

The Gender Gap in Alcohol Consumption during Late Adolescence and Young Adulthood: Gendered Attitudes and Adult Roles*

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Journal of Health and Social Behavior 2009, Vol 50 (December):410–426

We utilize data from the National Longitudinal Survey of Youth young adult sample ($N = 1,488$) to investigate whether gender role attitudes and the occupation of and transition to three adult roles (i.e., employment, marriage, and parenthood) contribute to the maintenance of the gender gap in the frequency and quantity of alcohol use. Our results indicate that traditional gender role attitudes are related to less frequent drinking for both men and women, but role attitudes are not associated with the number of drinks consumed. We also find that employment and transitions to employment increase the frequency and quantity of drinking, but less so for women compared to men. Furthermore, marriage, parenthood, and transitions to parenthood are related to less frequent drinking for women only. In terms of the number of drinks consumed, only employment and transitions to employment distinguish men and women. Employment is related to increased quantity of drinking for men, but decreased drinking for women, while transitions to employment have no effect on men, but do decrease the amount of drinking for women. Marriage decreases the number of drinks consumed equally for both men and women.

Since the 1970s, researchers have debated whether increasing gender equality would result in a narrowing of the gender gap in alcohol consumption. Theorizing about the potential closure of this gap pointed to more women entering the labor force and the liberalization of gender ideology as sources of this change. Scholars referred to the prediction that men

and women would adopt indistinguishable patterns of drinking as the convergence hypothesis (Bell, Havliceck, and Roncek 1984; Calahan 1970; Ferrance 1980; Fillmore 1984; Fraser 1973; Wechsler 1980; Wilsnack and Wilsnack 1978). The logic was that role-related changes connected to women's labor force participation would not only challenge traditional family roles, but would also transform the attitudes of both men and women in other domains, including the appropriateness of certain types of social behavior, such as alcohol consumption (Parker et al. 1980; Temple 1987; Wilsnack, Wilsnack, and Klassen 1984). The possible convergence of men and women's drinking patterns was associated with fears of increasing health problems for women, costs to labor force productivity, and damage to the family as

* An earlier version of this article was presented at the 2007 American Sociological Association annual meeting in New York, New York. This research was supported, in part, by a Research and Creativity grant from Kent State University to the first author. Address correspondence to C. André Christie-Mizell, Department of Sociology, Kent State University, P.O. Box 5190, 330 Merrill Hall, Kent, OH 44242-001 (e-mail: achrist7@kent.edu).

an institution (Biber, Hashway, and Annick 1980; Calahan 1970; Fillmore 1984).

Contrary to the convergence hypothesis, contemporary research does not indicate that the gender gap in alcohol consumption has lessened. While it is true that more females—especially in adolescence—may be drinking than previously, there has not been a convergence of adult drinking patterns (Barnes, Welte, and Hoffman 2002; Chilcoat and Breslau 1996; Huselid and Cooper 1992; Temple 1987; White and Jackson 2004). Even holding constant factors known to encourage alcohol consumption, adolescent and adult males drink more frequently and consume larger quantities of alcohol than their female counterparts (Johnston et al. 2004; Lo 2000; Peralta and Cruz 2006; Wallace and Bachman 1991).

Despite the fact that male and female drinking patterns have not merged, the convergence hypothesis should not be wholly dismissed. Researchers in this tradition were correct in predicting that in the period from the 1970s until today role attitudes between men and women were becoming more comparable (Fan and Marini 2000), and that this transformation would be accompanied by changes in family structure and roles (Moen, Erickson, and Dempster-McClain 1997). In this study, our central focus is to revisit the gender gap in alcohol consumption by examining how gender role attitudes and three adult roles (i.e., employment, marriage, and parenthood) impact drinking patterns for a representative, contemporary sample of youth in late adolescence and young adulthood. We ask: Is there a relationship between gender role attitudes and alcohol consumption? How do employment, marriage, and parenthood affect drinking patterns? And, does gender moderate the effects of gender role attitudes and adult roles (employment, marriage, and parenthood) on drinking?

We examine two measures of alcohol consumption: (1) frequency of drinking in the last year and (2) number of drinks per occasion. Research on youth and alcohol use highlights the importance of studies inclusive of frequency and quantity measures to the extent that these separate but related indicators of alcohol consumption provide a more complete picture of drinking patterns and outcomes (Rehm 1998). For instance, one recent study found that factors such as age were more related to frequency of drinking, while the number of drinks consumed was more closely associated

with the influence of significant others such as family members (Cable and Sacker 2007). Also, there are gender differences in how these measures predict later alcohol use. Young men who drank at all (regardless of frequency or quantity) during adolescence are at risk for developing drinking problems in adulthood, whereas the risk of problematic drinking is better predicted by the frequency of consumption for young women (Cable and Sacker 2007). Nevertheless, while these measures are certainly related to problematic alcohol use, our emphasis here is simply on gender differences in decisions to drink.¹ That is, we veer slightly from the alcohol epidemiologic goal of linking alcohol use to health issues or problematic behaviors; instead, we seek to understand more about why gender role attitudes and changing roles do not result in parallel drinking patterns for men and women as the convergence hypothesis predicted. Our use of these two measures allows us to gauge whether there is gender variation in how attitudes and roles are related to frequency of drinking and the number of drinks per occasion.

BACKGROUND

Research on substance use has implicated gender as an important determinant of behavior and outcomes (Horwitz and White 1987; Robbins 1989). One focus used to explain gender differences in alcohol use has been gender ideology (attitudes about appropriate roles for men and women) (see e.g., Huselid and Cooper 1992). We focus on how such attitudes, especially those associated with family life, shape alcohol consumption. Therefore, in this article, the term gender role attitudes refers to views among youth that express their ideas about appropriate family and labor force roles for men and women. Traditional gender role attitudes are reflected by perceptions such as the following: families suffer by having wives/mothers work outside the home, children are better cared for by their mothers, and husbands/fathers should be principally responsible for the financial health of the home (Christie-Mizell 2006). Such attitudes are important to study because they represent an individual's qualitative understanding of how family and work roles should be parsed out by gender and may produce differences in behavior between men and women across a variety of social dimensions, including alcohol consumption (Lye and Waldron 1998; Marini et al. 1996).

