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The Effects of Gender Identity and Heavy Episodic Drinking on Alcohol-Related Violence

Robert L. Peralta · Valerie J. Callanan · Jennifer L. Steele · Lia Chervenak Wiley

Abstract This study examines the impact of masculinity and femininity on violence enacted while under the influence of alcohol. Our review of the literature, data analysis, and interpretations are framed by feminist pathways theorizing and a critique of existing gender research in the area of alcohol use and violence. Data come from a survey of Midwest university students ($N = 422$). The relationships between masculinity, femininity, heavy episodic drinking and three forms of alcohol-related violence (against strangers, friends/acquaintances, and intimate partners), are assessed with a series of logistic regressions. Results suggest that even when controlling for sex, gender is an important predictor for alcohol-related violence. We situate these findings within a sociology-of-gender framework.

Keywords Alcohol · Violence · Alcohol-related violence · Gender · PAQ

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R. L. Peralta (✉) · V. J. Callanan · L. C. Wiley
Department of Sociology, The University of Akron, Olin Hall 247, Akron, OH 44325-1905, USA
e-mail: rp32@uakron.edu

V. J. Callanan
e-mail: callana@uakron.edu

L. C. Wiley
e-mail: lmc73@zips.uakron.edu

J. L. Steele
Division of Social and Behavioral Sciences, Walsh University, Betzler 122,
North Canton, OH 44720, USA
e-mail: jls188@zips.uakron.edu

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The study of alcohol use and interpersonal violence among adolescents and young adults is important given this group's increased risk for such behavior [65]. Prior research has established a link between alcohol use and gender [47] and alcohol use and violence [12, 26, 31, 52]. However, most research on gender and alcohol use has focused on sex (i.e., in the biological sense) and not gender per se (i.e., in the sociological sense); and, most alcohol and violence research has framed the problem in terms of male perpetration and female victimization. Thus, such work has not adequately examined the gendered underpinnings of interpersonal violence while simultaneously and erroneously conflating sex with gender. While both men and women consume alcohol and perpetrate violence, more research needs to focus on how gendered identities—as opposed to sex-based identities—impact alcohol-related violence among young adults. Moreover, past research has not adequately differentiated between alcohol-related violence perpetrated against specific targets (i.e., strangers, significant others and friends/acquaintances) thus obscuring important gender differences that may exist for different forms of interpersonal violence.

Theoretical Background

This study is framed by a feminist critical approach, also known as feminist pathways [5, 13, 24]. This perspective argues that to understand crime, delinquency and deviant behavior, the differences between male and female experiences must be taken into account while centralizing patriarchy as an oppressive institution [4]. In this sense, patriarchy becomes problematic for both men and women. Thus, according to feminist pathways theorizing, sex and gender should not simply be used as control variables in the study of crime; instead, sex and gender should be considered central to socio-structural factors that inform and shape social behavior and social interaction. Relying on this theoretical orientation requires a rigorous investigation of the impact of socialized gender roles and structural oppression as significant factors contributing to criminal acts for both girls and boys. In sum, pathways to violence are understood to stem in part from gender specific differences in socio-structural developmental processes.

A number of relevant theories can be subsumed under a feminist pathways frame, although some of these do not explicitly refer to feminist critical approaches. For example, Broidy and Agnew [6] examined gender differences in strains (that are theorized to lead to future deviance), and found that strains are not only gendered but also produce gendered responses. Girls in their study were more likely to be victims of sexual, emotional and physical abuse than boys. Further, because of socio-structural socialization and expectations, females were more likely to engage in destructive self-directed behaviors than males. However, because of socialization, girls have more social and emotional support than boys, and therefore, more resources to cope with strain. Conversely, males are subjected to different forms of strain than their female counterparts, and they are more likely to respond to anger and frustration with aggression against others. Finally, because men enjoy more freedom than women, criminal behavior is more likely to be an option for males compared to their female counterparts. As such, gendered expectations for behavior

and responses to strain compel males to use anger and aggression to cope in comparison to the gendered expectation of females to be non-violent, caring, and nurturing. Thus, differences in criminal offending can be linked to gender socialization where expected gender roles increase the probability of offending among men and serve as a preventive factor against criminal offending among women.

A second theory that can be framed by a feminist pathways approach is "gender intensification"—which suggests that attitudinal, behavioral, and psychological differences between adolescent girls and boys increase with age and is the result of heightened socialization pressure to adhere to traditional feminine and masculine gender roles. The pressure to conform to gender-specific sets of behavior (e.g., the expectation for boys and men to exhibit and emphasize instrumental behaviors; for girls and women, expressive traits) is shared among and between social actors and institutions such as the family [11]. A body of research supports this theory (see Galambos, Almeida, and Peterson [18] for a review of the literature) and thus suggests that adolescence, late adolescence, and early adulthood are important developmental periods to examine the extent to which adherence to stereotypical gendered behavior impacts whether or not individuals engage in violent behavior.

These theoretical frameworks address the concern of scholars who suggest that gender-role orientation may be more important than biological sex in "susceptibility to mental health problems such as…addiction" [29, p. 2180]. Furthermore, the body of research reviewed above provides a theoretical rational that gender might be associated with exhibiting different forms of aggression (e.g., violence against strangers vs. violence against intimate partners). In other words, masculine orientations may be more relevant to engaging in violence against strangers than violence against friends or acquaintances.

Alcohol-Related Violence

A large body of research has established the correlation between alcohol consumption and violent behavior. Prevalence rates vary, but most studies find that about one-half of violent crimes involve alcohol use by the offender [54]. A few studies have established alcohol use as a significant predictor of violence by examining if alcohol was used at the time of the violent episode (see for example O'Keefe [41]). Recently, studies have also examined the amount of alcohol consumed before and during a violent event as well as the temporal ordering of alcohol use and violence [44]. Accumulating research suggests that the frequency and quantity of alcohol use are in fact positively associated with different forms of interpersonal violence [40, 64, 65]. Others specify and report on curvilinear relationships been alcohol-use and violence such that the risk for violence increases with the quantity of drink consumed—but risk eventually plateaus at moderate use and then begins to drop precipitously as significant intoxication takes hold [1].

