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Beer for Brohood: A Laboratory Simulation of Masculinity Confirmation through Alcohol Use Behaviors in Men

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Beer for Brohood: A Laboratory Simulation of Masculinity Confirmation through Alcohol Use
Behaviors in Men

A dissertation submitted in partial fulfillment
of the requirements for the degree of
Doctor of Philosophy in Psychology

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Abstract

Alcohol use is a widespread behavior that may be associated with negative consequences, especially for men. Research suggests that individuals are motivated to maintain in-group status by engaging in behaviors prototypical of the in-group when group status has been challenged, and that men are particularly likely to do this when masculine in-group status is threatened. This study investigated masculine drinking behaviors through social and individual lenses, examining the impact of group identification and individual differences on alcohol consumption rates after a simulated gender threatening situation in a bar laboratory. Sixty-five male students (ages 21-29; 74% Caucasian) were given the chance to consume beer using a taste test paradigm after being exposed to fabricated personality feedback relative to gender standards. This feedback suggested that they were either low in masculinity (threat condition, $n = 22$) or high in masculinity (control condition, $n = 22$). A third condition was included to examine the contribution of other motives for use; individuals in this third condition received the low masculinity feedback and then were given information to undermine masculine alcohol use norms (undermine condition, $n = 21$). As hypothesized, individuals in the threat condition consumed significantly more alcohol than those in the control and undermine conditions. Proposed interaction effects between strength of identification with the masculine in-group or traditional gender role attitudes and alcohol consumption behaviors were not statistically significant. These results suggest that consumption of alcohol by men in social contexts may be a strongly motivated by the desire to confirm masculine status. This understanding may be used to enhance the effectiveness of norms-based alcohol use treatment protocols.

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I feel a pressure akin to that experienced when writing in a yearbook at the end of senior year; some push to come up with the perfect message summarizing the immense gratitude I feel toward the many people who have immeasurably contributed to my growth across the past five years and made this project possible. I will do my best. I would first like to thank the members of my dissertation committee for their investment in my personal and professional development:

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Dedication

To my parents for your unconditional love and support even when you didn't exactly understand my fanatical excitement after getting the DSM-5 for Christmas. Thank you for showing me, as early as I can remember, the vast wonders of the human spirit and cultivating in me a great compassion for others. Thank you for encouraging me to dream big, work hard, and believe in myself.

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I. Introduction

Alcohol use is a widespread phenomenon associated with a number of negative outcomes including acute and chronic medical problems, neurocognitive deficits, personal injury, arrests, academic or occupational impairment, risky sexual behaviors, and sexual assault (e.g., Centers for Disease Control and Prevention [CDC], 2011; Goldstein, Barnett, Pedlow, & Murphy, 2007; Hingson, Zha, & Weitzman, 2009; Knight et al., 2002; National Institute on Alcohol Abuse and Alcoholism [NIAAA], 2013). These risks are particularly relevant for men. Approximately 70% of men report past-year drinking, with 30% engaging in risky drinking behavior (NIAAA, 2013; Substance Abuse and Mental Health Services Administration [SAMHSA], 2013) and 40% having experienced at least one negative event related to their alcohol use in their lifetime (e.g., legal ramifications for driving while under the influence or personal injury) (American Psychiatric Association [APA], 2013).

Although men and women are currently drinking at more similar rates than in previous decades (Jager, Schulenberg, O'Malley, & Bachman, 2013; Keyes, Grant, & Hasin, 2007; Grucza, Norberg, & Bierut, 2009; Perkins, 2002), men still consume alcohol and experience related problems at higher rates than women (Wilsnack & Wilsnack, 2013). Gender and related concepts have often been investigated in efforts to explain these differences and have proven helpful in revealing the vast cultural and individual variables at work, but have also left many questions unanswered. This study aims to examine and integrate social theories and individual gender variables, specifically related to the masculine gender, in an effort to elucidate possible reasons for the high rates of use and related problems in men.

II. Theoretical Background

The decision to consume alcohol, how much, and in what manner is influenced by a number of interwoven factors. The motivational model of alcohol use posits that individuals consume alcohol in order to achieve certain outcomes (Cox & Klinger, 1988) based on beliefs about the effects of drinking alcohol, or alcohol expectancies, and that use patterns reflect these goals (Fromme and D'Amico, 2000). Individuals are motivated to drink based on the expected and desired outcomes associated with consumption.

Research suggests that the different factors motivating use influence the pattern of use behavior observed and that understanding these motives may offer explanatory information about when and how much someone may drink (Blalock & Joiner, 2000; Cutter & O'Farrell, 1984; Cooper, 1988; Sheehan, Lau-Barraco, & Linden, 2013). Based on the motivational model, Cooper proposed a four-factor model of drinking motives that includes four drinking motives based on the type of reinforcement desired (positive or negative) and the source of reinforcement (external or internal). Much research has examined the ways these particular motives influence use, but the motive examined in this particular study is not one included in Cooper's model. The motive of masculinity confirmation, or confirmatory motives, may be conceptualized similarly to those in Cooper's model, as one offering positive reinforcement from an external source. This positive reinforcement is based on the interaction of the gender norms of alcohol use and expectations for use whereby individuals consume alcohol to confirm masculine status; a more specific construct than Cooper's conformity motives relating to an effort to be like other members of any group. Conformity motives are efforts to conform to in-group behavior currently being modeled while confirmatory motives are efforts to confirm status by specifically enacting relevant gender normed behaviors. This confirmatory motive was suggested by Williams and

Ricciardelli (1999) after examining use behaviors in college aged men and women ($N = 422$). They found that men the researchers believed would be motivated to confirm masculinity in order to compensate for reportedly lower masculine characteristics reported higher levels of alcohol consumption in general practice. While this study did not directly examine this motive or its impact on use, it served as a helpful theoretical introduction to the idea that individuals may use drinking instrumentally to assert masculinity in response to some perceived deficit.

Important to this consideration is the social nature of this motive; its benefit is encountered only when completing the behavior around others that also hold the view that the behavior might serve to assert masculinity. This common script for behavior can be discovered in gender norms. Research suggests that gender norms, the cultural rules and standards that guide and constrain masculine and feminine behavior (Mahalik, Locke, Ludlow, Diemer, Scott, & Gottfried, 2003), may influence the relative importance of expected outcomes resulting in differing consumption patterns across gender (Cooper, 1994; Lengua & Stormshank, 2000; Ptacek, Smith, & Dodge, 1994; Peralta, Steele, Nofziger & Rickles, 2010; Uy, Massoth, & Gottdiener, 2014; Williams & Ricciardelli, 1999). In order to more fully understand the disparity in rates of problematic drinking between men and women, or what might influence hazardous drinking for men over women, the influence of gender norms on motivation for use and related outcomes becomes a central explanatory tenet.

Social identity theory (SIT; Tajfel & Turner, 1986, 2004) suggests that social identities, the part of a person's self-concept derived from membership in social groups, are reconstructed within each new social context guided by social norms comparison of the self with others (Brewer & Kramer, 1985; Turner, Oakes, Haslam, & McGarty, 1994). As a means of enhancing the self, individuals are motivated to create distinct in-groups by placing high value on

prototypical in-group members, aligning themselves with desired in-groups by enacting typical group behaviors, and devaluing members of the in-group who do not behave in ways consistent with group expectations (Brewer & Kramer, 1985; Doosje & Ellemers, 1997; Schmitt & Branscombe, 2001). Alcohol use is one of many behaviors influenced by these group identity processes (Johnston & White, 2003; Rinker & Neighbors, 2014).

Gender offers a unique social group for consideration as this categorization is one of the most inescapable and salient social categorizations (Williams, 1984, Gelade, Dobson, & Auer, 2008; Goffman, 1977; Merkin & Ramadan, 2010; Stockard & Johnson, 1979) and reflects an institutionalized power structure where masculinity or manhood is considered superior to other groups (Gelade, Dobson, & Auer, 2008; Merkin & Ramadan, 2010). Precarious manhood (Vandello, Bosson, Cohen, Burnaford, & Weaver 2008), an extension of social identity theory as it relates to masculinity, suggests that manhood is a tenuous group status that, in comparison to womanhood, is viewed as an achieved status rather than a biological event. Research on this theory demonstrates that while womanhood is fairly stable and demonstrated equally by both physical and social maturation, manhood is viewed as an elusive social achievement that must be earned by repeatedly enacting prototypical behaviors independent of biological maturation, is not guaranteed (Weaver, Vandello, Bosson, & Burnaford, 2010; Vandello, et al., 2008), and can be lost or taken away even after achievement (Vandello, et al., 2008). Men seem to be highly attuned and sensitive to this requirement to publicly display prototypical behavior for status conservation (Vandello & Bosson, 2013). As individuals are motivated to enact prototypical behavior in order to confirm group status and manhood is a culturally revered status, it stands to reason that events threatening masculine status cause distress for men, and more so than for women (Caswell, Bosson, Vandello, & Sellers, 2014; Vandello, et al., 2008). Flowing from this,

it can be expected that individuals are motivated to remedy in-group threat through the public display of ‘manly’ behavior.

A. Defining Masculinity

Although prototypical masculinity, or the characteristics of a ‘real man’ are difficult to define precisely as they shift across culture and era, some tenets, like alcohol use behaviors and risk taking, are reliable in Western and North American cultures (e.g., Ames & Rebhun, 1996; Bloomfield, Gmel, & Wilsnack, 2006; Levant et. al., 1992). The precarious nature of manhood seems to be present across many cultures including the U.S. (Cohen, Nisbett, Bowdle, & Schwarz, 1996; Gilmore, 1990; Vandello, Cohen, & Ransom, 2008; Vandello, et al., 2008; Vandello, Cohen, Granson, & Franiuk, 2009), but specific masculine norms for alcohol use vary significantly across culture (Mahalik, Lagan, & Morrison, 2006; Tager & Good, 2005; Vogel, Heimerdinger-Edwards, Hammer, & Hubbard, 2011). As such, this particular study is focused on western cultures and related norms. Gender, in any culture, is a multi-faceted concept, defined by certain personality traits, norms for behavior, attitudes, and actions related to those norms. Research suggests that, in the U.S., traditional femininity is characterized by lower levels of alcohol use and problems (Horwitz & White, 1987; Koch-Hattem & Denman, 1987; Snell, Belk, & Hawkins, 1987; Zeldow, Clark, & Daugherty, 1985) and that, although certain positive traits associated with masculinity may protect against problems related to use, when considered more broadly, masculinity is related to drinking to intoxication, more heavy drinking episodes, and a higher likelihood of experiencing problems related to use more so than femininity (e.g., Chomak & Collins, 1987; Horwitz & White, 1987; Huselid & Cooper, 1992; Koch-Hattem & Denman, 1987; Peralta, Steele, Nofziger & Rickles, 2010; Schulte, Ramo & Brown, 2009; Snell, Belk, & Hawkins, 1987).

