

7-24-2016

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### Recommended Citation

Clinkinbeard, S.S. & Barnum, T.C. (2016). Gendered self-concepts and drinking behavior in a national sample of emerging adults. *Feminist Criminology*, 12(2), 145-170. <https://doi.org/10.1177/15570851156143>

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# Gendered Self-Concepts and Drinking Behavior in a National Sample of Emerging Adults

Samantha S. Clinkinbeard and Timothy C. Barnum

## Abstract

Despite evidence that males drink more than females, there is much to be learned about gendered explanations for sex differences in alcohol use. We use the National Longitudinal Study of Adolescent to Adult Health data to investigate gendered self-concept as related to alcohol use and related consequences among a sample of emerging adults. Dominance Masculinity (e.g., being aggressive, forceful, dominant) was the most consistent predictor of alcohol-related outcomes for both males and females. Endorsement of feminine characteristics (e.g., compassion, understanding, sympathetic) was protective against binge drinking and social consequences for males whereas endorsement of general masculine characteristics (e.g., independent, assertive, leader) protected against social consequences for females.

## Keywords

binge drinking, gender, self-concept, sex roles, alcohol use

Every year in the United States, former high school students graduate and head off to college or enter the workforce. Many of these young adults will engage in binge and heavy drinking, whether it is to participate in the time-honored tradition of college drinking, to deal with the demands of work, or simply to be social with others. Binge drinking, generally defined as four or more drinks in a couple hours for women and five or more for men, has been the topic of much research and the target of millions of federal funding dollars since the early 1990s (Centers for Disease Control and Prevention [CDC], 2012; National Institute on Alcohol Abuse and Alcoholism [NIAAA]; Wechsler et al., 2002; Wechsler & Nelson, 2001). Heavy drinking has been identified as a public health concern due to the wide range of consequences associated with the

behavior. For example, individuals who binge drink are more likely to use other types of drugs, more likely to be involved in alcohol-related crashes, and less likely to effectively practice safe sex (CDC, 2012; Hingson, 2010; Ingersoll, Ceperich, Nettelman, & Johnson, 2008; Jones, Oeltmann, Wilson, Brener, & Hill, 2001). In addition, binge drinking in college has been negatively associated with sleep, academic performance, and retention while positively associated with a number of problems on campus (e.g., high rates of physical and sexual assault; CDC, 2012; DeBerard, Spielmans, & Julka, 2004; Singleton & Wolfson, 2009; Wechsler, Dowdall, Davenport, & Rimm, 1995; Wechsler, Lee, Kuo, & Lee, 2000).

Over the past two decades, researchers have identified two demographic groups that stand out in the conduct of binge and heavy drinking. Specifically, young adults represent the age group with the largest proportion of heavy drinkers and these drinkers are disproportionately male (CDC, 2012; Johnston, O'Malley, Bachman, & Schulenberg, 2012). Peak engagement in binge and heavy drinking occurs between the ages of 18 and 25 and is especially prevalent among college students (Arnett, 2005; Johnston, O'Malley, Bachman, & Schulenberg, 2007; Johnston et al., 2012). As many as 75% to 85% of individuals in the 18- to 25-year-old age group report having used at least some alcohol in the past 12 months. College students' rates of binge drinking have long hovered around 40% (Wechsler et al., 2002) with small drops in recent years (36% in 2011), which is slightly higher than their non-college peers (32%; Johnston et al., 2012). As mentioned above, males tend to drink more often than females. For example, the 2011 Monitoring the Future Study indicated that males, regardless of college status, reported considerably higher rates of daily drinking than females and that more college males than college females reported having five or more drinks in the previous two weeks (43% vs. 32%; Johnston et al., 2012).

Despite consistent findings, there are few attempts to explain why these demographics disproportionately engage in binge and heavy drinking. The majority of research on the influences of heavy drinking in this age group has focused on college students only (Vaughan, Wong, & Middendorf, 2014). In addition, there is little research investigating the potential "gendered" reasons for differences in drinking behaviors by sex (Peralta, Steele, Nofziger, & Rickles, 2010; Vaughan et al., 2014). The disparity in

drinking among the sexes is often attributed to differential socialization and societal expectations though such explanations are not necessarily fully explored (Peralta, 2007). Erving Goffman (1959) argued that individuals perform scripted roles to convey an “idealized” version of himself or herself based on the behavior, setting, and the audience present. Following this logic, we expand on the above body of literature by looking more closely at the relationships between societal definitions of masculinity and femininity, self-identification with those definitions, and whether they are associated with drinking behaviors of young adults. We use a national sample of 18- to 25-year-olds to examine whether identifying with traditionally masculine characteristics is associated with heavy and binge drinking participation and whether this relationship varies based on the reported sex of the respondents. We explore drinking as a way of “doing gender” (West & Zimmerman, 1987) and particularly a way of “doing masculinity” (Messerschmidt, 1993)

### **Theoretical Perspective**

One of the primary reasons cited for gender differences in drinking is the idea that men and women are socialized differently and that there are different norms for men and women such that drinking to excess is generally more acceptable for men (e.g., de Visser & McDonnell, 2012; Lyons & Willott, 2008; Young, Morales, McCabe, Boyd, & D’Arcy, 2005). In this section, we briefly review two separate, yet complementary, perspectives on how self-identified gender roles may impact perceptions and behavior. First, we explore gender schema theory which suggests that the way in which persons identify themselves with regard to sex-typed roles can impact the way in which they process or perceive information (Bem, 1981). Second, we discuss the idea that masculinity and/or femininity is “achieved” through different behaviors (e.g., heavy drinking) and that the behaviors selected may be a product of environmental circumstances and situations (Goffman, 1959; Messerschmidt, 1993; West & Zimmerman, 1987).

### **Gender Schema**

From the moment a child enters the world, or his/her sex is identified in utero, that

child is treated in certain ways according to whether or not that child has a Y chromosome. Sandra Bem (1981) suggested that as a society we convert maleness and femaleness into masculinity and femininity. We communicate expectations about what types of things are associated with either masculinity or femininity and what types of traits or behaviors situate a person on the continuums of masculinity/femininity. Children learn early in life not only whether they are a boy or a girl but also the extent to which certain colors, traits, values, and behaviors are associated with being a boy or a girl. As they age, children also learn to evaluate themselves based on how they fit with societal gender roles, and they incorporate this into their own self-concept. Bem, as well as a number of other scholars (e.g., Hudak, 1993; Spence & Helmreich, 1981), argued that we all develop schemas, or cognitive networks of associations, around gender. These schemas guide our own perceptions about gender and also help us to quickly and easily incorporate and use gender-related information. Specifically, Bem suggested that individuals who are strongly sex-typed are more likely to activate gendered schema and to interpret information in terms of the gender and its implications for self-concept.