Excessive alcohol consumption is an important risk factor for interpersonal violence. While it is not necessary nor sufficient to spark violent social interactions,

the extent to which heavy and episodic alcohol use is associated with interpersonal violence renders drinking behavior both an important outcome and control variable for research on interpersonal violence [42]. Some researchers, however, have argued that the relationship between alcohol consumption and violence is spurious insofar that those who are engaged in a criminal lifestyle are also heavy drinkers; the fact that they have high blood alcohol content (BAC) when arrested may merely be a by-product of their lifestyle, not a causal factor of violence [67, 70]. That alcohol consumption by non-violent offenders appears to be equivalent to violent offenders underpins the argument that the relationship between alcohol consumption and violence may be spurious [21, 55]. Yet, the few population-based surveys that *have* examined this relationship have also found that non-offenders are more likely to report they were involved in violence when they were under the influence [50].

Experimental research concerning alcohol and aggression suggests a possible causal relationship between alcohol use and violence [7, 28, 58]. However, these effects may be moderated by circumstantial or individual factors [28, 34, 39]. Circumstantial factors include the location of the alcohol use (such as alcohol use occurring at a social function) and the expected outcome of alcohol use [39]. Individual factors include personal attitudes toward violence, provocation, and level of personal anxiety [28, 39]. Sex is often cited as a major differential factor that may contribute to participation in aggression or violence after alcohol has been consumed. For example, Mitchell et al. [39] found that males and females have differential attitudes concerning violence both before and after alcohol consumption in a convivial setting; in short, pro-violent attitudes among males appear to increase after heavy alcohol consumption. One study recently found that heavy alcohol consumption did not increase alcohol-related aggression among women when controlling for temperament and cognitive functioning, but significantly increased alcohol-related aggression among women with high levels of antisociality, which points to the need for studies to account for gender in addition to sex [20]. A general critique of the experimental literature, however, is that gender-specific analyses do not play a prominent role.

Several theories have been developed to explain the relationship between alcohol and violence. Disinhibition theory suggests that alcohol intoxication affects cognitive abilities and functioning, the ability to read social cues, and thus, the ability to control aggressive behavior (see Bushman [8] for an overview). But as Parker and Rebhun [43] argue, disinhibition appears selective and conditioned by a complex set of social and cultural factors. Societal norms contour the conditions under which violence is an acceptable response to interpersonal conflict, yet, people violate these norms, especially when institutional support is weak (as in the case of family violence). Parker and Rebhun [43] suggest that when conflicting normative structures about violent behavior exist, individuals must actively choose *not* to engage in violence to resolve interpersonal conflict. Since the cognitive functioning of intoxicated individuals is impaired, this often precludes them from choosing non-violence as an option. In short, alcohol-related violence is "dependent upon the interaction of impaired rationality and the nature of the social situation" [42, p. 301].

This premise is underscored by numerous observational studies which find that the amount of alcohol consumed and rates of alcohol-related aggression vary by

social context. Drinking contexts are largely confined to two settings—the private sphere of the home and the public sphere of the bar. Even though the amount of time spent consuming alcohol in bars is significantly lower than the amount of time individuals consume alcohol in a private home, alcohol-related violence is much higher in drinking establishments [50]; with considerable variation across these contexts. For example, Burns [7] observed that young men became violent at bars where younger people congregate, but not at "family bars." One observational study compared violent and non-violent bars and found that bars where violence is more likely to occur included "groups of male strangers" [25]. These observational studies suggest that perhaps the pressure to perform gender in public environments may lead to violence depending on the type of bar and the gender orientation of those involved.

Another theoretical perspective argues that the variation in settings and situations in which alcohol-related violence occurs is related to cultural expectations that individuals have about the effects of alcohol. In U.S. society, intoxicated individuals are regarded as not fully responsible for their actions. This cultural belief is the foundation for the "deviance disavowal hypothesis." It argues individuals consume alcohol before they engage in deviant behaviors to provide a reasonably viable excuse for their actions. Studies have found that men who abuse their intimate partners and/or children, for example, often blame their behavior on being drunk [19, 22], and women cite alcohol use as a reason for becoming sexually assertive with men [47]. Another societal belief is the notion that alcohol emboldens individuals to behave in ways they normally would not, i.e.—"liquid courage." The "embolden hypothesis," as this idea has been coined, has not been as thoroughly investigated as disinhibition theory or the deviance disavowal hypothesis, but Vigil [62] reported that the gang members he observed used alcohol and other drugs to fuel the necessary courage for subsequent violent acts.

While U.S. culture appears to support an intoxicated "time out" from normative behaviors [47], it is clear that intoxication and accompanying aggression is not equally tolerated across all social settings and for all social actors [48]. For example, employees who might become intoxicated at a company function would not likely be excused from acting aggressively toward co-workers or superiors, no matter the provocation. Similarly, physical aggression by women under the influence of alcohol is probably not as tolerated or expected as similar actions by intoxicated males due to feminine-specific gender norms.

Gender Versus Sex in Alcohol Use Research

Critiques of the literature on gender and alcohol use continue to emerge [2, 47]. While some scholars have rigorously addressed gender—as opposed to sex [27, 68]—the preponderance of quantitative literature in alcohol studies has not adequately addressed gender as a structural feature of not only alcohol use, but also alcohol-related violence. In fact, gender and sex appear to be used interchangeably. For example, Wells et al. [65] include the term "gender" in the title of their article and in their discussion, yet sex, not gender, was the variable under investigation. In

general, the use of sex as a proxy for gender appears to be quite common in the literature overall.

