with information from the present study suggesting that NAs endorse a moderate level of stereotypical beliefs regarding NA

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drinking and that PAID total score is predictive of RAPI total score, suggests that providing ethnicity-specific normative feedback could have the benefit of fostering a sense of ethnic pride and help to correct erroneous stereotypical beliefs regarding NA drinking. However, further refinement and psychometric evaluation of the PAID is needed to increase accuracy in the quantitative measurement of stereotypical beliefs regarding NA drinking.

The study of injunctive normative beliefs is a relatively new concept in the area of normative beliefs research. The functioning of injunctive norms in the prediction of drinking behavior is widely conceived to be more complex than the functioning of descriptive norms, and much remains to be learned. The present study points to several promising avenues for future research in this area. First, given that injunctive normative beliefs did not predict drinking outcomes in most analyses, future studies should examine the extent to which perceived approval of various reference groups is important to participants. Results indicate that perceived approval of more proximal reference groups (e.g. best friends, parents) may be salient positive predictors of drinking outcomes for college students. Second, results from this study support examining the differential functioning of normative beliefs by severity of alcohol-related behavior. Similar to previous research conducted by Lewis and colleagues (2010), the present study found evidence for a two-factor structure of an injunctive normative beliefs measure consisting of less severe and more severe alcohol behaviors. Social theories such as deviance regulation theory explicate some of the complexity inherent in understanding the functioning of injunctive norms. For example, college students may want to positively deviate from what they perceive to be the norm in the case of some behaviors (e.g.

driving after drinking), and may want to conform to what they perceive to be the norm in the case of other behaviors (e.g. having fun drinking with friends; Lewis et al., 2010). Thus, future studies should continue to dismantle the construct of injunctive normative beliefs into perceived approval for specific drinking behaviors.

Both descriptive and normative beliefs provide valuable information about college student's conceptualization of normative drinking practices. Both constructs are useful in the prediction of college student drinking and other alcohol-related outcomes. A significant strength of the present study was that it was the first examination of normative beliefs about drinking among NA college students. Retention among NA college students at four-year institutions such as UNM is troublingly low (e.g. Freeman & Fox, 2005). Therefore, it is critical to understand factors influencing NAs to successfully graduate. Furthermore, a deepened understanding of how cultural identity (e.g. racial/ethnic identity, college student identity) and stereotypes may moderate the relationship between normative beliefs and alcohol related outcomes would likely help to refine normative feedback interventions for NA and NHW college students alike.

Appendix

Selected questions from the COSAP New Mexico Student Lifestyles Survey

9. Average number of drinks you consume in a week?

11. How many drinks do you think the typical student on your campus consumes in a week?

21. Please indicate how often you have experienced the following due to your drinking alcohol in the past 12 months: Performed poorly on a test or important project, missed a class, got into an argument or fight.

References

Adams, C. E., & Nagoshi, C. T. (1999). Changes over one semester in drinking game playing and alcohol use and problems in a college student sample. *Substance Abuse, 20,* 97-106.

Allen, J. P., Litten, R. Z., Fertig, J. B., & Babor, T. (1997). A review of research on the Alcohol Use Disorders Identification Test (AUDIT). *Alcoholism: Clinical and Experimental Research, 21*(4), 613-619.

Aiken, L. S., & West, S. G. (2001). *Multiple regression: Testing and interpreting interactions.* Thousand Oaks, CA: SAGE Publications.

Baer, J. S. (1994). Effects of college residence on perceived norms for alcohol consumption: An examination of the first year in college. *Psychology of Addictive Behaviors, 52*, 580-586.

Baer, J. S. (2002). Student factors: Understanding individual variation in college drinking. *Journal of Studies on Alcohol and Drugs, s14*, 40-53.

Baer, J. S., Stacy, A., & Larimer, M. (1991). Biases in the perception of drinking norms among college students. *Journal of Studies on Alcohol, 52*(6), 580-586.

Beauvais, F. (1992). The consequences of drug and alcohol use for Indian youth. *American Indian and Alaska Native Mental Health Research, 5,* 1-12.

Borden, L. A., Martens, M. P., McBride, M. A., Sheline, K. T., Bloch, K. K., & Dude, K. (2011). The role of college students' use of protective behavioral strategies in the relation between binge drinking and alcohol-related problems. *Psychology of Addictive Behaviors*. *25*(2), 346-351.

BraveHeart, M. Y. H. (1995). The return to the sacred path: Healing from historical

unresolved grief among the Lakota and Dakota (Unpublished doctoral dissertation). Smith College, Northampton, MA.

Butler, A. B., Dodge, K. D., & Faurote, E. J. (2010). College student employment and drinking: A daily study of work stressors, alcohol expectancies, and alcohol consumption. *Journal of Occupational Health Psychology, 15*(3), 291-303.

Carter, C. A. & Kahnweiler, W. M. (2000). The efficacy of the social norms approach to substance abuse prevention applied to fraternity men. *Journal of American College Health, 49,* 66-71.

Chawla, N., Neighbors, C., Lewis, M. A., Lee, C. M., & Larimer, M. E. (2007). Attitudes and perceived approval of drinking as mediators of the relationship between the importance of religion and alcohol use. *Journal of Studies on Alcohol and Drugs, 68,* 410-418.

Chen, C. M., Dufour, M. C., & Yi, H. (2004). Alcohol consumption among young adults ages 18-24 in the United States: Results from the 2001-2002 NESARC survey. *Alcohol Research & Health, 28*(4), 269-280.

Chen, M. J., & Paschall, M. J. (2003). Malt liquor use, heavy/problem drinking and other problem behaviors in a sample of community college students. *Journal of Studies on Alcohol, 64,* 835-842.

Chou, S. P., Dawson, D. A., Stinson, F. S., Huang, B., Pickering, R. P., Zhou, Y., & Grant, B. F. (2006). The prevalence of drinking in the United States, 2001-2002: Results from the national epidemiological survey on alcohol and related conditions. *Drug and Alcohol Dependence, 83*(2), 137-146.

Clapp, J. D., & McDonnell, A. L. (2000). The relationship of perceptions of alcohol

    promotion and peer drinking norms to alcohol problems reported by college

    students. *Journal of College Student Development, 41*(1), 19-26.

DeVoe, J. F., & Darling-Churchill, K. E. (2008). *Status and Trends in the Education of*

    American Indians and Alaska Natives: 2008 (NCES 2008-084). Washington, D.

    C.: National Center for Education Statistics, Institute of Education Sciences, U.S.

    Department of Education.

Festinger (1954). A theory of social comparison processes. *Human Relations, 7,* 117-140.

    Freeman, C., & Fox, M. A. (2005). *Status and trends in the education of*

    American Indians and Alaska Natives. Washington, DC: US Department of

    Education, National Center for Education Statistics.

Harris, R. J. (1985). *A primer of multivariate statistics*. New York: Academic Press.

Hawkins, E. H., Cummins, L. H., & Marlatt, G. A. (2004). Preventing substance abuse in

    American Indian and Alaska Native youth: Promising strategies for healthier

    communities. *Psychological Bulletin, 130*(2), 304-323.

Hughes, S. P., & Dodder, R. A. (1984). Alcohol consumption patterns among American

    Indian and White college students. *Journal of Studies on Alcohol, 45*(5), 433-439.

Johnston, L. D., O' Malley, P. M., Bachman, J. G., & Schulenberg, J. E. (2009).

    Monitoring the Future national survey results on drug use, 1975-2008: Volume II,

    College students and adults ages 19-50 (NIH Publication No. 09-7403). Bethesda,

    MD: National Institute on Drug Abuse.

Jones, S. E., Oeltmann, J., Wilson, T. W., Brener, N. D., & Hill, C. V. (2001). Binge
drinking among undergraduate college students in the United States: Implications
for other substance use. *Journal of American College Health, 50*(1), 33-38.

Kokotailo, P. K., Egan, J., Gangnon, R., Brown, D., Mundt, M., & Fleming, M. (2004).
Validity of the Alcohol Use Disorders Identification Test in college students,
Alcoholism: Clinical and Experimental Research, 28(6), 914-920.

Kypri, K., & Langley, J. D. (2003). Perceived social norms and their relation to
university student drinking. *Journal of Studies on Alcohol, 64*, 829-834.

LaBrie, J. W., Hummer, J. F., Neighbors, C., & Larimer, M. E. (2010). Whose opinion
matters? The relationship between injunctive norms and alcohol consequences in
college students. *Addictive Behaviors, 35*(4), 343-349.

LaBrie, J. W., Napper, L. E., & Ghaidarov, T. M. (2012). Predicting driving after
drinking over time among college students: The emerging role of injunctive
normative perceptions. *Journal of Studies on Alcohol and Drugs, 73*(5), 726-730.

LaBrie, J. W., & Pedersen, E. R. (2008). Prepartying promotes heightened risk in the
college environment: An event-level report. *Addictive Behaviors, 33*(7), 955-959.

Larimer, M. E., Turner, A. P., Mallett, K. A., & Markman Geisner, I. (2004). Predicting
drinking behavior and alcohol-related problems among fraternity and sorority
members: Examining the role of descriptive and injunctive norms. *Psychology of
Addictive Behaviors, 18*(3), 203-212.

Lewis, M. A., & Neighbors, C. (2004). Gender-specific misperceptions of college student
drinking norms. *Psychology of Addictive Behaviors, 18*(4), 334-339.

Lewis, M. A., & Neighbors, C. (2006). Who is the typical college student? Implications for personalized normative feedback interventions. *Addictive Behaviors, 31,* 2120-2126.

Lewis, M. A., Neighbors, C., Markman Geisner, I., Lee, C. M., Kilmer, J. R., & Atkins, D. C. (2010). Examining the associations among severity of injunctive drinking norms, alcohol consumption, and alcohol-related negative consequences: The moderating roles of alcohol consumption and identity. *Psychology of Addictive Behaviors, 24*(2), 177-189.

Lewis, M. A., Rees, M., Logan, D. E., Kaysen, D. L., & Kilmer, J. R. (2010). Use of drinking protective behavioral strategies in association to sex-related alcohol negative consequences: The mediating role of alcohol consumption. *Psychology of Addictive Behaviors, 24*(2), 229-238.

May, P. A. (1994). The epidemiology of alcohol abuse among American Indians: The mythical and real properties. *American Indian Culture and Research Journal, 18*(2), 121-143.

McCarthy, D. M., Lynch, A. M., & Pedersen, S. L. (2007). Driving after use of alcohol and marijuana in college students. *Psychology of Addictive Behaviors, 21*(3), 425-430.

Moran, J. R., Fleming, C. M., Somervell, P., & Manson, S. M. (1999). Measuring bicultural ethnic identity among American Indian adolescents: A factor analytic study. *Journal of Adolescent Research, 14*(4), 405-426.

Neighbors, C., Lee, C. M., Lewis, M. A., Fossos, N., & Larimer, M. E. (2007). Are social norms the best predictor of outcomes among heavy-drinking college students? *Journal of Studies on Alcohol and Drugs, 68,* 556-565.

Neighbors, C., O'Connor, R. M., Lewis, M. A., Chawla, N., Lee, C. M., & Fossos, N. (2008). The relative impact of injunctive norms on college student drinking: The role of reference group. *Psychology of Addictive Behaviors, 22*(4), 576-581.

Myers, R. (1990). *Classical and modern regression with applications* (2nd ed.). Boston, MA: Duxbury.

Pedersen, E. R., & LaBrie, J. (2007). Partying before the party: Examining prepartying behavior among college students. *Journal of American College Health, 56*(3), 237-245.

Perkins, H. W. (2002). Surveying the damage: A review of research on consequences of alcohol misuse in college populations. *Journal of Studies on Alcohol, S14*, 91-100.

Perkins, H. W., Meilman, P. W., Leichliter, J. S., Cashin, J. R., & Presley, C. A. (1999). Misperceptions of the norms for the frequency of alcohol and other drug use on college campuses. *Journal of American College Health, 47*(6), 253-258.

Poupart, L. M. (2003). The familiar face of genocide: Internalized oppression among American Indians. *Hypatia, 18*(2), 86-100.

Preacher, K. J., Curran, P. J., & Bauer, D. J. (2006). Computational tools for probing interaction effects in multiple linear regression, multilevel modeling, and latent curve analysis. *Journal of Educational and Behavioral Statistics, 31,* 437-448.

Renfrey, G. S. (1992). Cognitive-behavior therapy and the Native American client. *Behavior Therapy, 23*(3), 321-340.

Robin, R. W., Long, J. C., Rassmussen, J. K., Albaugh, B., & Goldman, D. (1998). Relationship of binge drinking to alcohol dependence, other psychiatric disorders, and behavioral problems in an American Indian tribe. *Alcoholism: Clinical and Experimental Research, 22,* 518-523.

Saunders, J. B., Aasland, O. G., Babor, T. F., De La Puente, J. R., Grant, M. (1993). Development of the Alcohol Use Disorders Identification Test (AUDIT): WHO collaborative project on early detection of persons with harmful alcohol consumption. II. *Addiction, 88,* 791–804.

Schroder, C. M., & Prentice, D. A. (1998). Exposing pluralistic ignorance to reduce alcohol use among college students. *Journal of Applied Social Psychology, 28*, 2150-2180.

Spicer, P., Beals, J., Croy, C. D., Mitchell, C. M., Novins, D. K., Moore, L.,… AI-SUPERPF Team (2003). The prevalence of DSM-III-R alcohol dependence in two American Indian populations. *Alcoholism: Clinical and Experimental Research, 27*(11), 1785-1797.

Sue, D. W., & Sue, D. (2008). *Counseling the culturally diverse: Theory and practice.* Wiley.

Thombs, D. L., Wolcott, B. J., & Farkash, L. G. E. (1997). Social context, perceived norms, and drinking behavior in young people. Journal of Substance Abuse, 9, 257–267.

Thurman, P. J., & Green, V. A. (1997). American Indian inhalant use. *American Indian*

and Alaska Native Mental Health Research, 8, 24-40.

Tropp, L. R. & Wright, S. C. (2001). Ingroup identification as the inclusion of ingroup in the self. *Personality and Social Psychology Bulletin, 27*(5), 585-600.

Walters, S. T., & Neighbors, C. (2005). Feedback interventions for college alcohol misuse: What, why, and for whom? *Addictive Behaviors, 30*(6), 1168-1182.

Ward, B. W., & Ridolfo, H. (2011). Alcohol, tobacco, and illicit drug use among Native American college students: An exploratory quantitative analysis. *Substance Use & Misuse, 46*(11), 1410-1419.

Wechsler, H., Dowdall, G. W., Davenport, A., & Castillo, S. (1995). Correlates of college student binge drinking. *American Journal of Public Health, 85*, 921-926.

Wechsler, H., Dowdall, G. W., Davenport, A., & Rimm, E. B. (1995). A gender-specific measure of binge drinking among college students. *American Journal of Public Health, 85*, 982-985.

Wechsler, H., Kuh, G., & Davenport, A. E. (2009). Fraternities, sororities, and binge drinking: Results from a national study of American colleges. *NASPA Journal, 46*(3), 395-416.

Wechsler, H., Lee, J. E., Kuo, M., & Lee, H. (2000). College binge drinking in the 1990's: A continuing problem, Results of the Harvard School of Public Health 1999 College Alcohol Study. *Journal of American College Health, 48*(5), 199-210.

Weitzman, E. R., Nelson, T. F., & Wechsler, H. (2003). Taking up binge drinking in college: The influences of person, social group, and environment. *Journal of Adolescent Health, 32*(1), 26-35.

White, A. M., Kraus, C. L., Flom, J. D., Kestenbaum, L. A., Mitchell, J. R., Shan, K., & Swartzwelder, H. S. (2005). College students lack knowledge of standard drink volumes: Implications for definitions of risky drinking based on survey data. *Alcoholism: Clinical and Experimental Research, 29*(4), 631-638.

