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Race–Gender Differences in the Impact of History of Heavy Drinking on Current Alcohol Consumption during the Transition to Adulthood

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American youth transitioning to adulthood consume more alcohol than in any other period of the life course. This high level of consumption can result in serious consequences, including lost productivity, death and disability, sexual assault, and addiction. Nevertheless, relatively little is known, especially by race and gender, about how prior history of heavy drinking (e.g., in late adolescence) impacts drinking in young adulthood. Utilizing data from the National Longitudinal Survey of Youth (1994-2004) for African Americans, Latinos, and Whites (N = 2,300), we found

that Whites and Latinos drink more than African Americans, and men report drinking more than women. However, accounting for a history of heavy drinking introduces considerable variation in current drinking patterns by race–gender status. A history of heavy drinking more than doubles the number of drinks consumed by African American women, putting their drinking levels on par with African American men and White women and raising their level of drinking above Latinas. Further, African American women’s probability of heavy drinking becomes indistinguishable from that of African American men and White women, once accounting for a prior history of binge drinking. For Latinas with a history of heavy drinking, the probability of being a current binge drinker is equal to Latinos and White men and higher than African Americans and White women.

Key words: race–ethnicity, gender, heavy drinking, alcohol consumption, young adulthood

In the United States, the transition to adulthood is characterized by higher levels of alcohol consumption than any other period of the life course. This trend is also reflected in the number of fatalities associated with drinking and alcohol-related instances of violence among young adults (Archer, 2004; Centers for Disease Control [CDC], 2012). Additionally, heavy alcohol consumption is highly co-morbid with mental health problems such as anxiety and depression and is associated with feelings of low self-esteem, social isolation, and a lack of motivation and productivity that may threaten future success (Catanzaro & Laurent, 2004). Research has further shown that the normative trajectory for drinking includes that most individuals start drinking in adolescence, increase the amounts they drink into the early to mid-twenties, and then decrease drinking as they adopt adult roles (employment, marriage, parenthood) (Bachman et al., 2002; Christie-Mizell & Peralta, 2009). In other words, young adults often “age-out” of heavier drinking patterns. Moreover, epidemiological studies indicate that men drink more than women, and White youth drink more than their African American and Latino counterparts (Caetano, Clark, & Tam, 1998; Caetano, Ramisetty-Mikler, & Rodriguez, 2009; Johnston, O’Malley, Bachman, & Schulenberg, 2011). Nevertheless, in this period of emerging adulthood, population level estimates may be hiding more nuanced patterns of

current drinking both within and between race and gender groups. For instance, do White men drink more than women and racial and ethnic minorities because they establish more robust patterns of heavy drinking earlier in the life course? Or, do earlier trajectories of heavy drinking have the same impact on current drinking, regardless of race and gender?

In this study, we seek to determine how a history of heavy drinking impacts current levels of drinking and whether this association varies by race–gender status. Our focus is not to challenge long-standing research patterns (e.g., that men drink more than women), but instead to establish whether these population-level patterns are qualified by prior history of heavy drinking. In two important ways, we add to the growing body of research that seeks to understand how trajectories of alcohol consumption develop across social statuses. First, we employ a nationally representative sample of African American, Latino, and White men and women transitioning to adulthood. This period of maturation is when stark race and gender differences in alcohol usage first appear; therefore, it may be especially important to scrutinize whether these patterns have lasting effects. Furthermore, drinking habits established during this period have implications for other important transitions, including employment, marriage, and parenthood. Second, we exploit ten years of data (over six waves) to model drinking histories, including heavy drinking, age at first drink, problem drinking within the family of origin, and two forms of current alcohol consumption: number of drinks per occasion and the probability of heavy or binge drinking. Young adults often engage in transitory periods of heavy or binge drinking (e.g., college parties) as a normative part of aging, but it is less clear how this history impacts current alcohol use by race and gender.

Background

The Impact of Heavy Drinking Trajectories on Current Drinking in Young Adulthood

Detecting the consequences of earlier alcohol use on future drinking patterns has been the topic of many research studies which show that experimentation with heavy usage may bear little relationship to later patterns of use (Bachman et al., 2002).

