



# the relationship between drinking and violence in an adolescent population: does gender matter?

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While many studies have examined the relationship between alcohol and violence in adult populations, little research has examined this relationship in adolescent populations. Using a large nationally representative sample of older adolescents from the Monitoring the Future Survey, this article found heavy alcohol and polydrug use to increase the likelihood of violent offending even after controlling for other variables like home environment, grades in school, and race. When separate models predicting violence were examined for both males and females, alcohol and polydrug use continued to increase the likelihood of violence for both sexes. Attaining high grades in school decreased the likelihood of violence for both males and females. Several differences did emerge across gender-specific models for other variables, however. African-American males were more likely to engage in violence compared to White males, but race was not a significant predictor of violence

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in the female sample. In addition, residing in a two-parent household significantly decreased the likelihood of violence only for females.

## **INTRODUCTION**

Historical data indicate that no other group has witnessed such a rapid increase in rates of violence as the one observed for adolescents during the early 1990s (Cook and Laub 1998; Perkins 1997; Snyder 1996). This trend spawned a proliferation of research attempting to determine the etiological factors related to youth violence (Reiss and Roth 1993). One of the factors found to be related to violence and aggression in general is alcohol consumption; the statistical relationship observed for the co-occurrence of alcohol and violence is well documented in the literature (Murdoch, Pihl, and Ross 1990). Very few studies, however, have attempted to explore the effects of alcohol on youth violence specifically (Dawkins 1997; White 1997). In this article, we attempt to fill this gap in our understanding by examining the relationship between alcohol consumption and violence using the Monitoring the Future Survey to create a nationally representative sample of high school seniors. In addition to determining the relationship between alcohol consumption and violence in this youthful cohort, we also examine the extent to which alcohol differentially affects the probability to engage in violence between male and female students.

## **ALCOHOL AND VIOLENCE**

A recent study released by the U.S. Department of Justice (Greenfeld 1998) again brought media attention to the fact that alcohol use is linked to a large percentage of criminal offenses. In fact, the study found that almost 4 out of 10 violent crimes involve alcohol according to both reports by crime victims and self-reports of attribution by criminal offenders. This report confirmed the wide body of academic literature that has documented the correlation between alcohol consumption and interpersonal violence in adults (Bushman and Cooper 1990). This body of literature generally falls within two distinct methodology types: correlational

studies within subsets of the population (e.g., victims and offenders) and laboratory experimental studies.

Correlational studies examining the prevalence of alcohol within offender populations have found that offenders were under the influence of alcohol in 28–86% of the incidents of homicide, 24–72% of assaults (Roizen, 1982), and 13–50% of rapes (Roizen 1997). This wide variability in estimates, Roizen (1997) believes may be attributable to a number of factors including the use of small sample sizes in some studies and the quality of police data across jurisdictions. Another perplexing finding is that nonviolent offenders were just as likely to have been under the influence of alcohol as their violent cohorts. For example, a survey of prison inmates in the early 1970s indicated that although a large proportion of violent offenders were drinking or drunk at the time of their crime, there were similar proportions of nonviolent offenders who also reported drinking or being drunk when they committed their crimes (Roizen and Schneberk 1977). This general alcohol pervasiveness in offender populations also was found in the recent Justice Department study. The mean blood alcohol concentration levels for state prisoners was approximately .28 for violent offenders and .30 for those who committed property offenses (Greenfeld 1998). The fact that there are generally no significant differences in drinking behavior by offense type has led Roizen (1997:24) to conclude that, “criminal behavior may not be seriously influenced by drinking in the event, but rather that criminal offenders generally are very heavy drinkers and if there is any contribution made by alcohol, it is in this way.” These equivocal findings have led others to call for more specificity when analyzing violent events (Pernanen 1991).

In perhaps the largest research undertaking of its kind to look specifically at the alcohol–violence connection, Pernanen (1991) analyzed data from a probability sample of 933 men and women over the age of 20 and also from a comparison sample of violent crimes based on police records ( $N=781$ ). In more than half of the incidents of violence in the community sample and 42% of the violent crimes in the police reports, either the victim, the assailant, or both were drinking. This study led Pernanen to conclude that alcohol is “abundantly present in day-to-day violent confrontations.” Another important contribution of Pernanen’s work, however, was its

demonstration that alcohol was more pervasive within particular subsets of violent incidents. For example, alcohol involvement was present in over half of all episodes of male perpetrated violence but in only 27% of female perpetrated violence. Alcohol presence also varied by the victim-offender relationship; over three quarters of the incidents involving strangers and nearly half of the incidents of spouse assault involved drinking by either the victim or the assailant. The high prevalence of alcohol involvement in intimate partner violence is confirmed by other research as well (Kaufman Kanter 1997; Kaufman Kanter and Straus 1987).