Self-schema theory, as presented here, has two possible implications for our focus on binge drinking. The extent to which individuals are sex-typed or identify more strongly with masculine or feminine dimensions of their own self-concept may impact the extent to which drinking beliefs and behaviors are organized according to gendered expectations. Further, the extent to which an individual is sex-typed may influence the way he or she processes information in the environment. Specifically, sex-typed individuals may be more attuned to sex-specific alcohol-related norms and expectations, especially as they inform a gendered self-concept.

## **Doing Gender**

Bem suggests that there are individual-level variations in the extent to which we use gender-related schema to interpret and guide information. In addition to individual-level variations, there are also likely to be situational or environmental characteristics that influence the extent to which we activate one schema over another (Goffman, 1959). West and Zimmerman (1987) advanced this logic by arguing that gender is a routine accomplishment embedded in everyday interaction. Building on prior theoretical

perspectives, West and Zimmerman argue that gender identity is not static, but dynamic with different identities being activated in different situations. Thus, individuals rely on their setting and the relevant situational norms or stereotypes to decide how to act. The demands of society play an important role in achieving a gender identity. Different situations, regardless of sex, may require different gender traits to navigate the situation successfully.

If we explore contexts in which deviant or problem behaviors occur, we are likely to find that certain variants of gender identity are favored over others. For example, Messerschmidt (1993) contended that criminal and deviant behavior could be an effective way to achieve masculinity. Masculinity is a behavioral response to the particular conditions and situations in which individuals participate. The way in which an individual achieves masculinity may depend on characteristics such as race, age, and class but also may depend upon relevant cues in the surrounding environment. In Messerschmidt's early work, he argued that there are a number of ways by which young males can "achieve," including succeeding in school, work, or athletics, but masculinity can also be fulfilled through participation in deviant or criminal behavior (Messerschmidt, 1993).

While Messerschmidt (1993) originally developed his theory to explain teenaged crime, we expand this logic to help explain why young adults disproportionately represent binge drinkers. Life-course events occurring after high school, such as obtaining a higher education or entering the workforce, begin to deter more serious forms of criminal behavior for all classes and genders due to increased risks (Sampson & Laub, 1990). However, similar to Messerschmidt's adolescent group of boys, we argue that these young adults still experience the temptations of hegemonic masculinity. Unlike older adults who have finished college or have acquired long tenure in the workforce, they are unable to fully express their masculinity through traditional avenues of adulthood, such as home ownership. Thus, young adults continue to turn to minor forms of deviance, such as alcohol consumption, to express their individuality. Alcohol consumption is a seemingly safe and easily accessible way for young adults to signify a masculine youthfulness not generally necessary for adults, and not as attainable for adolescents.

Messerschmidt developed his theory to explain young male delinquency. We argue that the same process can be elaborated to encompass female problem behavior as well. While the routine activities of life, such as socializing with friends or going grocery shopping, may place less pressure on a female to do gender, other situations, previously considered to be male dominated, may cause women to feel more pressure to “achieve masculinity” (Connell & Messerschmidt, 2005; Courtenay, 2000; West & Zimmerman, 1987). Because females now co-exist and compete readily in academia and the workforce, they too are likely to have to draw on characteristics, once described as typically masculine (Peralta, 2007; West & Zimmerman, 1987). All persons, regardless of sex, must find ways to successfully express their autonomy, independence, risk taking, and dominance. The consumption of large amounts of alcohol may be an accessible way for young adults to express such characteristics outside of work and school (Iwamoto, Corbin, Lejuez, & MacPherson, 2014).

### **Previous Research and Current Study**

Research on binge drinking among emerging adults is extensive though most of it is focused primarily on college student samples (Vaughan et al., 2014). One of the strongest predictors of binge drinking is biological sex. Researchers examining the relationship between gender and binge drinking have found that binge drinking is more common among males than females, especially during the transition from adolescence to young adulthood (Blane, 1979; Donovan, Jessor, & Jessor, 1983; Schulenberg, Bachman, O’Malley, & Johnston, 1994). Consequently, because males tend to drink more heavily than females, they also tend to experience more negative consequences, such as self-inflicted injury (Benton et al., 2004). Early research in this area would suggest that these sex differences in drinking are robust, more recently however, researchers have found evidence that the gender gap may be narrowing (O’Brien, Hunter, Kypri, & Ali, 2008). For example, using national data from the Monitoring the Future project, Schulenberg, Wadsworth, O’Malley, Bachman, and Johnston (1996) found there to be little difference between men and women in adolescent characteristics that make one vulnerable to increased binge drinking later in life. They suggest common female protective behaviors, such as early marriage and childbirth, may account for the

previous gender disparities in binge drinking rates. However, as young adult women mirror conventional behavior (e.g., entering the workforce and receiving higher education) of their male counterparts, they may also begin to mirror risky behaviors, such as binge drinking (see also Keyes, Grant, & Hasin, 2008; Pulkkinen & Pitkänen, 1994). Similarly, Montemurro and McClure (2005) argued the college campus affords young adults, both males and females, ample opportunities to engage in binge drinking.

Another possible justification for a gap in sex differences cited in prior literature is the tendency for researchers to confound biological sex with gender (Peralta, 2007; Peralta et al., 2010), thus obscuring the relationship between gendered self-concept and use. Even when gender is considered, the focus is more often on the factors related to men's drinking patterns rather than women's reasons for drinking (Groeschel, Wester, & Sedivy, 2010). When researchers have looked explicitly at the relationship between gendered self-concept and alcohol use, the findings, though somewhat nuanced, tend to support a relationship between certain masculine characteristics and higher levels of drinking (Groeschel et al., 2010; Iwamoto et al., 2014; Iwamoto & Smiler, 2013; Liu & Iwamoto, 2007; Peralta, 2007; Peralta et al., 2010; Vaughan et al., 2014; Williams & Ricciardelli, 1999). For example, heavy drinking has been associated with masculine qualities such as dominance and aggression (Vaughan et al., 2014); evidence of heterosexuality, invincibility, and being macho, particularly among men (Peralta, 2007); and risk-taking and playboy characteristics (Iwamoto et al., 2014), among others. Men socialized as masculine are said to relate alcohol use with other male-associated behaviors, such as risk taking. Women socialized as feminine likely do not engage in heavy drinking because it contradicts normative feminine behaviors (Peralta, 2010). However, when women do drink heavily, their behavior is also often associated with characteristics of masculinity. Young and colleagues (2005) described women drinkers as doing a form of masculinity, or "drinking like a guy," whereas others suggest that heavy drinking in women may be a response to sexism or fighting back against traditional feminine standards (Huselid & Cooper, 1992).