One often-used framework for identifying the relationship between past and present alcohol use has been taxonomy approaches, in which distinct categories of previous drinking behavior (e.g., abstainers, light drinkers, chronic heavy drinkers) are then tied to current alcohol consumption (Flory, Lynam, Milich, Leukefeld, & Clayton, 2004; Maggs & Schulenberg, 2005; Sher, Gotham, & Watson, 2004). The taxonomy approach adopted for this research focuses on how a history of heavy alcohol use impacts current drinking. To illustrate, if over a five year period researchers identified a group of individuals who were heavy drinkers for four of those years, one might expect that current levels of drinking would also be heavy in the fifth year. This type of heavy drinking trajectory has certainly been established for middle-aged and older adults (Berg et al., 2013; Brennan, Schutte, & Moos, 2010; Jacob, Bucholz, Sartor, Howell, & Wood, 2005). Nevertheless, the population of interest for this study is youth transitioning to adulthood, and the relationship between prior heavy drinking and current consumption is less certain.

The transition to adulthood is marked by periods of time (e.g., college life, first full-time job) where alcohol consumption for both social and "rite of passage" reasons is expected to be high (Greenbaum, Del Boca, Darkes, Wang, & Goldman, 2005). For example, a full 40% of college students are at high risk for regular binge drinking as a normative part of social development, with few gatekeepers to curtail the behavior (Campbell & Demb, 2008). However, illustrating the flexibility of situation-specific drinking, most college students do not go on to become problem drinkers, and their levels of consumption moderate as they age and take on adult roles and responsibilities (Christie-Mizell & Peralta, 2009). That is, despite the dangers (e.g., violence, injury and death) associated with high alcohol consumption, the vast majority of young adults do not experience persistent heavy drinking into their 30s.

Heavy Drinking Trajectories, Current Drinking, and Race–Gender Status

Existing research makes it clear that men drink more than women and Whites consume more alcohol than African Americans and Latinos (Johnston et al., 2011). However,

despite these population-level patterns of consumption, both women and racial and ethnic minorities, especially young people transitioning to adulthood, are drinking more than they did 30 years ago. In fact, many researchers have noted that among contemporary 18- to 30-year-olds alcohol use has become ever-present, permeating everyday life at all levels (e.g., family events, peer celebrations and get-togethers, and work events) (Escobar-Chaves & Anderson, 2008; Greenbaum et al., 2005). Although the gender- and race-gaps in alcohol use still exist during the transition to adulthood, many factors associated with contemporary emerging adulthood—greater educational and occupational opportunities for women and minorities, fewer early entries into marriage and parenthood, and the transformation of attitudes about the appropriateness of drinking—have led to increased alcohol consumption (Arnett, 2004, 2006; Christie-Mizell & Peralta, 2009; McPherson, Casswell, & Pledger, 2004).

With respect to the six race-gender groups under consideration in this study, general population estimates show that the majority of African American men (63%), Latino men (70%), and White men (74%) report being current drinkers (Chartier & Caetano, 2011). Among women, Whites (65%) report the highest levels of current drinking, followed by Latinas (50%) and African American women (46%) (Caetano, 1984; Caetano et al., 1998; Caetano et al., 2009; Chartier & Caetano, 2011). In terms of weekly heavy drinking, defined as imbibing 5 or more drinks per day for men and having 4 or more drinks for women, African American and White men have the highest prevalence at about 19%, followed by Latino men (14%) (Chartier & Caetano, 2011). African American (13%) and White women (14%) have similar rates for weekly heavy drinking, while Latinas have the lowest rates (9%) (Chen et al., 2006).

While these statistics are striking and indicate the ubiquity of alcohol consumption across race-gender status, they do little to help understand the relationship between prior histories of heavy drinking and current alcohol use patterns. During the transition to adulthood, existing studies indicate two major trajectories associated with prior heavy drinking. The first trajectory is often referred to as normative and involves a pattern in which young adults "age-out" of heavy alcohol use

(Bukstein, 1994; Bukstein & Winters, 2004; Lowman, 2004). In the second trajectory, heavy drinking becomes chronic and persists well into adulthood (Lowman, 2004). In one longitudinal study examining outcomes for young men, Temple and Fillmore (1985) found that among young adult heavy drinkers, 50% aged out of heavy drinking patterns, while the remaining 50% continued to exhibit heavy drinking status twelve years later. Nevertheless, fewer studies have sought to understand whether a history of heavy drinking differentially impacts current levels of alcohol consumption by race–gender status.

