

IS THE ASSOCIATION BETWEEN ALCOHOL USE AND DELINQUENCY CAUSAL OR SPURIOUS?*

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We attempt to isolate the effects of alcohol on different types of delinquent behavior by identifying the spurious portion of the relationship. Using data on adolescents from Finland, we compare the relationship between drinking and delinquent behavior while sober to the total relationship between drinking and delinquent behavior (sober or not). For each type of offense, we find a substantial relationship between drinking and sober delinquency, which suggests a good deal of spuriousness. For crimes of petty theft (shoplifting and stealing from home), the relationship between drinking and sober delinquency is just as strong as the total relationship, which suggests the relationship is almost completely spurious. For violence, vandalism, car theft, and graffiti writing, the

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alcohol–sober delinquency relationship is weaker, which suggests that alcohol has a causal effect on these offenses.

In this research, we examine two important issues that have received limited attention in the literature on alcohol use and delinquency. First, we attempt to estimate how much of the relationship between alcohol use and delinquency is spurious. Second, we examine whether alcohol affects all types of delinquency or primarily violent behavior. To examine these issues, we look at the role of alcohol in violence, vandalism, and various forms of theft among Finnish adolescents.

Most prior research focuses on the role of alcohol in violent behavior. Experimental studies show that alcohol intoxication has a causal effect on the violent behavior of college students in the laboratory (e.g., Chermack and Taylor, 1995; for reviews, see Bushman and Cooper, 1990; Exum, 2006; Graham, Schmidt, and Gillis, 1996; but see Lipsey et al., 1997). Research on men's violent behavior against their wives provides evidence for a causal effect outside the laboratory setting (Fals-Stewart, 2003; Murphy et al., 2005; Quigley and Leonard, 2006; Testa, Quigley, and Leonard, 2003). These studies use within-subject designs in an attempt to rule out the spurious effects of individual differences (see Leonard, 2005, for a review).

Various arguments have been given to explain why alcohol intoxication has a causal effect on violence. Many of these arguments focus on the tendency of alcohol to impair performance. For example, it is argued that alcohol decreases cognitive capacity, so people are more likely to attend to only the most salient cues (Steele and Josephs, 1990). This cognitive "myopia" leads intoxicated individuals to use violence because they do not consider future costs. It has also been argued that the pharmacological effects of alcohol interfere with self-awareness, reduce anxiety about using violence, and increase arousal (Critchlow, 1986; George and Dermen, 1988; Hull, 1981; Steele and Josephs, 1990). Based on evidence from a meta-analysis, Bushman (1997) suggests that alcohol affects violence because of its effect on intellectual functioning, perceptions of risk, and self-awareness. Other theorists have suggested that these effects depend on the social contexts in which drinking occurs (Fagan, 1990; Parker and Rebhun, 1995).

Social beliefs about alcohol can also contribute to its effect. For example, drinking can provide an excuse for offenders to commit the crime if it allows them to attribute their behavior to alcohol and avoid responsibility. Expectations about the alcohol–violence relationship may also result in a self-fulfilling prophecy (Goldman, Brown, and Christiansen, 1987). Experimental evidence has documented expectancy effects but suggests that

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they tend to be weak, at least in the laboratory context (Exum, 2006; Graham, Schmidt, and Gillis, 1996; Hull and Bond, 1986). Finally, inebriated individuals are likely to engage in provocative and other behaviors that offend others. These behaviors can lead to conflicts, which then create the opportunity for violence. Thus, evidence suggests that alcohol increases the likelihood of victimization (Felson and Burchfield, 2004).

Many arguments about why alcohol has a causal effect on violent crime can be applied to nonviolent crime as well. For example, if alcohol produces cognitive "myopia," it should lead to criminal behavior generally. If alcohol interferes with self-awareness, intellectual functioning, or the tendency to feel anxiety about the act, or if it increases risk taking or physiological arousal, then it should affect all types of crime and delinquency. If the effects of alcohol reflect expectations about its effects, then one might also expect intoxication to lead to crime generally. For example, drinking might provide an excuse for offenders to steal or to vandalize property if it allows them to avoid responsibility.

There are also reasons to believe that alcohol intoxication should have a stronger effect on the tendency to commit violent offenses than on the tendency to engage in nonviolent offenses. First, the tendency for alcohol to lead to provocative behavior by victims and interpersonal conflict should not have much effect on nonviolent crime, unless those offenses are grievance oriented. Second, one would expect that intoxication has a stronger effect on impulsive offenses than on offenses that are planned beforehand. Violent offenses are more likely to be more impulsive than other offenses—the crime is often committed soon after the decision to commit it. Delays, on the other hand, should "dilute" the effect of alcohol. Carpenter et al. (1988) found that many adolescents reported that they moderated their use of alcohol when they knew they were going to engage in illegal behavior. Finally, inhibitory factors may be stronger for violent offenses because they tend to be perceived as more serious and more risky than nonviolent offenses. People have stronger moral inhibitions about violent crime, and the penalties tend to be greater. In addition, violence involves personal confrontation and the danger of counter attack by adversaries, whereas nonviolent crime usually does not. Courage, that is, the discounting of costs, might be more important. Thus, experimental studies find that alcohol effects are stronger when victim retaliation is possible (see Exum, 2006, for a review). More generally, the disinhibiting effects of alcohol may be more important in situations where "natural" inhibitions are strong. In other words, intoxication effects may be important when people consider committing offenses for which they would otherwise experience high levels of guilt and fear.

Research on adult inmates suggests that violent offenders are more likely than property offenders to be drinking during the offense (Franklin,

Allison, and Sutton, 1992; Greenfield and Henneberg, 2001; Harlow, 1998; Miller and Welte, 1986). However, the evidence as to whether drinking is related more strongly to violent offending than to nonviolent offending among juveniles is mixed. White et al. (2002) found that acts of violence and vandalism were associated more strongly with intoxication than with delinquency involving theft. They found, for example, that 23 percent of larceny offenders were under the influence of either alcohol or drugs compared with 46 percent of assault offenders. Other research suggests that alcohol use is no more strongly related to violence than to other forms of delinquency (Bureau of Justice Statistics, 1994; Carpenter et al., 1988; Cohen et al., 1994; Hartstone and Hansen, 1984). Note, however, that some delinquent acts are more likely to be associated with drinking than others for spurious reasons.