Foremost among the theoretical frameworks used to explain the relationship between alcohol consumption and gendered attitudes are congruence models (Bem 1974, 1977; cf. Wilsnack and Wilsnack 1978, 1980). These models propose that individuals who internalize traditional sex role attitudes will be motivated to conform to standard gender norms, compared to their less traditional counterparts. This framework suggests that males whose beliefs are congruent with traditional masculine roles and ideals will engage in more risk-taking, such as increased alcohol consumption, while females who adopt conventional notions of femininity will drink less. Alternatively, the internalization of nontraditional gender attitudes contributes to less investment in the cultural norms and demands associated with traditional masculine and feminine roles. This noncongruence with conventional gender-role characteristics leads to the adoption of behavior patterns typical of the opposite sex as a form of rebellion against the dominant norm. Therefore, males who have nonconventional role attitudes would be expected to drink less, whereas females who have nonconventional role attitudes would be expected to drink more. Most research shows support for congruence models, with a significant relationship between gender role attitudes and alcohol consumption (Huselid and Cooper 1992).

We seek to merge research on alcohol consumption, gender role attitudes, and the adoption of adult roles with a focus on employment, marriage, and parenthood. Congruence explanations provide the framework for this amalgamation. Gendered attitudes—traditionalism versus liberalism—not only shape behavior (e.g., alcohol consumption), but also predict the types and timing of adult roles (Fan and Marini 2000). Prior studies have demonstrated that individuals socialized to have conventional gender role attitudes marry earlier, have more children, and are more likely to transition into these roles (marriage and parenthood) with traditional notions that place men in the provider role and make women principally responsible for housework and child care (Fan and Marini 2000; Moen et al. 1997). Because relatively few studies on alcohol consumption have simultaneously explored role attitudes (i.e., how individuals qualitatively feel about role occupancy) and adult roles (i.e., the actual occupation of such roles), we argue that combining information on these factors in one

study may be advantageous for understanding gender differences in alcohol use. Gender role attitudes and adult roles may simply have independent, direct effects on drinking. Alternatively, gender role attitudes, which shape the timing and types of role transitions, may be mediated by adult roles.

Adoption of Adult Roles and Alcohol Consumption

Researchers have linked the performance of adult roles, including employment, marriage, and parenthood, to levels of alcohol consumption during young adulthood (Leonard and Mudar 2003). The typical reasoning behind this role transition framework is that adult roles encourage prosocial behavior by transforming social networks and behavior (Chilcoat and Breslau 1996; O'Malley 2005). For example, researchers have found that teenage employment results in less social control by parents and increased alcohol consumption (Krohn, Lizotte, and Perez 1997; McMorris and Uggen 2000). Employment may also be linked to higher levels of drinking for individuals transitioning to adulthood before other significant role demands have accrued. However, in later adulthood, stable employment and its attendant responsibilities are generally associated with drinking less frequently and having fewer drinks (Bachman et al. 2002). Individuals who juggle the duties and responsibilities related to work, marriage, and parenthood simply have less time available to engage in drinking behavior (Bachman et al. 2002).

The patterns of role adoption and the nature of the responsibilities, coupled with transitions to employment, marriage, and parenthood vary by gender. It may be that these two differences (i.e., role adoption and responsibilities) maintain the gender gap in alcohol use. With respect to role adoption, the timing of role transitions is not uniform across gender. For instance, while approximately half of all American men and women are married by roughly age 30, this statistic hides the fact that the average age of marriage for women is 27 and for men 31 (Krieder 2005; Lichter and Qian 2004). Because women marry before men, they are also more likely to experience parenthood earlier. Therefore, if married persons and those with children are less likely to spend time in environments where drinking is the main social event and women are taking on these roles earlier, it would follow that women drink less.

In addition to different patterns of role adoption, the responsibilities attached to adult roles may also account for different drinking behaviors for women compared to men. The types of roles explored in this research are often referred to as obligatory roles, which involve long-term relationships that tend to be emotionally powerful and stable over time “because of the relative strength of their normative demands on role incumbents” (Thoits 2003:184). Carrying out the tasks of employment, marriage, and parenthood is time-consuming. However, prior research has shown that the normative demands inherent in these roles vary by gender such that women’s work and family roles include greater time constraints and responsibilities (Bird 1997, 1999; Hochschild and Machung 1989). For example, such expectations result in women spending more time in unpaid labor such as child care, household chores, and shopping for family needs (Sayer 2005). Because the occupation of adult roles contributes to less time available for leisure and discretionary activities for women, this pattern may result in women drinking less than men.

Hypotheses

This research project explores the gender gap in alcohol consumption during late adolescence and young adulthood. In the models presented below, we assess two outcomes: (1) the frequency of drinking and (2) the number of drinks per occasion. We contribute to the literature by assessing whether gender role attitudes have main effects on drinking and if this relationship is moderated by gender. Further, we test whether gender role attitudes and adult roles—that is, employment, marriage, and parenthood—have independent effects or whether roles mediate the impact of attitudes on our measures of drinking. With regard to adult roles, this study examines if employment, marriage, and parenthood differentially shape men and women’s drinking behavior.