Minority Status and the Paradox of Alcohol Consumption

Women and racial minorities may be less likely to drink as much as their White male counterparts, but paradoxically, the consequences of drinking are socially and clinically more punitive. Studies on young women's drinking show that alcohol use, especially heavy or binge drinking, is regarded as counter to appropriate femininity (Iwamoto, Cheng, Lee, Takamatsu, & Gordon, 2011). Conversely, heavy drinking is seen as consistent with the achievement of masculinity (Lyons, Dalton, & Hoy, 2006). Young women's drinking is judged more harshly by men and other women, and many women experience social isolation when their drinking includes public drunkenness, and/or expressions of sexual desire, hostility, or aggression (Archer, 2004; de Visser & McDonnell, 2012; Iwamoto et al., 2011). Moreover, among the heaviest drinkers, women surpass men in the number of problems that result from high levels of alcohol consumption. To illustrate, problem drinking among women accounts for death rates double those of male alcoholics, including deaths from suicides, alcohol-related injury, heart attack, stroke, and liver cirrhosis (National Institute on Alcohol Abuse and Alcoholism [NIAAA], 2008).

Similarly, racial and ethnic minorities receive more scrutiny in environments where drinking occurs or is suspected (Siebert, Wilke, Delva, Smith, & Howell, 2003). For example, studies reveal that African Americans and Latinos receive more harsh treatment from law enforcement and community members in incidents where alcohol consumption is involved, even though overall rates of drinking are lower for these groups (Weitzer & Tuch, 2006). In fact, Siebert and her colleagues (2003) show that African Americans take multiple steps to

minimize public drunkenness and to remain in control when imbibing compared to their White counterparts. Nevertheless, both African Americans and Latinos have worse health connected to alcohol consumption, because of low education and fewer resources that can be directed at access to health care and alcohol abuse treatment, life in poorer neighborhoods, and more frequent incarceration (Hatchett, 2002; Jones-Webb, 1998; Siebert et al., 2003). A major goal of this study is to understand whether a history of heavy drinking may be a factor that contributes to differential patterns of current alcohol consumption by race and gender and will add to our understanding of the minority drinking paradox.

Data and Measures

The data utilized for this study were extracted from the National Longitudinal Survey of Youth—Mother (NLSY) and Young Adult (NLSY-YA) samples. The NLSY is a representative sample of non-institutionalized Americans and is part of a larger project sponsored by the U. S. Departments of Labor and Defense under a grant to the Center for Human Resource Research at The Ohio State University (Center for Human Resource Research, 2004). NLSY researchers have included measures of family life, labor force participation, cognitive and behavioral functioning, and demographic factors. In the original sample, African Americans, Latinos, and economically disadvantaged White youth are overrepresented. Respondents were interviewed each year from 1979 to 1994 and every other year after 1994. Initial ages ranged from 14 to 22 years old.

In 1994 and biennially thereafter, youth who were the offspring of the women of the NLSY and 15 years of age and older and were surveyed (NLSY-YA). This survey gathered information germane to social, physical, and emotional development, delinquent activities, substance use, employment, marriage, and parenthood. Although we utilized six waves of data over ten years (1994 - 2004), the primary period of study is from 2002 to 2004. The majority of our control variables come from the 2002 wave, and the dependent variables (i.e., number of drinks per occasion, and heavy drinking status) were taken from the 2004 wave. As described below, we utilize the 1994-2000 waves of data to construct our measure of the history of

heavy drinking. In 2002, the youth in our study were 18-30 years old, and the total sample size was 2,300.

Measures

Dependent variables. We measure current alcohol consumption in two ways. Our first measure is *number of drinks per occasion*. For this measure, respondents were asked: "On average, when you drink, how many drinks do you have per occasion?" This variable was captured as a count. For our second measures of alcohol use, *heavy drinking*, we adopt the Centers for Disease Control's (2012) definition of heavy or binge drinking which is defined as four or more drinks in one sitting for women and five or more drinks for men. Therefore, each respondent is coded 1 when he or she meets the CDC criteria for heavy drinking.