ADDRESSING SPURIOUSNESS

PRIOR RESEARCH

Some researchers have argued that the relationship between alcohol and violence outside the laboratory is spurious, particularly among adolescents (e.g., Fagan, 1990; White, 1997). Research shows that alcohol use and violence among youth have shared risk factors (White, Brick, and Hansell, 1993; Zhang, Wieczorek, and Welte, 1997). Because drinking is illegal for adolescents, many factors that lead to delinquency should affect both alcohol use and violent behavior. For example, low self-control and a general tendency to engage in antisocial behavior may lead to both alcohol use and violence, which produces a spurious relationship (Gottfredson and Hirschi, 1990; Moffit et al., 2001). Differences in routine activities and peer groups may also produce a spurious relationship (Felson, 1998). Drinkers may be more likely than nondrinkers to associate with other youth in activities that are unsupervised by adults. It is unknown to what extent these factors explain the relationship between chronic alcohol use and violent or other delinquent behavior.

Fergusson, Lynskey, and Horwood (1996) attempted to determine whether the relationship between alcohol use and delinquency was spurious by controlling for a set of common risk factors. In models that featured property crime as the outcome variable, the misuse of alcohol failed to emerge as a statistically significant predictor, which suggests that drinking and property crime have a spurious relationship. By contrast, the association between drinking and violence remained strong even after adjusting for the common risk factors. Of course, some other unmeasured variables may account for the relationship, so any causal inference is extremely tentative (Rutter, 1996).

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Several studies have used longitudinal data in an attempt to isolate causal effects (Kerner et al., 1997; Wei, Loeber, and White, 2004). For example, White and Hansell (1998) found that alcohol use was unrelated to later aggression among adolescents and young adults using lagged regression models. These results suggested a spurious relationship. Note, however, that these designs provide a conservative test because they assume a particular time lag, which is usually a year.

Huizinga, Menard, and Elliott (1989) used a novel approach to examine whether alcohol affects different forms of delinquency. First, they estimated the likelihood that a juvenile offender had consumed alcohol on any given day of the year, based on the number of times they reported drinking in the past year. They then compared this estimate with the offenders' reports of whether they were drinking at the time of their offenses. They found that among juveniles involved in an assault, the average likelihood of alcohol consumption on any given day was 31 percent, whereas the percentage of offenders under the influence of alcohol at the time of the assault was 32 percent. The comparison of these percentages led the authors to conclude that the association between drinking and assault is not any stronger than the association between drinking and other activity. In other words, their analysis suggests that the relationship between drinking and assault among juveniles is entirely spurious. They reported similar results for burglary, robbery, larceny, and motor theft. Sexual assault was the only type of offense in which the prevalence of intoxication was significantly higher than expected based on the average frequency of alcohol consumption (82 percent vs. 26 percent).

Huizinga, Menard, and Elliott (1989) acknowledged that their estimates of alcohol consumption have some limitations. It is not clear whether their estimates of daily consumption patterns are accurate. They did not take into account either the amount of alcohol consumed or the possibility that offenders may have been drinking multiple times on a given day. It could be that offenders were extremely intoxicated at the time of their offense but consumed only small amounts of alcohol on other days. It may be that the consumption of small amounts of alcohol does not contribute to delinquency (Wells and Graham, 2003).

Finally, the issues of spuriousness and causality were examined in a recent study of violence based on data from the National Longitudinal Study of Adolescent Health (Felson, Teasdale and Burchfield, 2008). Using a method similar to the one used in this research, they found evidence that alcohol intoxication affected violent behavior.

CURRENT STUDY

Establishing causality remains a major challenge in studies of alcohol and criminal offending. In the current study, we examine this issue using a method in which we attempt to identify the spurious element in the relationship between drinking and delinquency. We compare two equations. In the first equation, we examine whether frequency of drinking is associated with the tendency to engage in particular types of delinquency *while sober*. We assume that the relationship between drinking and delinquency while sober is entirely spurious. The tendency for drinkers to commit offenses when sober cannot be because of the causal effects of intoxication; the relationship is likely to be a result of common causes, such as self-control, socialization experiences, and activity patterns.

In our second equation, we estimate the relationship between drinking and delinquency (sober or not). Our dependent variable is based on whether adolescents committed a particular crime, ignoring whether they were drinking at the time. This equation reveals *the total relationship* between drinking and delinquent acts, because of the causal effect of intoxication and the effects of common causes.

The comparison of the two equations reveals the extent to which the overall relationship between frequent drinking and particular types of delinquency is spurious. If the relationship between frequency and sober delinquency is as strong as the relationship between frequency and delinquency, it suggests that the latter relationship is entirely spurious. If it is weaker, then it implies that the association between frequent drinking and delinquency reflects some causal effect of intoxication. Of course, confidence in causal inference is limited with correlational data.¹ In addition, we cannot say anything about the mediating mechanism. However, the experimental evidence clearly shows that alcohol can have psychopharmacological effects in a laboratory setting.

We do not attempt to interpret the relationship between drinking and delinquent acts while intoxicated (versus no delinquent act). Because intoxication and the offense are combined into a single variable, the relationship is difficult to interpret. A frequent drinker is more likely to be intoxicated than an infrequent drinker during any event, not just one that involves delinquency. A teetotaler will not be drinking during any event. These relationships may, therefore, have nothing to do with delinquency. For example, the relationship between being a drinker and taking a walk while sober is certainly lower than the relationship between being a drinker and taking a walk while drinking. It is lower because drinkers may

1. We recognize that some scholars are uncomfortable with the use of any causal language when discussing correlational data. We believe that it is appropriate to use causal language as long as one expresses the appropriate caution.

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take a walk while drinking, but teetotalers never do, not because drinking causes people to take a walk.