Interestingly, in a study of late adolescent and young adult drinkers, Wells et al. [65] examined the relationship between heavy episodic drinking (HED) and alcohol-related aggression and assessed whether this association was different for males and females. They found that HED elevated the odds of getting into fights after drinking for both men and women but the effect was much stronger for women compared to men. Among women, they reported significant differences between race/ethnicities that were not found among men. Specifically, Hispanic women were more likely to get into fights after drinking compared to White or African American women. These findings may be due not to sex, per se, but to cultural differences in gender socialization and/or a complex interaction between sex and gender. That is to say, it is plausible that Hispanic women in the study may have had more masculine traits and/or have more closely aligned with masculine ideology than women of other ethnicities.

It is thus important to not only be cognizant of the existence of multiple forms of femininities and masculinities but to also begin a careful and systematic measurement of the ways in which gendered socialization might impact various forms of human behavior and social interaction. Otherwise, we risk continuing a traditional analysis of "sex differences" while referring incorrectly to the analytic strategies as "gender" analysis.

There are, to be sure, classic examples of nuanced forms of gender analysis [27, 53, 57]. One recent study by John et al. [29], using an in-depth assessment of gender as part of an alcohol treatment study, suggested that levels of psychological adherence to either masculinity or femininity were more important than biological sex in terms of measured outcomes. A few researchers have begun to examine whether alcohol-related violence is an expression of masculinity [61] or a form of compensation for deficient masculinity [49]. We argue that asking a respondent about their sex (male or female) is not an adequate measure of gender. Using measures such as the Personal Attributes Scale (PAS)[1] as derived from the Personal Attributes Questionnaire (PAQ) [57] may have the potential to more effectively understand gender and its role in alcohol-related violence.

Gender and Alcohol-Related Violence

Research on the relationship between alcohol and interpersonal violence is extensive: some scholars have questioned whether the association is causal (see [15, 16] for a review) while others have suggested a more direct relationship [7]. A recent synthesis of meta-analytic research on the alcohol-violence relationship suggests that men are more likely to engage in alcohol-related violence perpetration compared to their female counterparts; however, these results were tempered by the

[1] The Personal Attributes Scale (PAS) is derived from the Personal Attributes Questionnaire (PAQ). "PAS" and "PAQ" thus will refer to either the scale or the questionnaire respectively throughout the remainder of the paper. We have attached the PAQ as an appendix.

fact that the effects of alcohol on female aggression have not been as thoroughly studied compared to men [14]. But, given that gender is rarely measured, it is possible that sex is not necessarily the critical variable at play. Instead, it may be that masculinity is the culpable factor for violence perpetration given what we know about gender socialization (i.e., how boys and girls are socialized to become masculine or feminine in contemporary society [35]).

Doing gender, as coined by West and Zimmerman [66], is the process by which gender is reproduced and reinforced in the everyday actions involved in social interaction; hegemonic masculinity is the dominant, ideologically informed, contemporary expression of masculinity represented through such actions as physical prowess, control and domination [37]. The compensatory masculinity literature suggests that when resources to do masculinity are scarce, individuals will rely on available symbolic behaviors and interactions to approximate hegemonic masculinity [51]. Traditional resources include but are not limited to power in the workplace and at home, parenthood (e.g., fatherhood), marriage, employment, physical strength and stature, accomplished competitiveness (e.g., sports), success over failure or defeat, and virility. For young adults, many of these attributes may be out of reach for a variety of reasons such as age, structural inequalities, and physical limitations. In this context, it is therefore not surprising that violence, alcohol use, and alcohol-related violence in previous studies have been found to be surrogates for the accomplishment of hegemonic masculinity [38, 46]. In sum, research suggests that forms of masculinity can be expressed or embodied through alcohol use, violence, and alcohol-related violence.

Gendered institutions have been associated with differences in drinking. Men working or participating in the areas of policing, corrections, the military, college fraternities, and law, for example, have been found to have elevated levels of drinking and alcohol-related violence (see Wilsnack and Wilsnack [68] for an overview). We argue here that it may not be a question of sex differences alone operating within these institutions where men have historically excluded or outnumbered women. Rather, what may be of similar or greater significance is gender and gender construction in particular. The expression of masculinity can conceivably take on narrow forms when social audiences are not diverse in terms of sex and/or gender. Conversely, the expectations for masculine performances can be quite different in a mixed gender setting. Thus, different levels of risk behavior arise depending on the gendered organization of institutions, groups, and settings.

For our empirical efforts to be rigorous and meaningful, it is important that we precisely measure and discuss the variables that we identify as significant to research investigation. If this does not happen, erroneous conclusions are likely to arise thus setting the stage for ineffective policies. A critical examination into prior work forces the question: What of men who are socialized into or identify with non-hegemonic masculinity constructs or women who are socialized to be more masculine? Do their behaviors mirror that of their gender conforming sex-counterparts? While it is within reason that such occurrences may be relatively rare in our highly structured gendered society, the existence of "gender transgressors" [38] nevertheless remain. To what extent are men and women who do not hold traditionally "sex-appropriate" gender orientations involved in alcohol-related

violence? Seeking answers to such inquiries has the potential to address structured gender inequality more directly than sex-as-gender "difference" research has been able to do.

Disaggregating Interpersonal Violence

Because previous research on alcohol use and violence reports divergent findings depending upon the form of violence under investigation, it may be important to disaggregate violence methodologically, especially when focusing upon the impact of alcohol use on violent behavior. One way of disaggregating violence is to make distinctions between targets of violence. Violence against strangers, violence against friends/acquaintances and violence against intimate partners has been shown to be differently influenced by structural factors such as race, class, and sex [36, 40]. For example, masculine characteristics may be more associated with violence against strangers compared to violence against intimates given the literature which suggests a large proportion of aggression toward strangers occurs in the context of male-to-male aggression in public drinking establishments [43].