In addition to the higher rates of use and problems experienced by men, research suggests that alcohol use is actually a normed and integral facet of the western masculine identity (de Visser & McDonnell, 2012; de Visser & Smith, 2007; Isenhardt, 2005; Lemle & Mishkind, 1989; Montemurro & McClure, 2005; Peralta, 2007; Young, Morales, McCabe, Boyd, & D'Arcy, 2005; Zimmermann, Sieverding, & Müller, 2011). There exists an expectation that beer drinking and getting drunk are aspects of masculinity (Landrine, Bardwell, & Dean, 1988) and that one important function of public drinking is to assert masculinity (Peralta, 2007). In fact, individuals wishing to appear masculine both monitor consumption rates of others and match or competitively exceed the drinking display of these others in order to assert their own masculinity and test this aspect of masculinity in others (de Visser & McDonnell, 2012; de Visser & Smith, 2007; Young et al., 2005). As behaviors can be used strategically in the achievement of manhood, individuals may use alcohol in order to assert their masculine identities, especially when such identities are challenged or questioned (de Visser & Smith, 2007; Messerschmidt, 2000; Willott & Griffin, 2004).

Although gender theorists conceptualize masculinity and femininity as two separate dimensions (e.g., Bem, 1974; Constantinople, 1973; Spence, Helmreich, & Strapp, 1975), lay conceptions of gender equate the presence of masculinity with the absence of femininity, each acting as a dichotomous foil to the other (Bem, 1993; Bosson & Michniewicz, 2013). In fact, research suggests that between the ages of 5 and 20 years, people show an increasing tendency to perceive targets who are high in masculine attributes as low in feminine ones and vice versa as reflecting this cultural construction (Biernat, 1991). Hegemonic masculinity, or the antifemininity mandate, constructs masculinity within a system of binary opposition to alternatives, such that anything other than masculine behaviors are feminine and, thus,

undesirable (de Visser & Smith, 2007). As individuals seek to differentiate their group from others and establish themselves as 'real men,' avoidance and derogation of femininity is adopted as a core component of manhood. As SIT would predict, increased derogation of out-groups and related behaviors, in this case femininity, serves to enhance the superiority of the group and its members. Further, in-group members who behave femininely are harshly punished or criticized for their behavior in an effort to establish group definitions and distinction (Schmitt & Branscombe, 2001). This creates a system in which failing to perform a certain masculine behavior, or performing non-masculine or specifically feminine behavior, is meaningful by suggesting a lack of masculinity. In this way, femininity and related behaviors, such as abstinence or minimal consumption of alcohol (Heath, 2000; Sheehan & Ridge, 2001) are to be avoided and/or discouraged as they are opposite of masculine behaviors (O'Neil, 1981). This relationship between femininity and hegemonic masculinity further encourages the consumption of alcohol use not only to increase displays of masculinity. A further implication of this is that indications of femininity can serve to challenge a man's gender status (e.g., Bosson, Prewitt-Freilino, & Taylor, 2005; Bosson, Vandello, Burnaford, Weaver, & Wasti, 2009; Weaver, Vandello, & Bosson, 2013; Vandello et al., 2008). This study took advantage of this configuration by announcing that participants are displaying non-masculine or feminine traits in order to threaten masculine gender status.

Besides certain behaviors, specifically alcohol use, and the rejection of femininity, embracing risk characterizes masculinity (Baker & Maner, 2009; Wilson & Daly, 1985). If, at its core, masculinity is a tenuous state that is easily lost, the associated efforts to prove status are themselves defining characteristics. Consistent with Game Theory, the most effective behavioral markers for demonstrating masculine in-group status are public, difficult to fake, and risky or

even costly to the actor. Behaviors chosen to prove status are public and risky. However, a discussion of risky behaviors, in this case, is not straight forward as ‘risky’ may describe behaviors that threaten physical and mental well-being (e.g., aggression, extreme sports, excessive alcohol consumption) but also behaviors that can threaten social standing. When considering the relative impact of risk in predicting and defining masculine behaviors, risk to physical or health status, and conjunctive bravery and toughness are considered desirable masculine behaviors while those that may threaten social status, like behaving in a gender atypical way, are avoided and non-masculine.

When an individual is motivated to confirm their manhood, there are many risky and unfeminine behaviors defined as masculine that one might choose to perform in order to bolster status and highlight group differences. Across a bevy of empirical studies examining responses to gender identity threats in male college students, results suggest that men who experienced a threat to masculinity demonstrated prototypical masculine behaviors including risk-taking (Weaver, Vandello, & Bosson, 2013), enduring physical pain to prove physical toughness, engaging in aggressive behaviors (Bosson, & Vandello, 2011; Bosson, Vandello, Burnaford, Weaver, & Wasti, 2009; Weaver, Vandello, Bosson & Burnaford, 2010), and demonstrating sexual prowess (Maass, Cadinu, Guarnieri, & Grasselli, 2003) in an effort to restore or preserve masculine status. For example, Bosson and colleagues (2009) present a series of three studies examining these constructs. In the first two studies, threats to participants’ masculinity resulted in greater degrees of aggressive behavior displays. In the first study ($N = 32$) those faced with gender threatening feedback attempted to hit a punching bag with more force than those in a non-threatened group, while those threatened in the second study ($N=45$) were significantly more likely to choose the aggressive punching task option over other tasks. These researchers suggest

that these two studies demonstrated a heightened readiness for physical aggression, a normative masculine behavior, in men following a threat to manhood. Across normative masculine behaviors, these laboratory studies have demonstrated similar results; that men experiencing gender threat enact prototypically masculine behavior in order to restore masculine status. Interestingly, although research suggests that alcohol use is a risky and highly masculine typed behavior, the investigation of this application of theory has yet to be undertaken. This is surprising considering the negative consequences associated with alcohol use and misuse for men, on top of the central role of alcohol use in the contemporary definition of masculinity. This study aims to undertake this investigation and fill this gap.

As manhood is viewed as elusive and tenuous and individuals are motivated to prove membership in this powerful in-group it is likely that challenges to manhood provoke demonstrations of their masculinity (Vandello et. al., 2008). The unique alcohol use patterns and related problems experienced by men, compared with woman, may be motivated by the tenuous nature of manhood and reflect efforts to earn and confirm masculine status through alcohol use as it is a publicly verifiable, prototypically masculine, non-feminine, and risky behavior. Although these theories offer a solid base for examining alcohol use in men as a homogenous group, individual differences in the degree to which men are motivated by these constructs may have an impact on behavioral outcomes. The strength with which an individual identifies with the masculine in-group as well as the attitudes an individual holds about traditional manhood and related norms may influence a man's choice to use alcohol as a tool for confirmation of manhood.

Schmitt and Branscombe (2001) suggest that individuals who are highly identified with a group, or those viewing manhood and related group membership as important to their self-

esteem and self-concept, are more highly motivated to align themselves with the in-group when status is threatened. As the strength of an individuals' identification with the masculine in-group determines the degree to which a threat to membership is psychologically affecting and socially consequential, it is likely that individuals who are highly identified respond more robustly to threat with efforts to correct perceived gender ambiguity (Branscombe, Wann, Noel, and Coleman, 1993; for a review, see Ellemers, Spears, & Doosje, 1999). In addition, research suggests that gender related attitudes, or beliefs about appropriate gender specific behavior and the importance of abiding by these gendered norms, are a source of individual difference in drinking rates across men. Research suggests that conformity to perceived group norms interacts with group identity to influence alcohol use behavior (Johnston & White, 2003; Rinker & Neighbors, 2014) and that holding strong traditional role attitudes, reflecting the belief that individuals should adhere to a strict guide for conventional masculine behavior, is associated with increased alcohol use (McCreary, Newcomb, & Sadava, 1999). The relation of adherence to traditional gender norms and increased alcohol use behavior is consistent with the theory of SIT that in-group members judge themselves and other in-group members most harshly when considering the fulfillment of prototypical behavior. Compatible with the theory of precarious manhood, this suggests that men who feel that masculinity is important to their self-concept judge themselves more harshly if they fail to adhere to masculine norms than those men who do not strongly identify and are more highly motivated to enact normed behavior to enhance status following a gender threat.

B. Alternative Explanations

Considered together, these theories and preceding research suggests that the high rates of alcohol use and related problems experienced by men may be, in part, a reflection of efforts to

prove manhood. Further, it seems that the relative strength of the behavior may be moderated by the strength of identification with the masculine in-group and attitudes about the importance of upholding traditional gender roles. However, there is an alternative hypothesis. In the third study ($N = 60$) of the series by Bosson and colleagues (2009) mentioned earlier, threatened participants reported being relieved of unwanted anxious affect brought on by threat after completing a prototypically masculine task. Not only does the masculine behavior serve to externally confirm status, it may also act through negative reinforcement to reduce anxiety associated with losing status. It is possible that alcohol use behaviors enacted after experiencing a gender threat are efforts to reduce negative affect induced by the threat and are not motivated by the desire to confirm masculine status. This hypothesis is particularly important when considering alcohol use over other masculine behaviors as alcohol use is often used specifically for affect regulation.

The self-medication hypothesis suggests that individuals use substances in an effort to alleviate negative affect (Khantzian, 1985; 1997) and additional research suggests that masculinity is associated with self-reported use of substance-based coping strategies more often than the feminine orientation (Hobfoll, Dunahoo, Ben-Porath, & Monnier, 1994; Lengua & Stormshank, 2000; Ptacek, Smith, & Dodge, 1994). It may be that the attractiveness of alcohol use goes beyond its value as a desired in-group behavior useful for status confirmation, but is particularly attractive as it allows a masculine individual to avoid negative affective experiences and confirm status at the same time. As research by Michniewicz, Vandello, and Bosson (2014) demonstrates, for men, but not for women, the degree to which a situation is viewed as gender threatening predicted current feelings of depression, anxiety, and lowered self-esteem, it seems logical that these threatened individuals might use alcohol to reduce or nullify these negative emotions. As drinking for coping reasons is highly predictive of a trajectory ending in alcohol

dependence (Brennan & Moos 1996; Cooper, Russell, & George, 1988; Timko, Finney, & Moos, 2005), this alternative explanation may go far in explaining the relation of masculinity and problematic alcohol use.

While laboratory based studies, to this point, have offered evidence to support the hypothesis that the precarious nature of manhood encourages men to enact certain masculine behaviors to prove manhood (Bosson & Vandello, 2011; Bosson, Vandello, Burnaford, Weaver & Wasti, 2009; Michniewicz, Vandello & Bosson, 2014; Vandello et al., 2008; Vandello & Bosson, 2013; Weaver, Vandello, & Bosson, 2013; Weaver, Vandello, Bosson & Burnaford, 2010) these studies have failed to examine alcohol use, a particularly harmful and risky behavior, as well as the specificity of this behavior to gender threat rather than negative affect alone. These studies have demonstrated that men who perceive a threat to their masculine status are more likely than men who do not experience threat to enact stereotypically masculine behaviors and suggest that this behavior is enacted in an effort to prove manhood and that anxiety is reduced after performing these behaviors, but do not examine the relative contribution of effort to cope with negative affect. It is unclear whether men are motivated to enact gender consistent behaviors as a way to confirm manhood and reduce related anxiety, or if they are simply enacting these behaviors in an effort to cope with negative emotions.