Our approach to causal inference is indirect in that it is based on a comparison of the spurious portion of the relationship with the total relationship. However, our method has some important advantages over more typical methods. First, measurement error is less problematic because we are comparing the relative size of coefficients, and not depending on their absolute size. Self-reports of the frequency of drinking, for example, are likely to have measurement error, but it should not affect the relative size of effects for delinquency while sober and total delinquency. Second, our method does not require us to control for sources of comorbidity. Controlling for every possible common cause is always a problem using nonexperimental methods, but it is an even greater challenge in addressing the alcohol/delinquency relationship. Because drinking is a form of delinquency, the likelihood of a third variable producing spuriousness is particularly high. Longitudinal studies address these concerns to some extent, but they must assume a particular time lag. In sum, our method is less vulnerable to errors of measurement and specification.

DATA

Our data come from the Finnish Self-Reported Delinquency Study, which is a national survey of adolescents living in Finland that was conducted in 2004. The sample includes 5,142 students from 55 municipal schools selected by a randomized cluster procedure with geographic area and residential density as the stratification criteria (Salmi and Kivivuori, 2006). The target population of the survey consists of students in the ninth grade—the final grade in the comprehensive (compulsory) school system. After the ninth grade, students are placed at separate schools in accordance with academic ability and professional aspirations. Almost all students in the sample are 15 (60.4 percent) or 16 years old (37.8 percent). The survey includes students from regular as well as special education classes. The questionnaire was administered during a regular class session under the supervision of a liaison teacher trained by the research team. The response rate was 85 percent. Research conducted in Germany suggests that the self-report methodology employed in this study has a high degree of validity (Naplava and Oberwittler, 2002; see also Salmi and Kivivuori, 2006).

Finnish adolescents have a higher rate of drinking than their American counterparts. In 2003, slightly more than one third of the American tenth-grade students reported drinking to the point of intoxication within the past 12 months (Johnston et al., 2006). According to the European School

Survey of Alcohol and Other Drugs (Hibell et al., 2004), the corresponding statistic for Finnish students in this age group was 64 percent. The Finnish rate is also higher than the average rate reported for other European nations (53 percent). According to the International Crime Victimization Survey (van Kesteren, Mayhew, and Nieuwbeerta, 2000), the rate of violent crime is somewhat higher in Finland than in the United States. By contrast, the property crime rate is higher in the United States.

Note that Finland, like the United States, is a “dry” drinking culture (Room and Bullock, 2002). Alcohol consumption in such nations tends to involve sporadic drinking of large amounts of beer or distilled spirits to the point of intoxication. Other examples include Russia, Sweden, and Norway (Pernanen, 1991; Pridemore, 2002; Rossow, 1996). In contrast, “wet” cultures are characterized by frequent drinking of small amounts of alcohol, typically wine, as a regular part of day-to-day nutritional intake. Examples of such nations include the Mediterranean countries, such as Italy and France. Research suggests that the drinking patterns that characterize the “dry” culture are more conducive to violent outcomes (Lenke, 1990; Richardson and Budd, 2003; Room and Bullock 2002).

MEASUREMENT

Our research features seven measures of delinquency, which include two measures of violence: beating someone up and participation in a fight or a brawl in a public place. We have two measures of destruction of property: drawing or writing on the wall (*graffiti*) and “other destruction of property” (*vandalism*). Respondents were asked about “other destruction of property” after they were asked about graffiti and destruction of school property. Crimes of theft include *stealing from home* (the domestic dwelling of the respondent), *shoplifting*, and *car theft*.

Respondents were asked whether they had engaged in each of these acts of delinquency during the past 12 months. If respondents gave an affirmative response for a given act of delinquency, then they were presented with a series of follow-up questions regarding the characteristics of the *most recent* incident. Our measure of *intoxication* at the time of the offense is based on the following question: “Were you under the influence of alcohol at that time?” Unfortunately, we do not have information as to how much the respondent was drinking. However, research suggests that getting drunk is the primary goal of Finnish adolescents when they drink, and that intoxication is the typical outcome (Lintonen et al., 2000). They rarely consume modest amounts of alcohol in the presence of adults or in the course of a meal.

To measure *frequency of drinking*, respondents were asked, “How often do you drink alcohol?” The response categories were as follows: “never,”

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“less than once per month” (rarely), “1–2 times per month” (monthly), and “at least once a week” (weekly). Not a single car-theft offender reported that he or she *never* drank. To avoid inflated regression coefficients, we omit nondrinkers in the analysis of this particular offense.

Our multivariate models control for the following background characteristics: gender, age, socioeconomic status, area of residence, and family type. *Age* is coded as a dichotomy depending on whether the respondent was 16 years old or older (versus 15 years old or younger). Students are assigned low socioeconomic status if they report “some” or “major difficulties in the economic situation of their family.” The measure of *residential context* reflects whether respondents live in an area that is rural (the reference category), semirural, suburban, or urban. The variable *family structure* refers to whether the respondent is living with both of his or her biological parents (the reference category), a single parent, a stepfamily, or under some other household arrangement. Finally, *gender* is a dichotomous variable coded 1 for boys and 0 for girls. Analyses not presented showed that the results were similar when we analyzed boys and girls separately.

RESULTS

Descriptive statistics for the data are presented in table 1. For each type of delinquency, we report the percentage of respondents who committed the offense. Interestingly, stealing from parents (home) is the most prevalent offense in this sample (16.5 percent). We are not aware of any other survey that asks about this behavior. Car theft is the least common type of delinquency (1.2 percent).

The results on frequency of drinking show that most respondents drink (71.6 percent), but most do not drink very often. Only about 10 percent of the students consume alcohol at least once a week. We also present the percentages of respondents who were intoxicated during the most recent offense (last column of table 1). These results show that respondents were often drinking when they committed violent offenses, vandalism, and car theft (from 46.0 percent to 60.4 percent of the incidents). They were less likely to be drinking during incidents of graffiti writing (17.4 percent), shoplifting (9.9 percent), and stealing from home (5.1 percent). These results suggest the possibility that drinking plays a more important role in the first set of crimes than in the second set. However, the differences may be caused by spurious factors; we can only address this issue with multivariate analyses.