Research on binge and heavy drinking has suggested that masculine role taking, especially for college males, is one reason for high rates of binge drinking. Similar to previous research, we argue that high rates of binge and heavy drinking in young adults



are often an expression of gender, and particularly masculinity. Gender schema theory tells us that although we are more likely to associate certain characteristics with boys and others with girls, there are individual differences in the extent to which such messages are incorporated into the self-concept and their importance therein. This is especially apparent in Bem's (1981) discussion on the concept of "androgyny," which is the tendency for an individual to evenly display both male and female gendered characteristics. The way in which we conceive ourselves may further impact the way in which we perceive and integrate gendered social expectations and messages in our environment. We all "do gender," but the extent to which our self-concept centers around certain characteristics may impact the extent to which we feel pressure in different situations to do a particular gender and thus what types of behaviors we enact. For example, if drinking heavily is associated with certain types of masculine characteristics (e.g., power, invincibility, heterosexuality, etc.) then someone who sees these characteristics as important or central to their own self-concept may feel more pressure to enact the behavior than someone who places less value on such characteristics, regardless of their biological sex. In the current study, we ask the following questions: (1) What is the relationship between gendered self-concept and binge drinking and drinking-related consequences? and (2) Are these relationships between gendered self-concept and drinking behaviors different for males and females?

Our first research question examines the relationship between gendered self-concept and alcohol-related outcomes. We expect that individuals who relate with more masculine characteristics will be more likely to engage in binge drinking and suffer the subsequent consequences than those who identify with more feminine qualities. Our second research question asks whether the relationship between gendered self-concept and drinking behaviors differs between males and females. Previous research suggests that masculine characteristics should be predictive of heavy drinking for both males and females (Groeschel et al., 2010; Iwamoto et al., 2014; Iwamoto & Smiler, 2013; Liu & Iwamoto, 2007; Peralta, 2007; Peralta et al., 2010; Vaughan et al., 2014; Williams & Ricciardelli, 1999). The traits traditionally classified as masculine are no longer only desired by males (Hoffman & Borders, 2001). Traits such as leadership, assertiveness,

and being willing to take a stand are associated with being strong, hardworking, and able-bodied. In order for anyone to be successful in life, they need to possess these qualities. Therefore, we believe that as males and females strive for similar characteristics, they may also participate in similar behaviors (e.g., binge drinking) meant to help demonstrate or achieve such qualities. At the same time, we wanted to allow for the possibility that there may be some differences in the influence of such characteristics on drinking for males and females.

Though our study follows in the tradition of recent research on gender roles and drinking, our study has particular strengths that will contribute to the literature in this area. First, we use a national sample of emerging adults (18-25 years old), which includes both college and non-college youth. Previous research is heavily made up of single institution samples of college students. Second, though we used a gender measure that has been relied on heavily in the previous literature (i.e., Bem Sex-Role Inventory [BSRI]), we reanalyzed the factor structure to be sure that our gender dimensions most accurately reflected the sample at hand. Previous research has often relied on a single dimension of masculinity and a single dimension of femininity to represent gendered self-concept. As we explain in the Methods section below, we have added a second masculine dimension to our measurement approach. We feel this is important to adequately reflect potential gradations in the dimensions of femininity and masculinity and to allow for the possibility that conceptions and endorsements of gender play out differently than they may have several decades ago. Finally, we have decided to explore the relationship between gendered self-concept and drinking behavior separately for males and females, thus allowing for the possibility that these relationships vary by sex.

## **Data and Method**

### *Sample*

In the current study, we used secondary data from the National Longitudinal Study of Adolescent to Adult Health (Add Health) conducted by the North Carolina Population Center at the University of North Carolina. The first wave of data collection includes a prospective nationally representative sample of adolescents who were in

Grades 7 through 12 between September 1994 and December 1995 (Udry, 2003). Using unequal stratified sampling techniques, a total of 80 high schools and 52 middle schools in the United States were selected for the study. The study was designed to ensure that the sample was representative of schools with respect to region of the country, urbanicity, school size, school type, and ethnicity (Harris et al., 2003). The overall study consists of data collected from a number of sources (e.g., students, parents, school administrators) over multiple waves. Roughly 90,000 students completed the Wave 1 in-school questionnaire, which asked students about demographics, various behaviors, home- life, and social relationships. More in-depth information was subsequently obtained from the in-home interview portion of the study that was conducted with a randomly selected subsample ( $n = 20,745$ ) of students identified through school rosters. Follow-up interviews with study participants were conducted in 1996 (Wave II), 2001 to 2002 (Wave III), and 2007 to 2008 (Wave IV).

Data for the current study come from the participant interviews conducted in Wave III. Approximately 15,170 Wave I participants were relocated and interviewed during 2001-2002 when participants were approximately 18- to 26 years old. Participants answered questions on a range of topics similar to those from previous waves (e.g., general physical and psychological health, relationships, deviant behavior, education, etc.). In addition, a subsample of participants ( $n = 4,163$ ) completed the BSRI, a popular measure of masculine and feminine gender roles. We used the data from the BSRI subsample to explore our research questions. After removing cases with incomplete or missing data, we had a final sample size of 3,926 cases. Participants ranged in age from 18 to 25<sup>1</sup> and approximately 59% were female. Approximately 15% of participants reported their ethnicity as Hispanic or Latino/a, and 70% of participants reported their race as White.

### *Measures*

*Gender self-concept/identity.* The primary predictor variables of interest are subscales from the BSRI (Bem, 1974). The BSRI is designed to tap the extent to which individuals describe themselves in terms of socially desired cultural definitions of maleness and femaleness. There have been a number of criticisms of both the BSRI

and gender schema theory (i.e., the theoretical perspective underlying the measure) over the last four decades, yet it remains a popular measure of gender identity. One of the biggest issues surrounding the BSRI involves the best method of scoring (Johnson et al., 2006; Kalin, 1979; Motowidlo, 1981; Sedney, 1981). Though there have been multiple methods proposed, the most common techniques are the categorical and the factor method (Johnson et al., 2006). In the categorical method, individual scores on the masculine and feminine subscales are compared with sample medians to generate four categories (masculine: above the median on masculinity and below the median on femininity; feminine: above the median on femininity and below on masculinity; androgynous: above the median on both; undifferentiated: below the median on both masculinity and femininity subscales). The categorical method was most popular in the early years and is still used by some today (e.g., Daigle & Mummert, 2014); however, one of the biggest critiques of this method is the arbitrary nature of placing people in categories (Hoffman & Borders, 2001). In many samples, a fair percentage of people fall at or very near the median and a one-point change could easily change categorical membership. For example, in the current sample, the median on the masculinity subscale is 4.9 on a scale of 1 to 7 and approximately 13% of participants fall between 4.8 and 5.0, whereas 45% fall between 4.5 and 5.5. Another issue with the categorical approach is that there are questions about the “purity” of the subscales, or the masculine and feminine factors on which the categorical membership is based (Choi, Fuqua, & Newman, 2009; Hoffman & Borders, 2001). Many researchers have taken the factor approach and simply used scores on the masculinity and femininity subscales as unique and separate variables. We have chosen the latter approach, yet were still concerned about the “purity” of the factors as others have suggested that the masculinity and femininity items do not always form nice unidimensional factors (Choi et al., 2009). To be sure that we were using the most appropriate subscales for our sample, we performed factor analysis on the short-form BSRI, which was available in the Add Health.