Furthermore, employing models separated by a target-type of interpersonal violence may be advisable when trying to illuminate whether or not gender identity has an impact on violent outcomes. Otherwise, the effects of gender and whether the effects of gender are dependent on violence-type may be masked when aggregating violence against intimates, strangers, and friends/acquaintances.

Hypotheses, Data and Methods

Given the literature on alcohol use, violence, and gender reviewed above, we present three overarching hypotheses centered on three distinct forms of alcohol-related violence: violence against strangers, violence against intimate partners, and violence against friends/acquaintances. The specific hypotheses are listed below. Because HED is an important risk factor for violence, we rely on a measure of HED as an independent outcome variable in each model.

H1 HED will elevate engagement in all three forms of alcohol-related violence.

H2 Having masculine characteristics (regardless of sex) will increase engagement in all three forms of alcohol-related violence.

H3 Having feminine characteristics (regardless of sex) will decrease engagement in all three forms of alcohol-related violence.

This study is derived from a larger study to assess if and how gender was associated with drinking. The data come from a self-administered questionnaire that included questions from the College Alcohol Survey [63], the Personal Attributes Questionnaire [57], and other demographic questions. Past research has shown that obtaining information on drinking behavior through self-reporting questionnaires is both reliable and valid [24]. After IRB approval, the survey was distributed to undergraduate students at a midsize Midwestern urban university in the fall of

2007. Students in sociology courses in the College of Arts and Sciences over the age of eighteen were invited to participate in the study via in-class announcements. Immediately following the announcement, students were given time to voluntarily complete the survey upon reading informed-consent materials and agreeing to participate.

Trained graduate students announced and administered the surveys. Students filled out pen and paper surveys during class time in their respective classrooms. Students were not offered compensation for their participation. By dividing the number of students enrolled in each of the classes surveyed by the number of surveys completed we found that 61% of students enrolled in the survey courses took the survey (not accounting for those who were absent on the day of the survey). This is not however a true response rate in that virtually all of those present at the time the survey was administered completed the survey. The four students who did not complete the survey were under 18 years old and were therefore ineligible to partake in the study. Surveys took approximately 30 minutes to complete. A fictitious drug was incorporated into the drug use section in order to discard responses from students who may not have been forthright in their responses [50]. No student indicated having taken the fictitious drug which suggests it is unlikely that students filled out the survey haphazardly or over-reported substance use.

Sample

Table 1 below illustrates the demographic characteristics of the sample. Of the 422 students in the sample, 62% ($n = 259$) were female and 38% were male ($n = 163$). Approximately 77% ($n = 324$) of the respondents were White, 17% percent ($n = 70$) were African American, 2% ($n = 10$) were Asian/Pacific Islander, 3% ($n = 11$) indicated "other," and 1% ($n = 5$) were Hispanic. As a point of comparison, 13% of students enrolled in the university in the fall of 2007 were African American, and 51% were women. Therefore, African Americans and women are somewhat overrepresented in our data.

The mean age of respondents was between 19 and 20 years old, which was younger than the mean age of 23 for the entire student population in 2007. This age difference may be due to the nature of the classes surveyed as a majority were large introduction to sociology classes that are more likely to be composed of younger students. The percentage of respondents in sororities or fraternities (6%) were relatively low but were consistent with the Greek participation rate on campus. Only 3% ($n = 14$) of respondents were married. Fifty-eight percent lived alone or with a roommate and the remainder (42%) lived with their family (data were not collected on whether respondents lived "on" or "off" campus). Sixty-nine percent reported being employed (either full-time or part-time) at the time of the survey.

Control Variables

Standard control variables used in substance use and abuse research on college students include race, sex, living arrangement, employment, credit hours, GPA, age,

Table 1 Descriptive statistics for all analysis variables ($N = 422$)

	Full sample		
	M	sd	Range
Dependent variables			
Last 12 months how often has your drinking caused a physical fight with			
Stranger	0.09	0.28	0–1
Significant other	0.07	0.25	0–1
Friend or acquaintance	0.09	0.29	0–1
Control variables			
Race (nonwhite = 1)	0.23	0.42	0–1
Sex (female = 1)	0.62	0.49	0–1
Living arrangement (with family members = 1)	0.42	0.49	0–1
Employment (employed = 1)	0.69	0.46	0–1
Credit hours (5 or less = 0; 16 or more = 5)	3.83	1.12	0–5
Grade point average (D and below = 0; A = 3)	2.15	0.65	0–3
Age (truncated so that 25 and older = 25)	19.88	2.10	18–25
Parent income (<15,000 = 0; 75,000 or higher = 3)	1.93	1.09	0–3
Independent variables			
HED (none = 0; occas = 1; freq = 2)	1.050	1.36	0–2
Gender: Personal Attributes Scale			
Masculinity	2.76	0.636	.50–4
Femininity	3.17	0.605	.38–4

and parental income [22]; these were used in the present study. Race, gender, living arrangement, and employment status are dichotomous variables. Race was dichotomized into White (0) and non-White (1); females were coded "1"; living with a family member was coded "1" and all other living arrangements were coded "0"; and employed students were coded "1." Credit hours were collapsed into five categories: 5 or fewer credits were coded "0" and 16 or more hours were coded "5." GPA was coded "0" for "D and below," "1" for "C," "2" for "B" and "3" for "A." Age was truncated at 25 years and older. Parental income was coded using a range from "0" for $15,000 or less to "3" for $75,000 or higher.

Independent Variables: Personal Attributes Scale and Heavy Episodic Drinking Measures

Masculinity and femininity is measured with the 24-item PAQ that estimates a gendered identity (see the "Appendix" for the items listed in the questionnaire). These items were designed with the assumption that individuals have both masculine and feminine traits. Having individuals rate themselves on a self-assessed gradient of different gender roles allows researchers to locate the areas in which gendered identity is the strongest, and how individuals identify with gender roles.