In table 2, we present our multivariate results for assault (beating someone up). In the right panel (columns 3 and 4), we present results based on a multinomial logistic regression, in which we compare violence while

Table 1. Descriptive Statistics (N = 5,142)

Variables	N	%	Share of Incidents Under the Influence of Alcohol (%)
Measures of Delinquency			
12 month prevalence of . . .			
Beating up	336	6.5	53.3
Participation in fight	584	11.4	60.4
Shoplifting	534	10.4	9.9
Stealing from home	844	16.5	5.1
Graffiti	623	12.1	17.4
Vandalism	532	10.3	48.3
Car theft	63	1.2	46.0
Independent Variables			
Frequency of drinking			
Never	1,453	28.4	
Rarely	1,664	32.5	
Monthly	1,451	28.3	
Weekly	538	10.5	
Gender			
Male	2,591	50.4	
Female	2,532	49.2	
Age			
15 years or younger	3,129	60.9	
16 years or older	2,013	39.1	
Residential context			
Rural	628	12.2	
Semi-rural	1,014	19.7	
Suburban	1,778	34.6	
Urban	1,722	33.5	
Family structure			
Nuclear	3,417	66.5	
Single parent	990	19.3	
Stepfamily	605	11.8	
Other	130	2.5	
Socioeconomic status			
Low	933	18.1	
Other	4,209	81.9	

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Table 2. Results from Logistic and Multinomial Logistic Regression Models of Assault (“Beating Someone Up”)

Predictors	Logistic Regression	Multinomial Logistic Regression ^a	
	Total Assault	Sober Assault	Drunken Assault
Demographics			
Male	.48* (.12)	.40* (.17)	.53* (.17)
Age 16 years or older	.12 (.12)	.22 (.17)	.05 (.16)
Low economic status	.29* (.14)	.38 (.20)	.18 (.19)
Family structure			
Single parent	.39* (.15)	.27 (.21)	.50* (.20)
Stepfamily	.34* (.17)	.18 (.25)	.49* (.22)
Other	1.40* (.27)	1.69* (.30)	.88* (.88)
Residential context			
Semirural	.04 (.23)	.09 (.33)	-.02 (.30)
Town	.03 (.21)	.00 (.31)	.04 (.28)
City	.24 (.21)	.43 (.29)	.05 (.28)
Frequency of Drinking			
Rarely	.70* (.26)	.41 (.27)	16.98* (.30)
Monthly	1.71* (.24)	.94* (.26)	18.78* (.17)
Weekly	3.00* (.24)	1.73* (.28)	20.33* (.00)

NOTES: $N = 5,142$. Logistic regression coefficients. Standard errors are in parentheses.

^a “No assault” is the omitted category in the multinomial model.

* $p < .05$.

drinking and violence while sober with no assault committed (the reference category). In the left panel (column 2), we present results from a binary logistic regression equation that involved *any* assault (drinking or sober) versus no assault. The dependent variable in this model is dichotomous.

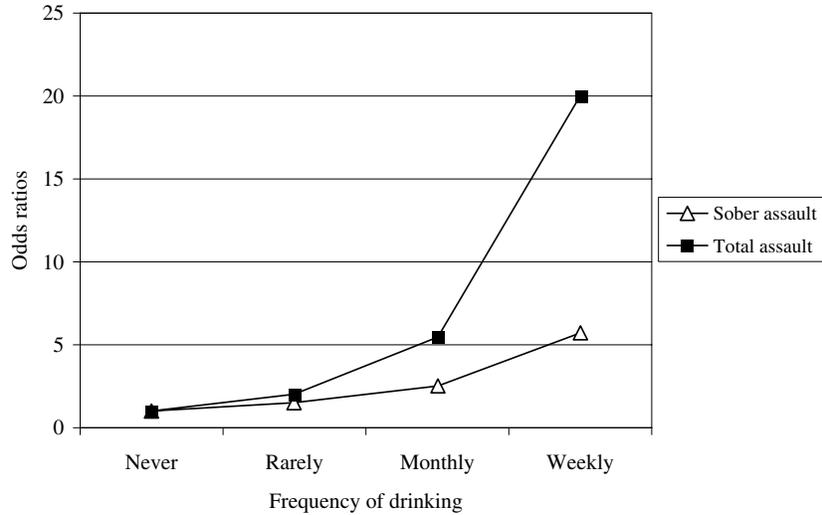
Recall that we are not interested in the effects of frequency of drinking on committing a crime while drinking because they are difficult to interpret. Not surprisingly, the regression coefficients associated with drinking and intoxicated violence are inflated. This inflation is primarily because, by definition, nondrinkers (the reference category) cannot be drinking when they commit their offense. Our interest is only in comparing the results for sober violence with total violence.

The results show a strong relationship between drinking and engaging in assault while sober (column 3). The more frequently the adolescent drinks, the stronger the relationship. For example, the coefficient for a weekly drinker is 1.73. Thus, the odds that a weekly drinker has committed an assault while sober are more than five times as high as that of a nondrinker (we do not report odds ratios in table 2). The results suggest that a large spurious relationship is observed between assault and alcohol use. These coefficients, however, are much weaker than the coefficients for total assault (intoxicated or not) in column 2. To illustrate this pattern, we graph the relationship between alcohol use and assault while sober and total assault in terms of odds ratios (figure 1). The difference between the odds ratio associated with sober assault and that associated with total assault increases exponentially with drinking frequency. The most frequent drinkers are the most likely to engage in assault relative to their tendency to engage in sober assault. This pattern suggests that alcohol has a causal effect on assault.

Table 2 also reveals demographic differences in the prevalence of violence. Boys are more likely than girls to commit assault. Adolescents are more likely to engage in assault if their families are impoverished and if they do not live with both of their biological parents. Note that we may underestimate the strength of demographic effects because our delinquency measures are dichotomies rather than frequency measures.