We conducted a factor analysis using principal axis factoring and oblique rotation (Fabrigar, Wegener, MacCallum, & Strahan, 1999; Fabrigar & Wegner, 2014) on the 20 masculine and feminine items contained in the short-form BSRI. The instrument

includes 10 feminine items, 10 masculine items, and 10 filler items and participants are asked to report, on a 7-point scale (1 = *never or almost never true*, 7 = *always or almost always true*), how often each of the items are true for the individual. Traditionally, these items are treated as two factors (masculine, feminine), so we explored a two-, three-, and four-factor solution. The two-factor solution was problematic in that a few items did not load cleanly on one or the other factor (i.e., high cross-loadings), and there were a number of residuals above .08 and at least two above .10 (good values are closer to 0; McDonald, 1999). The four-factor solution had good residuals, but the fourth factor did not have any items loading above .40 (McDonald, 1999). The best solution was the three-factor solution, which had good residuals and clean factors though we did drop two masculinity items that did not load above .40 on any one factor. The final solution and factor loadings are presented in Table 1. The results indicate that *femininity* items all load cleanly on one factor ( $\alpha = .92$ ). The masculinity items are split between two factors that we have termed *General Masculinity* ( $\alpha = .78$ ) and *Dominance Masculinity* ( $\alpha = .69$ ). Subscales were created by averaging the items from each factor and thus scores range from 1 to 7 with higher scores indicating greater identification with the construct of interest. Example items from the Femininity scale include affectionate, sympathetic, and understanding. Others have described feminine items on the BSRI as representing primarily expressive traits (Huselid & Cooper, 1992; Spence & Helmreich, 1981). General Masculinity items include traits such as having a strong personality, defending beliefs, and being assertive, described sometimes in the literature as instrumental traits (Huselid & Cooper, 1992; Spence & Helmreich, 1981). Finally, Dominance Masculinity includes three items: dominant, forceful, and aggressive. These items represent the extreme end of the items operationalized in previous literature as masculinity. Although the BSRI has suffered a number of criticisms over the years, it is still popular and thus is useful for comparing to current and previous literature on gender identity and sex roles. Further, we have taken care to be sure that we operationalize the items in a way that best fits the characteristics of the population under study as evidenced by the strong and clean factor loadings presented in Table 1. Females ( $M = 5.89$ ,  $SD = 0.95$ ) scored significantly higher,  $t(4099) = 15.33$ ,  $p < .001$ , on the Femininity subscale than did males ( $M = 5.41$ ,  $SD = 1.06$ ). Females ( $M = 5.58$ ,  $SD = 1.04$ ) also

scored slightly, though significantly, higher,  $t(4090) = 2.89, p < .01$ , on General Masculinity than did males ( $M = 5.48, SD = 1.13$ ). There were no significant differences between males ( $M = 3.72, SD = 1.30$ ) and females ( $M = 3.68, SD = 1.36$ ) on Dominance Masculinity; however, scores on this subscale were lower overall in comparison with the other two subscales.

### *Control variables*

*College student status.* Due to the age range of participants, some were likely to be in college at the time of data collection, others may have already attended and left college, while still others may have never attended. When it comes to alcohol use, results from the Monitoring the Future surveys indicate that although students who attend college were actually less likely than their peers to drink in high school, this pattern reverses itself upon matriculation (Johnston et al., 2007, 2012); thus, we felt it was important to control for college attendance status. For the purposes of this study, we have separated participants into three categories of college attendance (dummy variables have been created for each category). Specifically, approximately 40% of participants (males = 45%, females = 38%) have never attended college or postsecondary education, 35% (males = 31%, females = 37%) were enrolled in postsecondary education at the time of data collection (undergraduate or graduate), and 25% (males = 24%, females = 25%) had previously attended a postsecondary institution.

*Demographics.* In addition to college attendance, we also controlled for age, ethnicity, race, and childhood poverty. As noted earlier, participants ranged in age from 18 to 25 ( $M = 22.03$ ). Dummy variables were created to capture ethnicity (0 = non-Hispanic or Latino/a, 1 = Hispanic or Latino/a) and race (0 = non-White, 1 = White). A poverty variable was created based on the parent responses to the receipt of aid in Wave I. Youth whose primary caregivers reported receiving Aid to Families With Dependent Children, food stamps, or a housing subsidy were coded as an affirmative on the poverty variable (0 = no poverty, 1 = poverty).

**Table 1.** Obliquely Rotated Factor Loadings for the BSRI Short-Form.

	Femininity	General Masculinity	Dominance Masculinity
Defends beliefs		-.582	
Independent		-.594	
Assertive		-.514	.265
Have strong personality		-.615	
Have leadership abilities		-.481	.289
Forceful			.543
Dominant			.702
Aggressive			.667
Affectionate	.451		
Sympathetic	.557		
Sensitive to needs of others	.619		
Understanding	.549		
Compassionate	.715		
Eager to soothe hurt feelings	.666		
Warm	.818		
Tender	.933	.212	
Loves children	.464		
Gentle	.842		

Note. Primary factor loadings are highlighted. Items that did not load higher than .4 on any factor are excluded (i.e., willing to take risks, willing to take a stand) from the table and all factor loadings <.2 are suppressed. BSRI = Bem Sex-Role Inventory.

### *Outcome variables*

*Binge drinking past two weeks.* Though there is some controversy surrounding the best measure of binge drinking, we applied the 5/4 definition; a definition supported by a number of federal agencies and most often used on national surveys (Clinkinbeard & Johnson, 2013; Courtney & Polich, 2009; Wechsler & Kuo, 2000). Binge drinking was defined as consuming four or more alcoholic drinks on a single occasion in the past two weeks for females and five or more drinks for males. Specifically, participants were asked “During the past two weeks, how many times did you have four or more drinks on a single occasion, for example, in the same evening?” The same question was repeated for five or more drinks. The first question was used for the female standard and the second one for the male standard. Respondents were asked to report a number between 0 and 14 days. For the purposes of this study, we broke this variable out into three categories (0 = no binge drinking in the past 14 days, 1 = binge drank once during the last 14 days, 2 = binge drank two or more times in the past 14 days). We refer to these categories in our tables as non-bingers, occasional bingers, and regular bingers. Overall, approximately 12% of participants were categorized as occasional bingers and 18% were categorized as regular bingers (70% reported no binge drinking in the past 14

days).