Using factor analysis, two 8-item personal attribute scales were derived that match what others have done in the past [27]: instrumentality (i.e., masculinity) and expressivity (i.e., femininity). Cronbach's alpha were .60 and .78, respectively. The masculinity scale included items such as "self-confident" that represent self-assertive and instrumental personality traits while the femininity scale was comprised of items that represent interpersonal and expressive traits, such as "concern for others" [57]. In order to extract items, the principal factor method was used followed by a promax (oblique) rotation. In order to determine the factors, eigenvalues, the Kaiser criterion, and the scree test were used. The eigenvalues for factor one were 3.59 and for factor two, 1.71. The scree test also suggested that there were two meaningful factors. When examining the rotated factor pattern (standardized regression coefficients) significant loadings were determined using the .40 or greater criterion. The results revealed that there were at least three significant loadings retained on each of the two components that had eigenvalues above one. However the variables did not represent a simple structure in the rotated factor pattern, instead there was the presence of several cross-loadings. These crossloadings were deleted until a simple structure was obtained. One of the main criticisms leveled against using the PAQ is that it is not a reliable measure of gender role orientation because it requires more data manipulation [10], although studies support the construct validity of the PAQ [10, 68, 69]. The PAQ remains a useful tool for assessing an individual's gender role identity.

Because we are including both gender and sex in the analyses, bi-serial correlations were conducted to determine the extent to which gender overlaps with sex. The correlation between femininity and female was 0.124 ($p = 0.015$) and .201 ($p = 0.001$) between masculinity and male, suggesting that while some overlap exists between sex and gender identity, the two are truly separate constructs. Masculinity and being male are more highly correlated than femininity and being female. This is expected given the theoretical and empirical literature that suggests women enjoy more fluidity in gender performance and expression compared to men, who are more likely to be denigrated for straying away from the masculine ideal in patriarchal society [17, 30, 32, 33, 45, 51, 59].

Heavy episodic drinking was captured with a set of questions from the College Alcohol Survey [62]. HED was measured by the standard definition of five or more drinks in a row for men or four or more drinks for women consumed in a single episode [63]. Students self-identified HED frequency over the two weeks prior to the survey administration from "none" to "occasional" to "frequent." Frequent heavy episodic drinkers are those who reported engaging in HED three or more times within the previous two-week period. Occasional heavy episodic drinkers are those who reported HED one or two times in the two weeks prior to the survey administration. Finally, non-heavy episodic drinkers are those who did not report HED in the previous 2 week period (i.e., none). Frequent HED was coded "2," occasional was coded "1" and non-HED (i.e., none) was coded "0."

Because the survey did not ask participants about abstinence from alcohol, it is important to note that the non-heavy episodic drinker category may include both those who abstain from alcohol use as well as those who drink alcohol but have not engaged in HED in the previous 2 weeks. Forty-six percent of the respondents had

engaged in at least one HED episode in the 2 weeks prior to survey administration and of these, 25% were occasional episodic drinkers and 21% were heavy episodic drinkers.

Dependent Variables: Alcohol-Related Violence

Self-reported alcohol-related violence perpetration against significant other, friend/acquaintance, and stranger constitutes the dependent variables. Specifically, respondents were asked "In the past 12 months, how often has your drinking caused you to engage in a physical fight with a significant other," "stranger," "acquaintance," or "friend" (see Thornberry and Krohn [60] for evidence in support of the use of these measures in terms of the validity and reliability of self-report data). "Friend" and "acquaintance" were collapsed into one category. Given skewed responses, each form of alcohol-related violence was collapsed into a dichotomous variable. Seven percent of the sample reported committing alcohol-related violence against a significant other, 9% against a stranger, and 9% against a friend/acquaintance at least once in the past 12 months.

Because the dependent variables were dichotomous constructs, logistic regressions were conducted to analyze the relationship between alcohol-related violence and gender. Multicollinearity was assessed with a series of bivariate and partial correlations, and with Variance Inflation Factors (VIF) of the multivariate logistic regressions. Although VIF is normally used for tests of multicollinearity in OLS regression models, as Menard argues, that because "the concern is with the relationship among the independent variables, the functional form of the model for the dependent variable is irrelevant to the estimation of collinearity" [37, p. 76]. None of the bivariate or partial correlations were higher than .33 and the VIF was never above 1.8, indicating multicollinearity problems were not present.

Results

Tables 2 to 4 present the logistic regression results for violence toward strangers, significant others, and friends/acquaintances, respectively. As seen in Model 1 of Table 2, HED and being non-White increased the odds of engaging in alcohol-induced violence against strangers whereas females and employed students were less likely to report engaging in this type of violence. In Model 2 of Table 2, we see that including masculinity did not change these relationships. However, Model 3 reveals that the inclusion of femininity reduced the likelihood of engaging in alcohol-related violence against strangers, while sex became non-significant.