Pernanen's (1991) work encouraged others to better specify the context of the violent incident under study. For example, Martin and Bachman (1997) found that the effects of assailant drinking on the escalation (from threat to actual attack) and outcome (injury versus no injury) of assaults varied by gender and victim-offender relationship. After controlling for other important factors like weapon presence and location of the incident, these authors found that alcohol had little effect either on the likelihood of a threat escalating to an attack or on it resulting in injury in assaults involving acquaintances of either sex. Alcohol did, however, increase the likelihood that a threat would escalate to an attack in male-on-male incidents involving strangers. In addition, it was found that attacks against women by a male intimate (e.g., husband or boyfriend) were more likely to result in injury if the assailant had been drinking.

None of the above correlational studies, of course, establish a causal relationship between the use of alcohol and intentional violence. Experimental studies do, however, illuminate the possibility that alcohol consumption may have a distinct causal influence on subsequent violent behavior.

A large proportion of experimental studies investigating the relationship between alcohol ingestion and violence have measured aggression using the Taylor paradigm (Taylor 1967). In this methodology, aggression is typically operationalized using a version of the Taylor competitive reaction time task that involves shocking a bogus opponent (measure of aggression) as well as receiving shocks from a bogus opponent (provocation). In general, these studies have found that intoxicated subjects give a greater number and markedly higher shocks than sober subjects (for a review, see Bushman

and Cooper 1990), particularly under conditions of frustration and provocation (Taylor and Leonard 1983). Unlike the correlational studies discussed above, these experimental studies have the advantage of permitting inferences about causation because of their random assignment to the experimental manipulation, the consumption of alcohol. However, due to the artificiality of both the drinking situation and the operationalization of aggression, they have limited generalizability outside the laboratory setting (Lang 1993).

As noted above, there is a paucity of research that has examined the alcohol–violence connection within adolescent populations (for a review, see White 1997). The largest survey to illuminate this relationship is the National Youth Survey (NYS). Using the NYS, Elliott, Huizinga, and Menard (1989) found that self-reported alcohol use by 11–17 year olds immediately prior to committing an offense was 23% for assaults (including fights), 10% for robberies, and 20% for motor vehicle thefts. Note that this is a similar lack of specificity that was found for alcohol's involvement across offense types in adult populations. Elliott and colleagues did, however, find that violent behavior increased for those youth who used other drugs in addition to alcohol. In another correlational study, Carpenter (1988) found that youth who engaged in alcohol and drug use were more likely to be involved in violence. In addition to finding this relationship between alcohol and violence, Glassner and Johnson (1988) also found that youth who drank heavily were more likely to be not only perpetrators of violence, but also victims of it. Other researchers have also found a positive correlation between drinking and violence within adolescent populations (Orpinas et al. 1995; Valois, 1993).

Research has also investigated the contribution of alcohol and drugs in crimes committed by juveniles. Using data from adolescent offenders at a juvenile training school, Dawkins (1997) found that alcohol use was more related to offending behavior, including violence-related offenses, than other drugs. Moreover, even when multivariate models were estimated controlling for other important factors related to offending like criminal history, alcohol continued to retain significance in predicting violent offending even though prior criminal history explained most of the variance. For significant human subjects concerns, of course, no recent research has

investigated the alcohol–violence relationship with an adolescent sample in an experimental setting.