*Alcohol-related consequences.* In addition to measures of alcohol use, we were also interested in the consequences experienced by those who used alcohol. The alcohol-related consequences in the current study are primarily social in nature. Participants were asked how often they had experienced the following as a result of alcohol use in the past 12 months: problems with school/work, problems with friends, problems with dating, sexual regret, fighting from drinking, being drunk at school/work. We created an index so that participants received one point for each consequence that they had experienced at least once. Scores ranged from 0 to 6 ( $M = 0.58$ ) with higher scores indicating that the participant had experienced more of the identified consequences. Approximately 31% of participants (26% of females and 38% of males) had experienced at least one alcohol-related consequence in the past 12 months.

### *Analyses*

The complex nature of the Add Health design requires correction for the clustered nature of the survey data. Subsample specific weights are not available for the BSRI sample and thus robust standard errors and school weights are used to account for individual clustering within schools. A series of negative binomial and multinomial logistic regression models were estimated to explore the relationships between gender roles and alcohol-related outcomes. Because we expected that gender roles might vary by sex, we ran separate models for males and females. Further, although we do not present the combined models (using sex as a predictor variable), we did conduct analyses that utilized sex by gendered self-concept interaction terms to test for real statistical difference between the male and female models reported in the article. The relevant findings from the combined models are discussed briefly at the end of the Results section. Negative binomial regression is used with positively skewed count data and is preferred over the Poisson model due to the overdispersed (i.e., variance greater than the mean) nature of the data (Gardner, Mulvey, & Shaw, 1995; Long & Freese, 2006).<sup>2</sup> The regression tables found in the Results section include both the standard and the exponentiated regression coefficients.<sup>3</sup> Multinomial logistic regression was used for the binge-drinking model, which was treated as a categorical outcome (0 = did



not binge drink past 2 weeks, 1 = binge drank one time in past 2 weeks, 2 = binge drank 2+ times in past 2 weeks). Both standard coefficients and the odds ratios (OR) are presented in the regression table in the Results section.

## Results

Descriptive statistics in our sample showed males reported binge drinking significantly more than did females. Specifically, 78% of females reported no instances of binge drinking in the past 2 weeks compared with 60% of males,  $\chi^2(1, N = 4096) = 156.87, p < .001$ . Approximately 10% of females reported binge drinking at least once, whereas 14% of males reported doing so,  $\chi^2(1, N = 4096) = 16.65, p < .001$ . Twice as many males (26%) as females (12%) reported binge drinking on at least two occasions in the past two weeks,  $\chi^2(1, N = 4096) = 133.17, p < .001$ . Finally, males ( $M = 0.78, SD = 0.04$ ) reported significantly more alcohol-related consequences,  $t(2941) = 8.12, p < .001$ , than did females ( $M = 0.45, SD = 0.02$ ).

The answer to the first research question (i.e., what is the relationship between gender roles/identity and alcohol-related outcomes?) can be found in the correlations matrix in Table 2 and in the regression analysis in Table 3. As seen in Table 2, sex-role identification is moderately and significantly associated with alcohol outcomes, including binge drinking in the past 2 weeks and alcohol-related consequences in the past 12 months, suggesting further analysis is warranted. Specifically, the Femininity subscale is positively associated with non-binging and negatively associated with regular binge drinking (i.e., 2+ times in past 14 days) and alcohol-related consequences. General Masculinity has a negative relationship with alcohol-related consequences. Finally, Dominance Masculinity is negatively related to non-binging and positively associated with regular binge drinking and alcohol-related consequences. It should also be noted that the correlations in Table 2 further support the use of the three-factor solution for gender identity that we presented in the Methods section. Specifically, if the two masculinity subscales were really part of unidimensional construct, you would expect that the two scales would have a similar pattern of correlations with other variables. A quick glance at the table shows that in several cases, the correlations between the General Masculinity and Dominance Masculinity subscales and other variables actually go in

opposite directions (e.g., alcohol-related consequences) and even when they are in the same direction, the strength of the associations can be very different (e.g., Femininity).

Addressing both research questions, Table 3 presents a series of regression models, performed separately for males and females, that explore the relationships between gendered self-concept and alcohol-related outcomes while controlling for basic demographic factors, including postsecondary experience, age, race, and childhood poverty. In looking at binge drinking over the past 2 weeks, we compared those who binge drank once (occasional bingers) and those who binge drank 2 or more times (regular bingers) with those who did not binge drink at all (non-bingers/reference category). Occasional binge drinkers (both males and females) were more likely than non-binge drinkers to be White. Hispanic females and those who reported childhood poverty were less likely to report being occasional binge drinkers. Males who reported higher Femininity scores were significantly less likely to report being occasional binge drinkers. Specifically, a one-unit increase in Femininity for males was associated with a 21% decrease in the odds of being an occasional binge drinker.

The pattern changes slightly when we look at regular binge drinking (2+ times in the past 14 days). A one-unit increase in the Dominance Masculinity subscale is associated with increased odds of regular binge drinking for both males (14%) and females (23%). Neither General Masculinity nor Femininity was significant for either males or females. For females, being older was negatively associated with regular binge drinking whereas regular binge drinkers were more likely than non-binge drinkers to report current or previous postsecondary experience. Being White was significantly associated with regular binge drinking among males.

**Table 2.** Bivariate Correlations Among Primary Dependent, Independent, and Control Variables.

Variables	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.
1. Non-binge														
2. Occasional binge	-.57**													
3. Regular binge	-.71**	-.17**												
4. Alcohol consequence	-.31**	.07**	.30**											
5. Femininity	.05**	-.02	-.05**	-.15**										
6. General Masculinity	-.01	.01	.00	-.08**	.61**									
7. Dominance Masculinity	-.05**	-.00	.06**	.06**	.12**	.33**								
8. No postsecondary	.03	-.02	-.02	.00	-.15**	-.17**	-.02							
9. Current postsecondary	-.02	.01	.02	.05**	.07**	.11**	.02	-.60**						
10. Previous postsecondary	-.01	.01	.00	-.06**	.09**	.07**	.01	-.48**	.41**					
11. Age	.02	.01	-.03*	-.11**	-.03*	-.02	.00	.01	-.25**	.27**				
12. White	-.16**	.10**	.10**	.07**	.09**	.06**	-.05**	.01	-.05**	.04**	.01			
13. Hispanic	.03	-.03	-.01	-.06**	-.07**	-.07**	.01	.07**	-.04*	-.04*	.08**	.05**		
14. Child poverty	.08**	-.06**	-.04**	-.01	-.08	-.07**	.00	.20**	-.10**	-.11**	-.06**	-.15**	.06**	
15. Male	-.20**	.06**	.18**	.15**	-.23**	-.05**	.01	.07**	-.06**	-.01	.09**	.01	.03	-.01

\* $p < .05$ . \*\* $p < .01$ .