White, H. R., & Labouvie, E. W. (1989). Towards the assessment of adolescent problem drinking. *Journal of Studies on Alcohol, 50*, 30-37.

Zamboanga, B. L., Schwartz, S. J., Ham, L. S., Borsari, B., & Van Tyne, K. (2010). Alcohol expectancies, pregaming, drinking games, and hazardous alcohol use in a multiethnic sample of college students. *Cognitive Therapy and Research, 34*(2), 124-133.

Table 1

Factor Loadings for Exploratory Factor Analyses with Direct Oblimin Rotation of the Injunctive Norms Questionnaire (INQ)

Typical UNM student reference group

Short item wording	Factor 1	Factor 2
1. played drinking games	.98	-
2. drank with friends	.89	-
3. drank every weekend	.59	-
4. drank alcohol daily	-	.85
5. drove after drinking	-	.69
6. drank enough to pass out	-	.65

Different-race UNM peer reference group

Short item wording	Factor 1	Factor 2
1. played drinking games	.97	-
2. drank with friends	.92	-
3. drank every weekend	.60	-
4. drank alcohol daily	-	.88
5. drove after drinking	-	.68
6. drank enough to pass out	-	.79

Same-race UNM peer reference group

Short item wording	Factor 1	Factor 2
1. played drinking games	.99	-
2. drank with friends	.89	-
3. drank every weekend	.68	-
4. drank alcohol daily	-	.87
5. drove after drinking	-	.81
6. drank enough to pass out	-	.75

Friends reference group

Short item wording	Factor 1	Factor 2
1. played drinking games	.98	-
2. drank with friends	.91	-
3. drank every weekend	.65	-
4. drank alcohol daily	-	.83
5. drove after drinking	-	.74
6. drank enough to pass out	-	.74

Parents reference group

Short item wording	Factor 1	Factor 2
1. played drinking games	.94	-
2. drank with friends	.93	-
3. drank every weekend	.74	-
4. drank alcohol daily	-	.84
5. drove after drinking	-	.95
6. drank enough to pass out	-	.86

Note: Factor loadings < .40 are not displayed.

Table 2

Exploratory Factor Analysis with Direct Oblimin Rotation of the Injunctive Norms Questionnaire (INQ): NA community member reference group

Short item wording	Factor 1
1. played drinking games	.89
2. drank with friends	.75
3. drank every weekend	.88
4. drank alcohol daily	.89
5. drove after drinking	.69
6. drank enough to pass out	.89

Table 3

Exploratory Factor Analysis with Direct Oblimin Rotation of the Perceptions of American Indian Drinking Scale (PAID)

Short item wording	Factor 1	Factor 2
1. NA men have a higher rate of alcohol dependence.	.79	-
2. NA youth begin drinking at a younger age.	.68	-
3. NA men have a harder time overcoming alcohol dependence.	.66	-
4. Alcohol dependency is the number one health problem for NAs.	.55	-
5. Most NAs have the same heavy drinking style.	-	.69
6. Alcohol use is part of the NA "way of life".	-	.63
7. Many NAs do not drink. (recoded)	-	.41

Table 4

Alcohol outcomes: Comparisons between NAs and NHWs

Variable	NA (*M, SD)*	NHW (*M, SD)*	*t*	df	*p* value
AUDIT[a] total score	4.47 (4.69)	4.96 (4.81)	.99	391	.32
RAPI[b] total score	3.98 (6.36)	4.02 (6.50)	.06	378	.95
Drinks per week	2.61 (3.97)	3.87 (5.30)	2.67	371	.008**
Binge drinking episodes per week (drinkers only)	0.46 (.73)	.72 (1.09)	2.16	183	.03

[a]AUDIT = Alcohol Use Disorder Identification Test. [b]RAPI = Rutgers Alcohol Problems Index.

**$p < .01$.

Table 5

Descriptive normative beliefs: Comparisons between NAs and NHWs

Variable	NA (*M*, *SD)*	NHW (*M*, *SD)*	*t*	df	*p* value
Estimated DPW[a]: Typical UNM student	10.19 (8.53)	12.37 (8.68)	2.42	391	.02
Estimated DPW: Typical NA student	11.20 (10.88)	13.23 (10.46)	1.83	391	.07
Estimated DPW: Typical NHW student	10.73 (9.37)	12.93 (9.45)	2.24	391	.03
Estimated DPW: Best friends	7.87 (10.17)	8.46 (9.39)	.59	391	.56

[a]DPW = drinks per week.

Table 6

Injunctive normative beliefs: Comparisons between NAs and NHWs

Variable	NA (*M, SD)*	NHW (*M, SD)*	*t*	df	*p* value
INQ[a]: Typical UNM student	3.29 (.95)	3.57 (.98)	2.76	390	.006**
INQ: Same-race UNM peer	2.97 (1.03)	3.53 (.93)	5.41	384	<.001***
INQ: Different-race UNM peer	3.13 (1.02)	3.43 (.96)	2.91	384	.004**
INQ: Best friends	2.71 (1.26)	2.98 (1.07)	2.12	266	.04
INQ: Parents	1.53 (.73)	1.87 (.76)	4.34	389	<.001***

[a]INQ = Injunctive Norms Questionnaire.
**$p < .01$. ***$p < .001$.

Table 7

Perceived approval for abstinence: Comparisons between NAs and NHWs

Reference Group	NA (*M*, *SD)*	NHW (*M, SD)*	*t*	df	*p* value
Typical UNM student	4.18 (1.58)	3.60 (1.33)	-3.90	390	< .001***
Typical same-race UNM peer	4.57 (1.61)	3.74 (1.29)	-5.58	390	<.001***
Typical different-race UNM peer	4.18 (1.63)	3.76 (1.29)	-2.66	255	.008**
Best friends	4.89 (1.89)	4.19 (1.77)	-3.70	391	<.001***
Parents	5.58 (2.25)	5.47 (1.95)	-.50	391	.621

**p* < .01. ***p* < .001.

Table 8.
Bicultural Ethnic Identity Scale (n = 84)

"White way of life"	"Indian way of life"	
	High[a]	Low[b]
High	15	30
Low	26	16

[a]"high" was defined as the top third of responses [b]"low" was defined as the bottom third of responses

Table 9

Individual PAID[a] items: Comparisons between NAs and NHWs

Item	NA (*M, SD)*	NHW (*M, SD)*	*t*	df	*p*-value
=1. NA men have a higher rate of alcohol dependence.	3.72 (1.10)	3.68 (.96)	-.40	391	.69
2. NA youth begin drinking at a younger age.	3.41 (1.15)	3.38 (.96)	-.23	264	.82
3. NA men have a harder time overcoming alcohol dependence.	3.46 (1.17)	3.23 (1.13)	-1.97	391	.05
4. Alcohol dependency is the number one health problem for NA.	3.49 (1.25)	3.43 (1.10)	-.47	278	.64
5. Most NAs have the same heavy drinking style.	2.40 (1.35)	2.68 (1.15)	2.09	267	.04
6. Alcohol use is part of the NA "way of life".	1.91 (1.18)	2.83 (1.15)	7.61	389	< .001***
7. Many NAs do not drink. (recoded)	3.46 (1.20)	3.26 (1.21)	-1.62	389	.12

[a]PAID = Perceptions of American Indian Drinking Scale.
***$p < .001$.

Table 10

Hierarchical linear regression results predicting AUDIT[a] total score for the total sample (n = 376)

Step and Variable	B	Std. Error	B	t	p-value
Step 1 (R^2 = .02)					
Constant	5.417	.487		11.130	<.001***
Ethnicity	-.458	.516	-.046	-.889	.374
Age	.174	.096	.094	1.818	.070
Sex (0 = male, 1 = female)	-.694	.550	-.065	-1.260	.208
Step 2 (R^2 = .29)					
Constant	4.950	.433		11.423	<.001***
Ethnicity	-.243	.476	-.025	-.512	.609
Age	.116	.085	.063	1.355	.176
Sex (0 = male, 1 = female)	-.114	.484	-.011	-.236	.814
Estimated DPW[b]: Typical UNM student	.008	.030	.015	.272	.786
Estimated DPW: Best friends	.196	.028	.392	6.957	<.001***
INQ[c]: Typical UNM student	-.249	.333	-.049	-.746	.456
INQ: Same-race UNM peer	-.245	.308	-.051	-.797	.426
INQ: Different-race UNM peer	-.234	.299	-.048	-.782	.434
INQ: Best Friends	.891	.246	.210	3.623	<.001***
INQ: Parents	.397	.328	.063	1.210	.227
Step 3 (R^2 = .31)					
Constant	4.955	.436		11.352	<.001***
Ethnicity	-.318	.479	-.032	-.664	.507
Age	.103	.086	.056	1.196	.232
Sex (0 = male, 1 = female)	-.163	.486	-.015	-.335	.738

Estimated DPW: Typical UNM student	-.014	.038	-.026	-.384	.701
Estimated DPW: Best friends	.249	.037	.497	6.716	<.001***
INQ: Typical UNM student	.121	.432	.024	.281	.779
INQ: Same-race UNM peer	-.150	.432	-.031	-.248	.728
INQ: Different-race UNM peer	-.253	.392	-.052	-.645	.520
INQ: Best Friends	.652	.331	.153	1.967	.050*
INQ: Parents	.480	.411	.076	1.166	.244
DPW: Typical UNM student x ethnicity	.067	.063	.072	1.050	.295
DPW: Best friends x ethnicity	-.127	.057	-.163	-2.227	.027*
INQ: Typical UNM student x ethnicity	-1.251	.696	-.146	-1.796	.073
INQ: Same race peer x ethnicity	-.367	.621	-.047	-.591	.555
INQ: Different race peer x ethnicity	.191	.603	.025	.316	.752
INQ: Best Friends x ethnicity	.660	.500	.102	1.320	.188
INQ: Parents x ethnicity	-.099	.662	-.009	-.149	.881

[a]AUDIT = Alcohol Use Disorder Identification Test. [b]DPW = drinks per week. [c]INQ = Injunctive Norms Questionnaire.
*$p < .05$. ** $p < .01$. ***$p < .001$.

Table 11

Hierarchical linear regression results predicting RAPI[a] total score for the total sample (n = 376)

Step and Variable	B	Std. Error	B	t	p-value
Step 1 (R^2 = .01)					
Constant	4.026	.661		6.092	<.001***
Ethnicity	.000	.708	.000	.000	1.000
Age	.204	.131	.082	1.562	.119
Sex (0 = male, 1 = female)	-.125	.751	-.009	-.167	.868
Step 2 (R^2 = .15)					
Constant	3.648	.641		5.694	<.001***
Ethnicity	.168	.708	.013	.237	.813
Age	.156	.127	.063	1.232	.219
Sex (0 = male, 1 = female)	.404	.720	.028	.561	.575
Estimated DPW[b]: Typical UNM student	.000	.045	.000	-.001	1.000
Estimated DPW: Best friends	.194	.042	.285	4.606	<.001***
INQ[c]: Typical UNM student	-.286	.501	-.042	-.571	.568
INQ: Same-race UNM peer	-.264	.482	-.040	-.548	.584
INQ: Different-race UNM peer	-.298	.446	-.045	-.668	.505
INQ: Best Friends	.936	.371	.164	2.522	.012*
INQ: Parents	.187	.490	.022	.381	.704
Step 3 (R^2 = .16)					
Constant	3.548	.650		5.456	<.001***
Ethnicity	.024	.718	.002	.033	.974
Age	.134	.128	.054	1.043	.298

	B	SE	β	t	p
Sex (0 = male, 1 = female)	.382	.729	.027	.524	.601
Estimated DPW: Typical UNM student	-.007	.056	-.010	-.130	.897
Estimated DPW: Best friends	.222	.056	.326	4.002	<.001***
INQ: Typical UNM student	.105	.649	.015	.162	.871
INQ: Same-race UNM peer	.101	.660	.015	.153	.879
INQ: Different-race UNM peer	-.712	.586	-.108	-1.214	.225
INQ: Best Friends	.563	.500	.099	1.125	.261
INQ: Parents	.819	.621	.097	1.318	.188
DPW: Typical UNM student x ethnicity	.024	.097	.018	.248	.804
DPW: Best friends x ethnicity	-.065	.086	-.059	-.747	.456
INQ: Typical UNM student x ethnicity	-1.297	1.047	-.112	-1.240	.216
INQ: Same-race peer x ethnicity	-.786	.981	-.074	-.800	.424
INQ: Different-race peer x ethnicity	1.026	.904	.098	1.135	.257
INQ: Best Friends x ethnicity	.885	.761	.101	1.163	.246
INQ: Parents x ethnicity	-1.511	1.001	-.105	-1.509	.132

[a]RAPI = Rutgers Alcohol Problems Index. [b]DPW = drinks per week. [c]INQ = Injunctive Norms Questionnaire.
*$p < .05$. ** $p < .01$. ***$p < .001$.

Table 12

Hierarchical linear regression results predicting DPW^a for the total sample (n = 376)

Step and Variable	B	Std. Error	B	t	p-value
Step 1 (R^2 = .03)					
Constant	4.711	.495		9.527	<.001***
Ethnicity	-1.039	.524	-.102	-1.984	.048*
Age	.063	.097	.034	.652	.515
Sex (0 = male, 1 = female)	-1.299	.559	-.120	-2.324	.021*
Step 2 (R^2 = .35)					
Constant	4.141	.424		9.759	<.001***
Ethnicity	-.898	.466	-.088	-1.929	.055
Age	-.004	.084	-.002	-.046	.963
Sex (0 = male, 1 = female)	-.528	.474	-.049	-1.114	.266
Estimated DPW: Typical UNM student	.092	.029	.160	3.124	.002**
Estimated DPW: Best friends	.199	.028	.388	7.192	<.001***
INQ^b: Typical UNM student	-.209	.326	-.041	-.641	.522
INQ: Same-race UNM peer	-.810	.301	-.164	-2.689	.007**
INQ: Different-race UNM peer	-.315	.293	-.063	-1.075	.283
INQ: Best friends	.498	.241	.115	2.066	.040*
INQ: Parents	.943	.321	.146	2.935	.004**
Step 3 (R^2 = .39)					
Constant	4.097	.419		9.778	<.001***
Ethnicity	-.941	.460	.093	-2.045	.042*
Age	-.012	.082	-.006	-.141	.888
Sex (0 = male, 1 = female)	-.457	.467	-.042	-.979	.328

Estimated DPW: Typical UNM student	.081	.036	.143	2.258	.025*
Estimated DPW: Best friends	.274	.036	.536	7.707	<.001***
INQ: Typical UNM student	.336	.414	.065	.811	.418
INQ: Same-race UNM peer	-1.124	.415	-.227	-2.709	.007**
INQ: Different-race UNM peer	-.534	.376	-.107	-1.420	.157
INQ: Best friends	.484	.318	.111	1.520	.129
INQ: Parents	1.219	.395	.189	3.086	.002**
DPW: typical UNM student x ethnicity	.054	.061	.057	.886	.376
DPW: best friends x ethnicity	-.194	.055	-.244	-3.544	<.001***
INQ: typical UNM student x ethnicity	-1.301	.669	-.148	-1.946	.052
INQ: Same race peer x ethnicity	.544	.597	.068	.911	.363
INQ: Different race peer x ethnicity	.722	.579	.091	1.248	.213
INQ: Best Friends x ethnicity	.052	.480	.008	.109	.913
INQ: Parents x ethnicity	-.792	.635	-.072	-1.246	.213

[a]DPW = drinks per week. [b]INQ = Injunctive Norms Questionnaire.
*$p < .05$. ** $p < .01$. ***$p < .001$.