## **GENDER, ALCOHOL, AND VIOLENCE**

Many experimental studies of aggression (for reviews, see Bettencourt and Miller 1996; Eagly and Steffen 1986) as well as arrest statistics in most industrialized nations including the United States (for review, see Simon and Baxter 1989) demonstrate that males are generally more aggressive than females. While earlier theorists sought biological explanations for this difference (Maccoby and Jacklin 1974), more contemporary explanations have focused on cultural and gender norms. For example, Eagly and Steffen (1986) used a social role framework for explaining gender differences in aggression. Because the male gender role includes norms encouraging many forms of aggression and the female gender role places little emphasis on aggressiveness, these authors contend that males will be more aggressive than females. Other investigators have concentrated on structural factors within a society to explain these differentials such as female labor force participation and educational opportunities that are “indicators of women’s freedom from their traditional domestic role” (Simon and Baxter 1989:185). In a study of 31 nations over a 19-year time frame, however, Simon and Baxter (1989) found that despite structural changes in economic, educational, and political opportunities, women continued to play relatively minor roles in these nations’ violent activities. It is important to note that although structural changes have indeed occurred, women still are more likely to do “women’s work” (Andersen 1997) and men “men’s work” (Kimmen and Messner 1998) within our modern economic structure. These differential economic positions continue to promote traditional feminine and masculine behaviors.

Unfortunately, we know very little about any differences that may exist between males and females in the way alcohol relates to aggression. Attitudinal studies appear to indicate that alcohol may affect the propensity of males to engage in violence more than females (Crawford 1984). For example, when surveyed, males were generally more likely to expect alcohol to make them more aggressive compared to females

(Brown et al. 1980; Leigh 1987). Other studies have found that men were more likely than women to say that they physically injured another person or damaged property due to drinking (Perkins 1992) or to list alcohol as a cause of aggression (Crawford 1984). The males and females in Perkins' (1992) study, however, were equally likely to relate alcohol to physical harm to oneself.

Other insights about the differential effects of alcohol on violence between males and females comes from an ethnographic study using a sample of 152 male and 133 female drug users distributors in New York City by Spunt and associates (1990). Based on weekly interviews for eight weeks, these investigators tracked the number of violent incidents engaged in by respondents and the contextual characteristics surrounding them. In general, the majority of violent incidents engaged in by both males and females in the sample were psychopharmacological in nature, the result of intoxication of some kind. The majority of males and females who engaged in this type of violence did so more frequently under the influence of alcohol compared to other drugs. The interesting finding regarding gender differences in the alcohol–violence relationship in this study was that violent incidents engaged in by females were less likely to be alcohol or drug related compared to violent incidents engaged in by males.

An examination of official arrest and incarcerated populations also shows evidence of alcohol's differential effect on aggression for males and females. For example, a 1989 survey of jail inmates found that 44% of the men, but only 21% of the women, reported being under the influence of alcohol at the time of their current offense (Bureau of Justice Statistics 1989). In a survey of state prison inmates, however, a slightly higher proportion of women (36%) compared to men (31%) said they were under the influence of drugs other than alcohol when they committed their current offense. In a more detailed examination of gender differences in a sample of incarcerated jail populations in California, Nunes-Dinis and Weisner (1997) found that while males in their sample were more likely to be classified as heavy and problem drinkers compared to females, there were no significant differences in the extent to which alcohol and drugs were related to their arresting offense.

Clearly, there is a paucity of research that has examined the contribution of alcohol to violence for males and females

separately. Further, even though the young are at an increased risk to engage in violence, there are even fewer studies that have examined this relationship using adolescent samples. Yet knowledge about the etiological relationship between alcohol and violence and how this relationship may differ for males and females, particularly adolescents, would have important policy implications by helping to identify the types of interventions that would be most appropriate for both males and females. Using the Monitoring the Future survey, the primary goal of this research is to determine the extent to which alcohol and other drug use differentially affects the propensity of male and female adolescents to engage in violent behavior. In addition, the independent contribution of alcohol and other drugs to violence engaged in by both males and females will be assessed by employing multivariate regression models which include other important variables such as student's religious beliefs, home environment, grades in school, race, and location of residence.

## **METHODS**

The data utilized for this study were obtained from the Monitoring the Future (MTF) survey in 1994. This survey is designed to explore the lives of contemporary American youth through their values, behaviors, and lifestyles. The MTF survey is collected using a multistage cluster sampling design. In 1994, data were obtained from 139 schools (119 public and 20 private); an 84% response rate was obtained. The survey itself is divided into six questionnaire versions (Forms), not including the core survey. In this article, Form 6 of the 1994 survey was used because it was the only form that solicited information on acts of violence perpetration. This resulted in a total sample of 2,643 high school seniors, 46% male and 54% female; the vast majority were 18 years of age (64%). For more information on the MTF data, see Bachman, Johnston, and O'Malley (1996).