Independent variables. Our three key independent variables are history of heavy drinking, race-ethnicity, and gender. *History of heavy drinking* is a count of how many times the respondent reported heavy drinking prior to the main period (2002-2004) of study. To create our history of heavy drinking variable, we exploited the longitudinal nature of the NLSY-YA and extracted information from four waves of data (1994 to 2000). Each respondent is coded 1 for heavy drinking for each year she or he meets the CDC criteria. We explored multiple ways for coding history of heavy drinking, including treating it as a count variable [i.e., ranging from 0 (no history of heavy drinking) to 4 (four years of heavy drinking)] or representing it as a single dummy variable that represented a categorization of the number of times heavy drinking was reported (e.g., 2 or more years). In preliminary analyses, we determined that due to over-dispersion (i.e., the standard deviation is much greater than the mean), especially among minority women in our sample, the count version of the variable was not appropriate for the analyses we present below. This auxiliary analysis is available upon request. Therefore, we operationalized history of heavy drinking as a categorical variable, where those who reported one or more years of heavy drinking are coded as 1 and are compared to those respondents who reported no heavy drinking from 1994 to 2000 (coded as 0). This bifurcation was the most meaningful for our data, compared to other categorical divisions (e.g., 1 = 2 or more years). For this study, women

Table 1. Weighted Means, Percents and Standard Deviations (SD) for All Study Variables. National Longitudinal Survey of Youth - Young Adult Sample

Variables	Whites (N=1,596)		African Americans (N=495)		Latinos (N=209)	
	Mean/ Percent	SD	Mean/ Percent	SD	Mean/ Percent	SD
<i>Alcohol Consumption</i>						
Number of Drinks Per Occasion (Count)	3.15	4.18	1.88***	2.40	2.69	3.43
Heavy Drinker (1=Yes)	32.76%	—	20.64%***	—	31.82%	—
<i>Race-ethnicity, Sex, Age, and Drinking History</i>						
African American (1=Yes)	—	—	—	—	—	—
Latino (1=Yes)	—	—	—	—	—	—
Female (1=Yes)	48.64%	—	49.65%	—	49.48%	—
Age (Years)	21.11	2.40	21.76***	2.74	21.31	2.41
First Drink at Age 12 Years or Younger (1=Yes)	22.34%	—	20.00%	—	20.25%	—
First Drink at Age 13 or 14 Years (1=Yes)	32.21%	—	23.95%***	—	28.31%	—
First Drink at 15, 16, or 17 Years (1=Yes)	33.45%	—	33.38%	—	37.34%	—
Parent/Grandparent w/ Drinking Problem (1=Yes)	31.16%	—	24.82%**	—	27.82%	—
History of Heavy Drinking (1=Yes)	33.68%	—	22.80%***	—	32.85%	—
<i>Religion, Education, and Adult Roles</i>						
No Religious Affiliation/ Attendance (1=Yes)	16.99%	—	11.82%***	—	11.25%***	—
Parents' Education (1=College+)	17.43%	—	9.78%***	—	7.85%***	—
R's Education (1=College+)	4.81%	—	1.93%**	—	2.56%	—
Employment 2002 (1=Yes)	93.63%	—	88.98%***	—	88.20%***	—
Marriage 2002 (1=Yes)	19.02%	—	7.36%***	—	18.56%	—
Parenthood 2002 (1=Yes)	10.97%	—	19.46%***	—	15.46%*	—
Transition to Employment 2002-2004 (1=Yes)	4.77%	—	6.43%	—	6.74%*	—
Transition to Marriage 2002-2004 (1=Yes)	6.55%	—	3.05%***	—	5.04%	—
Additional Child 2002-2004	20.09%	—	20.16%	—	24.25%	—

Note: Asterisks denote significant differences by race and ethnicity when African Americans and Latinos are compared to Whites, where * $p < .05$, ** $p < .01$, *** $p < .001$.

are compared to men, and race–ethnicity included three self-report categories: African Americans (Non-Hispanic Blacks); Latinos (Hispanic ethnicity); and Whites (Non-Hispanic, Non-black Whites; reference category).