Researchers have, however, examined this link indirectly. The threat-related anxiety and emotions that seem to drive confirmatory behavior may best be conceptualized as Gender Role Conflict (GRC; O'Neil, 1981), a psychological state in which socialized gender roles are employed in such a way that they have negative consequences on the individual or others. This tenet suggests that individuals employ gender norms, even when unhelpful, in efforts to reduce anxiety related to gender threat. GRC is multidimensional and highly individualized as each

person may experience gender and related conflict in idiosyncratic ways that may be experienced as a deviation from or violation of gender role norms (Pleck, 1981) or trying and failing to meet gender role standards (Garnets & Pleck, 1979) among other possible iterations. When an individual feels that they have deviated from a masculine gender norm or failed to meet the standards of manhood, the resulting threat to status and related stress, or conflict, may, theoretically, encourage men to right the incongruity through the display of masculine behaviors. Although increased GRC is strongly linked to alcohol use and related problems in men, Bosson and colleagues have repeatedly found no relation of GRC to precarious manhood (Vandello & Bosson, 2013). As GRC is measured as stress, anxiety, or negative affect related to a threat, the lack of findings suggest that, during the moment of behavioral engagement, associated negative affect is not the most relevant predictor of behavior. This is consistent with the idea that men are motivated by efforts to confirm masculine status more so than soothe negative affective experiences when faced with gender threat.

III. Current Study

The current study aimed to explore group and individual factors that influence alcohol use in men by inducing gender threat in a bar laboratory setting. It is hoped that this study can fill gaps about the role of masculine norms in alcohol use motivations while also answering a call in the literature, communicated in a review of methodological trends in research on the psychology of men by Whorley and Addis (2006), for additional studies about masculinity including laboratory manipulation of an independent variable. It was expected that men who are given feedback that they have a low concentration of masculine traits and a high concentration of feminine traits (gender threat condition) would drink more beer during a taste testing paradigm than participants who receive feedback suggesting high masculine traits (control condition),

supporting the theory proposed that tenuous group membership motivates alcohol use as it is a prototypically masculine behavior used to confirm gender status. In short, it was expected that [H₁] those in the threat condition would consume significantly more alcohol than those in the control condition during the taste test.

To examine an alternative explanation, that the desire to reduce negative affect experienced after receiving undesirable personal feedback might account for increased drinking behavior, half of the participants given the masculinity threatening feedback were also presented with information designed to undermine the norm of masculine alcohol use. These participants, in the undermine condition, were exposed to information presented verbally and visually suggesting a lack of association between masculinity and alcohol consumption thereby undermining implicit assumptions that using alcohol would help them reassert or confirm masculine prototypicality. By subverting masculine alcohol use norms, negative affect reduction is left as the main motive for use by these participants. Thus, acknowledging that there is likely some effect of this negative affect reduction motive, [H₂] we expected that individuals in the undermine condition would consume more beer than those in the control condition, but that they would consume significantly less beer than those in the threat condition.

In regard to individual variables that might impact this relationship, it was expected that the strength of a participant's identification with the masculine in-group as well as their attitudes about traditional gender roles would moderate the effect of feedback condition on alcohol use behaviors in the laboratory such that [H₃] higher identification and [H₄] higher endorsement of traditional attitudes would be related to increased alcohol consumption in the gender threat condition, but not related to drinking behavior in the other feedback conditions.

IV. Method

A. Participants

Participants were 72 male students over the age of 21 recruited from the psychology subject pool ($n = 43$) as well as from the larger student population enrolled at a mid-southern University ($n = 29$). Seven of these cases were not used in analyses for varying reasons including failure to complete needed measures, or indicating that their drinking choices were impacted by impending responsibilities despite instructions to schedule the session on a day and time in which drinking would not interfere with commitments (e.g., going to work directly following participation). Data from 65 male participants (ages 21-29; 76% Caucasian) were included in the study.

Students were recruited with the help of flyers placed around campus as well as advertisements published in a daily email news flyer disseminated by the University, and played on the campus radio station. Students in the general psychology subject pool were further recruited through a notice, posted on a university website through which they completed research for course credit, about the availability of participation for credit. Additionally, those general psychology students deemed eligible based on age and gender were contacted via email with the opportunity to participate. Interested individuals were invited to contact the Principal Investigator for information about a study on personality and perception. Male respondents were selected for participation on the basis of a semi-structured phone interview and were considered eligible only if they 1) were over 21 years of age, 2) were not trying to abstain from alcohol consumption, 3) did not endorse any medical condition, including alcohol use disorder and allergies or adverse reactions to any type of alcoholic beverage, or regular ingestion of medications that were contraindicated for use with alcohol, and 4) had experience drinking at

least two alcoholic drinks in one sitting in the 30 days prior to participation without adverse effect. Eligible participants were advised that participation would include consumption of alcoholic beverages during the study. Participants who met eligibility criteria were then scheduled for an in-person session in the laboratory.

B. Measures

Participants completed an online questionnaire packet that included demographic information, a measure of strength of identification with the male role, attitudes about gender roles, and alcohol use behavior including frequency and quantity of consumption.

Demographic variables. Participants were asked to report gender, age, ethnicity, marital status, class standing, sexual orientation, and current living arrangements.

Identity Strength. The Multicomponent In-Group Identification Measure (Leach et. al., 2008) was used to assess the strength of identification of participants with the masculine in-group, or the relative importance of culturally defined manhood to their self-concept. This 20-item self-report scale measures identification with a specified in-group using items presented on a Likert-type response scale that ranges from 1 (*strongly disagree*) to 7 (*strongly agree*) with higher scores representing increased identity strength. These items were summed and this total used to indicate strength of identification in analyses (example items: *Being a man gives me a good feeling, I feel committed to acting like a man, Men are very similar to each other*). This measure has shown adequate reliability and validity in adult samples (Leach et al., 2008; present sample $\alpha = .91$).

Gender Attitudes. The Conformity to Masculine Norms Inventory – 55, a psychometrically validated (Owen, 2011) short form of the original Conformity to Masculine Norms Inventory (CMNI; Mahalik, Locke, et al., 2003), was used to assess attitudes about

gender roles and behavioral conformity to related norms. Fifty-five self-report items are rated on a four-point Likert-type scale ranging from 0 (*strongly disagree*) to 3 (*strongly agree*), with higher scores reflecting more conformity to male norms and traditional attitudes about gender roles. These items were summed and this total used to indicate magnitude of endorsement of traditional gender behaviors (example items: *I tend to keep my feelings to myself* *Asking for help is a sign of failure*, *I treat women as equals*, *reverse coded*). This measure has shown adequate reliability and validity in adult samples (Owen, 2011; present sample $\alpha = .77$).

Hazardous Alcohol Use. In order to measure general drinking habits and describe the sample this study used the Alcohol Use Disorders Identification Test (AUDIT; Babor, Higgins-Biddle, Saunders, & Monteiro, 2001; Saunders, Aasland, Babor, de la Fuente, & Grant) and one additional item assessing frequency of beer drinking, specifically.

Alcohol Use Disorders Identification Test: The AUDIT is a 10-item measure, developed by the World Health Organization (WHO) to aid in screening for excessive drinking. This measure assesses both quantity and frequency of use as well as binge drinking, symptoms associated with alcohol dependence, and problems related to use. Items were summed, with higher scores indicating increased levels of hazardous use. Research suggests that this measure is adequately reliable (Allen, Litten, Fertig, & Babor, 1997: present sample $\alpha = .73$) and a valid measure of risk across gender and age (Reinert & Allen, 2007; de Meneses-Gaya, Zuardi, Loureiro, & Crippa, 2009).

Beer Consumption: To assess regularity with which participants consumed beer, participants were asked one a multiple choice question assessing how often they consume beer. (Never, Monthly or less, 2-4 times per month, 2- 3 times a week, and 4 or more times per week)

This item was worded similarly to items in the AUDIT. Higher ratings indicated higher rates of beer consumption.

Manipulation Checks. To ensure the viability of the assumptions of the study, the manipulations were checked at multiple points to assess reaction to feedback, believability of feedback, believability of the study components, and to assess motives for use during the study.

Reaction to Feedback. This study used a measure developed by Schmitt and Branscombe (2001) to assess participants' reactions to getting false feedback. This questionnaire asks the participant to rate, on a 7-point Likert-type scale ranging from 1 (*negative reaction*) and 7 (*positive reaction*), items about how the feedback made the participant feel (*I feel good about myself after seeing my results from pretesting*, reverse coded). Responses were summed with higher totals reflecting more intense negative reactions to the feedback (present sample $\alpha = .74$).

Believability of study components. Just prior to debriefing, participants were asked to reflect on certain elements of the study. To assess the perceived validity of the feedback participants were asked, in an open-ended format, how much they trusted the feedback source and how much the feedback seemed true for them. Additionally, as this study disguises the true aims, participants were asked to explain what they believed the study was investigating and asked to rate a paragraph describing the communicated fallacious aims of the study as describing the actual study "as they saw it" on a 5 point Likert-type scale ($0 = \textit{This paragraph does not at all describe this study}$, $4 = \textit{This paragraph describes the study perfectly}$). Answers to open-ended questions consistent with the communicated aims and ratings of three or four on the paragraph description suggest that the study set up was believable. Specifically, qualitative information was analyzed based on techniques suggested by Saldana (2009), identifying thematic groupings for analysis.

Motives for Drinking. Just prior to debriefing, participants were asked to reflect on the reasons they consumed the amount they did during the study. Participants were asked to summarize the reasons they drank the amount of alcohol they did during the study and also whether or not they were aware of masculine alcohol norms and if they motivated their drinking behavior. Further, to understand how explicit, or implicit, this motive might be, participants were directly asked if they believed alcohol and beer consumption were indicative of masculinity and whether or not they felt that the feedback influenced their behavior.

Dependent Variables. It was expected that the amount of beer consumed by the participant as well as the number of drinks a participant took would be impacted by listed independent variables and, as such, each were measured and used as dependent variables in analyses.

Amount of Beer Consumed. Volume of the liquid offered to the participant was measured, in milliliters, before the participant was served. Once the participant completed the taste-testing portion of the study, the volume of the remaining liquid was measured again. The difference between the two measures was considered the amount of beer consumed with lower remaining volumes reflecting increased consumption.

Ratio of Consumption. As the participant consumed beer for the taste-test task, the bartender nonchalantly recorded the number of drinks the participant took. Each sip received one point, with higher points reflecting more drinks taken during the task. This information was combined with information about the amount in beer consumed in a ratio. The total amount of beer consumed was divided by the number of sips taken to give a number characteristic of drinking behavior. Higher ratios reflected drinking behavior that was more aggressive (e.g., chugging) where smaller ratios reflected less active drinking behavior.