As seen in Table 3 below, HED strongly increased the odds of engaging in alcohol-related violence against significant others, even when including gender identities in the models. In Model 1, females were more likely than men to engage in alcohol-induced violence against intimates as were non-Whites; these relationships retained statistical significance when controlling for masculinity (in Model 2) and femininity (in Model 3). Masculinity, as shown in Model 2, had no effect on

Table 2 Alcohol-induced physical fight w/stranger regressed on gender identity, HED and controls

	Model 1				Model 2				Model 3			
	b	OR	95%	Wald CI	b	OR	95%	Wald CI	b	OR	95%	Wald CI
Controls												
Race (nonwhite = 1)	1.04	2.82^{+}	0.96	8.33	1.14	3.12*	1.02	9.55	0.97	2.64^{+}	0.86	8.08
Sex (female = 1)	−0.89	0.41^{+}	0.16	1.09	−0.96	0.38^{+}	0.13	1.11	−0.82	0.44	0.16	1.23
Living argnmt (w/family members = 1)	0.42	1.52	0.47	4.92	0.30	1.34	0.40	4.58	0.33	1.40	0.41	4.76
Employment (employed = 1)	−1.12	0.33*	0.12	0.91	−1.12	0.33*	0.11	0.96	−1.25	0.29*	0.10	0.84
Credit hours	−0.01	0.99	0.62	1.58	0.00	1.00	0.59	1.67	−0.05	0.95	0.57	1.59
Grade point average	−0.57	0.57	0.26	1.22	−0.57	0.56	0.26	1.22	−0.49	0.61	0.28	1.35
Age	0.01	1.01	0.79	1.30	0.01	1.01	0.78	1.31	−0.01	0.99	0.76	1.29
Parental income	0.11	1.12	0.71	1.78	0.09	1.09	0.68	1.75	0.11	1.11	0.69	1.78
Independent variables												
HED	0.57	1.77***	1.25	2.50	0.55	1.74**	1.22	2.48	0.53	1.70**	1.18	2.44
Masculinity					−0.14	0.87	0.54	1.4				
Femininity									−0.40	0.67*	0.46	0.98
Max-rescaled R^2		0.24				0.24				0.27		
AIC		158				149.4				145.7		

$^{+}$ $p < .10$; * $p < .05$; ** $p < .01$; *** $p < .001$

alcohol-related violence with a significant other, but femininity decreased the odds of this form of aggression.

Table 4 displays the odds of alcohol-related violence against friends or acquaintances. Again, HED elevated the odds of engaging in this type of alcohol-related violence, even when controlling for masculinity and femininity. Non-Whites were more likely to engage in alcohol-related violence against friends/acquaintances than were Whites. Women were less likely to engage in this form of violence than men, as were younger individuals. As noted in Model 2, masculinity is negatively correlated with this form of violence, but as seen in Model 3, femininity does not have an effect.

In a series of analysis not presented here, masculinity and femininity were analyzed together in single models across all three violence measures. The results produced few changes. Race and sex became insignificant with respect to violence against strangers, and for violence against friends/acquaintances, masculinity was no longer significant.

Discussion

Across all models, HED was positively associated with alcohol-related aggression, thus supporting **H1**. No support was found for **H2**. Curiously, and against what we expected, having masculine characteristics did not elevate the odds of alcohol-related violence, and reduced the odds of violence against friends/acquaintances. Femininity was negatively associated with stranger and significant-other violence thus partially supporting **H3**. Of interest, femininity decreased the odds of alcohol-related violence against strangers and significant others, but had no effect on violence against friends/acquaintances.

Upon differentiating gender from sex, we find significant sex-based findings when controlling for gender that must be discussed. In Table 2, Model 2, we find that when controlling for masculinity, women are less likely to report alcohol-induced violence against a stranger compared to men. In Table 3, we find that being female is positively associated with engaging in an alcohol-induced physical altercation with a significant other even when controlling for masculinity or femininity. Lastly, we find women were less likely to report alcohol-induced physical fighting with a friend or acquaintance when controlling for masculinity or femininity in comparison to their male counterparts. Men appear to be more involved in alcohol-related violence compared to women, which corroborates much of the psychological literature (see Archer [3] for a meta-analysis of sex differences in aggression).

In sum, women appear to be less likely to engage in alcohol-induced violence compared to men except for violence against intimate partners. Our finding regarding violence against intimates is perhaps less difficult to explain sociologically given the violence-against-women literature. Because we are unaware of who the *initial* perpetrator is as measured in this form of violent interaction, it is plausible that many women in these instances may be defending themselves from abusive significant others. Women may be forced to rely on violence to protect

Table 3 Alcohol-induced physical fight w/significant other regressed on gender identity, HED and controls

	Model 1				Model 2				Model 3			
	b	OR	95%	Wald CI	b	OR	95%	Wald CI	b	OR	95%	Wald CI
Controls												
Race (nonwhite = 1)	1.50	4.50**	1.35	15.07	1.52	4.59*	1.35	15.60	1.22	3.40^{+}	0.98	11.79
Sex (female = 1)	1.37	3.94*	1.23	12.64	1.10	3.00^{+}	0.88	10.30	1.42	4.12*	1.23	14.23
Living argnmt (w/family members = 1)	0.10	1.11	0.33	3.67	0.12	1.13	0.33	3.90	0.16	1.17	0.34	4.10
Employment (employed = 1)	−0.44	0.65	0.21	1.96	−0.57	0.56	0.18	1.79	−0.72	0.49	0.15	1.57
Credit hours	−0.08	0.92	0.56	1.53	−0.18	0.84	0.49	1.41	−0.20	0.82	0.49	1.37
Grade point average	−0.37	0.69	0.31	1.55	−0.30	0.74	0.33	1.68	−0.23	0.79	0.34	1.85
Age	0.08	1.08	0.83	1.41	0.07	1.07	0.81	1.42	0.05	1.05	0.80	1.38
Parental income	0.36	1.43	0.84	2.43	0.39	1.47	0.85	2.54	0.38	1.47	0.85	2.25
Independent variables												
HED	0.79	2.20***	1.47	3.30	0.83	2.30**	1.51	3.50	0.82	2.26***	1.48	3.46
Masculinity					−0.31	0.74	0.44	1.22				
Femininity									−0.50	0.61*	0.40	0.93
Max-rescaled R^2		0.22				0.25				0.28		
AIC		139.7				135.9				132.0		

$^{+}$ $p < .10$; * $p < .05$; ** $p < .01$; *** $p < .001$

Table 4 Alcohol-induced physical fight w/friend or acquaintance regressed on gender identity, HED and controls