The coefficients that reflect the effects of drinking on all types of delinquency are presented in table 3. We used the same method we used to produce the results in table 2. To facilitate comparison, we include the coefficients for drinking from table 2 (assault). We also present the ratios of the coefficients for alcohol and sober delinquency to the coefficients for alcohol and total delinquency. This statistic indicates the relative size of the spurious component in the total association between drinking and delinquency. We do not present the effects of the control variables or the effects on delinquency while drinking. In table 3, note that the coefficients

Figure 1. The Association Between Drinking and Sober versus Total Assault (odds ratios)



NOTE: These findings are based on models presented in table 2.

presented under the column heading “sober” are based on multinomial equations, whereas the coefficients under “total” are based on binary logistic regressions of the dichotomous measures of delinquency.

Reading across the table, the results show that alcohol use is related to *sober* delinquency across each type of delinquency (see columns 3, 6, and 9). The strength of these coefficients suggests that a considerable amount of spuriousness is observed for every offense. The relationship between drinking and *sober* delinquency is almost as strong as the relationship between drinking and *total* delinquency for stealing from home and shoplifting. All six ratios equal about .90. The relationship between drinking and these forms of delinquency is apparently almost completely spurious. The ratios for assault, participation in a fight, and vandalism, however, are much lower, which suggests a causal effect. For these offenses, the coefficients for the alcohol–sober delinquency relationships are about half the size as the coefficients for total delinquency (sober or intoxicated). The ratios for car theft are .48 and .75, which suggests a causal effect of drinking. The ratios for writing graffiti are .84 and .74 for drinking monthly and weekly, respectively, which suggests the possibility of a small causal effect of drinking.

The analyses above include offenses that occurred at school. It could be argued that intoxication cannot have much of an effect on these offenses because adolescents are rarely drinking at school. To address this issue, we

Table 3. The Effects of Drinking on Sober and Total Delinquency

Type of Delinquency	Drink Rarely			Drink Monthly			Drink Weekly		
	Total	Sober	Ratio ^a	Total	Sober	Ratio	Total	Sober	Ratio
Assault (beating up)	.70*	.41	.59	1.71*	.94*	.55	3.00*	1.74*	.58
	(.26)	(.27)		(.24)	(.26)		(.24)	(.28)	
Fighting	1.08*	.61*	.56	2.21*	1.19*	.54	3.26*	1.65*	.51
	(.21)	(.22)		(.19)	(.21)		(.20)	(.25)	
Vandalism	.70*	.52*	.74	1.73*	.96*	.55	2.79*	1.44*	.52
	(.19)	(.19)		(.18)	(.19)		(.18)	(.22)	
Graffiti	.92*	.83*	.90	1.56*	1.31*	.84	2.18*	1.62*	.74
	(.16)	(.15)		(.15)	(.15)		(.17)	(.18)	
Shoplifting	1.02*	.94*	.92	1.89*	1.69*	.89	2.53*	2.29*	.91
	(.19)	(.19)		(.18)	(.18)		(.19)	(.19)	
Stealing from home	.94*	.85*	.90	1.60*	1.48*	.93	2.00*	1.79*	.90
	(.13)	(.13)		(.13)	(.13)		(.15)	(.15)	
Car theft ^b				.97*	.47	.48	2.69*	2.03*	.75
				(.43)	(.50)		(.40)	(.46)	

NOTES: *N* = 5,142. Binary and multinomial logistic regression coefficients. Standard errors are in parentheses. Coefficients presented in this table were generated by models featuring the full set of control variables (see table 2).

^a The ratio variable is calculated by dividing the coefficient of sober delinquency by the coefficient of total delinquency.

^b For this delinquency item, those who drink “rarely” constitute the reference category.

* *p* < .05.

reanalyzed the data to eliminate incidents that occurred at or on the way to school. Respondents were asked about the location in which some offenses occurred. Responses to these questions indicated that 12 percent of assaults, 12 percent of acts of vandalism, 19 percent of shoplifting incidents, and 41 percent of graffiti incidents occurred either at or on the way to school. Analyses not presented show that the results were similar to those we have presented here.²

2. The question on location is not available for three delinquency items included in our study: motor vehicle theft, stealing from home, and participating in a fight in a public place. For the first two items, the reason seems obvious. It is highly unlikely (or impossible) for these activities to take place at school. However, fighting in public is certainly something that could happen at or on the way to school. For reasons that are not clear to us, this item is associated with a slightly different set of follow-up questions.

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DISCUSSION

Because drinking is illegal, it is reasonable to expect that a good deal of the relationship between alcohol and delinquency among adolescents is spurious. However, experimental research on college students clearly shows that alcohol intoxication has a causal effect on aggressive behavior in the laboratory. Our research can be considered, in part, as an attempt to examine the external validity of the laboratory studies. We attempt to provide evidence as to whether alcohol has causal effects on adolescents in a natural setting. In addition, we examine whether alcohol affects all forms of delinquency or just those that involve violence. Theoretical explanations of alcohol effects imply that it should affect delinquency generally, but the empirical literature focuses mainly on violence. We have presented a novel method that attempts to address these issues.

We find that, for every offense examined, the prevalence and frequency of drinking are strongly related to the delinquency committed while sober. Drinkers are more likely to commit sober offenses than “teetotalers,” and frequent drinkers are more likely to commit sober offenses than infrequent drinkers. This evidence suggests that a strong spurious relationship exists between drinking and all forms of delinquency. In fact, our evidence suggests that the relationships between drinking and petty theft—shoplifting and stealing from home—are almost completely spurious. This conclusion is based on the fact that our drinking measures were just as strongly related to sober delinquency as they were to total delinquency.

Our evidence also suggests that intoxication has causal effects on adolescent violence and vandalism. We base this conclusion on the fact that our drinking measures are related much more strongly to delinquency than to sober delinquency for these offenses. A comparison of the coefficients suggests that about half of the relationship between chronic drinking and violence can be attributed to causal effects associated with intoxication. The evidence on writing graffiti and car theft is more mixed, but it suggests the likelihood that some effects exist.