Control variables. In the models presented below, we hold constant several variables that prior research and theorizing have shown are important in understanding alcohol consumption as youth transition to adulthood (see e.g., Christie-Mizell & Peralta, 2009). We adjust our models for age (years), religiosity (1 = no religious participation and no religious affiliation), parents' education (1 = college completion or more; when one or both parents have a college education or more), and respondents' education (1 = college completion or more). Our models are further adjusted for age at first drink by comparing those who had their first drink at age 12 or younger (1 = yes), at age 13 or 14 (1 = yes), or at ages 15, 16, or 17 (1 = yes), compared to those who had their first drink at age 18 or older (reference category). To account for the role of heritability as well as socialization, we incorporate a measure of whether the young adult respondent has a biological parent or grandparent with an alcohol problem (1 = yes), compared to those with no such family history. Finally, we control for whether respondents are employed, married, and/or a parent in 2002 and whether they transitioned to employment, marriage, and/or parenthood during the period of study. Together with the age range of the sample (18 to 30 years), accounting for the adoption of adult roles (i.e., employment, marriage, and parenthood) allows us to explicitly model the transition to adulthood.

Analytic Strategy

We proceeded with our analyses in two steps. In our first step, we generated our descriptives for the total sample as well as comparisons by race–ethnicity for all study variables. In the next step, utilizing ordinary least squares regression and logistic regression, we produced baseline models for number of drinks per occasion, and heavy drinking status. In these models, we establish the association between each outcome and history of heavy drinking as well as race–ethnicity and gender. In our third step, we test whether a history of heavy

Table 2. Frequency of Drinking and Number of Drinks Per Occasion Regressed on Selected Independent Variables National Longitudinal Survey of Youth (NLSY)—Young Adult Sample ($N = 2,300$).

Independent and Control Variables	Number of Drinks per Occasion Model 1		Heavy Drinking (1 = yes) Model 2
	b	se	Odds Ratio
<i>Race-ethnicity, Sex, Age and Drinking History</i>			
African American (1=Yes)	-1.05***	.18	.66***
Latino (1=Yes)	-.25	.20	.99
Female (1=Yes)	-1.28***	.15	.43***
Age (Years)	-.10**	.03	.93
Parent/Grandparent w/Drinking Problem (1=Yes)	.05	.16	.99
First Drink at Age 12 Years or Less (1=Yes) ^a	1.01***	.25	1.84**
First Drink at 13 or 14 Years (1=Yes) ^a	.56*	.23	2.07***
First Drink at 15, 16 or 17 Years (1=Yes) ^a	.82***	.22	1.99***
History of Heavy Drinking (1=Yes)	.96***	.10	2.08***
<i>Religion, Education, and Adult Roles</i>			
No Religious Affiliation/Attendance (1=Yes)	.12	.21	1.10
Parents' Education (1=College+)	.12	.22	1.26
R's Education (1=College+)	-.27	.47	.88
Employment 2002 (1=Yes)	.13	.42	1.06
Marriage 2002 (1=Yes)	-.59*	.25	.56**
Parenthood 2002 (1=Yes)	.31	.25	1.15
Transition to Employment 2002-2004 (1=Yes)	.68	.47	1.34
Transition to Marriage 2002-2004 (1=Yes)	-.81*	.34	.56*
First or Additional Child 2002-2004	.10	.19	.92
Constant	4.91		.68
R-square (Pseudo R-square)	.14		(.21)

Note: ^aFirst Drink at 18 years or older is the omitted category.

* $p < .05$ ** $p < .01$ *** $p < .001$

drinking modifies the association between current drinking and race-gender status, utilizing a three-way interaction (i.e., race $\times$ gender $\times$ history of heavy drinking). In all analyses presented below, the data were weighted to correct for the oversampling of racial minorities and low-income youth.

Results

Descriptives

This study consisted of 495 African American, 209 Latino, and 1,596 White respondents (total $N = 2,300$), and women constitute about half of each group. Whites reported drinking more drinks per occasion (mean = 3.15) than African Americans (mean = 1.88, $t = -8.36$, $p < .001$), but not more than Latinos (mean = 2.69, $t = -1.92$, $p = .06$). Similarly, while a significantly higher percentage of Whites (32.76%) compared to African Americans (20.64%, $\chi^2 = 30.81$, $p < .001$) reported being a current heavy drinker, there is no difference between Whites and Latinos (31.82%, $\chi^2 = .13$, $p = .72$). Likewise, a history of heavy drinking follows the same pattern. A larger proportion of Whites (33.68%) compared to African Americans (22.80%, $\chi^2 = 23.79$, $p < .001$) report a history of heavy drinking, but there is no difference between Whites and Latinos (32.85%). Other differences in our subsamples are noted in Table 1.