	Model 1				Model 2				Model 3			
	b	OR	95%	Wald CI	b	OR	95%	Wald CI	b	OR	95%	Wald CI
Controls												
Race (nonwhite = 1)	1.45	4.25**	1.58	11.42	1.65	5.21**	1.76	15.4	1.40	4.07**	1.42	11.69
Sex (female = 1)	−0.93	0.39*	0.16	0.97	−1.40	0.25**	0.09	0.68	−1.06	0.35*	0.14	0.89
Living argnmt (w/family members = 1)	0.10	1.11	0.39	3.12	0.25	1.28	0.44	3.77	0.22	1.25	0.44	3.60
Employment (employed = 1)	−0.36	0.7	0.27	1.82	−0.54	0.58	0.21	1.59	−0.46	0.63	0.24	1.68
Credit hours	−0.26	0.78	0.50	1.19	−0.45	0.64^{+}	0.39	1.02	−0.42	0.66	0.41	1.04
Grade point average	0.26	1.29	0.62	2.67	0.43	1.53	0.72	3.26	0.41	1.50	0.71	3.16
Age	−0.31	0.74*	0.55	0.98	−0.43	0.65**	0.47	0.91	−0.42	0.66**	0.48	0.91
Parental income	−0.02	0.98	0.64	1.50	−0.03	0.97	0.63	1.50	−0.00	0.99	0.65	1.53
Independent variables												
HED	0.38	1.47*	1.06	2.03	0.45	1.56*	1.10	2.24	0.37	1.45	1.04	2.03
Masculinity					−0.43	0.65^{+}	0.42	1.02				
Femininity									−0.28	0.76	0.52	1.11
Max-rescaled R^2		0.19				0.24				0.23		
AIC		182.2				161.2				162.8		

$^{+}$ $p < .10$; * $p < .05$; ** $p < .01$; *** $p < .001$

themselves regardless of gender orientation, and report such behavior as "an alcohol-induced physical fight with a significant other" upon having no other survey response options available. In other words, structural inequalities affecting women specifically may yield distorted violence perpetration results—thus, this finding may be indicative of a significant data limitation derived from poorly structured questions on intimate-partner violence.

The low levels of alcohol-induced violence against strangers among women compared to men reveal the complex interplay between biological, psychological and sociological development. One possible explanation can be found in Campbell's [9] work on sex and aggression. She found that men's higher levels of anger coupled with their lower levels of fear explained, in part, why males are disproportionately involved in aggression compared to women. Interestingly, Campbell [9] calls for an integration of gender-based theory and empirical findings from aggression researchers who tend to rely on psycho-biological explanations for sex differences in violent behavior. It is important to note that human behavior and social interaction emerge from complex reactions to and associations between neurobiology, human relationships, and social-structural conditions. The work of Siegel [56] suggests that the intersection between neurobiology, personal relationships and society has a tremendous impact on human behavior throughout the life course. While this discussion is beyond the scope of the present paper, our results suggest that biology and society are perhaps interacting thereby producing gender differences in alcohol-related violence.

Our findings in part support a feminist pathways framework: our findings demonstrate the impact of gender socialization, versus sex, on alcohol-related violence. HED and gender identity influenced specific forms of alcohol-related violence. The way in which we disaggregate alcohol-related violence (stranger, significant other, and friend/acquaintance) further reveals the complex relationships between sex, gender, race/ethnicity and alcohol-related violence. Interestingly, having a masculine identity, regardless of sex, was negatively associated with alcohol-related aggression against friends or acquaintances and not associated with other forms of violence. Perhaps those who self-report masculinity characteristics do not engage in alcohol-related violence because there may be no need to engage in compensatory masculine behavior via alcohol-related violence given their self-perception as masculine. Nevertheless, this curious (non)finding is in need of additional research and theorizing.

Femininity was negatively associated with violence against strangers and significant others. However, female sex, irrespective of gender, was significantly associated with alcohol-related violence against significant others as discussed above. It is important to remember that when contextualized by the violence against women literature, this finding could indicate that women, regardless of gender orientation, use physical force for protection in intimate relationships marred by interpersonal violence. The way the question was phrased, unfortunately, does not take into account why alcohol-related violence was used. Our results overall suggest femininity plays an important role as a protective factor against alcohol-related violence, whereas masculinity may be less important.

Perhaps one of the most important theoretical implications our results have for feminist pathways perspectives is for researchers to continue to theorize about both

women and men as gendered and to be mindful that men and women are affected by the gender order. By disentangling sex from gender, we are able to locate and identify a few of the complex ways in which sex and gender operate to either place an individual at risk for perpetrating alcohol-related violence or provide some protection against perpetrating this form of criminal aggression.

This study is not without limitations. We rely on a convenience sample and our sample is rather small. Our results cannot be generalized without a significant degree of caution. With larger probability-based samples, future research could test the interaction between gender and sex as a predictor of alcohol-related interpersonal violence. Similarly, it may prove fruitful to run similar models holding sex constant. Unfortunately, our sample is not large enough to substantiate the use of such techniques. Additionally, we were unable to procure enough ethnic and race-based minority groups to examine differences among African Americans, Hispanics and other groups: race/ethnicity was collapsed into "non-White" and "White." This presents a significant limitation on our ability to analyze race/ethnicity and to theorize about these important sociological constructs in the gendered context of alcohol-related violence.

Next, our measure of aggression (e.g., engaging in an alcohol-related physical fight) does not capture severity of aggression, which may range from pushing to punching or kicking. Additionally, the measure does not capture the extent to which the respondent was the perpetrator, victim, or mutual aggressor. This is important because women may report engaging in a physical fight but be primarily victims or use physical aggression in self defense (such as pushing the person away). Perhaps gender is more salient for perpetration than for victimization analysis. Thus, the effect of gender on aggression is partially washed out because our measure of aggression does not differentiate between perpetration and victimization. On a similar note femininity and masculinity are not unidimensional as suggested by our operationalization. That is, masculinity likely consists of several dimensions, such as male toughness, risk-taking, and violence. Therefore, it will be important in future research to assess the relations between domains of femininity and masculinity in relation to alcohol-related violence.