We developed four hypotheses for this research that apply to both the frequency and quantity of drinking. In line with congruence models, we expected that traditional gender role attitudes would be *positively* associated with alcohol consumption for men (hypothesis 1a), but *negatively* related to drinking for women (hypothesis 1b). Next, we hypothesized that the effect of gender role attitudes on alcohol consumption would be mediated by mar-

riage (hypothesis 2a) and/or parenthood (hypothesis 2b). Because employment rates for individuals in young adulthood are roughly equivalent, we did not predict that employment would be the adult role that mediates the impact of gender role attitudes. In addition to exploring this mediation pattern, we also tested whether the effects of the adult roles vary in their influence by gender. In hypotheses consistent with the role adoption/transition perspective, we anticipated that gender would moderate the impact of employment (hypothesis 3a), marriage (hypothesis 3b), and parenthood (hypothesis 3c), and that gender would also moderate the effect of transitions to employment (hypothesis 4a), transitions to marriage (hypothesis 4b), and transitions to parenthood (hypothesis 4c). Given that prior research indicates that obligatory roles decrease alcohol consumption and that the performance of and transition to these roles are likely to entail larger time demands and more duties for young women, we expected that occupying these roles and transitioning to roles will partially account for the gender difference in alcohol consumption.

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DATA AND MEASURES

Data for this project were extracted from the National Longitudinal Survey of Youth Mother (NLSY) and Young Adult (NLSY-YA) samples. The NLSY is a national probability sample of 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). The Survey researchers have included measures of respondents’ labor market experience, family life, cognitive and behavioral functioning, and demographic factors. The original sample over-represents African American, Hispanic, and economically disadvantaged white youth. Respondents were interviewed annually from 1979 to 1994 and biennially after 1994. Initial ages ranged from 14 to 22 years old.

In 1986, children born to the women of the NLSY were surveyed. These children have been interviewed every two years since 1986. In each year of the survey, assessments have been made of cognitive ability, motor and social development, behavior problems, and the quality of the home environment. In 1994 and biennially thereafter, youth who were 15 years

of age and older were surveyed separately (NLSY-YA) from their younger counterparts. This survey gathered information germane to such issues as delinquent activities, substance use, employment, marriage, and parenthood. It is possible to merge data from the NLSY and NLSY-YA using identification codes that link information about mother and child. From the NLSY-YA, we utilized information from the 2002 and 2004 waves of data. In the baseline year for our study (2002), the young adults were 17–30 old and their mothers were 37–45 years old. With regard to this project, about 400 of the total 1,892 cases eligible for this study had missing data on one or more of the study variables. The results of “complete cases,” mean imputed, selection model, and multiple imputation analyses did not differ substantially. Therefore, only the complete cases analyses ($N = 1,488$) are presented below. There are 773 men and 715 women in our sample. All analyses presented below were weighted to correct for the oversampling of poor and minority youth. The weighted and unweighted analyses (available upon request) do not differ substantively.

Dependent Variables

We use two dependent variables for this study: (1) frequency of drinking and (2) number of drinks per occasion. The survey item on frequency of alcohol use queried how often alcohol was consumed in the last year. Responses were coded in the following way: 1 (zero to two times in the last 12 months); 2 (three to five times in the last 12 months); 3 (every other month or so—six to eleven days a year); 4 (one to two times a month—12 to 24 days a year); 5 (several times a month—25 to 51 days a year); 6 (about one or two days a week); 7 (almost daily or three to six days a week); and 8 (daily). With respect to number of drinks per occasion, this survey question asked respondents to report how many drinks they typically had on any one occasion when they drank in the last 30 days. This measure is coded as a simple count.

Independent and Control Variables

Gender and gender role attitudes. We coded females as 1 and compared them to males (coded 0). For gender role attitudes, respondents were asked to strongly disagree, disagree, agree, or strongly agree with the following statements: “A woman’s place is in the home”;

“A married woman with children has no time for employment”; “The employment of mothers leads to juvenile delinquency”; “It is the husband’s role to achieve and the wife’s role to stay at home”; “Men should share housework”; and “Women are happier staying at home with children.” All six items listed above have been summed to create a gender role attitude scale, which is coded to range from 6 (less traditional attitudes) to 24 (more traditional attitudes) (Cronbach’s alpha = .76).

*Adult roles.*² We selected three adult roles for this study: employment, marriage, and parenthood. Each is coded as a dummy variable. We coded those who are employed as 1 and compared them to those not working. We further compared those who are married (coded 1) to those who are unmarried. When respondents reported having dependent children present in their home, we coded them as 1 for parenthood and compared them to those without children at home. Because we utilized two waves of data (2002 and 2004), we were also able to gauge whether transitions into or out of these roles affected drinking behavior. Preliminary sensitivity analyses suggested that transitions to these roles (1 = yes, 0 otherwise) were most appropriate for the models presented below. Of course, we recognize that some research shows that the loss of employment or divorce might be stressors that have implications for drinking; however, in our relatively young sample with the overwhelming majority being employed and most not having entered marriage or parenthood, transitions out of these roles were not connected to our measures of drinking.

To the extent that race-ethnicity affects levels of alcohol consumption (see Barnes et al. 2002), and some research has found that adult roles are less associated with drinking for racial minorities (see Nielsen 1999), we created two dummy variables that distinguish African Americans and Hispanics and compared them to whites (reference in regressions). The age variable, originally measured in years, is logged to correct for the well-known U-shaped relationship between aging and alcohol consumption (Bachman et al. 2002). The models we developed below also account for religion, because prior studies indicated that religious beliefs and participation affect alcohol consumption, with more fundamentalist beliefs being connected to attitudes that call for abstinence (Bazargan, Sherkat, and Bazargan

2004). We coded those who reported no religious affiliation and no religious participation as 1 and compared them to all others (coded 0).

We controlled for parents' education (1 = college completion or more for either parent) and the respondents' education (1 = college completion or more).³ While individuals from all educational levels consume alcohol, those with economic and educational resources can afford to purchase alcohol and have greater access to formal and informal settings where social drinking is expected. Nevertheless, and despite higher levels of consumption, individuals with higher education report fewer health problems associated with drinking, compared to those who experience educational disadvantage (Banks et al. 2006). Finally, utilizing the mother-child component of the NLSY and NLSY-YA, we coded 1 those having a relative with a drinking problem if it was reported that their mother, father, or biological grandparent had a problem with alcohol use. This information comes from the 1988 wave of the mothers' data when these respondents were 3 to 16 years old and living in their mothers' home. With re-

spect to the respondent's father, we include stepfathers if we did not have information for the biological father and if the stepfather was present in the home while the respondent was growing up. We did so because prior research indicates that in addition to a biological connection, socialization may also be important to the drinking patterns of young people (Devor and Cloninger 1989).