C. Procedure

After arriving at the lab, participants met the female experimenter and completed a pre-experiment interview in order to ensure eligibility. During this interview they were asked to provide a valid driver's license or picture ID for confirmation of age and identity, then submit to an assessment of current breath alcohol concentration (BAC) with an Intoximeter Alco-Sensor FST Breathalyzer to ensure sobriety. Following this, participants were given brief verbal instructions about the study, then read and signed a consent form. Participants were told that the study was designed to explore the ways personality traits impact perception and attractiveness of consumer products to include survey measures related to personality and two activities assessing product perception; one in which the participants were asked to consume and rate alcoholic beverages and another in which they were asked to examine, test, and rate tools used in carpentry. The participants were asked to complete a series of online questionnaires administered via Qualtrics including those listed above as well as a filler questionnaire used by Bosson and colleagues that appears to assess stereotypical gender related knowledge. This questionnaire was meant to increase believability in the feedback by providing an obvious source of the gender scores, but was not used in any analyses. Before completing the questionnaires, participants were informed that they would receive feedback about their personality based on the answers they gave and were asked to record their results on a worksheet provided so they could be discussed with the researcher. The participants received randomized fabricated personality feedback, based on that used by Bosson and colleagues (e.g., Bosson & Vandello, 2011; Vandello, Bosson, Cohen, Burnaford, & Weaver, 2008; Weaver, Vandello, & Bosson, 2013) and included in the appendix of measures, suggesting that the participant's scores reflect personality traits that were consistent with prototypical masculinity (control condition) or indicative of lower masculinity

and higher femininity than the rest of the male student population (threat and undermine conditions). After completing the questionnaire packet and recording their results, participants were escorted into the bar lab space. This laboratory space was constructed and decorated in such a way as to simulate a natural bar setting, rather than a more sterile laboratory environment, so that participants feel comfortable drinking alcohol in a way consistent with their usual habits. Upon arrival in the bar lab, the participants were introduced to the male experimenter (heretofore referred to as the “bartender”) and told that the perception tests would be videotaped for later review and coding by additional researchers before discussing their personality results, aloud, with the experimenter. The participants were told they were being videotaped for review by others and asked to discuss their feedback in front of the bartender in order to simulate a public domain (Bosson & Vandello, 2013) in which the participants would likely feel more motivated to confirm masculinity to this public. The experimenter explained the personality results and answered any questions the participant had before excusing herself from the room to, ostensibly, gather supplies for the next activity. The sex of the experimenter and bartender was kept constant.

While the experimenter was out of the bar lab area, the bartender issued the next manipulation by delivering scripted information based on previous randomization. Individuals in the control condition had just received feedback that their personality was consistent with prototypical masculinity and then engaged in a conversation about research and academics. Those in the threat condition received feedback designed to threaten masculine status stating their personality results suggested lower masculinity and higher femininity than typical students then engaged in a conversation about research and academics. Those in the undermine condition were threatened in the same way as the participants in the threat condition, by being given

feedback that they were low in masculinity and high in femininity, but were then engaged in a scripted conversation about the lack of relation of alcohol use and masculinity in order to undermine the masculine alcohol use norm as well as the idea that they could obviate the threat by confirming masculinity through alcohol use. The bartender told the participants in the undermine condition that recent research suggests high levels of alcohol use were not typical of men, over women, in the college and general population overall.

After a delay to allow for a brief conversation, the experimenter returned with needed materials and instructed the participant to complete the manipulation check questionnaire assessing their reaction to receiving feedback about their personality results, then left and allowed the bartender to deliver instructions about the taste test. The bartender explained to the participant that he would have twenty minutes to complete the tasting of three different beers and complete an accompanying questionnaire about their perceptions and impressions about the beer. They were additionally informed that they were allowed one refill of each type of beer during the task.

The three 350ml beverages consisted of: a “light” domestic beer, a non-alcoholic beer, and a 50/50 mixture of “light” domestic and non-alcoholic beer. This mixture was chosen based on pilot testing in order to minimize peak BAC and minimize aversive taste. Beer was chosen as the alcoholic beverage to be served as drinking beer, over most other alcoholic beverages, is seen as a masculine activity (de Visser & Smith, 2007) and could be administered in a low ethanol content form. While the participant completed the taste test task, the bartender inconspicuously tracked the number of sips the participant took during the task. The amount (ml) of beer consumed by the participant was measured and compared to starting totals after the participant completed the task and exited the room.

After the participant indicated task completion, the experimenter took the participant to a private waiting area for debriefing. Participants were first informed that they would not be able to complete the carpentry related perception test as planned. They were asked to submit to a BAC assessment and complete a verbally administered post-study questionnaire regarding the believability of feedback. These questions and related follow-up questions served as a second manipulation check. Participants with BAC readings under .04 mg/L were then fully debriefed, particularly about the fallacious feedback and deception, and given compensation. Only one participant ever registered above .04 mg/L and was asked to remain in the lab until he fell below .04 mg/L for two consecutive BAC readings administered ten minutes apart before completing debriefing. Debriefing included an explanation of the goals of the study and all deceptive tactics employed as well as contact information of the experimenter and mental health resources in the community. Participants were able to choose to be compensated with class credit or cash.

D. Data Analytic Plan

All data analyses were performed in SPSS 21.0. Descriptive statistics for all key variables were examined and relevant assumptions were tested. Analyses of Variance (ANOVAs) examining demographic variables, habitual drinking behaviors, and proposed moderators across conditions were examined to ensure effectiveness of randomization. Seven participants were removed from data analyses after providing inadequate data (i.e., failing to complete an entire measure to be used in analyses) or reporting that circumstances outside of the study (e.g., going to work directly after participation even though they were advised against this) significantly impacted their drinking behavior. Outliers were identified and Winsorized (Dixon & Tukey, 1968; McLaughlin & Tukey, 1963; Wilcox, 2012) Further, scatter plots and correlations were examined to assess linearity and multicollinearity and Levene's test was used to ensure

homogeneity of variance. The effectiveness of the threat manipulation was checked using ANOVA, entering condition as the fixed factor and means from the 'reaction to feedback measure' as the dependent variable to examine predicted differences in reported emotional affect following issuance of feedback across threat, undermine, and control conditions.

The anticipated main effect of feedback, that participants receiving gender status threat would enact greater degrees of drinking behavior (as measured by ml consumed and ratio of consumption) compared to control (H_1) and undermine (H_2) condition was examined in two two-way between subjects balanced Analyses of Variance (ANOVAs), with condition (threat vs. undermine vs. control) as the independent variable and ml of alcohol consumed or ratio of consumption as the dependent variables.

Following this, a series of linear mixed effects models were used to test the hypotheses that strength of identification with masculinity and traditional attitudes about gender roles would moderate the association between condition (threat, undermine, and control) and the alcohol consumption dependent variables (total alcohol consumed and ratio of consumption). Two ANCOVAs were completed with the model adapted for a continuous moderator variable. In these models, identification strength or traditional attitudes respectively, condition, and interaction terms (identification strength x condition; traditional attitudes x condition) on the alcohol consumption dependent variable were included as fixed effects.

V. Results

A. Preliminary Analyses

Analyses revealed that all relevant assumptions were met. All variables were normally distributed with no significant skew or kurtosis (Bulmer, 1979), obviating the need for transformation of variables. Chi-square tests examining categorical demographic variables across

group suggest a lack of statistical significance across condition for all variables. Please see Table 1 for these results. Analyses of Variance examining habitual drinking behaviors (AUDIT, $F(2,62) = .183, p = .833$; Frequency of Beer Consumption, $F(2,62) = .159, p = .854$), and proposed moderators (Identity Strength, $F(2,62) = .227, p = .798$; Traditional Attitudes, $F(2,62) = 1.21, p = .867$) reveal no significant differences across condition (threat vs. undermine vs. control) and suggest effectiveness of random assignment excluding the need to include these variables as covariates in further analyses. Means reported on the AUDIT ($M = 7.45 - 8.8$) and CMNI ($M = 76.45$) were consistent with those reported by normed college male samples (Kokotailo, Egan, Gangon, Brown, Mundt, & Fleming, 2004; Babor, Higgins-Biddle, Saunders, & Montiero, 2001; DeMartini & Carey, 2012; Owen, 2011; Reinert & Allen, 2007) while identification with the male role for these participants was slightly higher than that reported for identification of people with similar in-groups ($M = 47-51$; Leach, Mosquera, Vliek, & Hirt, 2010; Leach, et al., 2008). Please see Table 2 for these results along with relevant means and standard deviations. Two outliers were found in the amount of beer consumed, and values were Winsorized. Scatter plots and correlations suggest linearity and an absence of multicollinearity (Pearson correlations $<.7$; VIF <10.00 ; Tabachnick & Fidell, 2013). Correlations are presented in Table 3. Homogeneity of Variance was confirmed using Levene's test of homogeneity for each outcome measure (Total Beer Consumed, $p = .325$, Ratio of Consumption, $p = .190$).

Components of the protocol and manipulation were examined thoroughly; please see Table 4 for results. Examination of the effect of manipulation, using ANOVA, suggests a significant omnibus effect of threat feedback on affect ($F[2,62] = 4.32, p = .018$, Cohen's $d = -1.66$). Post-hoc examination, using a Tukey's HSD correction, suggests that individuals in the threat condition, $M = 33.41, SD = 4.26, p = .031$) and undermine condition ($M = 33.52, SD =$

5.96, $p = .041$) experienced significantly more negative affect than those in the control condition ($M = 37.31$, $SD = 4.67$) after receiving the feedback suggesting the manipulation was successfully threatening. Post-feedback affect did not differ across the threat and undermine groups ($p = .997$). A majority of the participants reported that the feedback seemed to be real, from a “reliable source” ($n = 59$, 91%), and valid ($n = 53$, 82%: 63% valid outright, 19% valid, although were surprised). Belief that the feedback was real did not differ significantly across threat, undermine, and control conditions ($\chi^2(6) = 7.17$, $p = .303$) although belief in the validity of the feedback did differ significantly across condition (threat vs. undermine vs. control; $\chi^2(6) = 15.20$, $p = .004$). Those in the threat ($n = 11$, 50%), and undermine ($n = 8$, 38%) conditions accepted that the feedback was true less often than those in the control condition ($n = 21$, 95%). To ensure that participants understood exactly what the feedback indicated they were asked to record the results on a worksheet and then the experimenter explained the results. Participants were given the opportunity to ask any questions about the feedback and the taste test did not begin until the participant indicated that they understood the feedback. However, during debriefing, one participant (undermine condition) reported that he did not fully understand the feedback and related implications before the task.

Participants largely found the alleged purpose and scope of the study believable; 80% of participants rated the paragraph outlining the fallacious purpose and scope as describing the study “well” or “perfectly.” These ratings did not differ significantly across condition (threat vs. undermine vs. control; $\chi^2(10) = 7.08$, $p = .718$). When asked about the purpose of the study, most participants, without significant differences across conditions ($\chi^2(14) = 11.81$, $p = .499$), were unable to identify the true aims of the study. Many identified gender as a variable of examination ($n = 34$, 57%), but rarely did anyone connect gender to alcohol use ($n = 3$, 5%). Only a single

participant (undermine condition) identified drinking behavior during the taste test task as a variable of interest.

Finally, participants identified many motives for their alcohol consumption behavior during the task, but none suggested that they were drinking to confirm masculine status or in response to the feedback received. Most commonly participants reported that their drinking behavior reflected the taste of the beer ($n = 19, 30\%$), task demands ($n = 20, 31\%$), setting ($n = 8, 13\%$), or because the study offered an opportunity to enjoy “free beer” ($n = 9, 14\%$). Stated motives did not differ significantly across threat, undermine, and control conditions ($\chi^2(10) = 10.55, p = .394$).

B. Primary Analyses

Analyses of variance suggest a significant effect of manipulation on the total amount of beer consumed ($F[2, 62] = 7.79, p = .001$, Cohen's $d = 1.81$) but not for the Ratio of Consumption ($F[2, 62] = 1.77, df = 2, p = .180$, Cohen's $d = .45$). Post-Hoc tests, employing Tukey's HSD correction, suggest that those individuals in the threat condition ($M = 788.84\text{ml}$, $SD = 63.76$) consumed significantly more beer during the study than those in either the undermine ($M = 573.40\text{ml}$, $SD = 65.30, p = .022$, Cohen's $d = 3.33$) or control conditions ($M = 435.31\text{ml}$, $SD = 63.69, p < .001$, Cohen's $d = 5.54$), but that no difference existed between the amount of beer consumed between the undermine and control conditions ($p = .136$, Cohen's $d = 2.14$). Please refer to table 2.