## **INDEPENDENT VARIABLES**

### **Alcohol Use**

To determine the extent to which respondents engaged in heavy and frequent alcohol use, a dichotomous variable was



created indicating the presence of any of the following behaviors: used alcohol on more than 6 occasions in the last 12 months; perceived themselves to have gotten drunk on most of those occasions; and used alcohol more than three times in the last two weeks. If respondents replied yes to a question, this drinking variable was coded 1. Otherwise the variable was coded 0. The criteria we chose for this alcohol use measure would be considered conservative because it reflects heavier drinking styles. This was done to ensure that our analyses were based on a sample of individuals who were familiar with alcohol and its effects, not those who had virtually no experience with alcohol. Forty-three percent of the sample engaged in frequent and heavy alcohol use as measured by this variable. It should be noted that in addition to this variable, another variable that simply measured the quantity and frequency of drinking behavior engaged in by respondents also was used to predict violence. However, since there was no significant difference in the regression coefficients between this variable and the more conservative heavy/frequent variable, the latter was retained for purposes of this article. The univariate distributions for all independent and control variables are displayed in Table 1.

### **Polydrug Use**

To control for the influence of other drugs in respondents' lives, a polydrug use variable was included in all multivariate regression models. This variable was a dichotomy coded 1 if the respondent had used any of the following drugs in addition to alcohol in the last 12 months: marijuana, psychedelics, amphetamines, tranquilizers, inhalants, barbiturates, narcotics, cocaine, and heroin. This variable reflects some drug use whether it is heavy, moderate, or light. Thirty-seven percent of the sample had used at least one of these substances in the last 12 months in addition to alcohol.

### **Religious Beliefs**

To indicate the extent to which respondents held religious beliefs, a two item additive index was created using the following two questions: "How often do you attend religious services?" (with four response categories from "never" to "about once a week or more") and "How important is religion in your life?" with four response categories from "not

**TABLE 1** Percentage Distributions for All Independent, Dependent, and Control Variables,  $N = 2642$ 

	Percent
Had engaged in at least one act of violence	24
Hit supervisor at least once	3
Involved in fight at work or school	13
Involved in gang fight	15
Threatened someone with weapon	3
Performed arson	3
Had engaged in alcohol use	43
Had utilized at least one drug other than alcohol	37
Gender	
Male	46
Female	54
Race	
White	85
African-American	15
Location of residence	
Resides in SMSA	80
Resides in rural area	11
Lives with both parents	68
At least one parent attended college	66

important" to "very important"). The resulting index ranged from 2–8 with a mean of 5.4.

### **Grades**

To measure respondents academic performance in school, respondents were asked to indicate their high school grade point average on a 9-point scale from D (coded 1) to an A (coded 9). As shown in Table 1, the median grade was a B.

### **Home/Parent Environment**

Two indicators were used to measure respondents home environment and household characteristics: whether they resided in a household with both parents present and whether either their mother or father had attended college. Both variables were dichotomies, coded 1 to indicate the presence of both parents and at least one parent attending college and

0 otherwise. In this sample, 68% of respondents lived in households with both parents present and 66% said that at least one of their parents had attended college.

### **Demographic Controls**

Several demographic variables were controlled including gender, race, and location of residence. Respondents' gender was coded 0 for females (54%) and 1 for males (46%). Because codes for race/ethnicity categories other than African-American and White were deleted from the MTF public-use data tape, respondent's race was coded 0 for Whites (85%) and 1 for African-Americans (15%). Location of residence was coded 1 for all those respondents residing in Standard Metropolitan Statistical Areas (SMSAs) (80%) and 0 for those residing in rural areas (20%).

## **DEPENDENT VARIABLE**

### **Violence**

To measure whether respondents had engaged in violent behavior during the past 12 months, they were asked a number of questions. Because the distribution of these responses was severely skewed with the majority of students responding that they engaged in no violence, a dichotomous variable was created that was coded 1 to indicate the presence of any of the following activities: hitting supervisor, fighting at work or school, being involved in a gang fight, threatening someone with a weapon, or performing arson. Twenty-four percent of the sample had engaged in at least one of these acts of violence in the past 12 months. The univariate distributions for each of these indicators are also presented in Table 1.