Multivariate Analyses

The results in Table 2 show the relationships between our two measures of current drinking and race-ethnicity, gender, and history of heavy drinking. Model 1 shows that African Americans drink fewer drinks than Whites, and that women drink less than men. A history of heavy drinking and early age at first drink result in consuming more drinks per occasion. Age, marriage, and transitions to marriage slow the number of drinks consumed. Model 2 indicates that African Americans have 34% (OR = .66 [.51-.84]) lower odds of engaging in heavy drinking compared to Whites, and women have 57% (OR = .43 [.34-.53]) lower odds of being a heavy drinker compared to men. A history of heavy drinking results in respondents being more than twice as likely (OR = 2.08 [1.80 – 2.39]) to be a heavy drinker. Finally, early age at first drink is related to higher probabilities of being a heavy drinker, while marriage and transitions to marriage result in lower odds of being a heavy drinker.

The findings in Table 3 show whether a history of heavy drinking moderates the association between race-gender status and our measures of current alcohol consumption.

Model 1 indicates that a history of heavy drinking qualifies the association between race–gender status and the average number of drinks consumed in one sitting. The coefficients

Table 3. Number of Drinks Per Occasion and Heavy Drinking Regressed on Selected Independent Variables and Interaction Terms. National Longitudinal Survey of Youth – Young Adult Sample (N = 2,300).

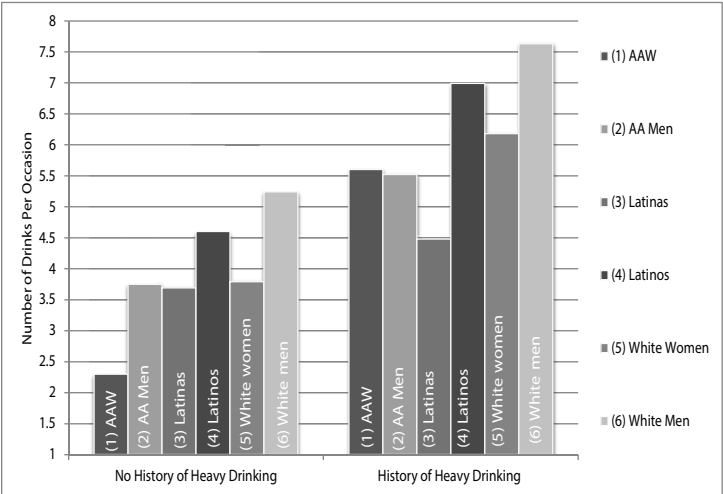
	Number of Drinks per Occasion		Heavy Drinking (1=yes)
	Model 1		Model 2
Independent Variables and Interactions	b	se	Odds Ratio
<i>Race-ethnicity, Sex, Age and Drinking History</i>			
Female (1=Yes)	-1.45***	.25	.47***
African American (1=Yes)	-1.49***	.26	.64***
Latino (1=Yes)	-.36	.31	.98
History Heavy of Drinking (1=Yes)	2.39***	.34	3.41***
<i>Interaction Terms</i>			
History of Heavy Drinking × African American	-.62	.52	1.21
History of Heavy Drinking × Latino	-.28	.57	.97
History of Heavy Drinking × Female	-1.01	.55	.87
African American × Female	.66*	.33	.74
Latino × Female	.26	.40	1.40*
History of Heavy Drinking × African American × Female	1.88*	.83	3.81*
History of Heavy Drinking × Latino × Female	-.28	.95	.96
Constant	5.24		.53
R-square (Pseudo R-square)	.15		(.22)

Note: These models control for respondent's age, family history of problem drinking, age at first drink, religion, education, and adult roles. *p < .05, **p < .01, ***p < .001

show that a history of heavy drinking substantially increases the number of drinks for all respondents, with the impact being especially notable for African American women. The complex relationships among history of heavy drinking, race–gender status, and current number of drinks are detailed in Figure

1. The interaction shows that African American women with a history of heavy drinking consume nearly 60% more (2.3 drinks versus 5.6 drinks) than those without a similar history. Moreover, for those with a history of heavy drinking, African American men, Latinas, and Latinos increase their consumption by 32%, 18%, and 34%, respectively. White women drink 39% more when they have a history of heavy drinking. For White men, a history of heavy drinking is associated with a 31% increase in the number of drinks consumed per sitting.