Sample Characteristics

Table 1 presents weighted descriptive statistics. About half of the sample is composed of women, 20.7 percent of the sample is African American, and 8.2 percent is of Hispanic descent. The average age of respondents was 21.26 years (logged value of 3.09), and there was no significant age difference between men and women. The sample mean for frequency of drinking was 3.43, and men engaged in more regular drinking compared to women (3.94 vs. 2.86; $t = 9.34$, $p < .001$). On average respondents reported a mean score of 3.01 for number of drinks consumed per occasion, with men

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TABLE 1. Weighted Means, Percents and Standard Deviations (S.D.) for All Study Variables (National Longitudinal Survey of Youth—Young Adult Sample)

Variables	Total Sample (N = 1,488)		Men (N = 773)		Women (N = 715)	
	Mean/ Percent	S.D.	Mean/ Percent	S.D.	Mean/ Percent	S.D.
<i>Alcohol Consumption</i>						
Frequency of Drinking in Last Year (2004) ^a	3.43	2.39	3.94	2.40	2.86***	2.24
Number of Drinks per Occasion (2004; Count)	3.01	3.66	3.90	4.34	2.03***	2.68
<i>Sex, Race, and Age</i>						
Female (1=Yes)	48.02%	—	—	—	—	—
African American (1=Yes)	20.73%	—	20.29%	—	21.22%*	—
Hispanic (1=Yes)	8.22%	—	8.10%	—	8.35%	—
Age (Logged)	3.09	.16	3.09	.16	3.09	.16
<i>Role Attitudes, Adult Roles, Role Transitions</i>						
Gender Role Attitudes ^b	11.19	2.80	11.81	2.69	10.52***	2.73
Employment 2002 (1=Yes)	86.53%	—	87.93%	—	84.99%	—
Marriage 2002 (1=Yes)	19.08%	—	16.91%	—	22.36%*	—
Parenthood 2002 (1=Yes)	16.16%	—	10.62%	—	22.27%***	—
Transition to Employment 2002–2004 (1=Yes)	9.10%	—	8.52%	—	11.64%	—
Transition to Marriage 2002–2004 (1=Yes)	4.76%	—	3.88%	—	5.71%	—
First or Additional Child 2002–2004 (1=Yes)	19.17%	—	17.43%	—	21.09%*	—
<i>Religion, Education, and Family History</i>						
No Religious Affiliation/Attendance (1=Yes)	15.02%	—	17.69%	—	12.07%**	—
Parents' Education (1=College+)	14.51%	—	13.70%	—	15.41%	—
Respondent's Education (1=College+)	5.33%	—	3.51%	—	7.34%**	—
Parent and/or Grandparent w/ Drinking Problem (1=Yes)	30.02%	—	29.42%	—	30.69%	—

^a Frequency of drinking in last year ranges from 1 (0–2 times) to 8 (daily).

^b Six-item scale ranging from 6 (less traditional) to 24 (more traditional).

Note: Asterisks denote significant differences between men and women, where * $p < .05$; ** $p < .01$; and *** $p < .001$ (two-tailed tests).

drinking significantly more than women (3.90 vs. 2.03; $t = 8.16$, $p < .001$).

The sample mean for gender role attitudes was 11.19, and men (11.81), compared to women (10.52), had significantly more traditional attitudes ($t = 9.59$, $p < .001$). About 87 percent of our sample was employed, with no significant differences between men and women. Approximately 19 percent of our sample was married, with roughly 22 percent of women and 17 percent of men reporting marriage. This difference in marriage rates was significant ($X^2 = 4.76$, $p < .05$). About 16 percent of the total sample reported having children. There was a significant difference ($X^2 = 29.56$, $p < .001$) between the proportion of men (11%) who had children compared to their female counterparts (22%). Between 2002 and 2004, 9 percent started work, 5 percent married, and 19 percent either had their first child or an additional child. The only transition that differed significantly by gender was parenthood (17.43% for men vs. 21.09% for women; $X^2 = 6.39$, $p < .05$). More men than women in the sample reported no religious affiliation and attendance (17.69% vs. 12.07%; $X^2 = 8.60$, $p < .01$). While there is no gender difference in parents' education, fewer men than women have completed a college degree or more (3.51% vs. 7.34%; $X^2 = 6.68$, $p < .01$). About 30 percent of the sample had a parent or grandparent with an alcohol problem, with no significant gender difference.

RESULTS

Frequency of Drinking

Table 2 presents the ordinary least squares regression results for frequency of drinking. In

TABLE 2. Frequency of Drinking in Last Year Regressed on Selected Independent Variables and Interactions. National Longitudinal Survey of Youth—Young Adult Sample ($N = 1,488$)^a

	1	2	3	4	5	6	7	8
<i>Independent and Control Variables</i>								
Sex, Race, and Age								
Female (1 = Yes)	-1.20*** (.13)	-1.05*** (.13)	.38 (.33)	-.89*** (.14)	-.90*** (.14)	-1.13*** (.13)	-1.08*** (.13)	
African American (1 = Yes)	-.13 (.16)	-.28 (.16)	.26 (.16)	-.29 (.16)	-.30 (.16)	-.33* (.15)	-.34* (.15)	
Hispanic (1 = Yes)	-.25 (.23)	-.22 (.22)	-.23 (.22)	-.22 (.22)	-.23 (.22)	-.16 (.21)	-.15 (.21)	
Age (Logged)	.49 (.40)	.99* (.48)	.93 (.48)	.93 (.48)	1.02* (.48)	1.33** (.46)	1.42** (.46)	
<i>Role Attitudes, Adult Roles, and Role Transitions</i>								
Gender Role Attitudes ^b	-.08** (.02)	-.05* (.02)	-.05* (.02)	-.05* (.02)	-.05* (.02)	-.06** (.02)	-.06** (.02)	
Employment 2002 (1 = Yes)	1.51*** (.33)	1.86*** (.37)	1.46*** (.33)	1.47*** (.33)	1.43*** (.33)	1.40*** (.32)	1.40*** (.32)	
Marriage 2002 (1 = Yes)	-.73*** (.18)	-.74*** (.18)	-.25 (.18)	-.25 (.18)	-.72*** (.18)	-.73*** (.18)	-.75*** (.18)	
Parenthood 2002 (1 = Yes)	-.23 (.19)	-.23 (.19)	-.18 (.19)	-.18 (.19)	-.23 (.18)	-.23 (.18)	-.17 (.19)	