Table 13

Hierarchical linear regression results predicting binge drinking days for drinkers only (n = 201)

Step and Variable	B	Std. Error	B	t	p-value
Step 1 (R^2 = .02)					
Constant	1.359	.578		2.352	.020*
Ethnicity	-.218	.137	-.114	-1.589	.114
Age	-.033	.027	-.085	-1.188	.236
Sex (0 = male, 1 = female)	.019	139	.010	.137	.891
Step 2 (R^2 = .26)					
Constant	.975	.532		1.831	.069
Ethnicity	-.246	.133	-128	-1.844	.067
Age	-.024	.133	-.128	-1.844	.067
Sex (0 = male, 1 = female)	.130	.126	.066	1.028	.305
Estimated DPW[a]: Typical UNM student	.020	.008	.183	2.496	.013*
Estimated DPW: Best friends	.034	.007	.364	4.946	<.001***
INQ: Typical UNM student	-.090	.100	-.091	-.901	.369
INQ: Same-race UNM peer	-.082	.089	-.087	-.917	.360
INQ: Different-race UNM peer	-.068	.081	-.073	-.842	.401
INQ: Best Friends	.065	.072	.070	.894	.372
INQ: Parents	-.014	.085	-.012	-.168	.868
Step 3 (R^2 = .33)					
Constant	1.112	.531		2.095	.038*
Ethnicity	-.118	.143	-.061	-.826	.410
Age	-.031	.026	-.080	-1.200	.232

Sex (0 = male, 1 = female)	.095	.124	.049	.767	.444
Estimated DPW: Typical UNM student	.013	.010	.118	1.332	.185
Estimated DPW: Best friends	.043	.009	.459	5.029	<.001***
INQ: Typical UNM student	.062	.125	.063	.496	.620
INQ: Same-race UNM peer	-.304	.123	-.324	-2.470	.014*
INQ: Different-race UNM peer	-.007	.099	-.008	-.075	.940
INQ: Best friends	.105	.091	.114	1.155	.249
INQ: Parents	.037	.103	.031	.360	.719
DPW: typical UNM student x ethnicity	.025	.017	.131	1.491	.138
DPW: best friends x ethnicity	-.028	.015	-.170	-1.897	.059
INQ: typical UNM student x ethnicity	-.359	.217	-.198	-1.657	.099
INQ: Same race peer x ethnicity	.462	.181	.300	2.551	.012*
INQ: Different race peer x ethnicity	-.129	.166	-.079	-.775	.439
INQ: Best Friends x ethnicity	-.058	.151	-.040	-.383	.702
INQ: Parents x ethnicity	-.245	.171	-.114	-1.432	.154

[a]DPW = drinks per week. [b]INQ = Injunctive Norms Questionnaire.
*$p < .05$. ** $p < .01$. ***$p < .001$.

Table 14

Alcohol outcomes: Comparisons between NA drinkers (n = 73) and NHW drinkers (n = 139)

Variable	NA (*M, SD)*	NHW (*M, SD)*	*t*	df	*p* value
AUDIT[a] total score	7.04 (4.72)	7.35 (4.56)	.47	210	.64
RAPI[b] total score	6.50 (7.18)	6.30 (7.28)	-.18	199	.85
Drinks per week	5.26 (4.23)	6.85 (5.41)	2.35	180	.02
Binge drinking episodes per week	.46 (.73)	.72 (.98)	2.16	183	.03

[a]AUDIT = Alcohol Use Disorders Identification Test. [b]RAPI = Rutgers Alcohol Problems Index.

Table 15

Hierarchical linear regression results predicting AUDIT[a] total score for drinkers only (n = 201)

Step and Variable	B	Std. Error	B	t	p-value
Step 1 (R^2 = .002)					
Constant	7.415	.620		11.965	<.001***
Ethnicity	-.398	.710	-.040	-.560	.576
Age	-.044	.142	-.022	-.309	.758
Sex (0 = male, 1 = female)	.016	.717	.002	.022	.982
Step 2 (R^2 = .15)					
Constant	6.416	.651		9.858	<.001***
Ethnicity	-.279	.728	-.028	-.383	.702
Age	-.036	.139	-.019	-.21	.794
Sex (0 = male, 1 = female)	.342	.688	.034	.498	.619
Estimated DPW[b]: Typical UNM student	-.011	.044	-.020	-.252	.801
Estimated DPW: Best friends	.174	.038	.361	4.596	<.001***
INQ[c]: Typical UNM student	-.188	.545	-.037	-.345	.731
INQ: Same-race UNM peer	-.140	.488	-.029	-.287	.775
INQ: Different-race UNM peer	-.227	.444	-.047	-.512	.609
INQ: Best friends	.563	.394	.120	1.427	.155
INQ: Parents	.175	.465	.028	.376	.708
Step 3 (R^2 = .19)					
Constant	6.519	.668		9.756	<.001***
Ethnicity	-.192	.801	-.020	-.240	.811
Age	-.093	.143	-.047	-.646	.519

Sex (0 = male, 1 = female)	.110	.699	.011	.157	.875
Estimated DPW: Typical UNM student	-.050	.055	-.088	-.905	.366
Estimated DPW: Best friends	.215	.048	.446	4.452	<.001***
INQ: Typical UNM student	.264	.705	.052	.374	.709
INQ: Same-race UNM peer	-.483	.692	-.101	-.698	.486
INQ: Different-race UNM peer	.102	.557	.021	.183	.855
INQ: Best friends	.518	.509	.110	1.018	.310
INQ: Parents	.193	.580	.031	.333	.740
DPW: typical UNM student x ethnicity	.117	.094	.121	1.247	.214
DPW: best friends x ethnicity	-.106	.082	-.128	-1.295	.197
INQ: typical UNM student x ethnicity	-1.768	1.218	-.190	-1.451	.148
INQ: Same race peer x ethnicity	.695	1.018	.088	.683	.496
INQ: Different race peer x ethnicity	-.651	.933	-.079	-.698	.486
INQ: Best Friends x ethnicity	.411	.850	.056	.484	.629
INQ: Parents x ethnicity	-.263	.962	-.024	-.273	.785

[a]AUDIT = Alcohol Use Disorders Identification Test. [b]DPW = drinks per week. [c]INQ = Injunctive Norms Questionnaire.
*$p < .05$. ** $p < .01$. ***$p < .001$.

Table 16

Hierarchical linear regression results predicting RAPI[a] total score for drinkers only (n = 191)

Step and Variable	B	Std. Error	B	t	p-value
Step 1 (R^2 = .01)					
Constant	5.53	.97		5.70	<.001***
Ethnicity	.10	1.14	.01	.09	.93
Age	.07	.23	.02	.30	.77
Sex (0 = male, 1 = female)	1.05	1.13	.07	.93	.35
Step 2 (R^2 = .08)					
Constant	4.57	1.07		4.29	<.001***
Ethnicity	.35	1.20	.02	.29	.77
Age	.10	.23	.03	.42	.67
Sex (0 = male, 1 = female)	1.33	1.14	.09	1.17	.24
Estimated DPW[b]: Typical UNM student	.00	.07	.00	.04	.97
Estimated DPW: Best friends	.19	.06	.25	3.09	<.01**
INQ[c]: Typical UNM student	.01	.94	.00	.01	1.00
INQ: Same-race UNM peer	.12	.90	.02	.13	.90
INQ: Different-race UNM peer	-.46	.74	-.06	-.61	.54
INQ: Best friends	.44	.67	.06	.66	.51
INQ: Parents	-.18	.78	-.02	-.23	.82
Step 3 (R^2 = .10)					
Constant	4.56	1.11		4.10	<.001***
Ethnicity	.13	1.34	.01	.09	.93
Age	.04	.24	.01	.15	.88

Sex (0 = male, 1 = female)	1.15	1.17	.08	.99	.33
Estimated DPW: Typical UNM student	-.02	.09	-.02	-.24	.81
Estimated DPW: Best friends	.19	.08	.24	2.32	.02*
INQ: Typical UNM student	.61	1.21	.08	.50	.62
INQ: Same-race UNM peer	.12	1.23	.02	.10	.92
INQ: Different-race UNM peer	-.67	.93	-.09	-.72	.47
INQ: Best friends	.22	.86	.03	.25	.80
INQ: Parents	.60	.99	.06	.61	.54
DPW: typical UNM student x ethnicity	.10	.16	.06	.61	.54
DPW: best friends x ethnicity	.04	.14	.02	.25	.81
INQ: typical UNM student x ethnicity	-2.46	2.09	-.17	-1.18	.24
INQ: Same race peer x ethnicity	.29	1.89	.02	.15	.88
INQ: Different race peer x ethnicity	.34	1.59	.03	.22	.83
INQ: Best Friends x ethnicity	1.02	1.45	.09	.71	.48
INQ: Parents x ethnicity	-2.29	1.65	-.13	-1.39	.17

[a]RAPI = Rutgers Alcohol Problem Index. [b]DPW = drinks per week. [c]INQ = Injunctive Norms Questionnaire.
*$p < .05$. ** $p < .01$. ***$p < .001$.

Table 17
Hierarchical linear regression results predicting DPW[a] for drinkers only (n = 201)

Step and Variable	B	Std. Error	B	t	p-value
Step 1 (R^2 = .03)					
Constant	7.715	.667		11.563	<.001***
Ethnicity	-1.282	.764	-.119	-1.676	.095
Age	-.055	.153	-.025	-.358	.721
Sex (0 = male, 1 = female)	-1.342	.772	-.123	-1.739	.084
Step 2 (R^2 = .37)					
Constant	6.060	.616		9.840	<.001***
Ethnicity	-1.247	.688	-.116	-1.811	.072
Age	-.040	.132	-.018	-.300	.764
Sex (0 = male, 1 = female)	-.475	.651	-.044	-.730	.466
Estimated DPW: Typical UNM student	.135	.042	.220	3.247	.001**
Estimated DPW: Best friends	.219	.036	.417	6.132	<.001***
INQ[b]: Typical UNM student	-.508	.515	-.092	-.987	.325
INQ: Same-race UNM peer	-.645	.462	-.123	-1.398	.164
INQ: Different-race UNM peer	-.478	.420	-.091	-1.138	.256
INQ: Best friends	.426	.373	.083	1.141	.255
INQ: Parents	.591	.440	.087	1.342	.790
Step 3 (R^2 = .43)					
Constant	6.149	.613		10.024	<.001***
Ethnicity	-.809	.735	-.075	-1.100	.273
Age	-.047	.132	-.022	-.354	.724
Sex (0 = male, 1 = female)	-.584	.641	-.054	-.911	.364

	B	SE	β	t	p
Estimated DPW: Typical UNM student	.128	.050	.209	2.551	.012*
Estimated DPW: Best friends	.242	.044	.459	5.460	<.001***
INQ: Typical UNM student	.786	.647	.143	1.215	.226
INQ: Same-race UNM peer	-2.159	.635	-.412	-3.400	.001**
INQ: Different-race UNM peer	-.440	.512	-.084	-.861	.390
INQ: Best friends	.626	.468	.122	1.338	.183
INQ: Parents	.751	.532	.111	1.412	.160
DPW: typical UNM student x ethnicity	.063	.086	.059	.728	.468
DPW: best friends x ethnicity	-.088	.075	-.097	-1.174	.242
INQ: typical UNM student x ethnicity	-2.959	1.118	-.292	-2.647	.009**
INQ: Same race peer x ethnicity	2.954	.934	.343	3.162	.002**
INQ: Different race peer x ethnicity	-.090	.857	-.010	-.105	.917
INQ: Best Friends x ethnicity	-.038	.780	-.005	-.048	.961
INQ: Parents x ethnicity	-1.056	.883	-.088	-1.196	.233

[a]DPW = drinks per week. [b]INQ = Injunctive Norms Questionnaire.
*$p < .05$. ** $p < .01$. ***$p < .001$.

Table 18
Hierarchical linear regression results predicting AUDIT[a] for NHW only (n = 225)

Step and Variable	B	Std. Error	B	t	p-value
Step 1 (R^2 = .004)					
Constant	5.19	.58		8.91	<.001***
Age	.07	.12	.04	.52	.60
Sex (0 = male, 1 = female)	-.46	.70	-.04	-.66	.51
Step 2 (R^2 = .35)					
Constant	4.72	.49		9.58	<.001***
Age	-.02	.11	-.01	-.19	.92
Sex (0 = male, 1 = female)	.27	.60	.03	.45	.65
Estimated DPW[b]: Typical UNM student	.004	.04	.01	.10	.92
Estimated DPW: Best friends	.23	.04	.45	6.08	<.001***
INQ[c]: Typical UNM student	.13	.44	.03	.30	.76
INQ: Same-race UNM peer	-.16	.44	-.03	-.36	.72
INQ: Different-race UNM peer	-.09	.40	-.02	-.22	.83
INQ: Best friends	.59	.34	.13	1.71	.09
INQ: Parents	.82	.43	.13	1.92	.06
ISS[d] total	.36	.20	.11	1.85	.07
Step 3 (R^2 = .36)					
Constant	4.65	.49		9.41	<.001***
Age	-.02	.11	-.01	-.20	.84
Sex (0 = male, 1 = female)	.33	.60	.03	.55	.58
Estimated DPW: Typical UNM student	-.02	.04	-.03	-.37	.64
Estimated DPW: Best friends	.24	.04	.45	6.21	<.001***

INQ: Typical UNM student	.29	.45	.06	.65	.52
INQ: Same-race UNM peer	-.14	.44	-.03	-.31	.76
INQ: Different-race UNM peer	-.14	.40	-.03	-.34	.73
INQ: Best friends	.52	.36	11	1.46	.15
INQ: Parents	.76	.43	.12	1.78	.08
ISS total	.39	.20	.12	2.00	.047*
ISS x Estimated DPW: UNM	-.04	.02	-.12	-1.70	.09
ISS x INQ: UNM	.29	.22	.09	1.32	.19

[a]AUDIT = Alcohol Use Disorders Identification Test. [b]DPW = drinks per week. [c]INQ = Injunctive Norms Questionnaire. [d]ISS = Identification of In-Group in the Self.
*$p < .05$. ** $p < .01$. ***$p < .001$.

Table 19

Hierarchical linear regression results predicting RAPI[a] for NHW only (n = 219)

Step and Variable	B	Std. Error	B	t	p-value
Step 1 (R^2 = .002)					
Constant	3.50	.76		4.59	<.001***
Age	.08	.17	.04	.51	.61
Sex (0 = male, 1 = female)	.47	.93	.03	.50	.62
Step 2 (R^2 = .20)					
Constant	3.00	.72		4.59	<.001***
Age	-.02	.17	-.01	-.10	.92
Sex (0 = male, 1 = female)	1.27	.88	.09	1.44	.15
Estimated DPW[a]: Typical UNM student	.02	.06	.03	.34	.74
Estimated DPW: Best friends	.19	.06	.03	.34	.74
INQ[b]: Typical UNM student	.04	.64	.01	.07	.95
INQ: Same-race UNM peer	.15	.64	.02	.24	.81
INQ: Different-race UNM peer	-.30	.58	-.05	-.52	.61
INQ: Best friends	.54	.51	.09	1.07	.29
INQ: Parents	1.30	.63	.15	2.07	.04*
ISS[c] total	.56	.28	.13	1.96	.05*
Step 3 (R^2 = .23)					
Constant	2.87	.71		4.05	<.001***
Age	-.01	.16	-.004	-.06	.95
Sex (0 = male, 1 = female)	1.37	.87	.10	1.58	.12
Estimated DPW: Typical UNM student	-.03	.06	-.04	-.54	.59
Estimated DPW: Best friends	.20	.06	.30	3.63	<.001***

INQ: Typical UNM student	.43	.642	.065	.667	.505
INQ: Same-race UNM peer	.240	.634	.035	.378	.705
INQ: Different-race UNM peer	-.383	.576	-.057	-.665	.506
INQ: Best friends	.275	.527	.046	.523	.601
INQ: Parents	1.143	.620	.135	1.843	.067
ISS total	.637	.281	.149	2.268	.024*
ISS x Estimated DPW: UNM	-.081	.033	-.185	-2.439	.016**
ISS x INQ: UNM	.808	.317	.198	2.553	.011**

[a]RAPI = Rutgers Alcohol Problem Index. [b]DPW = drinks per week. [c]INQ = Injunctive Norms Questionnaire. [d]ISS = Identification of In-Group in the Self.
*$p < .05$. ** $p < .01$. ***$p < .001$.