Our evidence that alcohol has a causal effect on adolescent violence is consistent with the experimental literature (e.g., Exum, 2006). It is also consistent with results from a recent study of violence that used a similar method to analyze data from the National Longitudinal Study of Adolescent Health (Felson, Teasdale, and Burchfield, 2008). It is not consistent with White and Hansell’s (1998) longitudinal analysis of adolescent drinking. As noted, we think longitudinal analyses provide a conservative test. Our results are also inconsistent with the results from Huizinga, Menard, and Elliott’s (1989) comparison of adolescent drinking at the time of the assault with drinking on other days. It is not clear why they found no evidence of causal effects (except for sexual assault). We suggested that it

may occur because of error in their measures. It is also possible that Finnish adolescents respond differently to alcohol than do American adolescents.

We believe our study is the first to suggest that alcohol has a causal effect on nonviolent crime. The effects on vandalism and perhaps car theft were just as strong as the effect on assault, whereas the effect on graffiti writing was weaker. Why then do we observe evidence of a causal effect of alcohol for some crimes but not others? It does not seem to be the case that alcohol plays a more important role in offenses that are particularly serious or risky. Assault and car theft are generally more serious and risky than petty theft, but vandalism and graffiti writing are no more serious or risky than shoplifting.

One possible explanation is that violence and vandalism (and, to a lesser extent, graffiti writing and car theft) are more impulsive offenses than shoplifting and stealing from home. As indicated, alcohol may play a more important role in unplanned offenses.

Another explanation is that alcohol has the potential to influence all types of criminal behavior, but its effects in the real world are limited by opportunity factors. For intoxication effects to occur, adolescents must have the opportunity to both drink and commit the offense. They must be both tempted and intoxicated. These opportunities are more likely to develop for some types of delinquency than for others. For example, perhaps adolescents who are frequent drinkers are likely to go to parties or other gatherings where they have contact with other drinkers with no adult guardians present. When they attend these social events, they may have contact with other youth, which provides opportunities for violence. It is likely that property is available for destruction and, therefore, opportunities for vandalism. However, these events are unlikely to provide opportunities for shoplifting or stealing from one's own home. In addition, it may be that adolescents are less likely to be intoxicated when stores are open and when they are at home. The causal effects of intoxication may not be realized for certain crimes because of lack of opportunity.

The importance of opportunity is indicated by the results we observed for vandalism at school and theft of school property (not presented). Only 9.6 percent of the school vandals and 1.3 percent of those who stole school property were drinking at the time.³ One would expect that the relationship between drinking and committing offenses at school is mostly spurious, and the results confirmed the pattern. These variables were related

3. Note that it is possible to destroy school property (e.g., break a window) even outside school hours. It is more difficult to steal something from school on evenings or weekends.

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just as strongly to sober delinquency as they were to delinquency. This evidence provides support for the validity of our method.

Our method has many other applications. In general, it can be used to disentangle the causal effects of situational variables when one observes variation across individuals and situations, and when one suspects that the relationship may be spurious. For example, one could examine the effect of routine activities by comparing the relationship between frequency of going out at night and daytime offenses with the total relationship between frequency of nighttime activity and the likelihood of committing a crime. One could also compare the relationship between chronic depression and crime when not depressed with the total relationship between chronic depression and the likelihood of committing a crime. Finally, one could use the method to examine the psychopharmacological effects of illicit drugs.

We have attempted to address issues of causality with correlational data. Our method is new, so it invites scrutiny. We are encouraged by the fact that our results on assault are consistent with the experimental evidence. In addition, we find it difficult to imagine convincing alternative interpretations of the patterns that we observe.

One possible alternative explanation of our findings is that the preexisting drinking habits of adolescents lead them to select delinquent friends, and these friends influence them to engage in delinquency while sober (as well as drunk).⁴ From this perspective, the relationships between drinking and some forms of delinquency are indirect rather than spurious. Still, the relationships would not involve the psychopharmacological effect that one thinks of when one thinks about the influence of alcohol. Note also that this account would not explain why drinking is more strongly associated with some types of delinquency than with other types (relative to its associations with sober delinquency).

We also must consider the impact of measurement error on our results. We examined drinking during the most recent delinquent act and not drinking during multiple delinquent acts. In addition, our questions about delinquency referred to the last 12 months, whereas our measure of frequency of drinking did not include a reference period. It is possible that the delinquent behavior reported occurred early in the year and that

4. We find no evidence that alcohol plays a greater role in offenses that tend to be committed in groups. Those who commit assault are least likely to have accomplices (22%), whereas those who engage in vandalism are most likely to have accomplices (75 percent).

drinking patterns changed since then.⁵ However, none of these sources of measurement error should affect the ratios that reflect the relative size of the coefficients for sober and total delinquency. As we indicated, measurement error is less problematic with our method because we focus on the relative, not on the absolute, size of coefficients.

Measurement error, however, could be a problem if it affects some estimates but not others. Measurement error could affect the relationship between drinking and committing a crime (sober or drunk), if intoxication caused the respondent to forget an incident. For example, suppose that the respondent was so drunk the last time she shoplifted, she does not remember the offense, and so she reports no incident in the last year. This measurement error would tend to reduce the relationship between frequency and total shoplifting. It would not, however, affect the relationship between frequency and sober shoplifting; that would still indicate spuriousness. If this selective memory problem were to occur, then it would produce an inflated estimate of the relative role of spuriousness because the ratio between coefficients that reflects sober shoplifting and total shoplifting would be too high. For variables where we found evidence of causality (e.g., violence), it would suggest that the causal effect is even stronger than our results show. In other words, it would suggest we have a conservative test of the causality issue. However, we think that it is unlikely that this type of measurement error has much effect on our ratios.

In sum, our evidence suggests a substantial proportion of the relationship between chronic alcohol use and delinquency is spurious. For some acts of delinquency—shoplifting and stealing from home—it is almost completely spurious. Either alcohol has no psychopharmacological effect on these behaviors or the opportunities to drink and commit the offenses rarely exist. For other acts of delinquency—particularly violence and vandalism—we have provided evidence that alcohol does have an impact.