**Table 3.** The Relationship Between Gendered Self-Concept and Alcohol-Related Outcomes for Males and Females.

Variables	Occasional binge				Frequent binge				Alcohol-related consequences			
	Males ( <i>n</i> = 1,623)		Females ( <i>n</i> = 2,313)		Males ( <i>n</i> = 1,623)		Females ( <i>n</i> = 2,313)		Males ( <i>n</i> = 1,213)		Females ( <i>n</i> = 1,639)	
	Coefficient	OR	Coefficient	OR	Coefficient	OR	Coefficient	OR	Coefficient	<i>e<sup>b</sup></i>	Coefficient	<i>e<sup>b</sup></i>
Femininity	-0.23 (.08)**	0.79	0.00 (.09)	1.00	-0.11 (.07)	0.89	-0.10 (.08)	0.90	-0.28 (.06)**	0.75	-0.04 (.07)	0.97
Gen Masc	0.13 (.10)	1.13	-0.03 (.09)	0.97	0.04 (.07)	1.04	-0.14 (.08)	0.88	0.01 (.05)	1.01	-0.30 (.06)**	0.74
Dom Masc	0.04 (.08)	1.04	0.02 (.06)	1.02	0.13 (.05)**	1.14	0.21 (.05)**	1.23	0.09 (.04)**	1.10	0.20 (.04)**	1.22
Demographic												
Age	-0.02 (.05)	0.98	-0.00 (.04)	1.00	-0.04 (.04)	0.96	-0.14 (.04)**	0.87	-0.09 (.04)*	0.92	-0.15 (.03)**	0.86
White	1.05 (.19)**	2.86	0.86* (.17)**	2.36	0.71 (.14)**	2.03	0.99 (.19)	2.69	0.24 (.11)*	1.27	0.67 (.15)**	1.95
Hispanic	-0.12 (.18)	0.89	-0.55 (.27)*	0.58	-0.01 (.23)	0.99	0.42 (.24)	0.66	-0.27 (.15)	0.76	-0.57 (.18)**	0.57
Poverty	-0.34 (.28)	0.71	-0.72 (.32)*	0.49	-0.35 (.23)	0.70	-0.25 (.21)	0.78	0.29 (.14)*	1.34	-0.29 (.18)	0.75
PrevColl	0.04 (.18)	1.04	0.07 (.17)	1.08	0.04 (.14)	1.04	0.42 (.20)*	1.53	-0.09 (.13)	0.91	0.07 (.16)	1.07
CurrColl	0.02 (.20)	1.03	0.26 (.15)	1.30	0.01 (.13)	1.01	0.45 (.20)*	1.56	0.07 (.10)	1.07	0.27 (.14)*	1.31

Note. OR = odds ratio; General Masc = General Masculinity; Dom Masc = Dominance Masculinity; PrevColl = have previously attended college (never attended is reference category); CurrColl = currently attending postsecondary education (never attended is reference category).

\* $p < .05$ . \*\* $p < .01$ .

When we look at the social consequences of drinking, a one-unit increase in Dominance Masculinity is again positively associated with outcomes for both males and females, increases of 10% and 22% respectively. The opposite gender roles appear to be protective here as General Masculinity is negatively associated with consequences for females and Femininity is negatively associated with consequences for males. In this case, a one-unit increase in the opposite sex-role identity is associated with an approximately 25% decrease in reports of negative consequences. For females, being older and Hispanic is negatively associated with experiencing consequences while being White and currently attending college (compared to never attending) is related to higher reports of negative consequences. Being White and reporting childhood poverty was significantly associated with negative consequences among males. Finally, although the full models (i.e., males and females included) with interactions are not presented in Table 3, we did explore them and wanted to note a couple of things. The primary reason for exploring interactions was to establish whether the differing results in the male and female models were statistically significant. The sex-by-femininity interaction was significant ( $p = .038$ ) for occasional binge drinkers, likely because Femininity was significant for males but not for females. Although we do see evidence of slight differences emerging for males and females in the frequent binge model presented above, sex by gender identity interactions did not reach significant levels. Thus, it appears that differences presented in this model may be more along the lines of differences in magnitude and may partially be a result of sample size and statistical power differences. However, the third model (i.e., social consequences of drinking) did present with significant sex-specific interactions. That is, both the sex-by-Femininity ( $p = .006$ ) and the sex-by-General Masculinity ( $p = .000$ ) interactions were significant. As noted above and as seen in the last two columns of Table 3, these gender identities had different patterns of influence for males versus females. Specifically, associating with feminine characteristics was protective against negative alcohol consequences for males and associating with general masculinity characteristics was protective for females. Finally, we also tested sex-by-college status interactions for each model. This interaction was significant in both the regular binge ( $p = .022$ ) and the alcohol consequences ( $p = .039$ ) models. These differences can also be seen in Table

3. Specifically, current college status was associated with regular binge drinking and alcohol-related consequences for females but not males.

## **Discussion**

In the current article, we were interested in the relationships between gendered self-concepts and alcohol use, primarily binge drinking and alcohol-related consequences. In addition we were interested in determining whether such relationships differed for males and females. Our findings in the current study are modest though important in that they have several potential implications for future research and intervention.

We utilized the BSRI to represent the different types of gendered self-concepts. Whereas the BSRI typically relies on two subscales (see for exception, Choi et al., 2009), one masculine and one feminine, we determined that at least three distinct factors exist in the set of items contained in the instrument. We titled our subscales Femininity, General Masculinity, and Dominance Masculinity. The identification of three separate domains was supported both by factor analysis and examination of the bivariate correlations. Further, one of our primary findings was that the Dominant Masculinity subscale was the most consistent predictor across models. That is, Dominant Masculinity was significantly associated with regular binge drinking and alcohol-related consequences for both males and females

These findings have potentially important implications. First, we need to be careful about simply splitting gender-role concepts or identities into masculine and feminine, as it appears that there are different variations of these constructs. Using a large, national sample, we found support for at least one nuanced version of masculinity (i.e., Dominance Masculinity) that acted differently from the more generic General Masculinity scale. We expect that the masculinity items on the BSRI do not fully represent the various types of masculinity that are experienced by young adults and thus more research needs to be done to explore other possibilities. In addition, although we did find support for a one-dimensional Femininity factor, it is still likely that there are other aspects of femininity that are not adequately represented in the BSRI. Thus, we suggest that the BSRI can be useful if care is taken to appropriately analyze and score

the measure but that it may be incomplete. That is, it can provide important insight into the relationships between gender self-concepts and behavior, though future research would also benefit from measures that capture additional dimensions of gender. Further, although there is plenty of evidence to suggest that males drink more alcohol more often than females, recent statistics suggest that this gap is closing (O'Brien et al., 2008). One explanation for the gap is that alcohol use is more closely associated with masculinity or masculine behavior, and thus it is more accepted and expected among males. Although this appears to be true to an extent, we note that it may not be masculinity, in general, that is associated with heavy drinking but instead very specific aspects or types of masculinity. Further the specific aspects of masculinity that are associated with drinking are not relegated to males only. Females who see themselves as having more dominant characteristics are also more likely to participate in regular binge drinking and suffer alcohol-related consequences. If we think about this in terms of "doing gender," drinking may not be associated with doing masculinity but with doing a certain type of masculinity and, in this case, it appears to be associated with expressing a sense of dominance. Future research might benefit from historical or longitudinal methods used to explore the potential covariation in changes in gendered self-concepts and sex differences in drinking over time.