Table 20

Hierarchical linear regression results predicting DPW[a] for NHW only (n = 225)

Step and Variable	B	Std. Error	B	t	p-value
Step 1 (R^2 = .01)					
Constant	4.43	.63		7.06	<.001***
Age	.06	.13	.03	.44	.66
Sex (0 = male, 1 = female)	-1.00	.76	-.09	-1.32	.19
Step 2 (R^2 = .45)					
Constant	3.65	.48		7.64	<.001***
Age	-.03	.11	-.01	-.23	.82
Sex (0 = male, 1 = female)	.23	.59	.02	.39	.70
Estimated DPW: Typical UNM student	.10	.04	.17	2.77	.006**
Estimated DPW: Best friends	.25	.04	.45	6.93	<.001***
INQ[b]: Typical UNM student	.42	.43	.08	.98	.33
INQ: Same-race UNM peer	-1.24	.43	-.22	-2.91	.004**
INQ: Different-race UNM peer	-.35	.39	-.06	-.91	.36
INQ: Best friends	.36	.33	.07	1.09	.28
INQ: Parents	1.58	.41	.23	3.83	<.001***
ISS[c] total	.50	.19	.14	2.64	.009**
Step 3 (R^2 = .45)					
Constant	3.65	.48		7.577	<.001***
Age	-.026	.110	-.013	-.240	.81
Sex (0 = male, 1 = female)	.224	.588	.020	.381	.703
Estimated DPW: Typical UNM student	.105	.039	.175	2.678	.008**
Estimated DPW: Best friends	.254	.037	.454	6.872	<.001***

INQ: Typical UNM student	.381	.436	.071	.874	.383
INQ: Same-race UNM peer	-1.251	.428	-.224	-2.922	.004**
INQ: Different-race UNM peer	-.355	.389	-.065	-.912	.363
INQ: Best friends	.421	.351	.085	1.198	.232
INQ: Parents	1.588	.415	.226	3.823	<.001***
ISS total	.490	.190	.137	2.573	.011**
ISS x Estimated DPW: UNM	.003	.023	.009	.141	.888
ISS x INQ: UNM	-.112	.213	-.033	-.525	.600

[a]DPW = drinks per week. [b]INQ = Injunctive Norms Questionnaire. [c]ISS = Identification of In-Group in the Self.
*$p < .05$. ** $p < .01$. ***$p < .001$.

Table 21

Hierarchical linear regression results predicting number of binge drinking days per week for NHW drinkers only (n = 125)

Step and Variable	B	Std. Error	B	t	p-value
Step 1 (R^2 = .01)					
Constant	.634	.152		4.181	<.001***
Age	-.031	.037	-.077	-.856	.394
Sex (0 = male, 1 = female)	.098	.187	.048	.527	.599
Step 2 (R^2 = .34)					
Constant	.356	.141		2.529	.013**
Age	-.008	.036	-.021	-.229	.819
Sex (0 = male, 1 = female)	.198	.164	.096	1.210	.229
Estimated DPW[a]: Typical UNM student	.015	.011	.131	1.455	.148
Estimated DPW: Best friends	.042	.009	.426	4.559	<.001***
INQ[b]: Typical UNM student	.089	.146	.086	.608	.544
INQ: Same-race UNM peer	-.298	.140	-.274	-2.121	.036**
INQ: Different-race UNM peer	-.059	.112	-.058	-.531	.596
INQ: Best friends	.090	.098	.088	.921	.359
INQ: Parents	.070	.116	.053	.605	.546
ISS total	.083	.056	.120	1.462	.146
Step 3 (R^2 = .38)					
Constant	.338	.139		2.433	.017*
Age	-.004	.036	-.009	-.106	.916
Sex (0 = male, 1 = female)	.226	.161	.109	1.403	.163
Estimated DPW: Typical UNM student	.013	.010	.113	1.266	.208

Estimated DPW: Best friends	.044	.009	.442	4.815	<.001***
INQ: Typical UNM student	.101	.143	.098	.707	.481
INQ: Same-race UNM peer	-.259	.139	-.238	-1.867	.065
INQ: Different-race UNM peer	-.092	.110	-.091	-.835	.405
INQ: Best friends	.073	.105	.070	.691	.491
INQ: Parents	.008	.117	.006	.070	.944
ISS^c total	.113	.057	.164	1.989	.049*
ISS x Estimated DPW: UNM	-.018	.007	-.264	-2.565	.012*
ISS x INQ: UNM	.121	.065	.200	1.858	.066

^{a}DPW = drinks per week. ^{b}INQ = Injunctive Norms Questionnaire. ^{c}ISS = Identification of In-Group in the Self.
*p < .05. ** p < .01. ***p < .001.

Table 22

Hierarchical linear regression results predicting AUDIT[a] score for NA only with the ISS as a moderator (n = 130)

Step and Variable	B	Std. Error	B	t	p-value
Step 1 (R^2 = .07)					
Constant	5.890	.918		6.417	<.001***
Age	.410	.163	.215	2.508	.013*
Sex (0 = male, 1 = female)	-1.695	1.026	-.142	-1.652	.101
Step 2 (R^2 = .26)					
Constant	5.759	.842		6.839	<.001***
Age	.396	.150	.208	2.642	.009**
Sex (0 = male, 1 = female)	-1.423	.950	-.119	-1.498	.137
Estimated DPW[b]: Typical UNM student	.067	.053	.120	1.268	.207
Estimated DPW: Best friends	.118	.046	.251	2.583	.011*
INQ[c]: Typical UNM student	-1.230	.585	-.234	-2.103	.038*
INQ: Same-race UNM peer	-.355	.520	-.072	-.683	.496
INQ: Different-race UNM peer	-.141	.487	-.030	-.290	.772
INQ: Best friends	1.293	.390	.328	3.316	.001**
INQ: Parents	.027	.596	.004	.045	.964
INQ: NA community member	.080	.389	.020	.206	.837
ISS[d] total	.134	.249	.044	.539	.591
Step 3 (R^2 = .24)					
Constant	5.760	.861		6.686	<.001***
Age	.395	.154	.207	2.570	.011*
Sex (0 = male, 1 = female)	-1.431	.974	-.120	-1.470	.144

Estimated DPW: Typical UNM student	.067	.056	.118	1.183	.239
Estimated DPW: Best friends	.117	.046	.251	2.557	.012*
INQ: Typical UNM student	-1.248	.611	-.237	-2.043	.043*
INQ: Same-race UNM peer	-.391	.544	-.079	-.720	.473
INQ: Different-race UNM peer	-.122	.501	-.026	-.242	.809
INQ: Best friends	1.309	.397	.332	3.298	.001**
INQ: Parents	.029	.603	.004	.048	.962
INQ: NA community member	.095	.396	.024	.241	.810
ISS total score	.130	.252	.043	.516	.607
ISS x Estimated DPW: UNM	-.004	.033	-.013	-.132	.895
ISS x INQ: UNM	-.049	.318	-.015	-.154	.878

[a]AUDIT = Alcohol Use Disorders Identification Test. [b]DPW = drinks per week. [c]INQ = Injunctive Norms Questionnaire. [d]ISS = Identification of In-Group in the Self.
*$p < .05$. ** $p < .01$. ***$p < .001$.

Table 23.
Hierarchical linear regression results predicting RAPI[a] total score for NA only with the
ISS as a moderator (n = 126)

Step and Variable	B	Std. Error	B	t	p-value
Step 1 (R^2 = .07)					
Constant	4.708	1.284		3.667	<.001***
Age	.508	.226	.198	2.246	.026*
Sex (0 = male, 1 = female)	-.899	1.434	-.055	-.627	.532
Step 2 (R^2 = .26)					
Constant	4.799	1.261		3.805	<.001***
Age	.537	.222	.210	2.421	.017*
Sex (0 = male, 1 = female)	-.825	1.423	-.051	-.580	.563
Estimated DPW[b]: Typical UNM student	.037	.082	.045	.447	.656
Estimated DPW: Best friends	.160	.069	.241	2.330	.022*
INQ[c]: Typical UNM student	-1.410	.879	-.197	-1.604	.111
INQ: Same-race UNM peer	-.353	.814	-.052	-.433	.666
INQ: Different-race UNM peer	.295	.734	.046	.403	.688
INQ: Best friends	1.369	.596	.254	2.298	.023*
INQ: Parents	-1.377	.895	-.145	-1.538	.127
INQ: NA community member	-.190	.586	-.035	-.324	.746
ISS[d] total	.129	.374	.031	.344	.731
Step 3 (R^2 = .24)					
Constant	4.998	1.293		3.864	<.001***
Age	.502	.227	.196	2.209	.029*
Sex (0 = male, 1 = female)	-1.040	1.458	-.064	-.713	.477

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Estimated DPW: Typical UNM student	.067	.092	.083	.728	.468
Estimated DPW: Best friends	.162	.070	.245	2.337	.021*
INQ: Typical UNM student	-1.552	.916	-.216	-1.695	.093
INQ: Same-race UNM peer	-.307	.829	-.045	-.371	.712
INQ: Different-race UNM peer	.204	.753	.032	.271	.787
INQ: Best friends	1.335	.611	.248	2.186	.031*
INQ: Parents	-1.332	.904	-.140	-1.474	.143
INQ: NA community member	-.192	.598	-.036	-.322	.748
ISS total score	.112	.379	.027	.296	.768
ISS x Estimated DPW: UNM	.040	.056	.081	.713	.477
ISS x INQ: UNM	-.316	.476	-.069	-.665	.508

[a]RAPI = Rutgers Alcohol Problem Index. [b]DPW = drinks per week. [c]INQ = Injunctive Norms Questionnaire. [d]ISS = Identification of In-Group in the Self.
*$p < .05$. ** $p < .01$. ***$p < .001$.

Table 24.
Hierarchical linear regression results predicting DPW[a] for NA only with the ISS as a moderator (n = 128)

Step and Variable	B	Std. Error	B	t	p-value
Step 1 (R^2 = .04)					
Constant	4.156	.787		5.281	<.001***
Age	.134	.140	.083	.959	.339
Sex (0 = male, 1 = female)	-1.806	.880	-.179	-2.053	.042*
Step 2 (R^2 = .28)					
Constant	4.247	.731		5.813	<.001***
Age	.107	.130	.067	.824	.412
Sex (0 = male, 1 = female)	-1.834	.824	-.181	-2.225	.028**
Estimated DPW: Typical UNM student	.143	.046	.300	3.093	.002**
Estimated DPW: Best friends	.082	.039	.208	2.077	.040*
INQ[b]: Typical UNM student	-1.163	.508	-.261	-2.291	.024*
INQ: Same-race UNM peer	-.732	.451	-.176	-1.624	.107
INQ: Different-race UNM peer	.093	.422	.023	.220	.826
INQ: Best friends	.514	.338	.155	1.520	.131
INQ: Parents	.408	.517	.069	.788	.432
INQ: NA community member	.398	.338	.119	1.178	.241
ISS[c] total	.017	.216	.007	.078	.938
Step 3 (R^2 = .29)					
Constant	4.298	.743		5.787	<.001***
Age	.094	.132	.059	.713	.477
Sex (0 = male, 1 = female)	-1.919	.840	-.190	-2.286	.024*

Estimated DPW: Typical UNM student	.146	.049	.307	3.005	.003**
Estimated DPW: Best friends	.081	.040	.205	2.049	.043*
INQ: Typical UNM student	-1.274	.527	-.287	-2.420	.017*
INQ: Same-race UNM peer	-.834	.469	-.201	-1.780	.078
INQ: Different-race UNM peer	.135	.432	.034	.312	.756
INQ: Best friends	.569	.342	.171	1.665	.099
INQ: Parents	.427	.520	.072	.821	.413
INQ: NA community member	.453	.341	.136	1.327	.187
ISS total score	-.004	.218	-.001	-.017	.987
ISS x Estimated DPW: UNM	-.005	.029	-.019	-.191	.849
ISS x INQ: UNM	-.259	.274	-.091	-.945	.347

[a]DPW = drinks per week. [b]INQ = Injunctive Norms Questionnaire. [c]ISS = Identification of In-Group in the Self.
*$p < .05$. ** $p < .01$. ***$p < .001$.

Table 25

Hierarchical linear regression predicting AUDIT[b] total score for NA only with PAID
as a moderator (n = 134)

Step and Variable	B	Std. Error	B	t	p-value
Step 1 (R^2 = .06)					
Constant	5.292	.856		6.181	<.001***
Age	.422	.161	.222	2.621	.010*
Sex (0 = male, 1 = female)	-1.104	.972	-.096	-1.136	.258
Step 2 (R^2 = .31)					
Constant	5.117	.768		6.661	<.001***
Age	.392	.145	.206	2.706	.008**
Sex (0 = male, 1 = female)	-.791	.876	-.069	-.903	.369
Estimated DPW[c]: NA student	-.021	.042	-.044	-.492	.624
Estimated DPW: Best friends	.152	.044	.324	3.447	.001**
INQ[d]: Typical UNM student	-.972	.546	-.185	-1.779	.078
INQ: Same-race UNM peer	-.501	.505	-.102	-.991	.324
INQ: Different-race UNM peer	-.290	.481	-.061	-.603	.548
INQ: Best friends	1.316	.386	.333	3.412	.001**
INQ: Parents	.166	.558	.025	.297	.767
INQ: NA community member	.046	.377	.012	.121	.904
PAID[d] total	.103	.070	.116	1.475	.143
Step 3 (R^2 = .33)					
Constant	4.915	.787		6.249	<.001***
Age	.399	.146	.210	2.734	.007**
Sex (0 = male, 1 = female)	-.678	.883	-.059	-.768	.444

Estimated DPW: NA student	-.021	.043	-.045	-.485	.629
Estimated DPW: Best friends	.152	.045	.325	3.388	.001**
INQ: Typical UNM student	-.847	.560	-.162	-1.512	.133
INQ: Same-race UNM peer	-.419	.512	-.085	-.818	.415
INQ: Different-race UNM peer	-.272	.497	-.058	-.548	.585
INQ: Best friends	1.294	.388	.327	3.338	.001**
INQ: Parents	.213	.563	.032	.379	.706
INQ: NA community member	-.124	.399	-.032	-.310	.757
PAID total	.125	.072	.141	1.738	.085
PAID x Estimated DPW: NA	.007	.008	.074	.836	.405
PAID x INQ: Typical same-race peer	.082	.084	.089	.976	.331
PAID x INQ: Typical NA comm. member	-.023	.070	-.031	-.334	.739

[a]PAID = Perceptions of American Indian Drinking. [b]AUDIT = Alcohol Use Disorders Identification Test. [c]DPW = drinks per week. [d]INQ = Injunctive Norms Questionnaire. *$p < .05$. ** $p < .01$. ***$p < .001$.