Contrary to hypotheses, none of the proposed interactions were statistically significant ([H₃] Identity Strength x condition: total beer consumed, $\beta = 4.91$, $SE = 3.68, t(1) = 1.63, p = .180$; Ratio of Consumption, $\beta = 4.67$, $SE = 3.94, t(1) = 1.86, p = .103$; [H₄] Traditional Attitudes x condition: total beer consumed, $\beta = 1.85$, $SE = 1.64, t(1) = 2.06, p = .087$; Ratio of

Consumption, $\beta = 4.61$, $SE = 3.45$, $t(1) = .098$, $p = .362$). It seems that none of the variables moderated the association between condition (threat, undermine, and control) and alcohol consumption dependent variables. Neither the strength of an individual's identification with the masculine in-group, nor the intensity of their attitudes about traditional gender roles seemed to impact the behavioral expression of masculinity through alcohol use beyond status threat in this context. Please refer to table 4.

VI. Discussion

Alcohol use is common and associated with increased risk for negative outcomes (Bureau of Justice Statistics, 2010; CDC, 2011; NIAAA, 2014; SAMHSA, 2013). While biological sex may be partially predictive of risk for alcohol use or related problems, research suggests a need to examine intermediate social and individual variables that may account for this relationship (e.g., de Visser & Smith, 2007). The present study aimed to contribute to this research by testing a model of alcohol use, examining men's motivation to drink specifically to confirm masculine status following status threat. Results of this study, based on laboratory manipulation of masculine status, were consistent with the effect hypothesized and suggest that when masculine status is threatened in a social context, men may be motivated to consume alcohol in order to repair or confirm masculine status to observers. Further, these results suggest that alcohol use in reaction to gender threat is not solely motivated by an attempt to cope with resulting negative affect, but rather is largely based on the desire to confirm masculine status after threat. Interestingly though, the moderators proposed, strength of identification with the masculine in-group and traditional attitudes about male gender roles, were not associated with alcohol use behaviors in this study. These variables did not impact the relation between threat to masculine status and resulting alcohol use behaviors. The desire to confirm masculinity through alcohol use

may wield a more robust effect that originally predicted. It seems that regardless of an individual's particular attachment to masculine group membership or traditional perspective on masculine gender norms, this desire for in-group status is an important motivator for alcohol use.

The present findings are consistent with previous research examining social identity theory (S& Turner; 1985) and precarious manhood (Vandello, Bosson, Cohen, Burnaford, & Weaver 2008). Participants' behavior in this study suggests that individuals are motivated to enact behaviors prototypical of an in-group in order to confirm rightful inclusion in the in-group and the masculine in-group seems to be particularly salient. This study applies these theories to a new area, alcohol use behaviors, and produces results that offer confirmation of hypothesized relationships between masculinity and alcohol use; that alcohol is used as a tool to confirm masculine status and express belonging in the masculine in-group.

The results of this study are inconsistent with the alternative hypothesis presented here, that increased alcohol use in men following threat to status is accounted for by an effort to cope with negative affect induced by threat. Not only did individuals who were threatened consume significantly more alcohol than those who were not threatened, individuals who were given information undermining the usefulness of alcohol consumption as a tool to confirm masculine status, or left only with the need to correct negative affect, consumed significantly less than those attempting to reconstruct masculinity after threat. In fact, those individuals left only with the task of coping with negative affect drank at rates that were not statistically significantly different from those in the control group who did not experience negative affect induction. While it is possible that participants consumed alcohol to reduce negative affect in both the undermine and threat conditions, drinking following a threat to masculine identity was the only predictable source of difference in consumption behavior between these conditions.

Research examining conformity motives for use, using alcohol in an effort to fit in with a group, as introduced by Cooper (1994), is mixed. Research exists to suggest that men are particularly more likely than women to report drinking for conformity motives, or to fit in with a group (Buckner & Shah, 2015; Kuntsche & Labhart, 2013; Williams & Ricciardelli, 1999), but is met with contradictory research which suggests that men often deny drinking for conformity motives (Kuntsche, Wicki, Windlin, Roberts, & Gabhainn, et al., 2015) and that conformity drinking does not reliably predict increased use for men or women (e.g., Lammers, Kuntsche, Engels, Wiers, & Kleinjan, 2013; Diep, Kuntsche, Schelleman-Offermans, Vries, & Knibbe, 2016). It is possible that this vein of research may be mixed because of the lack of specificity about the masculine in-group or may be related to the influence of differing gender norms or expectations most appropriate in different situations or groups that the conformity motive conceptualization does not address. Results of the current study focus distinctly on alcohol use undertaken in an effort to confirm masculine in-group status after status has been threatened. It narrows the focus to the impact of a specific gender norm and does not extend to other types of norms, in-groups, or friend groups where threat to status may be less likely or function differently. This study indirectly examined an extension of the conformity motive and examined the theorized behavioral implications of a motive reflecting the desire to confirm status based on masculine gender norms. Interestingly, when asked, none of the participants in this study reported conscious efforts aimed at confirming masculine norms or drinking to fit in with the masculine in-group. This suggests that using alcohol to confirm masculine norms may be more complex and/or specific than “drinking to fit in with my friends,” or other ways the conformity motive is currently represented in self-report measures (Cooper, 1994).

A. Limitations and Future Directions

While the results of this research are intriguing, there are limitations to consider. This is the first study to examine the role of masculine status verification in alcohol use behaviors and the first to use this particular experimental protocol to do so. While others have used similar taste test designs successfully (e.g., Bacon & Thomas, 2013; Bacon, Cranford, & Blumenthal, 2015) and Bosson and colleagues have repeatedly used the feedback method used here, the validity of the manipulations was important to outcomes. Manipulation and protocol components were subjected to pilot research and focus groups and manipulation checks were embedded throughout the study to ensure the validity of the results using this protocol. These extensive checks provided data suggesting viability of the manipulation and support for the study protocol. However, it would be helpful to complete studies specifically examining the effect of each manipulation component active in this study to bolster the conclusions drawn herein.

This study included three conditions for comparison. Due to the limiting factors of time and sample size, a fourth condition, in which participants received feedback suggesting high levels of masculinity consistent with the feedback received by the control condition and also being exposed to the information meant to undermine the norm of masculine alcohol use was not included. This is a particular limitation of this study. This fourth condition might offer important information about the effect of the information given to undermine masculine norms of use by revealing how participants react to this information without threat. It would be particularly important to ensure that the undermining information did not serve to discourage use unrelated to the threat manipulation. The small sample size in itself is an important limit to be considered also. Although results were robust, a larger sample size, including closer to 30 participants in each group, could be beneficial, especially when considering the lack of evidence for statistically

significant interactions. The small sample size may have limited ability to detect significant interactions or differences between the control and undermine conditions in drinking behavior.

Another important limitation to consider is the indirect examination of motives undertaken here. Information regarding drinking motives was inferred by behavior, rather than directly reported. When asked, participants did not, in fact, report using alcohol to confirm masculine status, but for multiple other reasons. Based on behavioral response to gender threat, it appears that men consumed increased alcohol in an effort to confirm status or rectify the threat, but this was not a motive cited by participants. It may be that this motive is implicit and not clearly recognized by many men even when the norms and behaviors are active. This is consistent with research suggesting that implicit and explicit motivations for drinking function differently and each uniquely contribute to patterns of use (Wiers, Van Woerden, Smulders, & De Jong, 2002). Validation of a questionnaire examining this implicit motive, or helping to make it more explicit, would further this vein of research and the ability to draw direct conclusions about motives without relying on inference from behavior.

Further, in this study, drinking to confirm masculine status is viewed as active when in social situations where other men are present. It is possible that men may be motivated to confirm masculine status to themselves or to women, but it is not possible, based only on this study, to generalize this motivation for alcohol use behavior to contexts outside of social situations with other men. The location of the study was designed and decorated in a way as to simulate a realistic bar setting in order to maximize behavior consistent with a natural drinking environment, but generalizability to completely natural drinking situations is not entirely possible. It would be interesting to see how masculine threat influences behavior in a group of peers or a group of valued individuals that are part of the in-group in a self-motivated drinking

context. These mechanisms should be examined across more social contexts to understand the generalizability of these findings.

This study used beer as the alcoholic beverage to be served based on previous research and pilot studies suggesting that beer is associated, above other alcoholic beverages, with masculinity (e.g., de Visser & Smith, 2007; Willott & Lyons, 2012). The results of this study may not generalize to situations in which beer is not available for consumption. For instance, if wine, a beverage traditionally associated with femininity (Dawson, 1993; Erola & Karpyaka, 2015), is the only alcoholic beverage available for consumption after masculinity is threatened individuals may choose some other instrumental masculine behavior, instead of alcohol use, to confirm masculinity. More research should be done to understand the importance of the particular beverage available when using alcohol in an effort to confirm masculinity.

More broadly, constructions of gender and masculinity are manifestations of cultural priorities, traditions, and institutions, and therefore, differ across culture. Considering this, our examination of this relation between masculinity and alcohol use was specific to the U.S. culture. Much of our sample was culturally homogenous, although there were a few participants who had only recently moved to the US and therefore may not have ascribed to the exact structure of gender norms examined here. This sets limits on the generalizability of results. Any study of gender role or gender norms should be careful to consider the cultural aspects of masculinity and consider generalizability. Conducting a study meant to examine this model of behavior in multiple cultures is needed to more fully understand the implications of masculine status threat. This study would have been further benefitted by including measures of acculturation, the changes that take place as a result of contact with culturally dissimilar people, groups, and social influences (Berry, 1991; Gibson, 2001, Schwartz & Zamboanga, 2008), like the Acculturation

Rating Scale for Mexican Americans-II (Cuéllar & Maldonado, 1995), to more completely understand the possible impact of culture on alcohol use behaviors following threat. It is further important to understand how this norm might work across microcultures within the larger culture of the United States of America, in southern vs. northwestern states for example. The culture of gender and its impact on reasons for drinking is idiosyncratic across groups (Diep, Kuntsche, Schelleman-Offermans, Vries, & Knibbe, 2016) and the norms and mechanisms investigated here are understood through a small lens. Additionally, the relative importance of different facets of gender norms vary with developmental stage and situation (Christie-Mizell & Peralta, 2009). Future research would be well advised to include a more culturally diverse and varied age group of participants along with a measure based on the bi-dimensional model of acculturation to understand how specific or far-reaching this mechanism of norms confirmation may be.

Further, the possible impact of sex differences on these outcomes is one to consider. Gender role orientation is correlated with sex such that men often report lower femininity and higher masculinity than women, but this is a constantly moving constructivist target. Understanding how this motive may function in women, and whether individual factors have an influence would be important. The gendered context and demands challenging men and women are nuanced and varied. More fully understanding how the effect of masculine gender norms on alcohol use motives and outcomes might vary across sex groups would be important to investigate in future research.