Though Dominance Masculinity was associated with regular binge drinking and alcohol-related consequences, it did not necessarily differentiate non-bingers from occasional bingers. This suggests that just as alcohol use may be related to specific aspects of masculine identities, it may also be that masculine expression is more strongly associated with specific types of alcohol use. Thus, simply drinking alcohol may not be an expression of dominance in the same way that heavy drinking is associated with dominance. Occasionally having a few beers may not adequately express dominance in the same way that drinking large amounts of liquor often or getting so drunk that you suffer consequences does. We looked at binge drinking and related consequences, though future research might benefit from taking a closer look at the relationship between masculinity and particular types of risky drinking behavior (e.g., drinking games, shotgunning, shots, etc.) as well as more extreme consequences not included in our current measure (e.g., alcohol dependence, high-risk sex, legal troubles,

etc.).

As we noted above, Dominance Masculinity was predictive of heavier drinking for both males and females. However, there were also important differences in our other findings for males and females. First, it is interesting to note that higher scores on the Femininity subscale were protective against both binge drinking and alcohol-related consequences for males but not females. Further, General Masculinity characteristics protected females (but not males) against alcohol-related consequences. This is particularly interesting as it suggests that those individuals who are more well rounded and who identify with personality characteristics traditionally associated with the opposite sex may benefit in terms of drinking behavior. This particular finding seems to fall in line with the concept of androgyny, or the idea that some individuals endorse feminine and masculine characteristics relatively equally (Bem 1981). Specifically, various scholars have suggested that androgynous individuals may reap a number of positive benefits (Bem, 1983; Gilbert, 1981; Rosenbaum, 1986). One possible explanation for our findings is that individuals who associate with a diverse set of personality characteristics (both masculine and feminine) may be more flexible in the way that they view themselves and thus more flexible in what it means to “do gender.” That is, a more androgynous individual may feel less constrained by sex-specific norms or stereotypes. A male who associates strongly with “masculine” characteristics and does not identify with traditional “feminine” characteristics may be more heavily influenced by male norms of heavy drinking whereas a male who associates with a diverse set of personality characteristics may not feel the same pressure to prove his “male-ness” in the same way. Bem’s (1981) self-schema theory would support this, suggesting that individuals who are more heavily sex-typed may be more likely to interpret social prescriptions or norms in very gendered ways. The protection effect is less readily clear for females though it is possible that instrumental characteristics of masculinity (e.g., defending on beliefs, being assertive) could help females maintain some control and avoid some of the negative consequences associated with alcohol use (e.g., sexual regret, problems with friends, etc.). Clearly, more research is necessary to fully explain these findings.



As noted above, previous research into binge drinking has particularly focused on college student samples. Due to the design of our research, we were able to compare college students to their non-college peers. Though college status was not significantly correlated with drinking in the overall sample (see Table 2), we found that college student status was particularly important for females in the prediction of alcohol use and related consequences. Specifically, females who were currently attending, or had previously attended, college were more likely to drink and to suffer consequences than their non-college peers. Previous research has indicated that gender norms can be particularly strong for predicting abstinence versus moderate or heavy drinking for females; however, these norms vary by situation, environment, country of origin, and so on (Peralta, 2007). Environmental variation in norms could explain why college women were more likely than their non-college counterparts to drink and suffer consequences. The norms surrounding drinking by females may be a bit less restrained in the college environment because drinking is considered a part of the normative college experience, regardless of sex. Further, there is some evidence that when youth describe or explain what is considered normative with regard to college drinking that both males and females use male norms as *the* standard (i.e., the image in their head is of a male; Young et al., 2005). Finally, when it comes to “doing gender,” the college environment is one in which females may need to align themselves with many traditionally “masculine” characteristics to compete successfully. Future research should not only explore the differences in drinking behavior between those attending college and their non-college peers but should focus more specifically on how these different environments might be related to gendered self-concepts and the perception of drinking norms.

### *Limitations and Future Research*

It is important to note a few limitations to the current research as well as possibilities for extending this research further. First, it should be noted that the BSRI might not be the most ideal measure of masculinity (or femininity for that matter). Although the BSRI has been popular for decades and is still used often, we can certainly acknowledge that there have been some societal changes in perceptions of gender roles and identity since it was first developed. We noted that, if used, it might not

be appropriate to relegate the items to a strict dichotomy of masculinity and femininity as we found support for at least one additional masculine factor. We argue that beyond Dominance Masculinity, there are probably other subtypes of masculinity that are not adequately represented. Further, although the Femininity factor was pure, it does not guarantee that there are not modern aspects of femininity that are missing from the measure. It is also possible that the presence of subfactors represents specific changes in the societal conceptions of masculinity and femininity. When first developed, the BSRI was seen as representing socially desirable characteristics of males (masculinity) and females (femininity; Bem, 1974; Choi, Fuqua, & Newman, 2008). Although the Dominance Masculinity scale had important predictive effects, it was not necessarily a heavily endorsed characteristic of either males or females (i.e., it was the least endorsed of all three subscales). Thus, it is possible that these dominant and aggressive traits are no longer seen as particularly desirable for either males or females, at least not by the majority. In any case, future research should explore additional and alternative constructions of masculine and feminine characteristics. It might even be helpful to utilize multiple instruments (the BSRI and others) to compare/contrast different definitions and their implications for behavior.