Table 26

Hierarchical linear regression predicting RAPI total score for NA only with PAID as a moderator (n = 130)

Step and Variable	B	Std. Error	B	t	p-value
Step 1 (R^2 = .05)					
Constant	4.181	1.163		3.594	<.001***
Age	.523	.217	.209	2.411	.017*
Sex (0 = male, 1 = female)	-.466	1.320	-.031	-.353	.725
Step 2 (R^2 = .23)					
Constant	4.063	1.103		3.685	<.001***
Age	.534	.205	.214	2.603	.010*
Sex (0 = male, 1 = female)	-.170	1.258	-.011	-.135	.893
Estimated DPW[c]: NA student	-.044	.062	-.068	-.713	.477
Estimated DPW: Best friends	.184	.064	.284	2.894	.005**
INQ[d]: Typical UNM student	-1.256	.787	-.180	-1.595	.113
INQ: Same-race UNM peer	-.451	.760	-.068	-.594	.554
INQ: Different-race UNM peer	.196	.694	.031	.282	.778
INQ: Best friends	1.328	.563	.251	2.361	.020
INQ: Parents	-1.246	.800	-.140	-1.558	.122
INQ: NA community member	-.267	.543	-.051	-.491	.624
PAID total	.192	.100	.165	1.927	.056
Step 3 (R^2 = .24)					
Constant	3.931	1.128		3.484	.001**
Age	.537	.207	.215	2.589	.011*
Sex (0 = male, 1 = female)	-.093	1.269	-.006	-.074	.942

Estimated DPW: NA student	-.035	.065m	-.054	-.547	.586
Estimated DPW: Best friends	.182	.065	.280	2.809	.006**
INQ: Typical UNM student	-1.145	.804	-.164	-1.424	.157
INQ: Same-race UNM peer	-.432	.785	-.065	-.550	.583
INQ: Different-race UNM peer	.238	.724	.038	.329	.742
INQ: Best friends	1.326	.566	.250	2.342	.021*
INQ: Parents	-1.213	.810	-.136	-1.499	.137
INQ: NA community member	-.408	.576	-.078	-.709	.480
PAID total	.214	.103	.183	2.074	.040*
PAID x Estimated DPW: NA	.002	.012	.019	.192	.848
PAID x INQ: Typical same-race peer	.146	.123	.119	1.191	.236
PAID x INQ: NA community member	-.056	.099	-.057	-.564	.574

[a]PAID = Perceptions of American Indian Drinking. [b]RAPI = Rutgers Alcohol Problems Index. [c]DPW = drinks per week. [d]INQ = Injunctive Norms Questionnaire.
*$p < .05$. ** $p < .01$. ***$p < .001$.

Table 27

Hierarchical linear regression predicting DPW^b for NA only with PAID^a as a moderator (n = 130)

Step and Variable	B	Std. Error	B	t	p-value
Step 1 (R^2 = .04)					
Constant	3.994	.739		5.403	<.001***
Age	.153	.139	.094	1.102	.272
Sex (0 = male, 1 = female)	-1.735	.839	-.177	-2.068	.041*
Step 2 (R^2 = .23)					
Constant	4.058	.695		5.842	<.001***
Age	.136	.131	.084	1.040	.300
Sex (0 = male, 1 = female)	-1.742	.792	-.178	-2.199	.030*
Estimated DPW: NA student	.036	.038	.089	.935	.352
Estimated DPW: Best friends	.121	.040	.301	3.032	.003**
INQ^c: Typical UNM student	-.653	.494	-.146	-1.321	.189
INQ: Same-race UNM peer	-.715	.457	-.170	-1.566	.120
INQ: Different-race UNM peer	-.186	.435	-.046	-.428	.670
INQ: Best friends	.511	.349	.151	1.466	.145
INQ: Parents	.324	.504	.056	.642	.522
INQ: NA community member	.303	.341	.090	.889	.376
PAID total	.089	.063	.118	1.412	.161
Step 3 (R^2 = .24)					
Constant	3.906	.714		5.472	<.001***
Age	.146	.132	.090	1.104	.272
Sex (0 = male, 1 = female)	-1.668	.802	-.170	-2.081	.040*

Estimated DPW: NA student	-1.668	.802	-.170	-2.081	.404
Estimated DPW: Best friends	.119	.041	.298	2.922	.004**
INQ: Typical UNM student	-.586	.508	-.131	-1.152	.252
INQ: Same-race UNM peer	-.681	.465	-.162	-1.464	.146
INQ: Different-race UNM peer	-.134	.451	-.033	-.298	.767
INQ: Best Friends	.495	.352	.146	1.406	.162
INQ: Parents	.348	.511	.060	.681	.497
INQ: NA community member	.196	.362	.058	.540	.590
PAID total	.100	.065	.132	1.538	.127
PAID x Estimated DPW: NA	.003	.007	.044	.466	.642
PAID x INQ: Typical same-race peer	.042	.076	.053	.550	.583
PAID x INQ: Typical NA comm. member	.015	.063	.024	.236	.814

[a]PAID = Perceptions of American Indian Drinking. [b]DPW = drinks per week. [c]INQ = Injunctive Norms Questionnaire.
*$p < .05$. ** $p < .01$. ***$p < .001$.

Table 28

Hierarchical linear regression results predicting AUDIT[b] score for NA only with the BEIS as a moderator (n = 130)

Step and Variable	B	Std. Error	B	t	p-value
Step 1 ($R^2 = .07$)					
Constant	5.282	.846		6.243	<.001***
Age	.462	.160	.246	2.878	.005**
Sex (0 = male, 1 = female)	-1.208	.964	-.107	-1.252	.213
Step 2 ($R^2 = .39$)					
Constant	4.638	.746		6.220	<.001***
Age	.489	.147	.261	3.335	.001**
Sex (0 = male, 1 = female)	-.345	.856	-.031	-.403	.688
Estimated DPW[c]: NHW student	.242	.063	.440	.3811	<.001***
Estimated DPW: NA student	-.179	.058	-.362	-3.112	.002**
Estimated DPW: Best friends	.138	.044	.283	3.177	.002**
INQ[d]: Typical UNM student	-1.569	.560	-.299	-2.801	.006**
INQ: Same-race UNM peer	-.730	.519	-.148	-1.408	.162
INQ: Different-race UNM peer	.439	.483	.094	.909	.365
INQ: Best friends	1.200	.387	.303	3.102	.002**
INQ: Parents	-.368	.582	-.054	-.632	.529
INQ: NA community member	.182	.382	.046	.475	.636
BEIS "White way of life" total	-.436	.570	-.061	-.764	.446
BEIS "Indian way of life" total	-.913	.521	-.153	-1.752	.082
Step 3 ($R^2 = .44$)					
Constant	4.583	.753		6.083	<.001***

Age	.427	.147	.228	2.910	.004**
Sex (0 = male, 1 = female)	-.395	.847	-.035	-.466	.642
Estimated DPW: NHW student	.261	.063	.476	4.140	<.001**
Estimated DPW: NA student	-.175	.056	-.354	-3.115	.002**
Estimated DPW: Best friends	.134	.046	.273	2.902	.004**
INQ: UNM student	-1.861	.567	-.355	-3.280	.001**
INQ: Same-race UNM peer	-.908	.510	-.185	-1.780	.078
INQ: Different-race UNM peer	.528	.476	.113	1.108	.270
INQ: Best Friends	1.497	.394	.378	3.800	<.001***
INQ: Parents	-.404	.572	-.059	-.706	.482
INQ: NA community member	.295	.385	.075	.764	.446
BEIS "White way of life" total	-1.127	.663	-.158	-1.699	.092
BEIS "Indian way of life" total	-1.235	.543	-.207	-2.275	.025*
BEIS White x DPW: NHW	-.120	.091	-.124	-1.314	.192
BEIS Indian x DPW: NA	-.173	.061	-.243	-2.861	.005**
BEIS Indian x INQ: same-race peer	-.852	.602	-.130	-1.416	.160
BEIS Indian x INQ: NA comm. member	.512	.508	.099	1.009	.315

[a]BEIS = Bicultural Ethnic Identity Scale. [b]AUDIT = Alcohol Use Disorders Identification Test. [c]DPW = drinks per week. [d]INQ = Injunctive Norms Questionnaire.
*$p < .05$. ** $p < .01$. ***$p < .001$.

Table 29.
Hierarchical linear regression results predicting RAPI[b] score for NA only with the BEIS as a moderator (n = 126)

Step and Variable	B	Std. Error	B	t	p-value
Step 1 ($R^2 = .07$)					
Constant	4.178	1.187		3.520	.001**
Age	.542	.223	.214	2.427	.017*
Sex (0 = male, 1 = female)	-.443	1.353	-.029	-.327	.744
Step 2 ($R^2 = .39$)					
Constant	3.611	1.148		3.146	.002**
Age	.628	.225	.248	2.786	.006**
Sex (0 = male, 1 = female)	.431	1.321	.028	.327	.744
Estimated DPW[c]: NHW student	.226	.098	.286	2.311	.023*
Estimated DPW: NA student	-.184	.090	-.257	-2.054	.042*
Estimated DPW: Best friends	.159	.068	.226	2.321	.022*
INQ[d]: UNM student	-1.700	.872	-.237	-1.950	.054
INQ: Same-race UNM peer	-1.013	.844	-.149	-1.201	.232
INQ: Different-race UNM peer	.992	.750	.156	1.323	.189
INQ: Best Friends	1.386	.611	.255	2.269	.025*
INQ: Parents	-1.544	.892	-.165	-1.731	.086
INQ: NA community member	-.041	.595	-.008	-.068	.946
BEIS "White way of life" total	-.940	.877	-.098	-1.072	.286
BEIS "Indian way of life" total	-1.112	.799	-.139	-1.392	.167
Step 3 ($R^2 = .44$)					
Constant	3.497	1.187		2.945	.004**

Age	.565	.230	.223	2.462	.015*
Sex (0 = male, 1 = female)	.344	1.333	.022	.258	.797
Estimated DPW:NHW student	.246	.100	.311	2.472	.015*
Estimated DPW: NA student	-.183	.089	-.256	-2.049	.043*
Estimated DPW: Best friends	.140	.073	.200	1.930	.056
INQ: UNM student	-2.099	.900	-.292	-2.332	.022*
INQ: Same race UNM peer	-1.172	.842	-.172	-1.391	.167
INQ: Different-race UNM peer	1.078	.753	.170	1.432	.155
INQ: Best Friends	1.770	.633	.327	2.808	.006**
INQ: Parents	-1.604	.895	-.172	-1.793	.076
INQ: NA community member	.132	.612	.025	.215	.830
BEIS "White way of life" total	-1.715	1.041	-.178	-1.648	.102
BEIS "Indian way of life" total	-1.436	.851	-.179	-1.687	.094
BEIS White x DPW: NHW	-.134	.142	-.103	-.947	.346
BEIS Indian x DPW: NA	-.186	.096	-.188	-1.936	.055
BEIS Indian x INQ: Same-race UNM peer	-1.134	.934	-.128	-1.214	.227
BEIS Indian x INQ: NA comm. member	.491	.790	.071	.622	.535

[a]BEIS = Bicultural Ethnic Identity Scale. [b]RAPI = Rutgers Alcohol Problem Index. [c]DPW = drinks per week. [d]INQ = Injunctive Norms Questionnaire.
*$p < .05$. ** $p < .01$. ***$p < .001$.

Table 30

Hierarchical linear regression results predicting DPW[b] for NA only with the BEIS as a moderator (n = 130)

Step and Variable	B	Std. Error	B	t	p-value
Step 1 (R^2 = .04)					
Constant	3.993	.748		5.338	<.001**
Age	.157	.142	.096	1.105	.271
Sex (0 = male, 1 = female)	-1.645	.853	-.168	-1.929	.56
Step 2 (R^2 = .39)					
Constant	3.712	.645		5.754	<.001***
Age	.113	.127	.69	.889	.376
Sex (0 = male, 1 = female)	-1.162	.741	-.119	-1.568	.120
Estimated DPW: NHW student	.275	.055	.578	5.021	<.001***
Estimated DPW: NA student	-.114	.050	-.266	-2.296	.023*
Estimated DPW: Best friends	.132	.038	.312	3.509	.001**
INQ[c]: Typical UNM student	-1.396	.485	-.307	-2.878	.005**
INQ: Same-race UNM peer	-.561	.449	-.131	-1.250	.214
INQ: Different-race UNM peer	.331	.418	.082	.793	.429
INQ: Best Friends	.217	.335	.063	.648	.518
INQ: Parents	.380	.503	.064	.755	.452
INQ: NA community member	.468	.331	.138	1.415	.160
BEIS "White way of life" total	-.075	.493	-.012	-.152	.880
BEIS "Indian way of life" total	-.183	.451	-.035	-.405	.686
Step 3 (R^2 = .44)					
Constant	3.640	.655		5.559	<.001***

Age	.060	.128	.037	.467	.641
Sex (0 = male, 1 = female)	-1.286	.736	-.131	-1.749	.083
Estimated DPW: NHW student	.299	.055	.629	5.460	<.001***
Estimated DPW: NA student	-.110	.049	-.258	-2.268	.025*
Estimated DPW: Best friends	.100	.040	.235	2.498	.014*
INQ: UNM student	-1.696	.493	-.372	-3.440	.001**
INQ: Same-race UNM peer	-.688	.443	-.161	-1.553	.123
INQ: Different-race UNM peer	.378	.413	.093	.913	.363
INQ: Best Friends	.483	.342	.141	1.411	.161
INQ: Parents	.314	.497	.053	.632	.529
INQ: NA community member	.656	.335	.193	1.959	.053
BEIS "White way of life" total	-.721	.576	-.117	-1.252	.213
BEIS "Indian way of life" total	-.282	.472	-.054	-.597	.552
BEIS White x DPW: NHW	-.135	.079	-.161	-1.713	.090
BEIS Indian x DPW: NA	-.057	.053	-.092	-1.084	.281
BEIS Indian x INQ: Same-race UNM peer	-1.056	.523	-.186	-2.020	.046*
BEIS Indian x INQ: NA comm. member	.056	.441	.013	.127	.899