Although theoretically important to this discussion, the relation of alcohol expectancies, other norms for alcohol use, and drinking motives as conceptualized by Cooper (1994) were not directly examined here. More fully understanding how alcohol expectancies and other existing

models of drinking motives and use norms may influence use in a gender threatening situation is an important area of inquiry flowing from this study.

B. Conclusions

Social identity theory (Tajfel & Turner, 1985) suggests that individuals are motivated to enact behaviors prototypical of a valued group to assert membership in that group. Coupled with the theory of precarious manhood (Vandello, Bosson, Cohen, Burnaford, & Weaver 2008), which suggests that the masculine in-group requires continued performance of prototypical behavior to maintain status and that men are likely to enact gender normed behaviors when status is threatened, suggests that one reason men may experience higher rates of alcohol use and related problems is the way this desire to confirm group status encourages use. This study used a laboratory manipulation to examine men's alcohol use behavior, as alcohol use is a normed behavior of masculinity, after status in the masculine group was threatened with the expectation that men would consume more alcohol following a threat to manhood than in other conditions. Previous research suggests strong links between motives for alcohol use and consumption behaviors and between gender threat and subsequent behavior enacted to re-establish or confirm masculine status. Results suggest that men could be motivated to use alcohol to confirm masculinity following a threat to masculinity, and that this is more influential on behavior, in this context, than the need to rectify negative affect. If replicated, these findings suggest that substance use interventions may be strengthened by pronouncing this implicit motivation and including strategies within treatment programs that might aid individuals in reaching the goal of establishing group status in healthier ways.

VII. References

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VIII. Tables

Table 1.

Demographics

Variables	Total <i>N</i> = 65	Threat <i>n</i> = 22	Undermine <i>n</i> = 21	Control <i>n</i> = 22	Analysis Statistics	<i>p</i> value
Age	<i>M</i> = 23, <i>SD</i> = 2.1 Range: 21-29	<i>M</i> = 23, <i>SD</i> = 2.1 Range: 21-28	<i>M</i> = 23, <i>SD</i> = 2.5 Range: 21-29	<i>M</i> = 22, <i>SD</i> = 1.7 Range: 21-26	<i>F</i> (2,62) = .571	.568
Ethnicity					$\chi^2(8) = 8.98$	.534
Caucasian	50 (76%)	17 (80%)	16 (76%)	17 (80%)		
African-American	5 (8%)	2 (9%)	1 (5%)	2 (9%)		
Latino	4 (6%)	1 (5%)	2 (9%)	1 (5%)		
Asian-American	4 (6%)	1 (5%)	1 (5%)	2 (9%)		
Middle-Eastern	1 (2%)	0	1 (5%)	0		
Missing	1 (2%)	1 (5%)	0	0		
Class Standing					$\chi^2(8) = 2.95$	.937
Freshman	6 (10%)	3 (14%)	2 (9%)	1 (5%)		
Sophomore	5 (9%)	2 (9%)	1 (5%)	2 (9%)		
Junior	24 (37%)	7 (32%)	8 (38%)	9 (41%)		
Senior	20 (31%)	6 (27%)	6 (29%)	8 (36%)		
Post-Graduate	8 (13%)	2 (9%)	4 (19%)	2 (9%)		
Missing	2 (3%)	2 (9%)	0	0		
Residence Type					$\chi^2(6) = 10.20$	.251
University Residence	8 (13%)	5 (23%)	2 (14%)	1 (5%)		
Rented Unit	44 (69%)	13 (59%)	13 (62%)	18 (82%)		
Greek Residence	4 (6%)	0	3 (9%)	1 (5%)		
Owned Unit	7 (12%)	3 (14%)	2 (9%)	2 (9%)		
Missing	2 (2%)	1 (5%)	1 (5%)	0		
Marital Status					$\chi^2(6) = 6.17$	.405
Single	58 (89%)	18 (82%)	19 (91%)	21 (95%)		
Married	4 (6%)	2 (9%)	2 (9%)	0		
Separated	1 (2%)	0	0	1 (5%)		
Divorced	1(2%)	1 (5%)	0	0		
Missing	1(2%)	1 (5%)	0	0		

Table 1.

Demographics Cont'd

Variables	Total N = 65	Threat n = 22	Undermine n = 21	Control n = 22	Analysis Statistics	p value
Sexuality						
Heterosexual	60 (94%)	21 (95%)	21 (100%)	18 (82%)		
Homosexual	2 (3%)	0	0	2 (9%)		
Bisexual	2 (3%)	1 (5%)	0	1 (9%)		
Missing	1 (2%)	0	0	1 (5%)		
Employment Status						
Unemployed	28 (44%)	10 (30%)	10 (48%)	8 (32%)	$\chi^2(4) = 12.67$	.124
Part-Time Job	32 (49%)	10 (49%)	9 (43%)	13 (59%)		
Full-Time Job	4 (6%)	1 (5%)	2 (9%)	1 (5%)		
Missing	1 (2%)	1 (5%)	0	0		
Previous Treatment						
Yes	24 (35%)	10 (45%)	5 (24%)	8 (36%)	$\chi^2(2) = 2.59$	.274
No	41 (65%)	11 (50%)	16 (76%)	14 (64%)		
Missing	1	1 (5%)	0	0		

Note: Sexuality = Participant reported sexual identification. Previous Treatment = Whether or not the participant has received mental health treatment in the past. Significance at $p < .05$. F statistic reflects use of ANOVA. X^2 statistic reflects use of Chi-square tests of independence.

Table 2.

ANOVA Results, Means, and Standard Deviations

Variables	Total N = 65	Threat n = 22	Undermine n = 21	Control n = 22	F (df)	p value
AUDIT	8.83, SD = 4.70	9.35, SD = 5.33	8.63, SD = 4.77	8.50, SD = 4.12	.183 (2,62)	.833
Beer Frequency	2.7, SD = .706	2.67, SD = .156	2.67, SD = 1.56	2.77, SD = 1.52	.159 (2,62)	.854
Total ml Consumed	605.67, SD = 312.37	788.84 _a , SD = 63.76	573.40 _b , SD = 65.30	435.31 _b , SD = 63.69	7.47 (2,62)	.001
Ratio of Consumption	31.91, SD = 13.02	34.48, SD = 14.52	32.62, SD = 10.20	28.75, SD = 13.55	1.15 (2,62)	.323
Identity Strength	66.84, SD = 12.93	67.40, SD = 13.15	65.31, SD = 15.11	67.90, SD = 10.53	.227 (2,62)	.798
Traditional Norms	76.26, SD = 10.79	78.93, SD = 2.77	72.39, SD = 2.97	76.83, SD = 2.53	1.21 (2,62)	.867

Note: AUDIT = Alcohol Use Disorders Identification Test. Beer Frequency = How often participants reported drinking beer in the past year. Total ml Consumed = Total beer consumed during the study measured in milliliters. Ratio of Consumption = Milliliters of beer consumed divided by number of sips taken. Identity Strength = Identity Strength Questionnaire. Traditional Attitudes = Conformity to Masculine Norms Scale. Means with differing subscripts differ at $p < .05$.

Table 3.

Pearson Correlations

Variables	Drinking Behavior	Total ml Consumed	Ratio of Consumption	Identity Strength	Traditional Norms	Condition
Drinking Behavior	1	.209	.169	.038	.347*	.013
Total ml Consumed		1	.571	.015	.418*	.155
Ratio of Consumption			1	.061	.294*	.127
Identity Strength				1	.324*	-.083
Traditional Norms					1	-.152
Condition						1

Note: $N = 65$. Drinking Behavior = Total score on the Alcohol Use Disorders Identification Test. Amount Consumed = the total amount of beer consumed during the taste test task. ROC = ratio of milliliters of beer consumed by number of sips taken. Identification = level of identification with the masculine in-group as represented by the total on the Identity Strength Questionnaire. Traditional Norms = level of preference for adherence to traditional gender norms as represented by the total score indicated on the Conformity to Masculine Norms Inventory. Condition = the randomly assigned experimental condition. Asterisk indicates significant correlations at $p < .05$.

Table 4.

Manipulation and Protocol Components

Variables	Test Statistic	<i>p</i> =	Total (<i>N</i> = 65)	Threat (<i>n</i> = 22)	Undermine (<i>n</i> = 21)	Control (<i>n</i> = 22)
Post-Feedback Affect	$F(2,61) = 3.97$	.027	34.76, <i>SD</i> = 5.25	33.41, <i>SD</i> = 4.26	33.52, <i>SD</i> = 5.96	37.31, <i>SD</i> = 4.67
Feedback Reliability	$\chi^2(6) = 5.76$	.218				
Yes			52 (80%)	16 (73%)	16 (76%)	20 (90%)
Partly			8 (12%)	3 (14%)	4 (19%)	1 (5%)
No			4 (6%)	3 (14%)	0	1 (5%)
Missing			1 (2%)	0	1 (5%)	0
Feedback Validity	$\chi^2(6) = 15.83$	.003				
Yes			41 (63%)	11 (50%)	8 (38%)	21 (95%)
Partly			13 (20%)	6 (27.3)	7 (33%)	0
No			9 (14%)	4 (18%)	5 (24%)	1 (5%)
Missing			2 (3%)	1 (5%)	1 (5%)	0
Believability	$\chi^2(14) = 11.81$	.757				
Gender Only			5 (8%)	1 (5%)	2 (10%)	2 (9%)
Gender and Marketing			16 (25%)	8 (36%)	3 (14%)	5 (23%)
Marketing			7 (11%)	1 (5%)	2 (10%)	4 (18%)
Personality and choices			13 (20%)	5 (23%)	4 (19%)	4 (18%)
Effects of Alcohol			7 (11%)	2 (9%)	3 (14%)	2 (9%)
Gender and Alcohol			4 (6%)	0	2 (10%)	1 (5%)
Do not know			6 (9%)	3 (13%)	2 (10%)	1 (5%)
Other			8 (11%)	2 (9%)	3 (14%)	3 (15%)
Paragraph	$\chi^2(10) = 7.076$	.718				
Not at all			1 (2%)	1 (5%)	0	0
Barely			4 (6%)	2 (9%)	2 (10%)	0
Somewhat			7 (10%)	2 (9%)	2 (10%)	3 (14%)
Well			33 (51%)	10 (46%)	10 (48%)	13 (59%)
Perfectly			19 (31%)	6 (27%)	7 (33%)	6 (27%)
Missing			1 (2%)	1 (5%)	0	0

Table 4.

Manipulation and Protocol Components Cont'd

Variables	Test Statistic	<i>p</i> =	Total (<i>N</i> = 65)	Threat (<i>n</i> = 22)	Undermine (<i>n</i> = 21)	Control (<i>n</i> = 22)
Stated Motives	$\chi^2(10) = 10.55$	.394				
Taste			19 (30%)	9 (41%)	4 (19%)	6 (27%)
Task demands			20 (31%)	3 (14%)	9 (43%)	8 (36%)
Setting/habit			8 (13%)	2 (10%)	2 (10%)	4 (18%)
Free Beer			9 (14%)	5 (23%)	2 (10%)	2 (9%)
Other			4 (6%)	1 (5%)	1 (5%)	2 (9%)
Did not know			5 (7%)	2 (5%)	3 (15%)	0

Note: Post Feedback Affect = participants reported affect in reaction to reception of feedback. Feedback Reliability = whether or not participants felt that the source of the feedback was “reliable and trustworthy.” Feedback Validity = whether or not participants felt the feedback was true or correct. Believability = reflecting qualitative data based on participants answer to open ended question assessing their beliefs about the true aims of the study. Paragraph = ratings of how true and complete a paragraph describing the purported and fallacious aims of the study is true. Stated Motives = reflecting qualitative data participants gave about why they drank the amount of alcohol and in the way they did during the taste test task. Means with differing subscripts differ at $p < .05$.