## **RESULTS**

Before presenting the results of the multivariate logistic regression models, it is illuminating to examine the bivariate distributions of the key independent variables and the violence measure. Table 2 presents these distributions for the entire sample and separately for male and female respondents. As can be seen from this table, in the total sample, males were more likely to engage in violent behavior compared to females;

**TABLE 2** Percent of Respondents who Engaged in Any Violence in the Last 12 Months by Demographics, Drinking Index, and Polydrug Use

	Percent of all respondents using violence	Percent of males using violence	Percent of females using violence
Female	17*		
Male	32		
White	23	30*	16
African-American	24	38	12
Two-parent household	22*	29*	14*
Single-parent household	30	39	22
Parents attended college	22	30	15
Parents did not attend college	28	36	20
Respondent engaged in alcohol use	36*	46**	25**
Did not engage in alcohol use	16	20	11
Respondent engaged in polydrug use	38**	47**	28**
Did not engage in polydrug use	16	21	11

Note: \*\*Coefficient significant at the  $p < .01$  level; \* $p < .05$  level.

students residing in households with both parents present were less likely to use violence compared to those residing with only one parent; respondents who engaged in heavy and frequent alcohol use were more likely to use violence compared to those who did not use alcohol to such an extent; and respondents who used at least one other drug in addition to alcohol in the past 12 months were more likely to use violence compared to those who did not engage in polydrug use.

In general, these same relationships were true for both male and female subsamples. In addition, however, race was a significant predictor of violence for males. African-American males were more likely to disclose that they had engaged in violence in the past 12 months compared to their White counterparts.

The next question addressed was, "Do these same variables predict violent behavior for males and females even after controlling for the effects of the other variables?" Results of the

**TABLE 3** Logistic Regression Results Predicting Violence Using Total Sample (*N* = 2642), Male Respondents Only (*N* = 1151), and Female Respondents Only (*N* = 1354) with Odds Ratios in Parentheses

	Total sample	Males only	Females only
Male respondents	.881** (2.4)		
Black respondents	.075 (1.1)	.478* (1.6)	-.438 (.65)
Urban locale	-.065 (.93)	-.112 (.89)	.061 (1.1)
Two-parent household	-.396** (.67)	-.318 <sup>a</sup> (.72)	-.492** (.61)
Parents attended college	-.219 (.80)	-.035 (.96)	.396* (.67)
Religion index	-.024 (.97)	-.033 (.96)	-.016 (.98)
Grades in school	-.124** (.88)	-.121** (.88)	-.127** (.88)
Alcohol use	.752** (2.1)	.858** (2.3)	.635** (1.8)
Polydrug use	.645** (1.9)	.604** (1.8)	.691** (1.9)

Note: \*\*Coefficient significant at the  $p < .01$  level; \* $p < .05$  level.

<sup>a</sup> Coefficient had a corresponding probability equal to .06.

logistic regression model predicting violence for the total sample and for the male and female subsamples are presented in Table 3. As can be seen, results are very consistent with the bivariate relationships observed earlier. For the total sample, male respondents were significantly more likely to engage in violence compared to females even after controlling for the effects of the other independent variables. This is not surprising and is consistent with a proliferation of literature (Reiss and Roth 1993; Simon and Baxter 1989). The control variable for academic performance was also significant. Recall that this variable ranged from 1 (D) to 9 (A) so the negative coefficient indicates that students with higher grades in school were less likely to engage in violence compared to students with lower grades. Students residing in two-parent households also were less likely to engage in violence compared to students living in single-parent households. Both measures of drug and alcohol

use retained their significance even after controlling for the effects of the other independent variables. Heavy and frequent alcohol users as well as students who used at least one other drug in addition to alcohol were more likely to engage in violent behavior compared to other students.

In general, the gender-specific models predicting violence revealed very similar results. Alcohol and polydrug use increased the probability that adolescent males and females would engage in violent activities. There were differences across models for other variables, however. For example, the coefficient for household type was only a significant predictor of violence for females. Females who resided in households with both parents present were significantly less likely to engage in violence compared to those students living with one parent. While this coefficient did not attain significance at the .05 level for males, the probability was close at .06. In addition, for males, race was a significant predictor of violence net of the other variables. A somewhat anomalous finding was the positive and significant coefficient for the variable indicating parent's college attendance in the female model. The total model and the male model resulted in a negative but insignificant coefficient for this variable. The model predicting violence for females, however, indicates that females who had at least one parent who had attended college were more likely to engage in violence compared to other females.