[a]BEIS = Bicultural Ethnic Identity Scale. [b]RAPI = Rutgers Alcohol Problem Index. [c]DPW = drinks per week.
*p < .05. ** p < .01. ***p < .001.
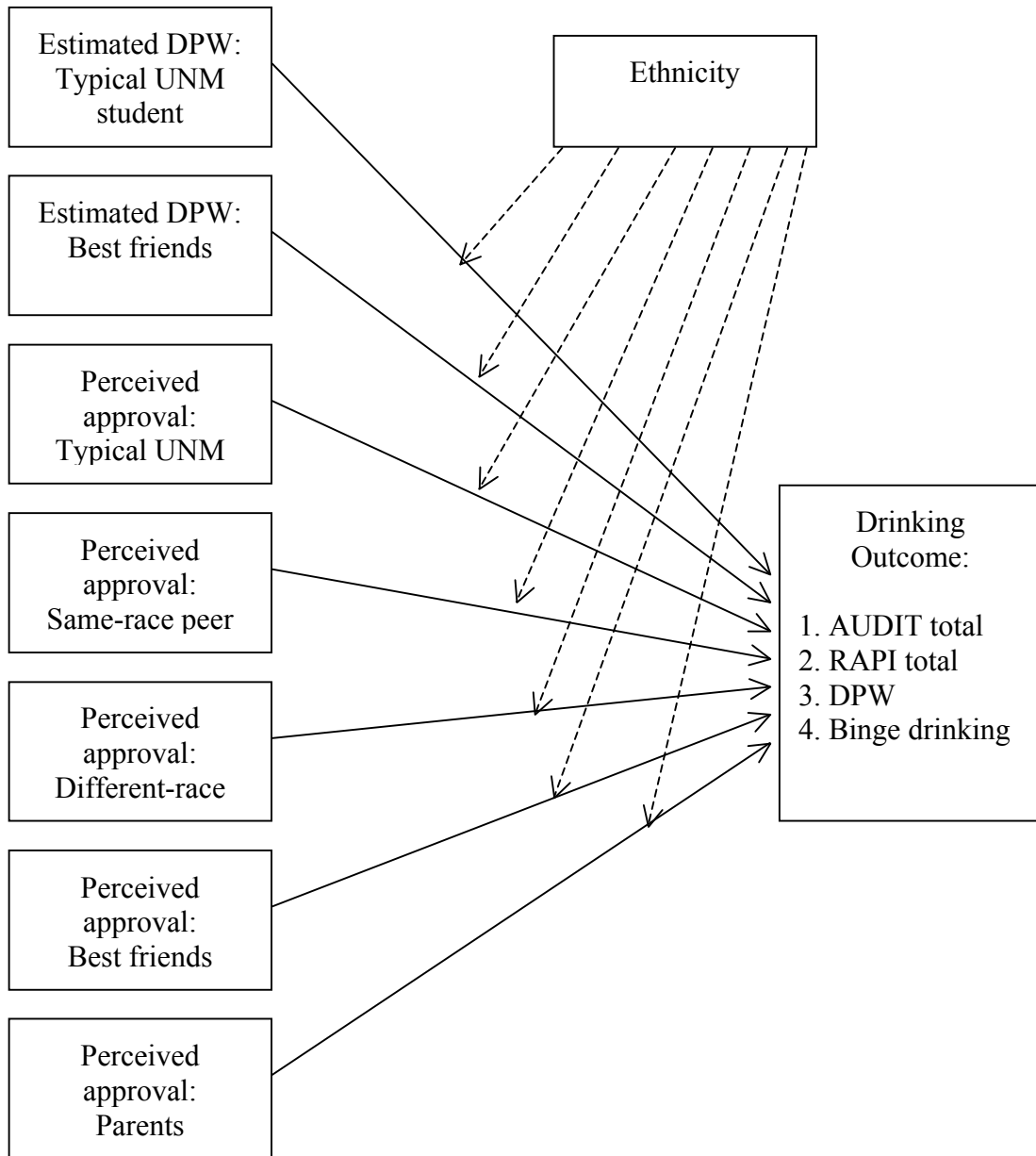
Figure 1. Model depicting Aim III analyses.
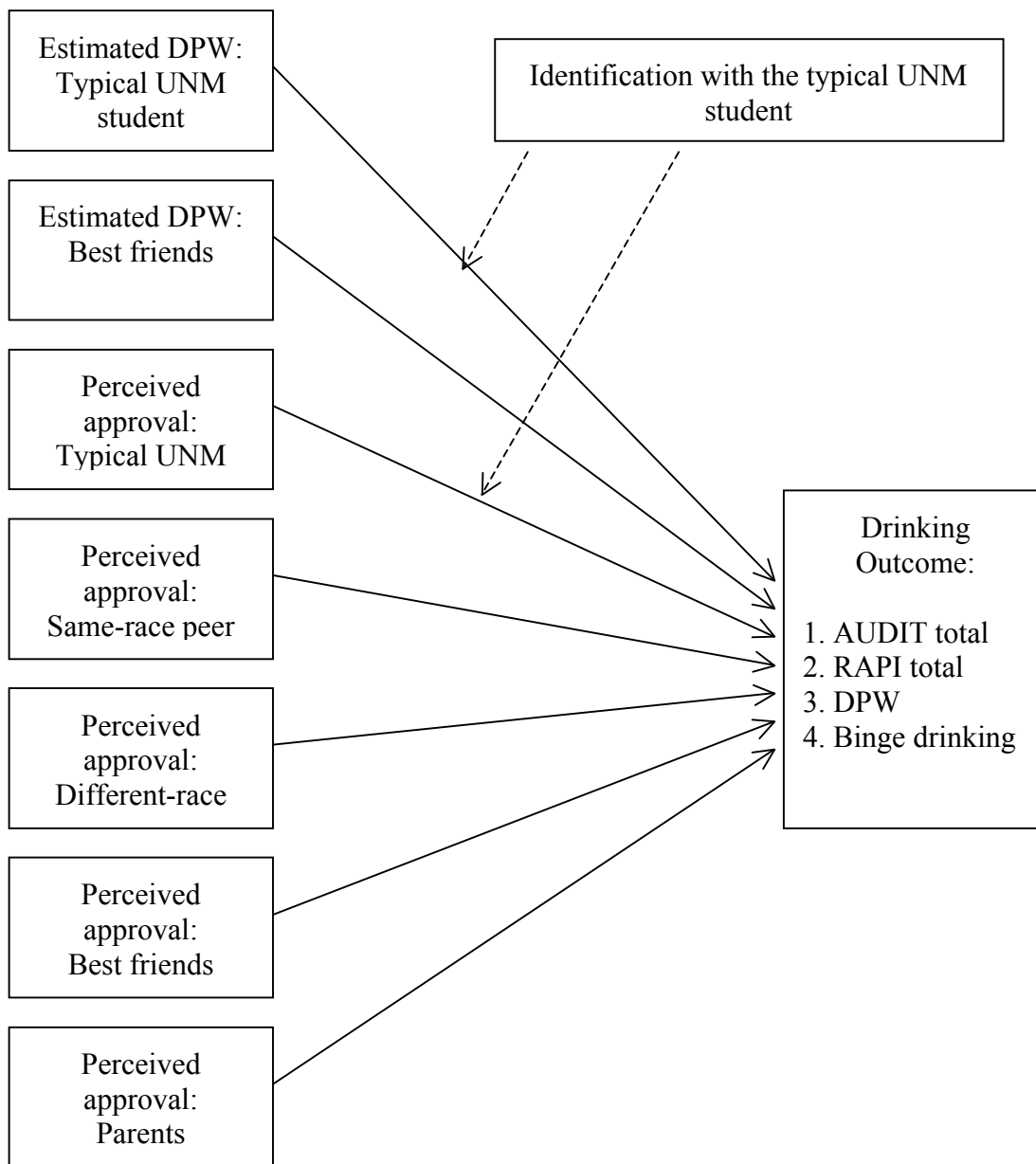
Figure 2. Model depicting Aim IV ISS moderation analyses.
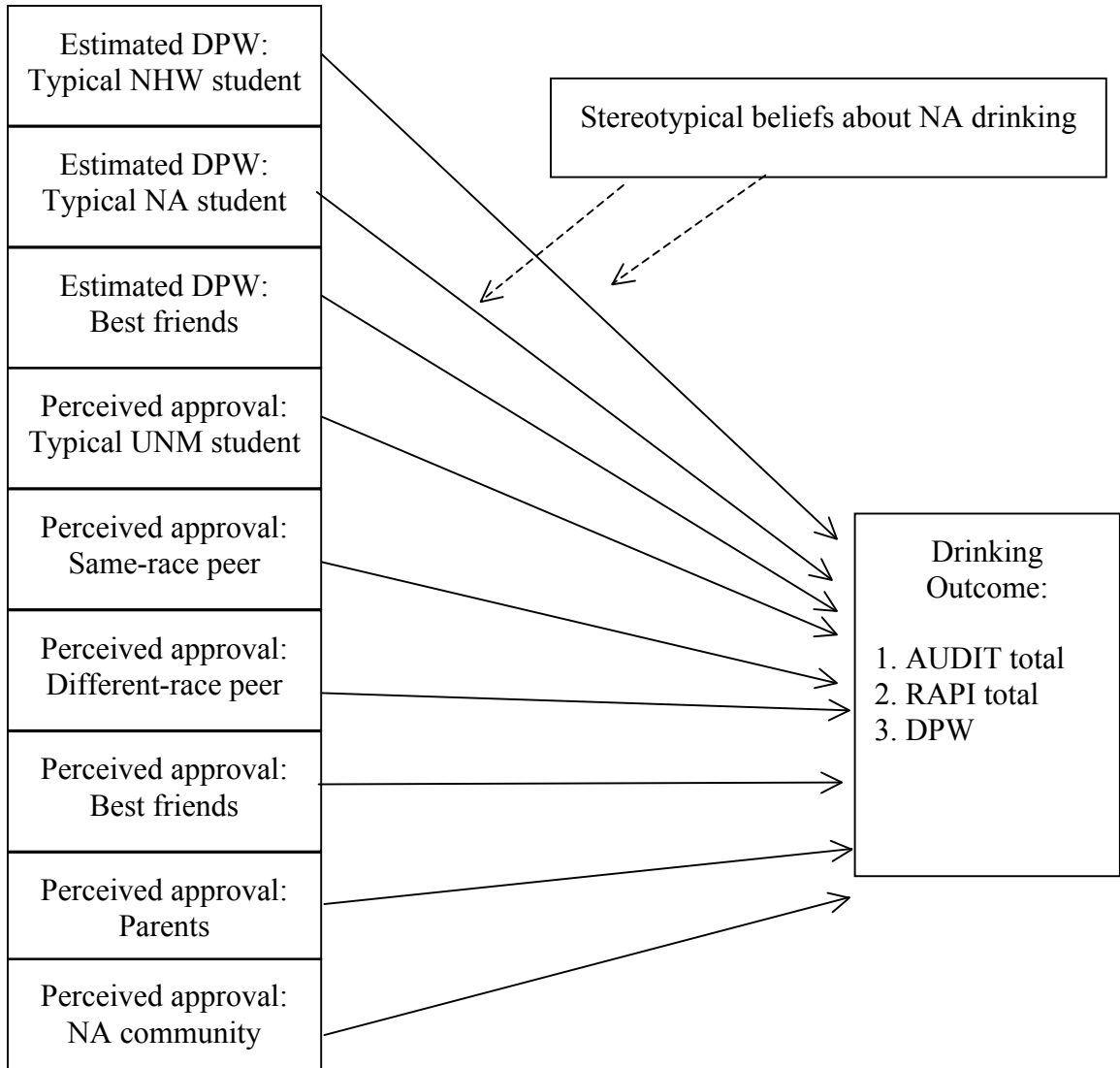
Figure 3. Model depicting Aim IV PAID moderation analyses.
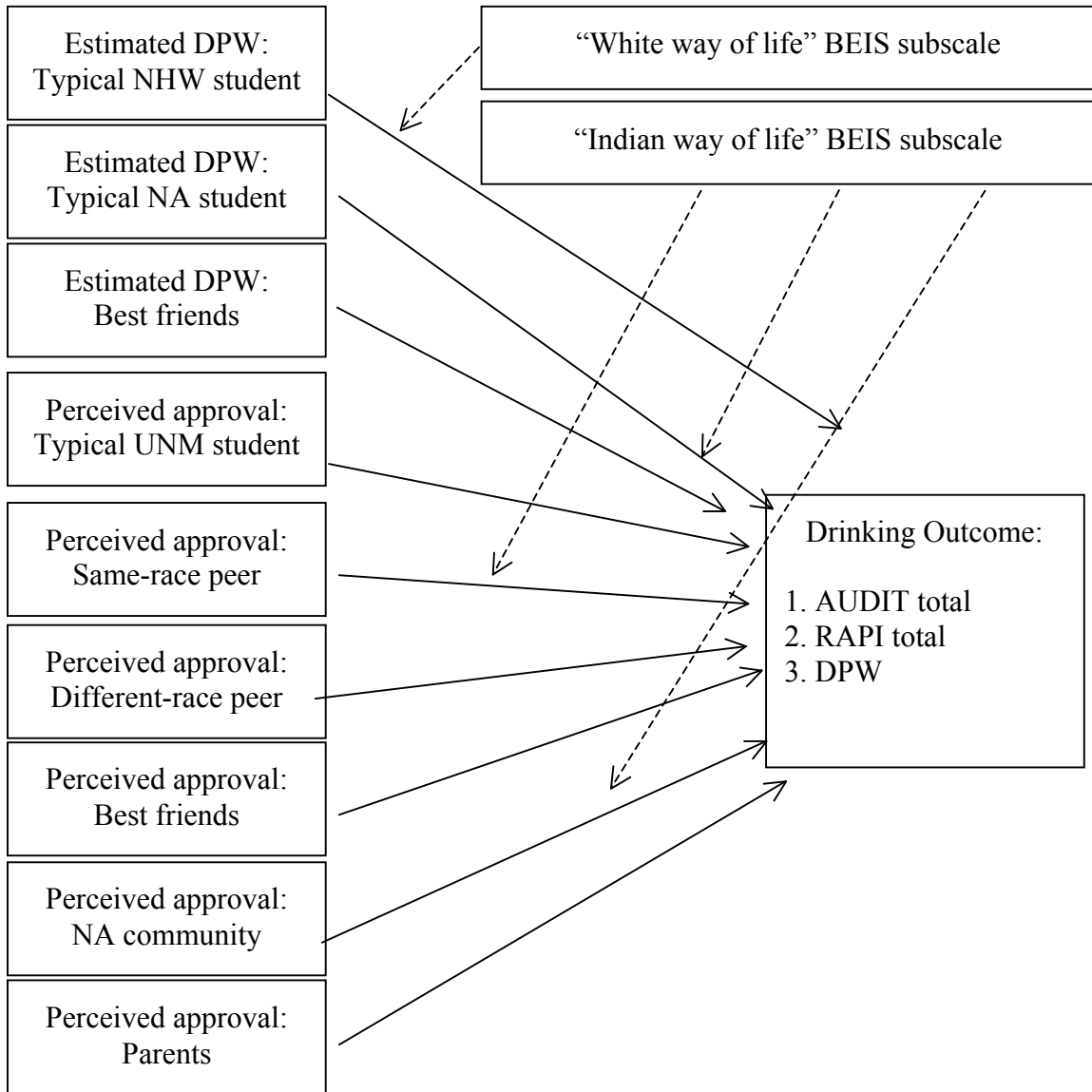
Figure 4. Model depicting Aim IV BEIS moderation analyses.
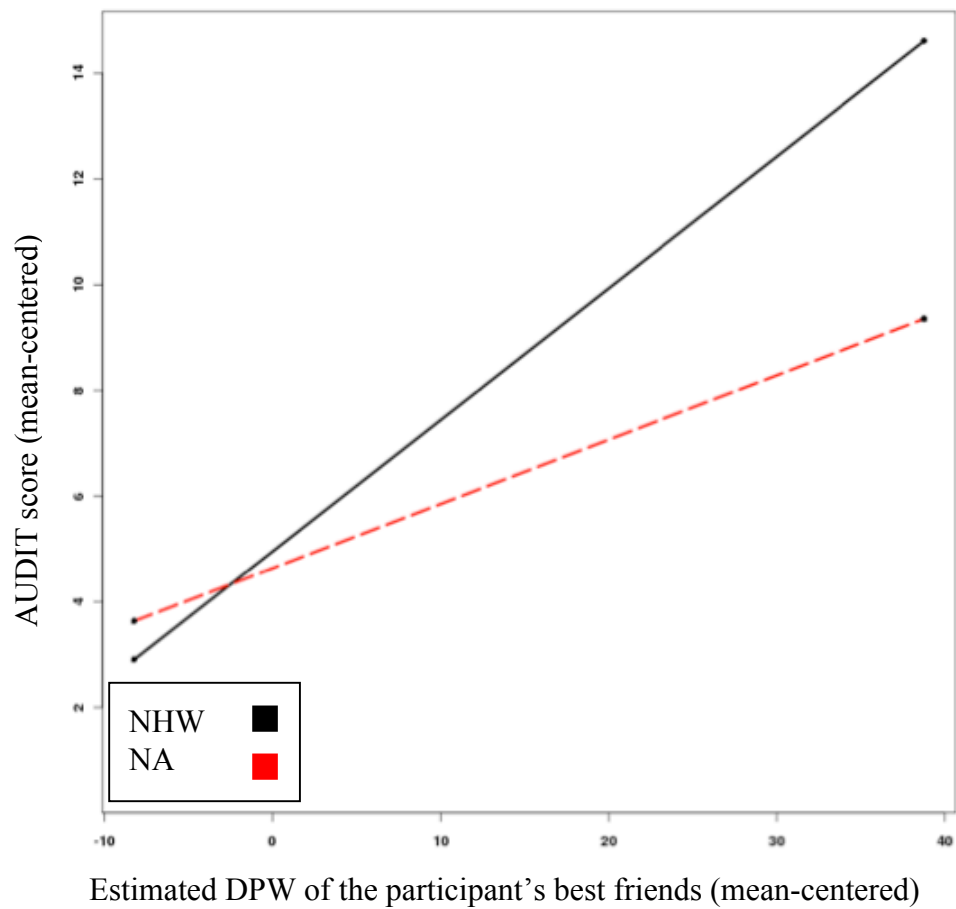
Figure 5. Ethnicity significantly moderated the relationship between estimated DPW of the participant's best friends and AUDIT for the total sample.
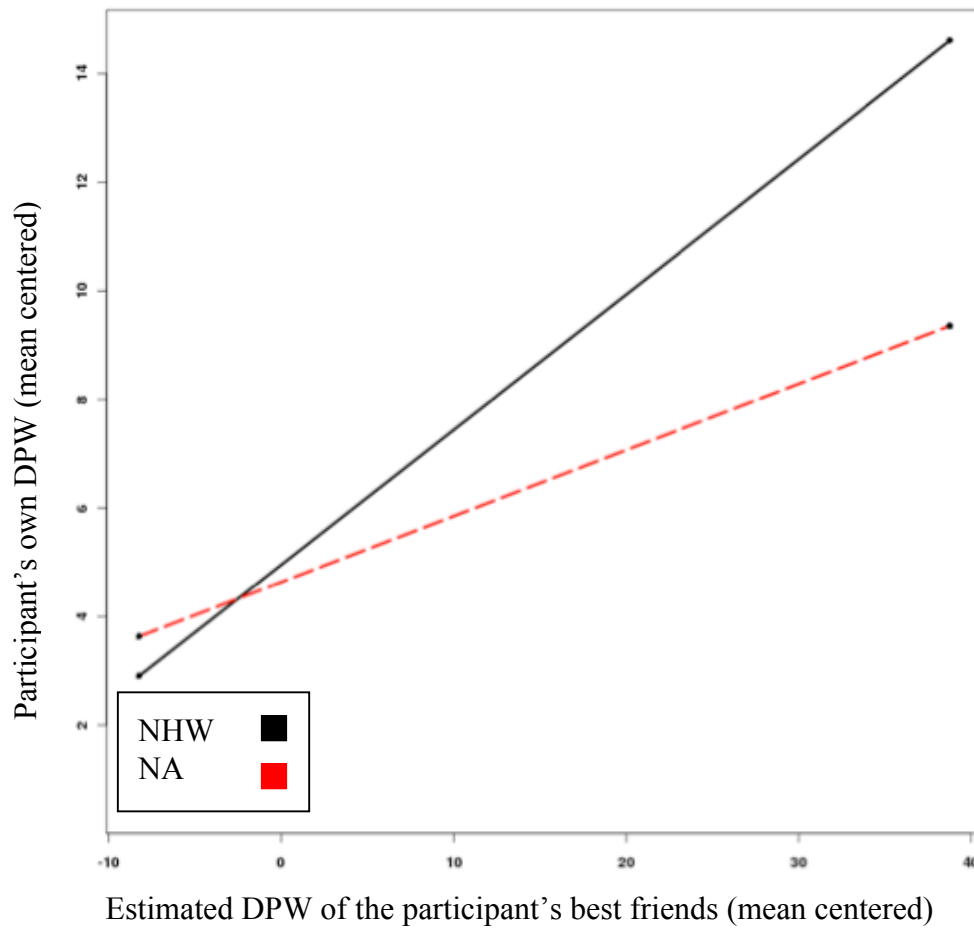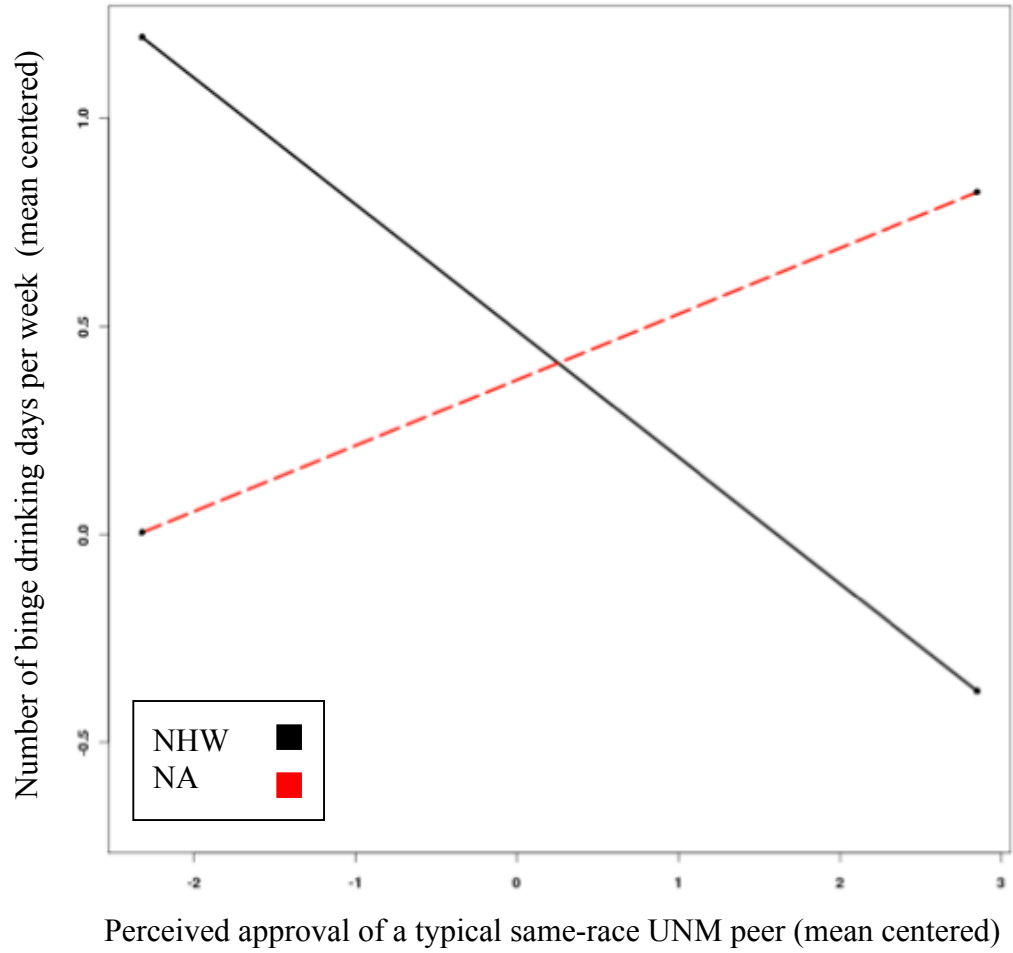
Figure 6. Ethnicity significantly moderated the relationship between estimated DPW of the participant's best friends and the participant's own DPW for the total sample.