Table 5.

Moderation Analyses

Interaction Terms	β	SE	t	p value
<u>Ratio of Consumption</u>				
ISQ x condition	4.67	.945	4.05	.103
CMNI x condition	.461	.345	.098	.362
<u>Total ml Consumed</u>				
ISQ x condition	.491	.638	1.63	.180
CMNIxcondition	1.85	.604	1.96	.087

Note: Ratio of Consumption = ratio of ml consumed over sips taken, a measure of drinking behavior. ISQ x condition = interaction term of condition and Identity Strength. CMNI x condition = interaction term of condition and Traditional Attitudes regarding male norms. Significant p values < .05.

IX. Appendices

- A. IRB Approval Letter
 - i. IRB Continuation Letter 1
 - ii. IRB Continuation Letter 2
- B. Telephone Screener
- C. Pre-Experiment Questionnaire
- D. Demographics
- E. Alcohol Use Disorders Identification Test
- F. Conformity to Masculine Norms Inventory-Short
- G. Identity Strength Questionnaire
- H. Affect Manipulation Check
- I. Exit Questionnaire
 - i. Rated Paragraph
 - ii. Verbally Administered Questions



August 5, 2014

MEMORANDUM

TO: Jessica Fugitt
Joseph Molinaro
Lindsay Ham

FROM: Ro Windwalker
IRB Coordinator

RE: New Protocol Approval

IRB Protocol #: 14-07-010

Protocol Title: *Personality and Perception*

Review Type: EXEMPT EXPEDITED FULL IRB

Approved Project Period: Start Date: 08/04/2014 Expiration Date: 08/03/2015

Your protocol has been approved by the IRB. Protocols are approved for a maximum period of one year. If you wish to continue the project past the approved project period (see above), you must submit a request, using the form *Continuing Review for IRB Approved Projects*, prior to the expiration date. This form is available from the IRB Coordinator or on the Research Compliance website (<http://vpred.uark.edu/210.php>). As a courtesy, you will be sent a reminder two months in advance of that date. However, failure to receive a reminder does not negate your obligation to make the request in sufficient time for review and approval. Federal regulations prohibit retroactive approval of continuation. Failure to receive approval to continue the project prior to the expiration date will result in Termination of the protocol approval. The IRB Coordinator can give you guidance on submission times.

This protocol has been approved for 150 participants. If you wish to make *any* modifications in the approved protocol, including enrolling more than this number, you must seek approval *prior to* implementing those changes. All modifications should be requested in writing (email is acceptable) and must provide sufficient detail to assess the impact of the change.

If you have questions or need any assistance from the IRB, please contact me at 210 Administration Building, 5-2208, or irb@uark.edu

210 Administration Building • 1 University of Arkansas • Fayetteville, AR 72701
Voice (479) 575-2208 • Fax (479) 575-3846 • Email irb@uark.edu

The University of Arkansas is an equal opportunity/affirmative action institution.



August 3, 2015

Office of Research Compliance
Institutional Review Board

MEMORANDUM

TO: Jessica Fugitt
Joseph Molinaro
Lindsay Ham

FROM: Ro Windwalker
IRB Coordinator

RE: PROJECT CONTINUATION

IRB Protocol #: 14-07-010

Protocol Title: *Personality and Perception*

Review Type: EXEMPT EXPEDITED FULL IRB

Previous Approval Period: Start Date: 08/04/2014 Expiration Date: 08/03/2015

New Expiration Date: 08/03/2016

Your request to extend the referenced protocol has been approved by the IRB. If at the end of this period you wish to continue the project, you must submit a request using the form *Continuing Review for IRB Approved Projects*, prior to the expiration date. Failure to obtain approval for a continuation on or prior to this new expiration date will result in termination of the protocol and you will be required to submit a new protocol to the IRB before continuing the project. Data collected past the protocol expiration date may need to be eliminated from the dataset should you wish to publish. Only data collected under a currently approved protocol can be certified by the IRB for any purpose.

This protocol is closed to enrollment. If you wish to make *any* modifications in the approved protocol, including enrolling more participants, you must seek approval *prior to* implementing those changes. All modifications should be requested in writing (email is acceptable) and must provide sufficient detail to assess the impact of the change.

If you have questions or need any assistance from the IRB, please contact me at 109 MLKG Building, 5-2208, or irb@uark.edu.

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July 14, 2016

MEMORANDUM

TO: Jessica Fugitt
Joseph Molinaro
Lindsay Ham

FROM: Ro Windwalker
IRB Coordinator

RE: PROJECT CONTINUATION

IRB Protocol #: 14-07-010

Protocol Title: *Personality and Perception*

Review Type: EXEMPT EXPEDITED FULL IRB

Previous Approval Period: Start Date: 08/04/2014 Expiration Date: 08/03/2016

New Expiration Date: 08/03/2017

Your request to extend the referenced protocol has been approved by the IRB. If at the end of this period you wish to continue the project, you must submit a request using the form *Continuing Review for IRB Approved Projects*, prior to the expiration date. Failure to obtain approval for a continuation on or prior to this new expiration date will result in termination of the protocol and you will be required to submit a new protocol to the IRB before continuing the project. Data collected past the protocol expiration date may need to be eliminated from the dataset should you wish to publish. Only data collected under a currently approved protocol can be certified by the IRB for any purpose.

This protocol is closed to enrollment. If you wish to make *any* modifications in the approved protocol, including enrolling more participants, you must seek approval *prior to* implementing those changes. All modifications should be requested in writing (email is acceptable) and must provide sufficient detail to assess the impact of the change.

If you have questions or need any assistance from the IRB, please contact me at 109 MLKG Building, 5-2208, or irb@uark.edu.

Appendix B. Telephone Recruitment Interview

Hello, my name is _____ and I am calling from the University of Arkansas. Is name of participant available?

If no one answers, leave a message and say the following, “Hello, my name is _____ and I am calling from the university to discuss participation in a research study *for course credit OR for \$20 compensation*. Our phone number is XXX-XXXX.”

[Introduce yourself again if the person answering the phone initially was different]

Hi, *name*, I’m calling regarding your interest in the personality and perceptions study. I’m a research assistant from the laboratory that is conducting the research study. Do you have a few minutes to answer some questions to help us determine if you are eligible to participate?

- *If participant says “No,” ask about times and days that might be more convenient “Would you like us to contact you at a more convenient time?” “What days and times are best for you?”*
- *If participant says “No”, and indicates they are no longer interested in participating, conclude the phone interview here: “Thank you for your interest in our study.”*
- *If participant says “Yes,” proceed to the next session.*

Thank you for your interest in our study. I want to let you know that some participants in this study will consume alcohol. For this reason you must be 21 or older to participate in this study. Are you still interested in participating in the study? Are you over 21?

- *If participant says “No,” to either question conclude the phone interview here: “Thank you so much for your interest and time.”*
- *If participant says “Yes,” to both questions proceed to the next section.*

Participation in this study requires that you are a male student. What is your sex?

- *If participant says “female” or “woman,” conclude the phone interview here: “Thank you so much for your interest and time but we can only accept men in this study at this time.”*
- *If participant says “male” or “man” or some iteration of that, proceed to the next section.*

First, I would like to provide you with some information and I have a few questions regarding your health. This will take about 5-10 minutes. Is that okay with you?

- *If participant says “No,” ask about times and days that might be more convenient “Would you like us to contact you at a more convenient time?” “What days and times are best for you?”*
- *If participant says “Yes,” proceed to the next session.*

Before I start asking the questions I would like to advise you that you do not have to answer any of them and that you can end this phone call at any time.

For safety reasons, we cannot have anyone in our study who is currently abstaining or who is currently trying to abstain from alcohol. Do you feel that you fall into these categories?

- *If participant says “Yes,” conclude the phone interview here: “Thank you so much for your interest and time, but we will not be able to schedule you for medical reasons.”*
- *If participant says “No,” proceed to the next section.*

Have you ever had any allergic reactions or unusual reactions to alcoholic beverages or beer?

- *If participant says “Yes,” conclude the phone interview here: “Thank you so much for your interest and time, but we will not be able to schedule you for medical reasons.”*
 - *Note: only unusual reactions are grounds for disqualification, symptoms of acute intoxication or hangover are not unusual and should not be a reason to discontinue at this point.*
- *If participant says “No,” proceed to the next section.*

Are you currently taking any prescribed medications, over-the-counter medications, or illicit substances on a regular basis for which alcohol consumption is contraindicated?

- *If participant says “No”, proceed to the next section.*
- *If participant says “Yes”, ask,*
 - *Is this a medication that you must take each day or is it prescribed “as needed?” For instance, a doctor may prescribe an allergy medication that is to be taken when you are suffering from symptoms related to an allergic reaction but that does not need to be taken daily.*
 - *If the participants says that it must be taken daily, conclude the phone interview here: “Thank you so much for your interest and time, but we will not be able to schedule you for medical reasons.”*
 - *If the participant says that it is “as needed,” and that they can and are willing to abstain from use on the day of the study, proceed to the next section.*

Do you currently have any alcohol problems or medical problems for which alcohol consumption is contraindicated?

- *If participant says “Yes,” conclude the phone interview here: “Thank you so much for your interest and time, but we will not be able to schedule you for medical reasons.”*
- *If participant says “No,” proceed to the next section.*

At this point, you’ve qualified for the study. I would like to give you some information about the study then we can schedule an appointment for participation.

- Because alcohol consumption is involved, it is required that you arrange for transportation home from the study on the day of participation as we ask that you do not drive. Will this be possible?
 - *If participant says “No,” conclude the phone interview here: “Thank you so much for your interest and time, but we will not be able to schedule you for safety reasons.*
 - *If participant says “Yes,” continue to the next section.*

Are you interested in participating for monetary compensation or for course credit?

- *If participant says “Money,” make a note of this on the calendar, include the info in the participant contact spreadsheet, and make a note of it in the email you send to the experimenter.*
- *If participant says “course credit,” make a note of this on the calendar, include the info in the participant contact spreadsheet, and make a note of it in the email you send to the experimenter.*

Ok great. Also:

- When you come to your appointment, you will need to bring a photo ID that has your birthdate so that we can confirm that you are over the age of 21.
- We ask that you eat approximately three hours prior to your appointment then consume only water until you complete the study.
- We will do our best to contact you a day before your scheduled appointment as a reminder. What is the best email address to contact you for the reminder? *Spell this back to them so you know you have the correct address.*

Schedule a laboratory appointment.

Do you know where the lab is located?

- *If participant says “Yes,” proceed to the next section.*

➤ *If participant says “No,” give the directions outlined below.*

Do you have any additional questions?

We look forward to seeing you on [schedule date and time] at the lab in room 123 of X Hall.

Directions to the lab were provided to participants during this call.