5. This issue develops with cross-sectional data, even when two measures are based on the same reference periods. In addition, the question about drinking follows questions that ask about an extended time frame (e.g., “How many residential moves have you experienced in your lifetime?” and “How long have you lived in your current neighborhood?”). The response categories also imply an extended time frame.

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REFERENCES

- Bureau of Justice Statistics. 1994. *Fact Sheet: Drug Data Summary*. Washington, DC: U.S. Department of Justice.
- Bushman, Brad J. 1997. Effects of alcohol on human aggression: Validity of proposed explanations. In *Recent Developments in Alcoholism, vol. 13: Alcohol and Violence*, ed. Marc Galanter. New York: Plenum Press.
- Bushman, Brad J., and Harris M. Cooper. 1990. Effects of alcohol and human aggression: An integrative research review. *Psychological Bulletin* 107:341–54.
- Carpenter, Cheryl, Barry Glassner, Bruce D. Johnson, and Julia Loughlin. 1988. *Kids, Drugs, and Crime*. Lexington, MA: Lexington Books.
- Chermack, Stephen T., and Stuart P. Taylor. 1995. Alcohol and human physical aggression: Pharmacological versus expectancy effects. *Journal of Studies on Alcohol* 56:449–56.
- Cohen, Mark A., Mark W. Lipsey, David B. Wilson, and James H. Derzon. 1994. *The Role of Alcohol Consumption in Violent Behavior: Preliminary Findings*. Nashville, TN: Vanderbilt University.
- Critchlow, Barbara. 1986. The powers of John Barleycorn: Beliefs about the effects of alcohol on social behavior. *American Psychologist* 41:751–64.
- Exum, M. Lyn. 2006. Alcohol and aggression: An integration of findings from experimental studies. *Journal of Criminal Justice* 34:131–45.
- Fagan, Jeffrey. 1990. Intoxication and aggression. In *Drugs and Crime. Crime and Justice: A Review of Research*, vol. 13, eds. Michael H. Tonry and James Q. Wilson. Chicago, IL: University of Chicago Press.
- Fals-Stewart, William. 2003. The occurrence of partner physical aggression on days of alcohol consumption: A longitudinal diary study. *Journal of Consulting and Clinical Psychology* 71:41–52.
- Felson, Marcus. 1998. *Crime and Everyday Life*, 2nd ed. Thousand Oaks, CA: Pine Forge Press.
- Felson, Richard B., and Keri Burchfield. 2004. Alcohol and the risk of physical and sexual assault victimization. *Criminology* 42:837–59.
- Felson, Richard B., Brent Teasdale, and Keri Burchfield. 2008. The influence of being under the influence: Alcohol effects on adolescent violence. *Journal of Research in Crime and Delinquency* 45:119–41.

- Fergusson, David M., Michael T. Lynskey, and John L. Horwood. 1996. Alcohol misuse and juvenile offending in adolescence. *Addiction* 91:483–94.
- Franklin, Ronald D., David B. Allison, and Thomas Sutton. 1992. Alcohol, substance abuse, and violence among North Carolina prison admissions, 1988. *Journal of Offender Rehabilitation* 7:101–11.
- George, William H., and Kurt H. Dermen. 1988. Self-reported alcohol expectancies for self and other as a function of behavior type and dosage set. *Journal of Substance Abuse* 1:71–8.
- Goldman, Mark S., Sandra A. Brown, and Bruce A. Christiansen. 1987. Expectancy theory: Thinking about drinking. In *Psychological Theories of Drinking and Alcoholism*, eds. Howard T. Blane and Kenneth E. Leonard. New York: Guilford Press.
- Gottfredson, Michael R., and Travis Hirschi. 1990. *A General Theory of Crime*. Stanford, CA: Stanford University Press.
- Graham, Kathryn, Gail Schmidt, and Kerry Gillis. 1996. Circumstances when drinking leads to aggression: An overview of research findings. *Contemporary Drug Problems* 23:493–551.
- Greenfield, Lawrence A., and Maureen A. Henneberg. 2001. Victim and offender self-reports of alcohol involvement in crime. *Alcohol Research & Health* 25:20–31.
- Harlow, Caroline. 1998. *Profile of Jail Inmates, 1996*. Bureau of Justice Statistics. Special Report. NCJ 164620. Washington, DC: U.S. Department of Justice.
- Hartstone, Eliot, and Karen V. Hansen. 1984. The violent juvenile offender: An empirical portrait. In *Violent Juvenile Offenders: An Anthology*, eds. Robert A. Mathias, Paul DeMuro, and Richard S. Allison. San Francisco, CA: National Council on Crime and Delinquency.
- Hibell, Björn, Barbro Andersson, Thoroddur Bjarnason, Salme Ahlström, Olga Balakireva, Anna Kokkevi, and Mark Morgan. 2004. *The ESPAD Report 2003. Alcohol and Other Drug Use Among Students in 35 European Countries*. Stockholm: The Swedish Council for Information on Alcohol and Other Drugs.
- Huizinga, David, Scott Menard, and Delbert S. Elliott. 1989. Delinquency and drug use: Temporal and developmental patterns. *Justice Quarterly* 6:419–55.