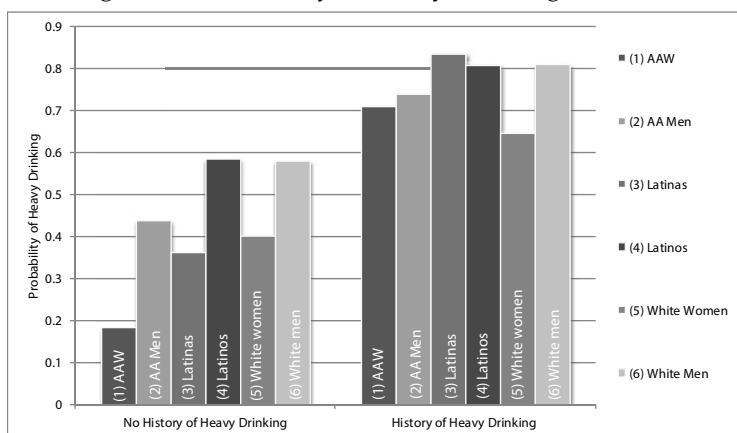
Figure 1. The Impact of Race, Gender and History of Heavy Drinking on the Number of Drinks per Occasion.



Note: AAW = African American Women; AA Men = African American Men.

Model 2 of Table 3 indicates that history of heavy drinking further moderates the relationship between race–gender status and the probability of heavy drinking. Similar to the finding above for number of drinks per occasion, a history of drinking increases the probability of heavy drinking for all groups, with notable variability among racial and ethnic minorities. The relationships among history of heavy drinking, race–gender status, and the probability of current heavy drinking are depicted in the graph in Figure 2. Two notable race–gender patterns emerge. First, when there is a history of heavy drinking, African American women move from a probability of .18 for current heavy drinking to a probability of .71. Not only is

Figure 2. The Impact of Race, Gender and History of Heavy Drinking on the Probability of Heavy Drinking.



Note: AAW = African American Women; AA Men = African American Men.

this nearly four times larger spike in the probability of heavy drinking the most dramatic for any race-gender group, but also it makes African American women's probability of heavy drinking indistinguishable from African American men and White women—two groups that, in general, drink much more than African American women. Second, once accounting for the race-gender-history of heavy drinking interaction, take note that the probability of heavy drinking for Latinas rises from .36 to .84, putting this group on par with White men and Latinos and above African American men, African American women, and White women.

Discussion and Conclusions

The main goal of this research was to investigate race and gender differences in the impact of a history of heavy drinking on current alcohol use—number of drinks consumed per sitting, and the probability of heavy drinking. Although population-level estimates indicate that Whites drink more than racial-ethnic minorities, less research has been devoted to understanding whether a history of heavy drinking has differential impact across race-gender status. Our findings apply to six race-gender groups during the transition to adulthood:

African American women, African American men, Latinas, Latinos, White women, and White men. Our exploration provided clarification of the complex ways in which race and gender are related to drinking outcomes.

In our main effects models (Table 2), we found that race and ethnicity is connected to current alcohol consumption. African Americans drank significantly less than Whites, whether drinking was measured as the number of drinks per sitting or as the probability of heavy drinking. In our sample of young adults, Latinos did not differ from Whites on either of these measures. Unlike the variation found for race-ethnicity, we found that gender was inversely related to each measure of current alcohol consumption.

Another clarification offered by this study is that race-ethnicity and gender must be considered in tandem to understand differences by history of heavy drinking. In auxiliary models (not shown for the sake of brevity), we estimated separate interactions by gender and history of heavy drinking, and then, separate interactions by race-ethnicity and history of heavy drinking. It was only in combination with a triple interaction (i.e., history of heavy drinking $\times$ race $\times$ gender) that the impact of history of heavy drinking was discovered. The result was that, when African American women have a history of heavy drinking, the number of drinks consumed per sitting as well as the probability of heavy drinking dramatically increases. We also saw a substantial increase in the probability of heavy drinking for Latinas—to levels matching the heavy drinking of Latinos and White men. Therefore, had we simply looked for gender differences by history of heavy drinking we would have erroneously concluded that a history of heavy drinking has the same impact on women and men. It was only through investigating the intersection of race and gender that we discovered significant differences in our sample.