Appendix C. Pre-Experiment Questionnaire

1. May I see a picture ID to confirm your identity and age?

Birthdate: _____ Age: _____

2. What are your transportation plans for getting home? _____

3. When was the last time you ate? _____

4. When was the last time you drank alcohol? _____

5. Do you have any medical conditions for which drinking alcohol is contraindicated?

8. Do you wear corrective lenses or contacts? _____

7b. Are you wearing them? _____

8. When was the last time you took any medication? _____

8b. What was the medication? _____

9. When was the last time you used any illicit substance? _____

9b. What was the illicit substance(s) used? _____

Height _____

Weight _____

Appendix D. Demographic Items

1. Age: _____
2. Ethnicity (Check all that apply):
 - _____ Caucasian
 - _____ African American
 - _____ Latino
 - _____ Asian American
 - _____ Pacific Islander
 - _____ Native American
 - _____ Middle Eastern
 - _____ Other (please specify): _____
3. Year in college:
 - _____ Freshman
 - _____ Sophomore
 - _____ Junior
 - _____ Senior
 - _____ Graduate/Professional
4. Where do you currently live?
 - _____ University Residence Hall
 - _____ Rented Unit
 - _____ Greek Residence
 - _____ Owned Unit
 - _____ Other (please specify): _____
5. Marital Status
 - _____ Single; never married
 - _____ Married
 - _____ Separated
 - _____ Divorced
 - _____ Widowed
 - _____ Other (please specify): _____
6. What is your sexual orientation?
 - _____ Bisexual
 - _____ Heterosexual
 - _____ Homosexual
 - _____ Other (please specify): _____
7. Are you presently employed?
 - _____ Unemployed
 - _____ Employed part time
 - _____ Employed full time
 - _____ Full time Student
8. Have you ever before sought mental health services? Yes / No

Appendix E. Alcohol Use Disorders Identification Test (AUDIT)

1. How often do you have a drink containing alcohol?

- 0 – Never
- 1 – Monthly or less
- 2 – 2 to 4 times a month
- 3 – 2 to 3 times a week
- 4 – 4 or more times a week

2. How many drinks containing alcohol do you have a typical drinking day when you are drinking?

- 0 – 1 or 2
- 1 – 3 or 4
- 2 – 5 or 6
- 3 – 7, 8, or 9
- 4 – 10 or more

3. How often do you have six or more drinks on one occasion?

- 0 – Never
- 1 – Monthly or less
- 2 – 2 to 4 times a month
- 3 – 2 to 3 times a week
- 4 – 4 or more times a week

4. How often during the last year have you found that you were not able to stop drinking once you had started?

- 0 – Never
- 1 – Less than monthly
- 2 – Monthly
- 3 – Weekly
- 4 – Daily or almost daily

5. How often during the last year have you failed to do what was normally expected from you because of drinking?

- 0 – Never
- 1 – Less than monthly
- 2 – Monthly
- 3 – Weekly
- 4 – Daily or almost daily

6. How often during the last year have you needed a first drink in the morning to get yourself going after a heavy drinking session?

- 0 – Never
- 1 – Less than monthly
- 2 – Monthly
- 3 – Weekly
- 4 – Daily or almost daily

7. How often during the last year have you had a feeling of guilt or remorse after drinking?

- 0 – Never
- 1 – Less than monthly
- 2 – Monthly
- 3 – Weekly
- 4 – Daily or almost daily

8. How often during the last year have you been unable to remember what happened the night before because you had been drinking?

- 0 – Never
- 1 – Less than monthly
- 2 – Monthly
- 3 – Weekly
- 4 – Daily or almost daily

9. Have you or someone else been injured as a result of your drinking?

- 0 – No
- 2 – Yes, but not in the last year
- 4 – Yes, during the last year

10. Has a relative or friend or a doctor or another health worker been concerned about your drinking or suggested you cut down?

- 0 – No
- 2 – Yes, but not in the last year
- 4 – Yes, during the last year

Appendix F. Conformity to Masculine Norms Inventory (CMNI-55)

CMNI-Short

The following pages contain a series of statements about how people might think, feel or behave. The statements are designed to measure attitudes, beliefs, and behaviors associated with both traditional and non-traditional masculine gender roles.

Thinking about your own actions, feelings and beliefs, please indicate how much **you personally agree or disagree with each statement** by circling **SD** for "Strongly Disagree", **D** for "Disagree", **A** for "Agree", or **SA** for "Strongly agree" to the left of the statement. There are no right or wrong responses to the statements. You should give the responses that most accurately describe your personal actions, feelings and beliefs. It is best if you respond with your first impression when answering.

1.	I am comfortable trying to get my way	SD	D	A	SA
2.	I hate asking for help	SD	D	A	SA
3.	Violence is almost never justified	SD	D	A	SA
4.	My work is the most important part of my life	SD	D	A	SA
5.	I take risks	SD	D	A	SA
6.	Asking for help is a sign of failure	SD	D	A	SA
7.	It feels good to be important	SD	D	A	SA
8.	It is important for me to win	SD	D	A	SA
9.	I make sure people do as I say	SD	D	A	SA
10.	In general, I do not like risky situations	SD	D	A	SA
11.	It would be awful if someone thought I was gay	SD	D	A	SA
12.	I love it when men are in charge of women	SD	D	A	SA
13.	Having status is not very important to me	SD	D	A	SA
14.	I like to talk about my feelings	SD	D	A	SA
15.	I would feel good if I had many sexual partners	SD	D	A	SA
16.	It is important to me that people think I am heterosexual	SD	D	A	SA
17.	I would only have sex if I was in a committed relationship	SD	D	A	SA
18.	I ask for help when I need it	SD	D	A	SA
19.	In general, I must get my way	SD	D	A	SA
20.	I treat women as equals	SD	D	A	SA
21.	It would be enjoyable to date more than one person at a time	SD	D	A	SA
22.	I believe that violence is never justified	SD	D	A	SA
23.	Winning is not important to me	SD	D	A	SA
24.	I tend to share my feelings	SD	D	A	SA
25.	Work comes first	SD	D	A	SA
26.	I should be in charge	SD	D	A	SA
27.	I frequently put myself in risky situations	SD	D	A	SA
28.	I would be furious if someone thought I was gay	SD	D	A	SA
29.	I will only be satisfied when women are equal to men	SD	D	A	SA

30.	Being thought of as gay is not a bad thing	SD	D	A	SA
31.	I would hate to be important	SD	D	A	SA
32.	Sometimes violent action is necessary	SD	D	A	SA
33.	I don't like giving all my attention to work	SD	D	A	SA
34.	I hate any kind of risk	SD	D	A	SA
35.	More often than not, losing does not bother me	SD	D	A	SA
36.	I love to explore my feelings with others	SD	D	A	SA
37.	If I could, I would frequently change sexual partners	SD	D	A	SA
38.	I never do things to be an important person	SD	D	A	SA
39.	I never ask for help	SD	D	A	SA
40.	I am willing to get into a physical fight if necessary	SD	D	A	SA
41.	Women should be subservient to men	SD	D	A	SA
42.	I feel good when work is my first priority	SD	D	A	SA
43.	I enjoy taking risks	SD	D	A	SA
44.	Men and women should respect each other as equals	SD	D	A	SA
45.	I tend to keep my feelings to myself	SD	D	A	SA
46.	If I could, I would date a lot of different people	SD	D	A	SA
47.	Winning isn't everything, it's the only thing	SD	D	A	SA
48.	I would feel uncomfortable if someone thought I was gay	SD	D	A	SA
49.	Trying to be important is the greatest waste of time	SD	D	A	SA
50.	I don't mind losing	SD	D	A	SA
51.	I tend to invest my energy in things other than work	SD	D	A	SA
52.	No matter what the situation I would never act violently	SD	D	A	SA
53.	I am most satisfied when I can tell people what to do	SD	D	A	SA
54.	It bothers me when I have to ask for help	SD	D	A	SA
55.	Feelings are important to show	SD	D	A	SA

Appendix G: Identity Strength Questionnaire

Please rate how much you agree with the following items along the 7 point scale provided below. If you agree fully with an item, you would rate it a 7. If you do not agree at all with an item, you will rate it a 1.

--1--	--2--	--3--	--4--	--5--	-- 6 --	--7--
Strongly Disagree	Disagree	Disagree Somewhat	Neutral	Agree Somewhat	Agree	Strongly Agree

1. _____ I feel a bond with men.
2. _____ Being a man gives me a good feeling.
3. _____ I have a lot in common with the average man.
4. _____ I am glad to be a man.
5. _____ I think that men have a lot to be proud of.
6. _____ It is pleasant to be a man.
7. _____ I feel committed to acting like a man.
8. _____ I often think about the fact that I am a man.
9. _____ Men are very similar to each other.
10. _____ Being a man is an important part of how I see myself.
11. _____ I feel solidarity with men.
12. _____ I am similar to the average man.
13. _____ Men have a lot in common with each other.
14. _____ The fact that I am a man is an important part of my identity.

Appendix H. Affect Manipulation Check

Manipulation Check

Please rate how much you agree with the following items along the 7 point scale provided below. If you agree fully with an item, you would rate it at 7. If you do not agree at all with the item, you will rate the item a 1.

1	2	3	4	5	6	7
Strongly Disagree	Disagree	Disagree Somewhat	Neutral	Agree Somewhat	Agree	Strongly Agree

1. ___ I am pleased with my scores from pretesting.
2. ___ Showing students their scores from pretesting is a good idea.
3. ___ I feel good about myself after seeing my results from pretesting.
4. ___ Seeing my scores from pretesting was a fun experience.
5. ___ I am disappointed in my results from pretesting.
6. ___ My results from pretesting put me in a good mood.
7. ___ I feel down after seeing my results from pretesting.

Appendix I. Exit Questionnaire

Paragraph to rate believability

This study is investigating the relation between select personality factors and how people perceive certain products. Participants are asked to complete a series of questionnaires about their personality, given feedback about their personality based on those questionnaires, and then asked to complete a task of perception. In this case, I was asked to complete a taste- test of three different beers and rate them across different factors. The aim of the study was to understand what pieces of information about the product I would pay the most attention to, and what would impact my ratings of the product.

- 0 – That paragraph does not at all describe this study
- 1 – That paragraph describes the study a little, but only barely
- 2 – That paragraph describes the study somewhat.
- 3 – That paragraph describes the study well.
- 4 – That paragraph describes the study perfectly.

Exit Questionnaire

1. BAC of participant:

Time	BAC .xxx

2. Give Paragraph for rating.
3. What do you think was the purpose of this study?
4. Where do you think your scores came from?
 - a. Do you think the scores were reliable?
 - b. Did you trust the feedback?
5. Did the feedback seem true for you?
6. Was there anything you did not like about the study?
7. Why did you drink the amount you did?
8. Besides answering the test taste questions, what motivated you to drink in the manner that you did?
9. How do you think the personality feedback impacted your drinking behavior?
10. How much were you thinking about the personality feedback as you completed the taste test task?
11. Are you aware of cultural norms suggesting that drinking beer is a masculine or manly behavior?
12. Do you think getting feedback that you are not as masculine or manly as other men who participated in this study encouraged you to consume more beer?
13. Do you think drinking beer helps you show that you are not feminine or girly?
14. Do you think drinking beer helps you show that you are manly?
15. Do you think those beliefs had anything to do with the amount of beer you chose to drink?