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TABLE 2. (Continued)

	1	2	3	4	5	6	7	8
	b (se)							
Independent and Control Variables								
Transition to Employment 2002–2004 (1 = Yes)	1.49*** (.38)	1.41*** (.38)	1.48*** (.38)	1.48*** (.38)	1.49*** (.38)	1.49*** (.42)	1.51*** (.42)	1.49*** (.36)
Transition to Marriage 2002–2004 (1 = Yes)	-.20 (.29)	-.19** (.29)	-.21 (.29)	-.19 (.29)	-.19 (.29)	-.19 (.29)	-.24 (.28)	-.19 (.41)
First or Additional Child 2002–2004 (1 = Yes)	-.70*** (.16)	-.70*** (.16)	-.73*** (.16)	-.73*** (.16)	-.69*** (.16)	-.64*** (.16)	-.65*** (.16)	-.14 (.23)
<i>Religion, Education, and Family History</i>								
No Religious Affiliation/Attendance (1 = Yes)	-.17 (.17)	-.14 (.17)	-.14 (.17)	-.12 (.17)	-.12 (.17)	-.13 (.17)	-.09 (.17)	-.10 (.17)
Parents' Education (1 = College+)	.74*** (.18)	.70*** (.17)	.70*** (.17)	.68*** (.17)	.68*** (.17)	.68*** (.17)	.59*** (.16)	.56*** (.16)
Respondent's Education (1 = College+)	.07 (.28)	-.14 (.28)	.12 (.28)	-.08 (.28)	-.08 (.28)	-.16 (.28)	-.10 (.28)	-.08 (.28)
Parent and/or Grandparent w/Drinking Problem (1 = Yes)	.33* (.13)	.34** (.13)	.35** (.13)	.35** (.13)	.34** (.13)	.33** (.13)	.32* (.13)	.33** (.13)
<i>Interaction Terms</i>								
Female × Employment								
Female × Marriage								
Female × Parenthood								
Female × Transition to Employment								
Female × Transition to Marriage								
Female × First or Additional Child								
Constant	4.84	3.86	2.12	3.13	3.63	3.02	3.24	3.23
R-square	.08	.12	.13	.13	.13	.12	.12	.12

^aFrequency of drinking in last year ranges from 1 (0-2 times) to 8 (daily).^bSix-item scale ranging from 6 (less traditional) to 24 (more traditional).* $p < .05$; ** $p < .01$; *** $p < .001$.

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equation 1, which includes gender, gender role attitudes, and all of the control variables, we confirm that women, compared to men, drink less frequently, and that traditional gender role attitudes are inversely related to how regularly an individual drinks. Additionally, parents' education and having a parent or grandparent with a drinking problem increases the frequency of drinking. Equation 2 estimates a model that includes all correlates considered in this study, including adult roles and transitions. Employment has a positive effect on drinking, while marriage is associated with a decline in drinking regularity. During the period of study, transitions to employment increase the frequency of drinking, and the birth of a child reduces drinking. One notable difference in this second model is that older respondents drink with greater regularity. However, similar to the prior specification, women and individuals who hold traditional gender roles drink less frequently. Furthermore, individuals from homes where parents were highly educated, and those with a parent or grandparent with a drinking problem, tended to drink more frequently.

With respect to our four hypotheses and the frequency of drinking, we do not find support for hypothesis 1a that traditional gender role attitudes are positively associated with alcohol use for men; however, as we predicted (hypothesis 1b), conventional gender role attitudes are negatively related to frequent drinking for women. A nonsignificant interaction term (not shown) between gender and gender role attitudes indicates that traditional gender role attitudes similarly reduce the regularity of drinking for men and women. We did not find support for the prediction (hypothesis 2) that gender role attitudes would be mediated by the adult roles. In the full model (Table 2, equation 2), gender role attitudes, though slightly reduced in effect size, are still significantly related to frequency of drinking.

We do find support for hypotheses 3a (gender moderates employment), 3b (gender moderates marriage) and 3c (gender moderates parenthood) on alcohol use. In equation 3, employment increases the frequency of drinking for men and women, but less so for women. Solving for the interaction, employed males ($3.98 = 2.12$ [constant] + 1.86 [*b* for employment]) drink more frequently than employed females ($2.83 = 2.12$ [constant] + 1.86 [*b* for employment] - $.38$ [*b* for female] - $.77$ [*b* for

employment x female]), men who do not work (2.12 [constant]), and women who do not work ($1.74 = 2.12$ [constant] - $.38$ (*b* for female)).

Equation 4 shows that the impact of marriage is qualified by gender, wherein marriage has no impact on the frequency of drinking for men, but significantly reduces how often women drink. Married men ($X = 2.88$) drink more frequently than married women ($X = 1.11$) and unmarried women ($X = 2.24$), but only slightly less than unmarried men ($= 3.13$). The effects of parenthood on frequency of drinking are also contingent on gender, as shown in equation 5. Similar to marriage, parenthood does not affect how regularly men drink, but it does reduce how frequently women drink. The resulting pattern is that mothers ($X = 1.38$) drink less, compared to fathers ($X = 3.26$), childless men ($X = 3.63$), and childless women ($X = 2.73$).