ALCOHOL USE AND DELINQUENCY

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- Hull, Jay G. 1981. A self-awareness model of the causes and effects of alcohol consumption. *Journal of Abnormal Psychology* 90:586–600.
- Hull, Jay G., and Charles F. Bond. 1986. The social and behavioral consequences of alcohol consumption and expectancy: A meta-analysis. *Psychological Bulletin* 99:347–60.
- Johnston, Lloyd D., Patrick M. O'Malley, Jerald G. Bachman, and John E. Schulenberg. 2006. *Monitoring the Future National Survey Results on Drug Use, 1975-2005. Volume I: Secondary School Students*. NIH Publication 06-5883. Bethesda, MD: National Institute on Drug Abuse.
- Kerner, Hans-Juergen, Elmar G. M. Weitekamp, Wolfgang Stelly, and Juergen Thomas. 1997. Patterns of criminality and alcohol abuse: Results of the Tuebingen Criminal Behaviour Study. *Criminal Behaviour and Mental Health* 7:401–20.
- Lenke, Leif. 1990. *Alcohol and Criminal Violence. Time Series Analyses in a Comparative Perspective*. Stockholm, Sweden: Almqvist & Wicksell.
- Leonard, Kenneth E. 2005. Alcohol and intimate partner violence: When can we say that heavy drinking is a contributing cause of violence? *Addiction* 100:422–5.
- Lintonen Tomi P., Matti K. Rimpelä, Salme Ahlström, Arja H. Rimpelä, and Andres Vikat. 2000. Trends in drinking habits among Finnish adolescents from 1977 to 1999. *Addiction* 95:1255–63.
- Lipsey, Mark W., David B. Wilson, Mark A. Cohen, and James H. Derzon. 1997. Is there a causal relationship between alcohol use and violence? A synthesis of evidence. In *Recent Developments in Alcoholism, vol. 13: Alcohol and Violence*, ed. Marc Galanter. New York: Plenum Press.
- Miller, Brenda A., and John W. Welte. 1986. Comparisons of incarcerated offenders according to use of alcohol and/or drugs prior to offense. *Criminal Justice and Behavior* 13:366–92.
- Moffitt, Terrie E., Avshalom Caspi, Michael Rutter, and Phil A. Silva. 2001. *Sex Differences in Antisocial Behaviour. Conduct Disorder, Delinquency, and Violence in the Dunedin Longitudinal Study*. Cambridge, UK: Cambridge University Press.
- Murphy, Christopher M., Jamie J. Winters, Timothy J. O'Farrell, William Fals-Stewart, and Marie Murphy. 2005. Alcohol consumption and intimate partner violence by alcoholic men: Comparing physically aggressive and non-violent conflict events. *Psychology of Addictive Behaviors* 19:35–42.

- Naplava, Thomas, and Dietrich Oberwittler. 2002. Methodeneffekte bei der Messung selbstberichteter Delinquenz von männlichen Jugendlichen. Ein Vergleich zwischen schriftlicher Befragung in der Schule und mündlicher Befragung im Haushalt. *Monatsschrift für Kriminologie und Strafrechtsreform* 85:401–23.
- Parker, Robert N., and Linda-Anne Rebhun. 1995. *Alcohol and Homicide: A Deadly Combination of Two American Traditions*. Albany: State University of New York Press.
- Pernanen, Kai. 1991. *Alcohol in Human Violence*. New York: Guilford Press.
- Pridemore, William A. 2002. Social problems and patterns of juvenile delinquency in transitional Russia. *Journal of Research in Crime and Delinquency* 39:187–213.
- Quigley, Brian M., and Kenneth E. Leonard. 2006. Alcohol expectancies and intoxicated aggression. *Aggression and Violent Behavior* 11:484–96.
- Richardson, Anna, and Tracey Budd. 2003. *Alcohol, Crime and Disorder: A Study of Young Adults*. Home Office Research Findings 185. London, UK: Home Office.
- Room, Robin, and Sandra L. Bullock. 2002. Can alcohol expectancies and attributions explain Western Europe's north-south gradient in alcohol's role in violence? *Contemporary Drug Problems* 69:619–48.
- Rossow, Ingeborg. 1996. Alcohol-related violence: The impact of drinking pattern and drinking context. *Addiction* 91:1651–61.
- Rutter, Michael. 1996. Comments on Fergusson et al.'s alcohol misuse and juvenile offending in adolescence. *Addiction* 91:495–8.
- Salmi, Venla, and Janne Kivivuori. 2006. The association between social capital and juvenile crime: The role of individual and structural factors. *European Journal of Criminology* 3:123–48.
- Steele, Claude M., and Robert A. Josephs. 1990. Alcohol myopia: Its prized and dangerous effects. *American Psychologist* 45:921–33.
- Testa, Maria, Brian M. Quigley, and Kenneth E. Leonard. 2003. Does alcohol make a difference? Within-participants comparison of incidents of partner violence. *Journal of Interpersonal Violence* 18:735–43.
- van Kesteren, John N., Pat Mayhew, and Paul Nieuwebeerta. 2000. *Criminal Victimization in Seventeen Industrialised Countries: Key-Findings From the 2000 International Crime Victims Survey*. Onderzoek en

ALCOHOL USE AND DELINQUENCY

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beleid, nr. 187. The Hague, The Netherlands: Ministry of Justice, WODC.

Wei, Evelyn, Rolf Loeber, and Helene Raskin White. 2004. Teasing apart the developmental associations between alcohol and marijuana use and violence. *Journal of Contemporary Criminal Justice* 20:166–83.

Wells, Samantha, and Kathryn Graham. 2003. Aggression involving alcohol: relationship to drinking patterns and social context. *Addiction* 98:33–42.

White, Helene Raskin. 1997. Longitudinal Perspective on Alcohol Use and Aggression during Adolescence. In *Recent Developments in Alcoholism, vol 13: Alcohol and Violence*, ed. Marc Galanter. New York: Plenum Press.

White, Helene Raskin, and Stephen Hansell. 1998. Acute and long-term effects of drug use on aggression from adolescence into adulthood. *Journal of Drug Issues* 28:837–58.

White, Helene Raskin, John Brick, and Stephen Hansell. 1993. A longitudinal investigation of alcohol use and aggression in adolescence. *Journal of Studies on Alcohol (Suppl 11)*:62–77.

White, Helene Raskin, Peter C. Tice, Rolf Loeber, and Magda Stouthamer-Loeber. 2002. Illegal acts committed by adolescents under the influence of alcohol and drugs. *Journal of Research in Crime and Delinquency* 39:131–52.

Zhang, Lening, William F. Wieczorek, and John W. Welte. 1997. The nexus between alcohol and violent crime. *Alcoholism: Clinical & Experimental Research* 21:1264–71.

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