Figure 7. Ethnicity significantly moderated the relationship between perceived approval of a typical same-race UNM peer and binge drinking reported by drinkers.
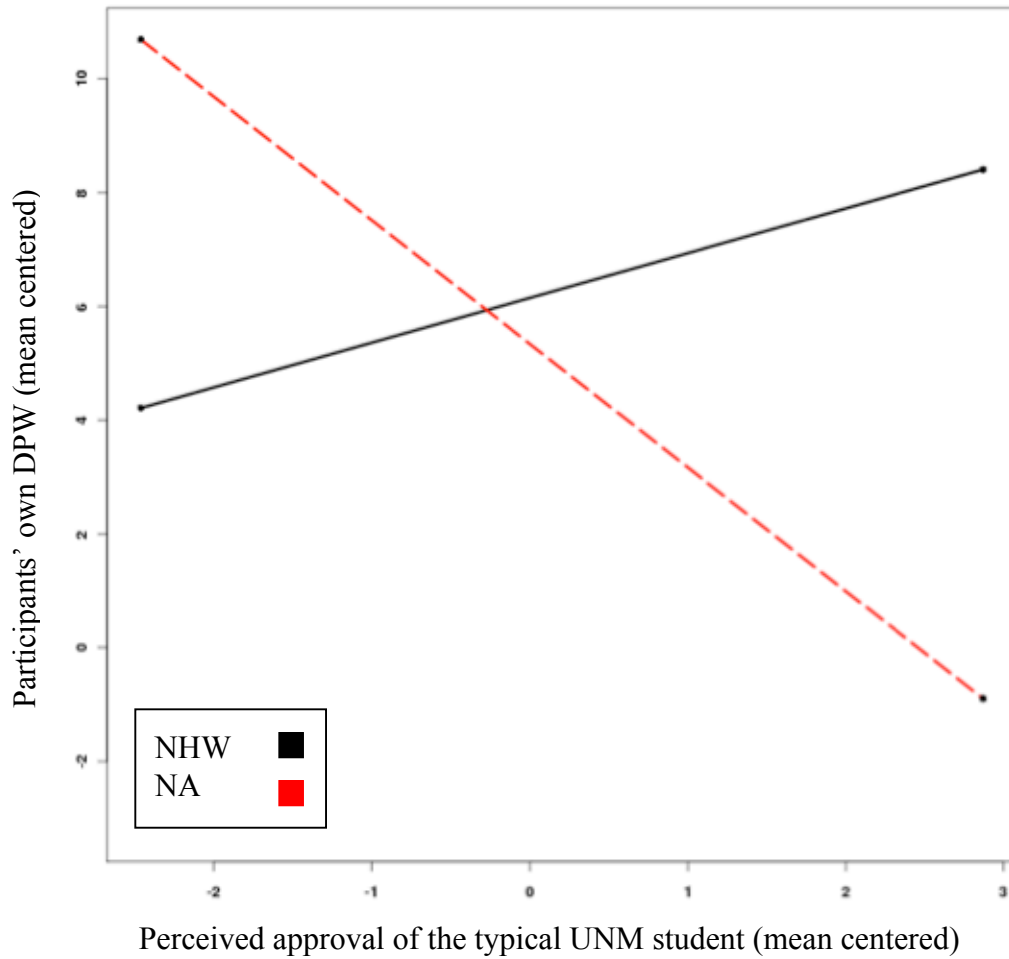
Figure 8. Ethnicity significantly moderated the relationship between perceived approval of the typical UNM student and the participant's own DPW for drinkers only.
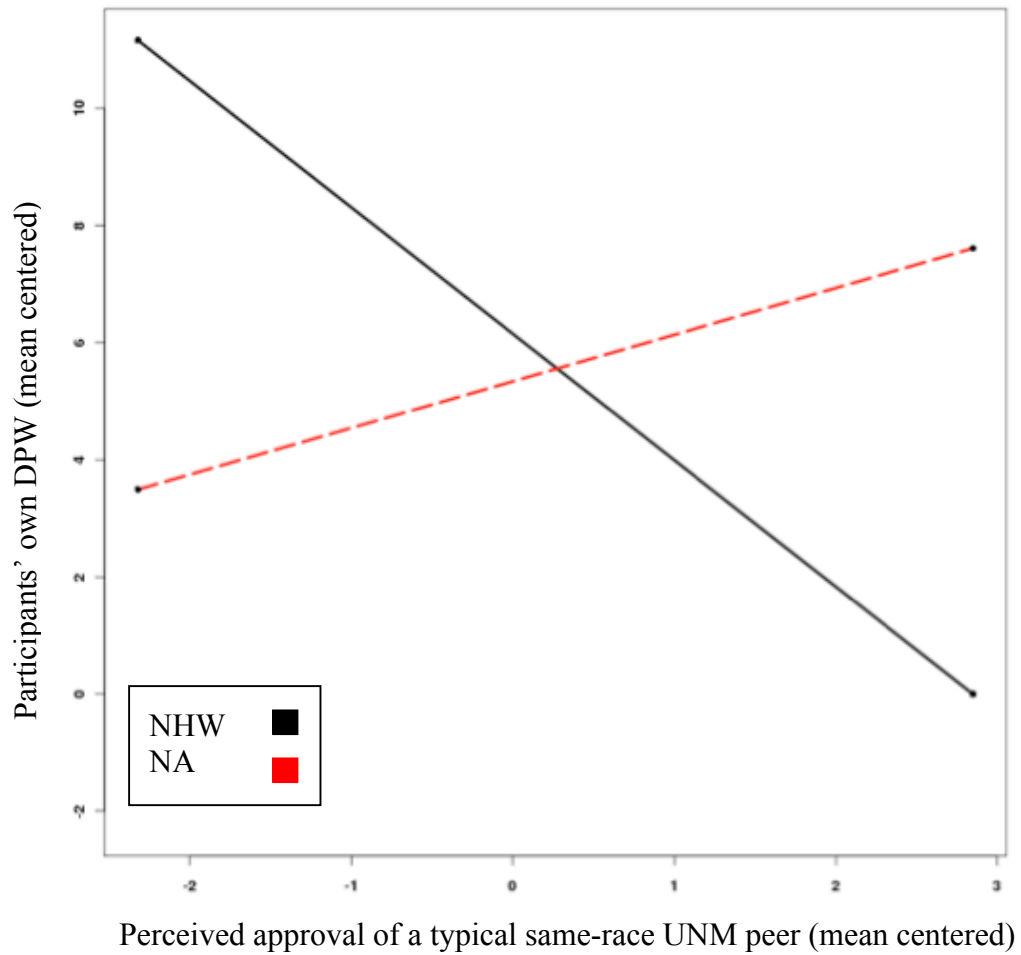
Figure 9. Ethnicity significantly moderated the relationship between perceived approval of a typical same-race UNM peer and the participant's own DPW for drinkers only.
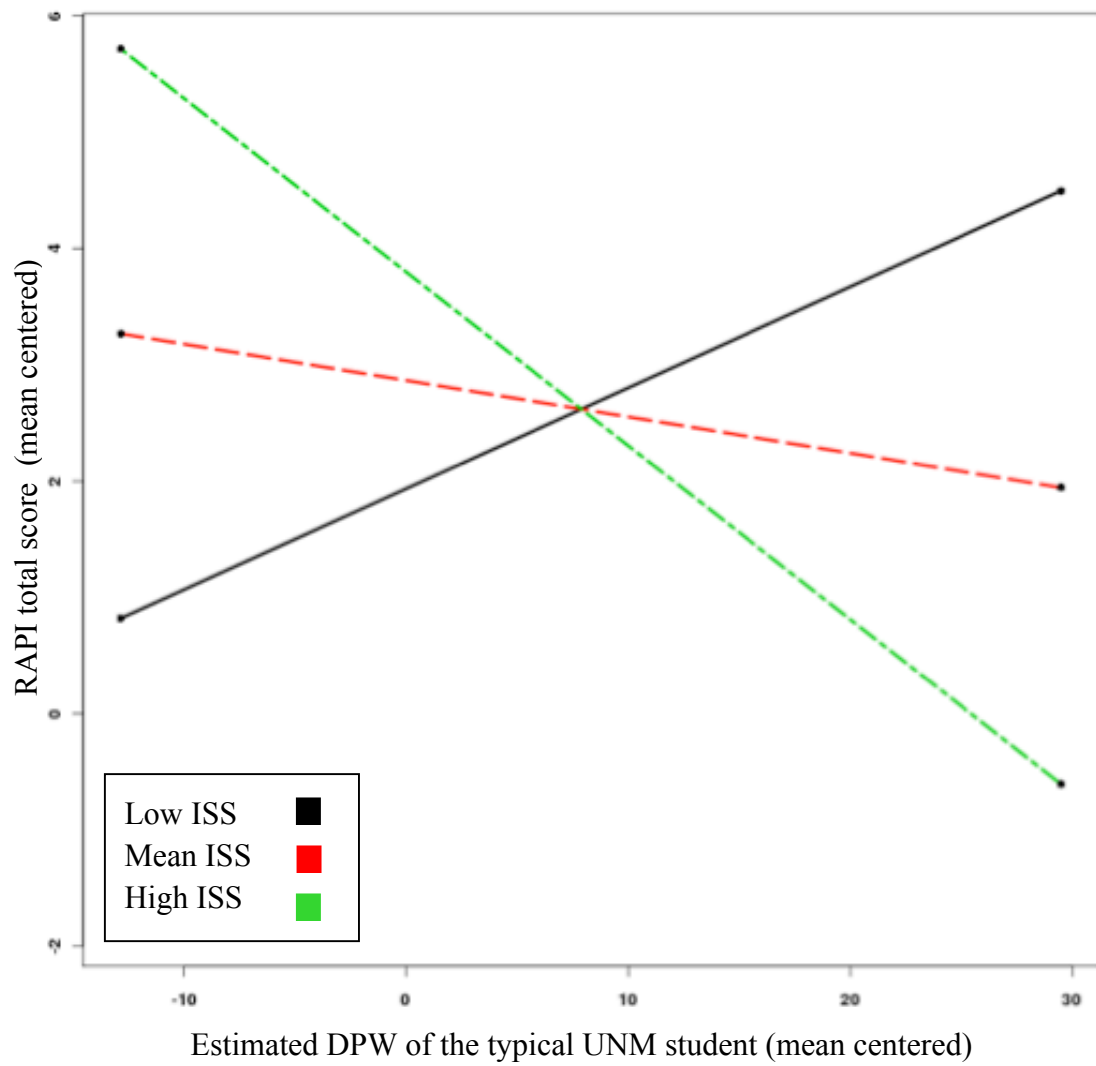
Figure 10. ISS total score moderated the relationship between estimated DPW of the