With respect to our hypotheses about role transitions, we find support that gender conditions the impact of transitions to employment (hypothesis 4a, equation 6) and parenthood (hypothesis 4c, equation 8). Gender did not differentiate the transition to marriage (hypothesis 4b, equation 7). Transitioning to work increases the frequency of drinking for both men ($X = 4.10$) and women ($X = 2.21$), but significantly less so for women. Even among those not transitioning to employment, men ($X = 3.02$) drink with more regularity than women ($X = 1.89$). In terms of transitioning into the parenting role, adding a child decreases the regularity of drinking for women ($X = 1.24$), but it has no effect on men ($X = 3.09$). Among men ($X = 3.23$) and women ($X = 2.33$) who do not experience a transition to parenthood, men drink more frequently than women.

Number of Drinks per Occasion

Table 3 presents the ordinary least squares regression results for number of drinks per occasion. The model in equation 1 includes gender, gender role attitudes, and all control variables. The results show that women drink less than men, and African Americans drink less than whites. Also, age is inversely related to the number of drinks per occasion, while parents' education and having a parent or grandparent with a drinking problem increases how much alcohol is consumed. Equation 2 includes roles and role transitions in the estimation. Similar to the prior specification, women and African Americans drink less, while parental education

TABLE 3. Number of Drinks per Occasion (Count) Regressed on Selected Variables and Interactions. National Longitudinal Survey of Youth—Young Adult Sample (N = 1,488)

	1	2	3	4	5	6	7	8
	b (se)							
Independent and Control Variables								
Sex, Race, and Age								
Female (1 = Yes)	-1.97*** (.22)	-1.90*** (.23)	-46 (.55)	-1.92*** (.23)	-1.89*** (.23)	-2.12*** (.23)	-1.91*** (.22)	-1.88*** (.23)
African American (1 = Yes)	-1.13*** (.27)	-1.34*** (.28)	-1.36*** (.27)	-1.38*** (.27)	-1.39*** (.27)	-1.36*** (.27)	-1.38*** (.27)	-1.38*** (.27)
Hispanic (1 = Yes)	-.31 (.39)	-.34 (.39)	-.24 (.37)	-.21 (.38)	-.22 (.38)	-.23 (.37)	-.22 (.38)	-.21 (.38)
Age (Logged)	-1.93** (.69)	-.78 (.84)	.65 (.81)	-.51 (.81)	-.50* (.81)	-.65 (.81)	-.53 (.81)	-.55 (.81)
<i>Role Attitudes, Adult Roles, and Role Transitions</i>								
Gender Role Attitudes ^a								
Employment 2002 (1 = Yes)	-.07 (.04)	-.06 (.04)	.08* (.04)	-.07 (.04)	-.07 (.04)	-.07 (.04)	-.07 (.04)	-.08 (.04)
Marriage 2002 (1 = Yes)	-.93** (.32)	-.91** (.38)	.65** (.61)	.89 (.56)	.87 (.56)	.89 (.56)	.89 (.56)	.88 (.56)
Parenthood 2002 (1 = Yes)	.24 (.32)	.24 (.32)	.24 (.32)	.27 (.33)	.27 (.49)	.27 (.49)	.26 (.32)	.27 (.33)
Transition to Employment 2002–2004 (1 = Yes)	1.05 (.66)	1.96 (.66)	1.14 (.63)	1.14 (.63)	1.14 (.63)	1.14 (.63)	1.14 (.63)	1.14 (.63)
Transition to Marriage 2002–2004 (1 = Yes)	-.30 (.51)	-.18 (.49)	-.18 (.49)	-.21 (.49)	-.21 (.49)	-.18 (.49)	-.18 (.49)	-.19 (.49)
First or Additional Child 2002–2004 (1 = Yes)	-.42 (.29)	-.35 (.28)	-.35 (.28)	-.34 (.28)	-.34 (.28)	-.35 (.28)	-.33 (.28)	-.17 (.40)
<i>Religion, Education, and Family History</i>								
No Religious Affiliation/Attendance (1 = Yes)	.05 (.30)	.03 (.30)	.09 (.29)	-.07 (.29)	.08 (.29)	.08 (.29)	.07 (.29)	.08 (.29)
Parents' Education (1 = College+)	1.30*** (.30)	1.02*** (.30)	.83*** (.29)	.85*** (.29)	.84*** (.29)	.85*** (.29)	.84*** (.29)	.84*** (.29)
Respondent's Education (1 = College+)	-.48 (.48)	-.53 (.49)	-.49 (.48)	-.52 (.49)	-.53 (.49)	-.50 (.48)	-.49 (.48)	-.52 (.49)
Parent and/or Grandparent w/Drinking Problem (1 = Yes)	.74*** (.23)	.77*** (.23)	.68*** (.22)	.67*** (.22)	.66*** (.22)	.69 (.22)	.67*** (.22)	.67*** (.22)

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TABLE 3. (Continued)

	1	2	3	4	5	6	7	8
<i>Independent and Control Variables</i>								
Female × Employment	<i>b</i> (se)							
Female × Marriage	-1.72** (.59)							
Female × Parenthood								
Female × Transition to Employment								
Female × Transition to Marriage								
Female × First or Additional Child								
Constant	6.55	2.58	5.60	5.54	6.12	5.64		
R-square	.09	.11	.10	.10	.10	.10		

^a Six-item scale ranging from 6 (less traditional) to 24 (more traditional).
^{*} $p < .05$; ** $p < .01$; *** $p < .001$.

and a family history of drinking problems results in drinking more. Age is no longer a significant predictor. Important to the current analysis and hypothesizing is that gender role attitudes are not related to the quantity of alcohol consumed in either equation 1 or 2, and the only adult role that is related to the number of drinks per occasion is marriage, which decreases drinking.