In addition to exploring additional definitions of gendered self-concepts, scholars should also consider exploring the route(s) through which identification with gendered characteristics relates to behavior. In particular, we know that social norms have a strong relationship to drinking behavior, particularly in college environments (Cho, 2006; Clinkinbeard & Rhodes, 2014; Larimer et al., 2011; Perkins, 2002). In fact, social norms campaigns are one of the most popular prevention/intervention approaches utilized with this population (NIAAA, 2007; Perkins, 2002). Further, many of the norms surrounding alcohol use are gendered in nature (de Visser & McDonnell, 2012; Iwamoto et al., 2014; LaBrie, Cail, Hummer, Lac, & Neighbors, 2009; Lyons & Willott, 2008; Young et al., 2005). In line with both self-schema theory and the idea of doing gender, it is likely that these alcohol-related norms mediate the relationship between masculine and feminine self-concepts and alcohol use. For example, a male that identifies strongly with masculine characteristics and particularly those of the dominance type may be heavily influenced by social norms suggesting that males should be able to hold their liquor and

thus may use such behaviors to express or prove a particular brand of masculinity. There are a number of social norms measures available that could be used to explore such relationships. Some such approaches focus more on the quantitative perceptions of what is considered normal drinking behavior in terms of amount and frequency (e.g., average student/male/female/etc. drinks four or more drinks on an occasion, etc.; Bertholet, Gaume, Faouzi, Daeppen, & Gmel, 2011; Clinkinbeard & Johnson, 2013) whereas others are more focused on perceptions of typical or appropriate behaviors while drinking (e.g., typical to drink to intoxication, acceptable to drink heavily on a date, good parties require alcohol, etc.; for example, Osberg et al., 2010; Perkins & Wechsler, 1996)

Although we discovered that drinking tends to be related to reports of Dominance Masculinity for both males and females, more qualitative research should be completed to better understand how exactly this is seen by males and females. At least a couple studies have suggested that although males and females see drinking as an expression of similar characteristics that they may have different goals in mind. Males may drink to appear macho and to prove both their masculinity and their heterosexuality (Peralta, 2007). Females may associate heavy drinking with “drinking like a guy,” yet there is evidence that this is simply seen as the norm and that they are not necessarily trying to prove their equality or be “masculine.” Even if they do not want to appear masculine, females who drink heavily may be fighting against certain negative connotations of femininity, such as being wimpy, weak, or “girly.” Females in one study reported wanting to appear attractive to the opposite sex (i.e., emphasize heterosexuality) and may attempt to do so by participating in drinking behavior (Young et al., 2005). At the same time, females who drink heavily may not receive the intended benefits as they can be viewed as encroaching upon masculinity (Peralta, 2007). Either way, further research is warranted to fully understand how drinking achieves (or does not) desired characteristics among males and females.

We should also note that the findings presented here are cross-sectional in nature and though the analyses were based on theoretical predictions, causal ordering cannot be established. Future research should look more closely at the longitudinal relationships between gendered self-concept and drinking. It would be particularly

interesting to measure both gendered self-concepts and drinking behavior at multiple points throughout emerging adulthood to establish causal ordering and to capture potential change in one or both constructs.

Finally, the relationship between gendered self-concepts and alcohol use may be important to keep in mind in the world of prevention and intervention. If heavy drinking seems to be a way of expressing certain types of gender roles or characteristics, practitioners might want to focus on helping youth explore ways to achieve the desired gender expressions in other, less dangerous ways. Further, when considering messaging in social norms campaigns, we might want to investigate ways to associate moderate or healthy drinking with those desired roles. Although we did not explore it here, future research might also look at the relationship between gendered self-concept and protective behavioral strategies (e.g., alternating alcohol with non-alcoholic drinks, having a designated ride home, etc.). There is evidence that masculinity is negatively associated with seeking help (Groeschel et al., 2010) and thus may also be negatively associated with other means of protective behavior, something that would also be important to know for prevention planning. Finally, if opposite sex gender roles are protective, any attempts to further normalize gender diversity and to facilitate rewarding opportunities for youth to experience activities that call upon a range of necessary characteristics (both feminine and masculine) would likely be beneficial.

## **Conclusion**

We found support for a relationship between gendered self-concepts and drinking behavior. Our findings have important practical implications for future research and intervention. First, our findings revealed that care should be taken in fully exploring the conceptual and operational characteristics of self-concept measures. Whereas gender self-concept is often characterized into either masculine or feminine, we found support for more nuanced possibilities. In our study, we explored Femininity, General Masculinity, and Dominance Masculinity and found that each had its own effects. Dominance Masculinity scores were the most consistent predictors across models and were associated with regular binge drinking and alcohol-related consequences for both males and females. We recommend that future research in this area continue to explore

different variants of gendered self-concept (i.e., beyond those captured in our measure) as they relate to alcohol use and other problem behaviors.

Another important feature of our findings was that although Dominance Masculinity was associated with regular binge drinking (i.e., 2 or more times in the past 30 days), it did not necessarily differentiate those who did not binge at all from those who did so occasionally (i.e., once in past 30 days). Thus, it is likely that characteristics such as dominance masculinity are most strongly associated with specific types of drinking. Though we looked at regular binge drinking and some general consequences, future research might consider exploring other particular types of heavy or risky drinking and its consequences (e.g., drinking games, blacking out, etc.) as it relates to gender.

We also discovered that variants of gender self-concept might work a bit differently for males versus females. While Dominance Masculinity seemed to work fairly similarly for both groups (i.e., encouraged heavier drinking), General Masculinity characteristics were protective for females whereas general Femininity characteristics were protective for males. This could suggest that males and females with a more diverse, or well rounded, set of gender-related personality characteristics are better equipped to navigate circumstances (e.g., social norms, pressures, stress, etc.) associated with alcohol use. More research is needed to better understand this protection effect.

Finally, we found that college status was particularly important for females in that those who attended college were more likely to drink heavily and suffer consequences. Thus, more research is needed to better understand the aspects of the college environment that are particularly related to drinking among females and how gendered self- concepts may interact with various environments. Further, practitioners involved in the prevention and intervention of alcohol-related behaviors should be careful to consider how not just sex, but gendered self-concepts, may impact both the behaviors and the responses.

## **Acknowledgments**

This research uses data from Add Health, a program project directed by Kathleen Mullan Harris and designed by J. Richard Udry, Peter S. Bearman, and Kathleen Mullan Harris at the University of North Carolina at Chapel Hill, and funded by grant P01-HD31921 from

the Eunice Kennedy Shriver National Institute of Child Health and Human Development, with cooperative funding from 23 other federal agencies and foundations. Special acknowledgment is due Ronald R. Rindfuss and Barbara Entwisle for assistance in the original design. Information on how to obtain the Add Health data files is available on the Add Health website (<http://www.cpc.unc.edu/addhealth>). No direct support was received from grant P01-HD31921 for this analysis.

### **Declaration of Conflicting Interests**

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

### **Funding**

The author(s) received no financial support for the research, authorship, and/or publication of this article.

### **Notes**

1. We dropped 34 people above the age of 25 to remain consistent with typical reporting for this age category. The typical “young adult” age category as defined by government organizations (e.g., Young Adult Drinking, 2006).
2. More information on the distribution and form of the data is available from the corresponding author.
3. The exponentiated coefficient is particularly helpful with regard to interpreting the strength or size of the effect. For a positive association, the exponentiated coefficient can be interpreted as a factor of increase in the dependent variable as a result of a one-unit increase in the independent variable ( $1 - e^b$  represents the percent increase in the dependent variable for a one-unit increase in the independent variable), whereas a negative sign indicates a decrease in the dependent variable for a one-unit increase in the independent variable ( $1 - e^b$  represents the percent decrease in the dependent variable for a one-unit increase in the independent variable).

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