The findings that show that women and minorities experience notable increases in current alcohol consumption as a result of prior heavy drinking are important because general population estimates that show that these groups drink less may be hiding two factors. For one, "normative" heavy drinking that occurs during the transition to adulthood may be more likely to have lasting effects for one group versus another. Additionally, these group-level estimates obscure

within-group variation. Therefore, our findings may, in part, help explain why racial and ethnic minorities disproportionately experience alcohol problems later in life, even though they drink less as young adults. For example, one puzzling research finding is that African American women are at greater risk for alcoholism compared to other groups during the middle adult years (NIAAA, 2008). This finding has been somewhat perplexing, given that cross-sectional population estimates tend to show that, regardless of the measure of alcohol consumption, African American women drink less. Therefore, the typical theoretical reasoning has been that African American women, compared to other women and men, face higher levels of accumulated life stressors including financial strain, racism and discrimination, poor health, and social isolation (Hatchett, 2002). The accumulation of these stressors may converge at mid-life and result in drinking as a coping mechanism (Hatchett, 2002; Jones-Webb, 1998). Our findings add to this reasoning and may show that those African American women who are most at risk are those who have a history of heavy drinking, even if they did not maintain that level of drinking earlier in adulthood.

Similar to the findings for African American women, we found that a history of heavy drinking significantly increases the probability that Latinas will binge drink. In fact, in our final models, levels of binge or heavy drinking were indistinguishable from White and Latino men. These findings support relatively recent results that indicate that binge drinking is becoming more common among Latinas (see e.g., CDC, 2013). Our findings suggest that this trend may, among other things, be due to a history of heavy drinking.

Beyond our focus on a history of heavy drinking, we found that there were two additional factors that are related to current levels of drinking. First, when youth begin drinking before the age 18, this status is positively related to both number of drinks consumed as well as the odds of heavy drinking. While population statistics show that alcohol use is pervasive among youth and the average age at first drink is 14 years old (see e.g., NIAAA, 2009), early onset still results in higher levels of alcohol consumption among the young adults in our sample. Second, both marriage and the transition to marriage was inversely related to the both the number of drinks consumed

and the odds of heavy drinking. Existing research suggests that marriage is linked to social supports that buffer individuals from the high levels of drinking associated with distress (Leonard & Mudar, 2000). Further, marriage transforms social identity in ways that can discourage drinking. For example, taking on the roles of husband and wife is associated with specific expectations that involve taking responsibility, being goal-oriented and mature, and homemaking as opposed to drunkenness and riskier behavior (Christie-Mizell & Peralta, 2009; Homish & Leonard, 2008; Leonard & Mudar, 2000).

There are two limitations to our study. First, although we utilize widely recognized self-report measures of alcohol use (e.g., number of drinks per sitting), our measures are quite general. Standard drinks contain about 14 grams of pure alcohol (about 0.6 fluid ounces) (Chen, Dufour, & Yi, 2005) and the information from the NLSY-YA does not allow for this level of specificity. Therefore, we cannot distinguish between those who counted one or two ounce shots of alcohol (e.g., whiskey or gin) as one drink versus those who may have counted a 24 ounce beer as a single drink. More standardized measures of drinking may help refine the relationships found in this study. Second, although our measure of heavy drinking is one used by other researchers (see e.g., Christie-Mizell & Peralta, 2009 or CDC, 2012), our data do not allow us to explore clinical levels of problem drinking. Namely, we do not have measures of major alcohol dependence or abuse, which take into account just how problematic drinking is in the life of the respondent. For respondents that meet the criteria for clinical diagnoses of alcohol problems, the relationships studied here may be different.

Future research should continue to explore how race, gender, and drinking histories jointly shape current alcohol consumption. We limited our study to three groups (i.e., African Americans, Latinos, and Whites), but further research should broaden to other populations (e.g., Asian Americans, Native Americans). For instance, even though research shows that Native Americans drink at levels higher than or equal to Whites (NIAAA, 2006), the extent to which ethnicity and gender matters is unknown. In conclusion, this work has shown that a history of heavy drinking matters in the transition to adulthood. Moreover, while this history matters regardless of

race–gender status, it matters more for current alcohol consumption among those groups which traditionally drink less.

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