In terms of our hypotheses and the number of drinks per occasion, we do not find support for either hypotheses 1a or 1b that traditional gender role attitudes would be positively associated with alcohol use for men, but negatively related to drinking for women (non-significant interaction not shown). Nor did we find support for hypothesis 2, that gender roles attitudes are mediated by the adult roles. With respect to hypothesis 3 that gender would moderate the effects of employment, marriage, and parenthood on alcohol use, we did find that gender moderates the effect of employment (hypothesis 3a). In equation 3, the effect of employment on the number of drinks per occasion is moderated by gender. Employment is related to higher-quantity drinking on the part of men, but it actually reduces the number of drinks that women consume. Solving for the interaction, employed men ($X = 7.08$) drink more in contrast to employed women ($X = 4.90$), men who are not working ($X = 5.43$), and women who are not working ($X = 4.97$).

In equations 6–8, we show our test of hypothesis 4, in which we expected that gender would condition the effects of transitions to employment (hypothesis 4a), transitions to marriage (hypothesis 4b), and adding a first or additional child (hypothesis 4c) on number of drinks per occasion. We find support for hypothesis 4a (Table 3, equation 6) in that gender differentiates the experience of transitions to employment on quantity of drinking. These transitions do not appear to increase drinking among men, but do decrease the quantity of drinking for women. In fact, women who transition to employment ($X = 3.18$) drink less than transitioning men ($X = 7.01$),

nontransitioning men ($\bar{X} = 6.12$), and nontransitioning women ($\bar{X} = 4.00$).

DISCUSSION AND CONCLUSION

This study extends existing research by exploring gender differences in alcohol consumption during late adolescence and young adulthood. Specifically, in the context of two measures of alcohol consumption, frequency of drinking and number of drinks per occasion, we sought to understand whether and how traditional gender role attitudes and three adult roles explain the higher levels of alcohol consumed by men. This study was fruitful in three ways.

First, it appears that both gender role attitudes and our three adult roles and transitions (employment, marriage, and parenthood), in terms of main and interaction effects, are more proximately related to frequency of drinking, compared to the number of drinks consumed. Had we simply relied on the well-established fact that men drink more than women, regardless of measurement, and chosen to analyze only one outcome, we may have erroneously assumed that the relationships among attitudes, roles, and drinking were similar across measures. In fact, our findings corroborate a growing body of research literature that highlights the importance of investigating multiple measures of alcohol consumption (Cable and Sacker 2007; Green, Polen, and Perrin 2003). The relationships we explored among gender, adult roles, and drinking varied depending on the outcome measure. We found more main and interaction effects among our chief variables of interests (i.e., gender role attitudes, the adult roles, and role transitions) for frequency of drinking, compared to the number of drinks per occasion.

Traditional gender role attitudes reduce the frequency of drinking for both men and women—a point we return to below—and the effects of employment, marriage, and parenthood are qualified by gender. Furthermore, the impact of transitions to employment and parenthood were moderated by gender. Regardless of gender, employment increases drinking frequency, but more so for men than women. Marriage and parenthood do not directly impact men, but these statuses decrease how regularly women drink. The patterns observed for transitions to employment and parenthood were similar, wherein these transitions had no

effect on men, but they significantly reduced the frequency of drinking for women.

With respect to number of drinks per occasion and roles, only employment and entering employment distinguished men and women in terms of the number of drinks per occasion. Employment increases the quantity of drinking among men, but it reduces the number of drinks consumed by women. Transitions to employment are not related to the quantity of drinking for men, but they decrease how much women drink. Finally, marriage was significantly and inversely related to the quantity of drinking, but its effect did not differ for men and women.

Second, our findings allowed us to revisit the oft-cited congruence models which have been used to explain that traditional gender role attitudes are related to increased drinking for men and decreased drinking for women. We did find support that traditionalism decreases the frequency of drinking for women (hypothesis 1b), but, contrary to hypothesis 1a, we also found the same for men. Two plausible reasons may account for the lack of support in our study that traditionalism promotes drinking for men. One explanation is suggested by recent research which indicates that the gap in gender role attitudes is decreasing, with men and women becoming more similar over time (Myers and Booth 2002). While men still report higher levels of traditionalism, this narrowing toward egalitarianism on the part of males and females may, in part, differentiate our findings compared to those in earlier studies. The underlying assumption of the theoretical tenet that traditionalism would encourage men to drink more than women is that men espouse more conventional attitudes. In turn, such views are tied to ideas of masculinity that endorse aggression, risk-taking, and unhealthy behaviors, including higher levels of alcohol consumption (Huselid and Cooper 1992; Lye and Waldron 1998; Peralta 2007). While early gender socialization and structured inequality in the home and labor force explain why men continue to lag behind women in egalitarian attitudes, social changes—e.g., increased labor force participation among mothers and a generally more educated population—have resulted in the liberalization of role attitudes among young people coming of age in the past couple of decades (Fan and Marini 2000; Myers and Booth 2002; Thornton 1989). Therefore, while men in our sample have more traditional role

attitudes compared to women (Table 1, $p < .05$), the scores by gender are much more similar than they would have been two or three decades ago. See Fan and Marini (2000), who empirically verify this narrowing gap using other NLSY data in the period from 1979 to 1987; their basic finding was that not only are men's attitudes becoming increasingly similar to women, but also that in their period of study in which all young people experienced a change toward more egalitarian role attitudes, men actually experienced more change than women.

Another reason why we may not have found support for congruence models is that we only have available to us a measure of gender role attitudes. Our data do not include a measure of how respondents socially construct gender on a masculine-feminine continuum. Given the notable research in this area (Huselid and Cooper 1992), which indicates that such masculine-feminine orientation measures have implications for alcohol consumption, the availability of such a measure may have further clarified the relationship between gender and alcohol consumption.

Third, this research has helped explicate why, contrary to the convergence predictions of a few decades ago, male and female drinking patterns have not become indistinguishable. The original convergence hypothesis implicated changing roles and role attitudes. Interestingly, we do find some evidence for convergence, but not for drinking patterns. Instead, we find convergence for the effects of gender role attitudes. We find that the effects of traditional gender role attitudes have an equally diminishing effect on the frequency of drinking for men and women. However, drinking patterns are still differentiated by gender with respect to adult roles. For women, employment is less related to the frequency of drinking and actually decreases the number of drinks consumed at each drinking occasion. Moreover, marriage and parenthood decrease the regularity with which women drink, but have no impact for men. These patterns suggest that it may be important to understand not only how gender role attitudes affect alcohol use, but also how gender itself may transform roles in ways that maintain the gender gap.