Despite these limitations, this study provides empirically based evidence to address a theoretical question: What role does gender, as opposed to sex, play in alcohol-related violence? Insofar as we attempt to answer this basic research question, it is important to note that this study is an exercise in theory development; not one that necessarily contributes to epidemiological knowledge about alcohol use and alcohol behavior. An additional strength of the study is that it examines gender in addition to sex whereas most studies only examine sex. This study, therefore, represents a step toward disentangling the complex relationship between gender and sex. Importantly, gender, and femininity in particular, needs to be addressed in a more serious manner when it comes to theorizing about alcohol-related violence given our results. Disinhibition theory, deviance disavowal theory, and the "embolden" hypotheses could also be enhanced and refined by an infusion of gender-based theory and analysis given men's disproportionate involvement in alcohol-related violence. Finally, future research should take into account the

intersections of oppression which include measuring sexual identity differences, abuse history differences, school experiences, and mental health status differences.

While our results are geared toward theoretical development, it is important to address a few policy considerations. Our data perhaps suggest that violence prevention measures need to take into account gender as a social construct, and in particular, the problematic aspects of contemporary masculinity exemplars into serious consideration. Accounting for the significance of gender socialization in prevention efforts may yield promising results given the large and growing body of evidence that suggests gender is a crucial element in the commission of crime. Gender could also be addressed in alcohol abuse prevention training in colleges and universities. This is especially pertinent to our finding which links HED to all three forms of violence examined. Next, common stereotypes about victim (female) and offender (male) relationships must be addressed. Thinking about violence in gendered terms blinds us to the totality of violence and victimization. Gender neutral language should be considered in the implementation and development of violence prevention programs. In conclusion, alcohol-related violence, as a gender issue, needs to be acknowledged and addressed by campus security professionals, criminal justice personnel, public health workers, college counselors, and others who work closely with college populations.

Appendix: Personal Attributes Questionnaire (PAQ)

The items below inquire about what kind of person that you think you are. Each item consists of a PAIR of characteristics, with the numbers 0–7 in between. Each pair describes contradictory characteristics—that is, you cannot be both at the same time. The numbers form a scale from one extreme to another. You are to choose a number which describes where you fall on the scale.

1. Not at all aggressive	0 1 2 3 4 5 6 7	Very aggressive
2. Not at all independent	0 1 2 3 4 5 6 7	Very independent
3. Not at all emotional	0 1 2 3 4 5 6 7	Very emotional
4. Very submissive	0 1 2 3 4 5 6 7	Very dominant
5. Not at all excitable in a major crisis	0 1 2 3 4 5 6 7	Very excitable in a major crisis
6. Very passive	0 1 2 3 4 5 6 7	Very active
7. Not at all able to devote self completely to others	0 1 2 3 4 5 6 7	Able to devote self completely to others
8. Very rough	0 1 2 3 4 5 6 7	Very gentle
9. Not at all helpful to others	0 1 2 3 4 5 6 7	Very helpful to others
10. Not at all competitive	0 1 2 3 4 5 6 7	Very competitive
11. Very home oriented	0 1 2 3 4 5 6 7	Very worldly
12. Not at all kind	0 1 2 3 4 5 6 7	Very kind
13. Indifferent to others' approval	0 1 2 3 4 5 6 7	Highly needful of others' approval
14. Feelings not easily hurt	0 1 2 3 4 5 6 7	Feelings easily hurt

continued

15. Not at all aware of the feelings of others	0 1 2 3 4 5 6 7	Very aware of feelings of others
16. Can make decisions easily	0 1 2 3 4 5 6 7	Has difficulty making decisions
17. Gives up very easily	0 1 2 3 4 5 6 7	Never gives up easily
18. Never cries	0 1 2 3 4 5 6 7	Cries very easily
19. Not at all self-confident	0 1 2 3 4 5 6 7	Very self-confident
20. Feels very inferior	0 1 2 3 4 5 6 7	Feels very superior
21. Not at all understanding of others	0 1 2 3 4 5 6 7	Very understanding of others
22. Very cold in relations with others	0 1 2 3 4 5 6 7	Not very cold in relations with others
23. Very little need for security	0 1 2 3 4 5 6 7	Very strong need for security
24. Goes to pieces under pressure	0 1 2 3 4 5 6 7	Stands up well under pressure

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Author Biographies

Robert L. Peralta is an Associate Professor of Sociology at the University of Akron. His areas of interest and expertise include substance use and abuse, criminology & deviance, gender, social inequality, and interpersonal violence. Some of his publications appear at: *The Journal of Health and Social Behavior*; *Journal of Drug Issues*; *Sex Roles*; *Violence Against Women*; *Deviant Behavior*; *Substance Use and Misuse*; and *Violence and Victims*.

Valerie J. Callanan is an Assistant Professor in the Department of Sociology at the University of Akron. She specializes in corrections, suicide, and media and public opinion of crime. Her research has been published in *Crime and Delinquency*, *Feminist Criminology*, *Journal of Criminal Justice*, *Policing & Society and Suicide & Life-threatening Behavior*.

Jennifer L. Steele is an Assistant Professor at Walsh University. She received her M.A. from Ohio University and her Ph.D. from the University of Akron. Jennifer's research interests include substance abuse, race and ethnicity, testing of criminological theory, and gender. She has published at *Substance Use & Misuse*, *Violence Against Women*, *Feminist Criminology*, and *Journal of Ethnicity in Substance Abuse*.

Lia Chervenak Wiley is currently a doctoral student in the Department of Sociology at The University of Akron. Her research interests include alcohol use, drug use, violence and gender.