Similar to the bivariate findings, grades were consistently related to violence in both models; males and females with higher grade point averages were less likely to engage in violent activities compared to students with lower grades. In addition, African-American males were more likely to have reported the use of violence compared to their White counterparts. There was no significant difference in the likelihood of offending between African-American and White female adolescents.

## **DISCUSSION**

This research has examined the relationship between self-reported drinking patterns and violence among a large nationally representative sample of older adolescents.

In addition, we have examined whether there were differential effects of alcohol on violence between male and female adolescents. In the general model predicting violence, heavy alcohol and polydrug use both increased the likelihood of violent offending even after controlling for the other variables. Consistent with other research, our findings indicate that males were more likely to engage in violence compared to females. Other factors that decreased the likelihood of violence were high grades in school and residing in a household with two parents present.

Unlike previous research, then, which indicates alcohol may be more related to violence for males compared to females (Crawford 1984; Perkins 1992; Spunt et al. 1990), our research indicates that alcohol and drug use increased the likelihood of violence for both male and female adolescents. In fact, the gender specific models predicting violence were very similar. Heavy alcohol and polydrug use increased the likelihood that both male and female adolescents engaged in violence, regardless of the other variables. Similarly, high grades in school decreased the likelihood of both males and females engaging in violence. The effects of other variables, however, were different across the models. First, African-American males were more likely to report using violence compared to White males, but race was not a significant predictor of violence in the female sample. In addition, females who had at least one parent who had attended college were more likely to engage in violence compared to other females. This was not true for the male sample. While residing in a two-parent household decreased the probability of violence for both male and female adolescents, the effect was only significant in the female model. The fact remains, however, that compared to females, males were more likely not only to be violent, but also to engage in heavy alcohol consumption and polydrug use.

It is important to provide interpretive qualifications here to prevent masking the diversity that may exist within the groups examined in this article. Specifically, Andrews and Bonta (1994) note that individual differences can have hidden effects on results when using aggregate data. They warn that controlling extraneous variables, as we have done in this analysis, is not enough for adequate research validity. To assume that the aggregate correlates of violence imply

knowledge of the correlates of individual behavior would, of course, be making an ecological fallacy. For example, personal attitudes and other individually based variables may moderate the effects of the drinking and violence relationships observed in this article; it may be that those who drink have common personality characteristics that are etiologically related to violence.

Although we cannot demonstrate a causal relationship with these data, there is most certainly a very strong correlational relationship between alcohol and drug use and violence in adolescent populations. In addition, while many of the same factors were predictive of violence for both males and females, this research has underscored the importance of examining the etiology of violence using gender specific models as certain factors such as race were masked when examining models for males and females combined. Future research must continue to examine the effects of drugs and alcohol on behavior in adolescent populations. This issue is crucial in light of the fact that recent research indicates that our youth are particularly heavy drinkers and that drinking patterns are beginning to converge between the sexes (Wechsler et al. 1998).

These findings have obvious policy implications. While school administrators and other front line personnel working with adolescents have long recognized the influence of alcohol use in increasing young men's aggressiveness, our findings indicate that this is also a risk for female adolescents. This finding debunks the myth that only males engage in alcohol-related violence. Further, because this research is based on self-report data and not official data, it reinforces the notion that alcohol related violence is not an experience solely reserved for males. Future research must examine whether the cultural expectation that alcohol leads to violence similarly influences the behavior of males and females.

The race-based findings of this research illuminate the need for promoting environments where narrow conceptualizations of gender are discouraged. Young African-American men were more at risk for committing violence compared to White men. However, when examining the interactive effects of race and gender, this difference disappeared for females. This suggests that being African-American is less important



than being African-American *and* male. Our finding that males are generally more likely to engage in violent behavior, which once again confirms the proliferation of research that already exists (Reiss and Roth 1993), needs to be addressed at the sociological level. The socialization of men that legitimates the use of violence appears to spawn dangerous violent behavior. This is clearly a problem that resides at the level of gendered attitudes, norms, and expectations (O'Toole and Schiffman 1997).

Finally, the advertising of alcoholic products to adolescents and adolescents' subsequent use of alcoholic beverages may be an indirect factor related to the rates of violence we see in adolescent populations. This issue must be addressed in subsequent research and in public policy initiatives. The movement to hold alcohol and tobacco industries accountable for their efforts at targeting youth in marketing initiatives appears to be justified by the current research.

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