Across our two measures of alcohol consumption, we found that gender was an important moderator of roles and their transitions. For example, why was employment less asso-

ciated with increases in the frequency of alcohol consumption for women, and why were marriage and parenthood more associated with decreases in the regularity of drinking for women but not for men? Following the role adoption/transition framework, such findings support other research that shows that even when men and women actually engage in similar roles the implications for social life are different (Thoits 1992). As reported in numerous studies, the household division of labor and other responsibilities accrued by women through employment, marriage, and parenthood outstrip those accumulated by men (Bird 1997; Christie-Mizell, Steelman, and Stewart 2003; Hochschild 1989; Roberts and Leonard 1997). Within the confines of marriage and parenthood, and even with helpful husbands, women are still primarily responsible for the daily maintenance of the home, the emotional work associated with couplehood, and the care of children (Bird 1999; Frisco and Williams 2003; Lavee and Katz 2002; Simon 1995). Therefore, the adoption of roles requires a major reorganization of time to meet responsibilities that may not leave occasion to frequently engage in alcohol consumption (Curran, Muthen, and Harford 1998; Leonard and Mudar 2003).

An additional and related reason why adult roles may impact women differently than men is that gender socialization also involves the internalization of ideas about appropriate behavior. These ideas are typically more restrictive of women's behavior. In fact, one process associated with gender socialization is that over the life course males are encouraged to more highly value individualistic roles, whereas women are more likely to value roles that express concern and responsibility for the well-being of others (Marini et al. 1996; Christie-Mizell 2006). Even within the context of the same role, the clear implication is that men and women perform and attend to the role differently. Although we control for gendered attitudes to capture this facet of role occupancy, we cannot be certain that our measure covers the wide array of experiences and social pressures faced by women. For instance, compared to employed, married fathers, employed, married mothers are more likely to experience shame, guilt, and distress due to the cultural expectations of what it means to be a good mother and wife (Arendell 2000; Elvin-Nowak and Thomsson 2001; Guendouzi 2006;

McDonald, Bradley, and Guthrie 2005; Williams et al. 1991). One potential outcome of this pressure-filled cultural ideal which specifies that women should be able to successfully juggle family and work responsibilities might be the relegating of drinking—especially frequent or high-quantity consumption—to one of those activities to be avoided because it would not be characteristic of a “good” mother and wife.

Notwithstanding the strengths of our study, our results are limited in a few respects. To begin with, while the moderating effects of gender on the relationship between role occupancy and drinking helped to partially explain the gender gap in alcohol consumption, our data do not include measures of role identity or satisfaction. Certainly, other research indicates that the salience of an identity and the extent to which the performance of a role is intrinsically satisfying affects role performance and the health and behavior consequences that attend that performance (Simon 1995). Next, the age range of our sample is 17–30 years old at baseline, and our findings may not be applicable to individuals in later stages of the life course. Finally, although we control for factors known to be related to alcohol consumption (e.g., family history) and assess two measures of drinking, there may be other differences between men and women (e.g., onset of puberty and physical reactions to alcohol) that may also be important factors in shaping drinking patterns by gender.

In conclusion, early research on gender differences in alcohol consumption predicted that contemporary society would see parallel drinking patterns for men and women (see Calahan 1970). While few research studies in the United States have supported this convergence hypothesis, our study indicates that the gender difference in frequency of alcohol consumption during late adolescence and young adulthood is at least partially explained by the effect of adult roles and transitions for women on drinking. Moreover, employment contributes to young women consuming lower quantities of alcohol compared to men. We also find that as youth mature into adulthood, traditional gender role attitudes are related to less frequent drinking for both men and women. This finding diverges from earlier research on gender role attitudes, but may reflect an overall narrowing in the difference between men’s and women’s attitudes about adult roles (Fan and

Marini 2000). Our work both confirms and extends existing research. Future work in this area should expand the number and types of social roles in an effort to clearly specify how role occupancy impacts drinking behavior. Work of this nature is important not only because it elucidates the processes that shape alcohol consumption, but also because of its implications for the larger body of work which seeks to understand how gender differentially shapes the effect of attitudes and role adoption on health and social behavior.

NOTES

1. We use the terms alcohol consumption, alcohol use, and drinking interchangeably. In terms of precise measurement, we study the frequency of alcohol use in the last year, ranging from “zero to two” times in the last 12 months to “daily” in the last 12 months and the number of drinks each respondent reports consuming per drinking occasion (see Data and Measures). Our measures can be distinguished from other oft-used measures, such as heavy or binge drinking, alcohol abuse, and alcohol dependence. Heavy or binge drinking is defined as five or more drinks for men and four or more drinks for women per occasion (Centers for Disease Control and Prevention 2004). The Diagnostic and Statistical Manual of Mental Disorders (DSM) IV-TR (American Psychiatric Association 2000) describes alcohol abusers as individuals for whom alcohol use results in recurrent social, interpersonal, and legal problems. Those with alcohol dependence meet the criteria for alcohol abuse, but also will exhibit additional characteristics, including, but not limited to, drink-seeking behavior, alcohol tolerance, withdrawal symptoms, and drinking to relieve or avoid withdrawal symptoms.
2. Other roles that are potentially important in late adolescence and young adulthood are cohabitating partner and college student. In our multivariate estimations of both outcome measures, neither of these variables had main effects or was moderated by gender.
3. Another socioeconomic resource that we considered for this study was household income. However, we do not include this variable in the models estimated for this study. In other analyses (available upon request), household income was not significantly re-

lated to either of our measures of alcohol use and did not substantively change the models presented here. This decision was also supported, in part, because we did not have the same measure of income for each respondent. For individuals still living with their family of origin, we had access to household income generated by parents, but for individuals who lived independently, we had reports of their own household income.

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