typical UNM student and RAPI score for NHW only.
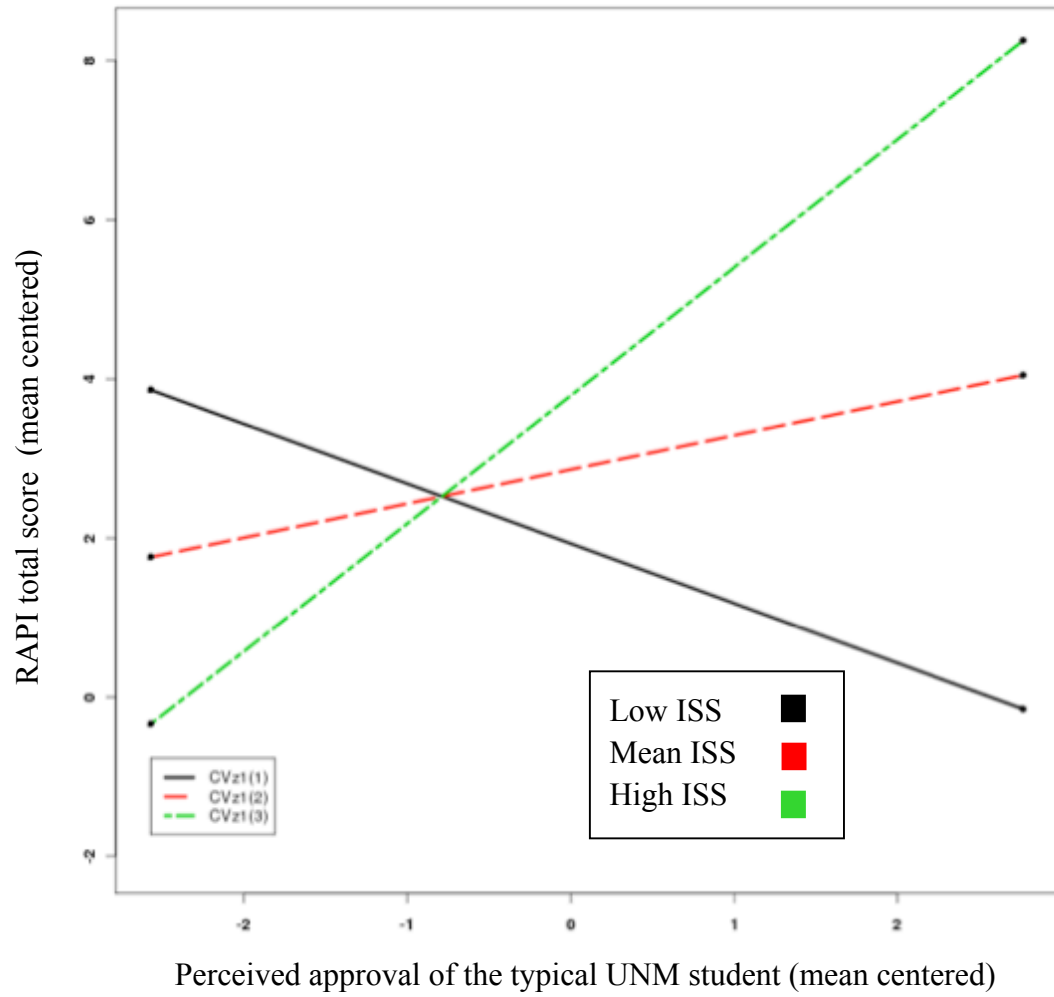
Figure 11. ISS total score moderated the relationship between perceived approval of the
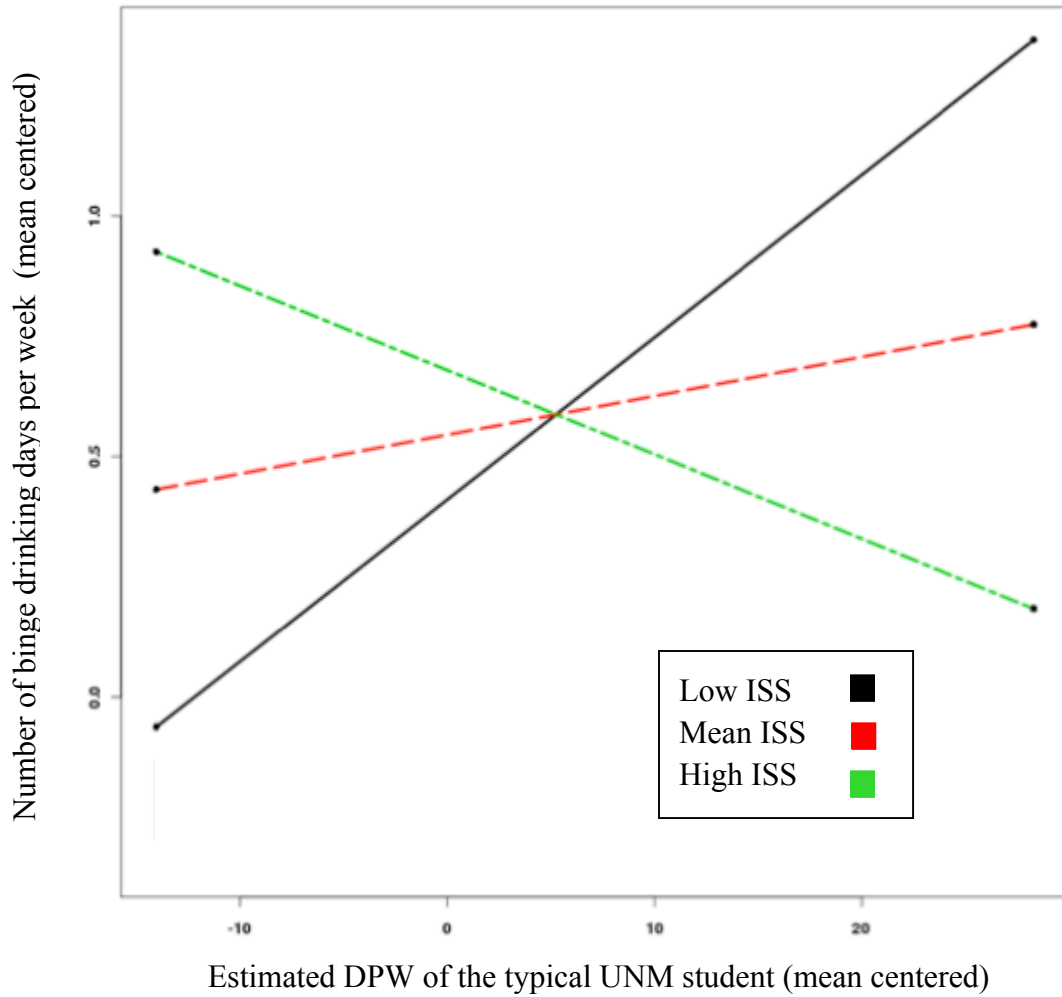
typical UNM student and RAPI score for NHW only.

Figure 12. ISS total score moderated the relationship between estimated DPW of the

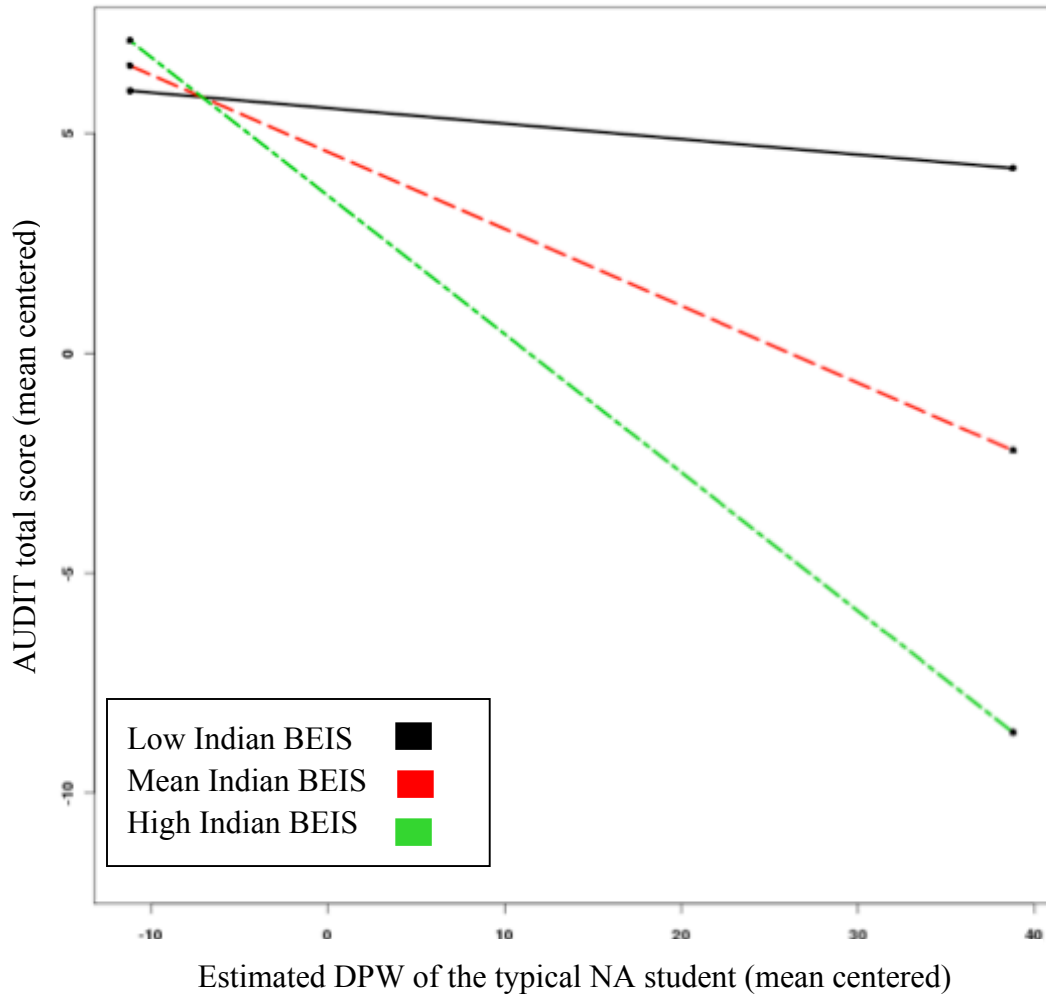typical UNM student and binge drinking days per week for NHW drinkers only.

Figure 13. BEIS "Indian way of life" subscale moderated the relationship between estimated DPW of the typical NA student and AUDIT score for NAs only.
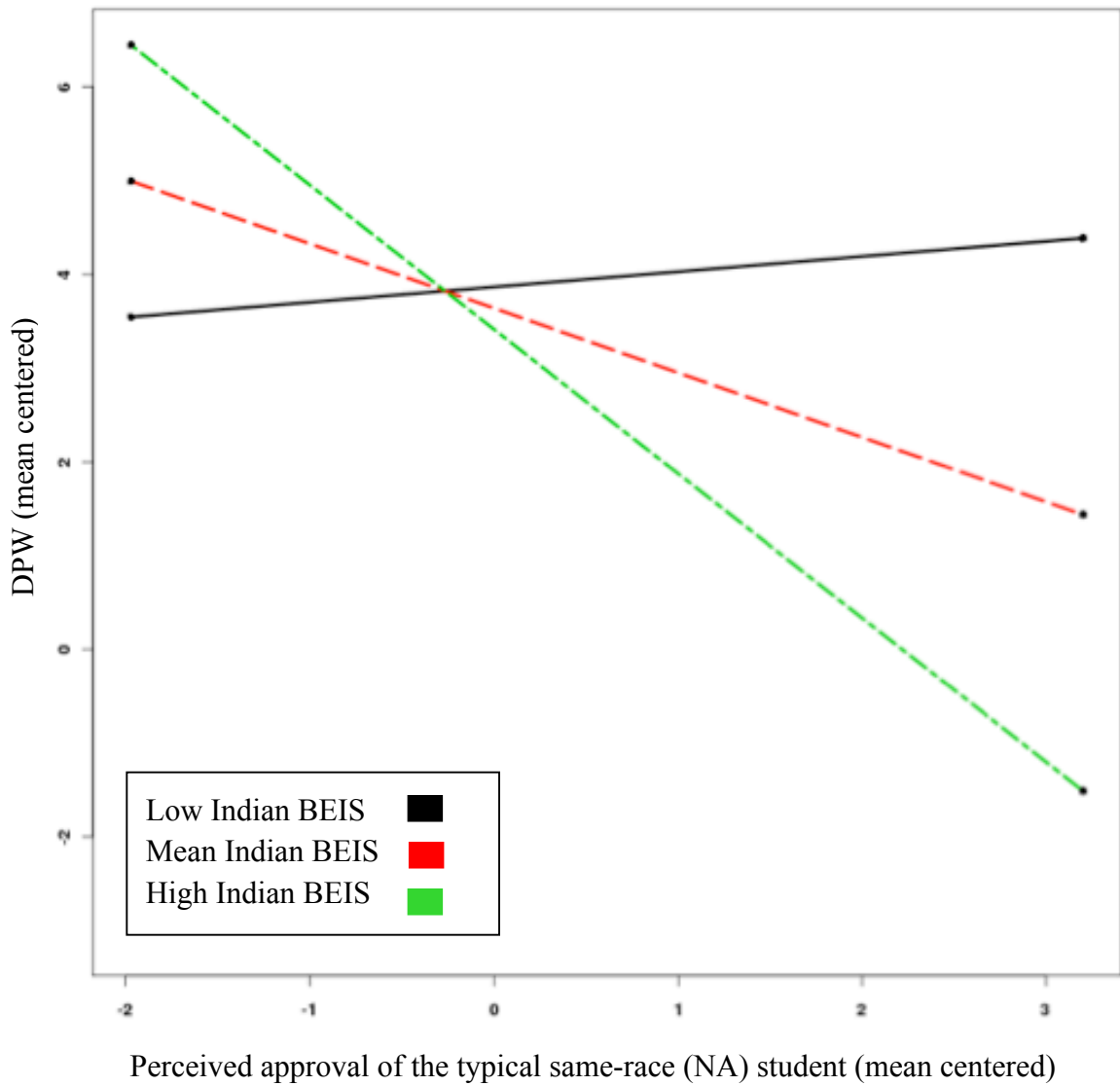
Figure 14. BEIS "Indian way of life" subscale moderated the relationship between perceived approval of the typical same-race (NA) student and the participant's own DPW for NAs only.