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Alcohol use and workplace aggression: An examination of perpetration and victimization

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Abstract

Purpose: The purpose of the present investigation was to examine the relationship between victimization from and perpetration of workplace aggression between coworkers and frequency of alcohol use during the last year. **Methods:** Civilian employees ($N = 300$) selected from the US population were interviewed over the telephone with psychometrically sound measures of workplace aggression and alcohol use frequency during the last year. Hierarchical regression analyses were used to examine the relationship between alcohol use and workplace aggression, after controlling for sociodemographic variables. **Results:** Both percentage of days of any drinking and percentage of days of heavy drinking during the last year were positively related to (a) victimization from verbal and physical aggression at work and (b) perpetration of verbal and physical aggression at work. **Implications:** Consistent with research studies spanning the sociobehavioral literature, the present investigation found alcohol use was associated with perpetration of and victimization from verbal and physical workplace aggression. Although the study established an association exists between alcohol use and workplace aggression, future investigations should attempt to understand employee alcohol use in the context of a multifaceted model that includes other likely factors that contribute to the incidence of aggressive behavior on the job.

Keywords: Work; Violence; Alcohol use

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1. Introduction

Aggression and violence in the workplace are a threat to a significant minority of American workers. It is estimated that as many as 16 million workers are harassed, 6 million are threatened, and more than 2 million workers are assaulted in work settings each year (Anfuso, 1994). Furthermore, workplace homicide is the fastest growing form of murder in the United States (Stuart, 1992; Toufexis, 1994). Treated as an issue of industrial safety and generally relegated to the purview of law enforcement agencies prior to the 1980s, workplace violence and aggression have been given insufficient attention by management and human resource departments.

Although much attention has been paid to the most extreme forms of workplace violence (e.g., assaults and homicides), a singular focus on these behaviors does not adequately represent the full scope of aggression that takes place in the workplace and serves to oversensationalize and yet underestimate the prevalence of workplace aggression. Drawing heavily on work by Buss (1961), Folger and Baron (1996) have operationally defined workplace aggression as any form of behavior by employees, which could be verbal or physical in nature, that is intended to harm current or previous coworkers or their organizations in general. Defined in this way, workplace aggression encompasses workplace violence, along with other, more common aggressive acts, and may be a fairly frequent phenomenon.

Some authors speculate that workplace aggression reflects the stresses of an increasingly harsh business environment, proliferating layoffs, and disgruntled workers (e.g., Kraus, Blander, & McArthur, 1995). Several sociodemographic variables have also been found to be related to the likelihood of workplace aggression. For example, men are more likely to be violent while on the job than women (e.g., Castillo & Jenkins, 1994). Although some have found older employees are more likely to experience workplace aggression than younger employees (e.g., Bell, 1991), Filipczak (1993) differentiated between perpetrators of non-lethal and lethal workplace aggression by age and prior substance abuse experience. Whereas a perpetrator of nonlethal workplace aggression is more typically a male, under the age of 30, with a history of drug or alcohol abuse, a perpetrator of lethal workplace aggression is more likely to be a male, more than 30 years of age, with no prior history of violence or substance abuse. Other investigators report non-white employees are more likely to engage in workplace violence than white employees (e.g., Bell, 1991; Castillo & Jenkins, 1994).

A factor that has also been implicated in the incidence of workplace aggression is alcohol misuse. The results from numerous studies across multiple disciplines (e.g., criminology, ethnography, and epidemiology) have consistently found an association between alcohol use and aggression. However, the nature of the relationship between alcohol use and aggression and has been a topic of considerable debate. In their comprehensive overview of the relationship between alcohol use and violence, Lipsey, Wilson, Cohen, and Derzon (1997) noted that alcohol consumption may not only increase aggressive behavior of drinkers, but also might increase the likelihood of drinkers engaging in behaviors that increase the likelihood of aggression (e.g., risk-taking). Others have argued that alcohol is rarely the direct cause of aggression, but rather this association is mediated by situational and personality factors; in particular, use of alcohol may increase the likelihood of aggression

in a subset of individuals who have a propensity to be aggressive (British Medical Association, 1995; Martin, 1993). With regard to workplace aggression, employee alcohol use in an organizational environment with minimal conflict may not be problematic, but alcohol use could be a potential warning signal in contentious or high conflict workplace settings (e.g., Dunkel, 1994; Johnson, 1995). Aggression in the workplace is likely mediated by preexisting, cumulative, or escalating workplace factors (Kelly & McGrath, 1988); alcohol use in conflict situations is perhaps one of these preexisting conditions that predisposes workers to physical or verbal aggression.

It is implicit in much of the extant literature that alcohol use is associated with perpetration of aggression in various contexts. It is important to note, however, that a link has also been hypothesized between alcohol use and victimization from aggression. For example, some studies suggest that a significant proportion of homicide victims have recently consumed alcohol (e.g., British Medical Association, 1995). Individuals who consume alcohol may be more likely to place themselves in high-risk situations, increasing the likelihood of victimization. Additionally, authors of widely used measures of interpersonal violence, such as the Conflict Tactics Scale (Straus, 1979) and the Response to Conflict Scale (Birchler & Fals-Stewart, 1994), conceptualize perpetration of and victimization from physical and verbal aggression as dynamically co-occurring, inseparable processes. Thus, in the workplace, if a worker was to strike a fellow employee and the victim of this assault was to strike back, the initial instigator becomes a perpetrator of physical aggression as well as a victim.

Few studies examining the relationship between alcohol use and aggression in the workplace have appeared in the literature. As argued by Mantell and Albrecht (1994), "...at least from a statistical standpoint, drug and alcohol abuse was also underreported or poorly classified in terms of its impact on the labor force. The government could offer reams of reports for drug abuse on the streets, but—like violence on the job—the numbers were not easily applied to the workplace" (p. 15). Given the recent interest in the phenomenon of workplace aggression and the extensive literature examining the alcohol–aggression link, it is perhaps surprising that these research interests have overlapped so little.

In one study examining alcohol use and workplace aggression, Bennett and Lehman (1996) conducted a survey of 2484 municipal workers from three cities in the southwestern United States. The primary dependent variables in this study focused on exposure to aggressive behavior and violence during the workday or while at work. Employee reports of workplace aggression included the severity of violence (e.g., from making threats to causing injury), the different types of aggression experienced, and the number of incidents of exposure. Respondents were asked to describe alcohol use in the organization by coworkers in an attempt to operationalize alcohol and substance use at the level of the organization. In addition, participants were asked to evaluate the cohesiveness of work groups. Using correlational analyses, these authors found that increased alcohol use in an organization was associated with increased antagonistic behaviors while on the job (e.g., criticizing the work of coworkers, going against supervisors' instructions, not completing an assigned task, intentionally doing an assigned job incorrectly). In addition, alcohol use was positively related to the frequency of witnessing violence at work. The authors concluded that employees who experienced norms of high drinking among coworkers and reported low-

cohesiveness among coworkers were more likely to exhibit antagonistic behaviors at work and witness violence. These findings are consistent with those of Lehman and Simpson (1992), who found substance use by employees at or away from work was associated with antagonistic work behaviors (e.g., spreading rumors about coworkers, disobeying supervisors' instructions).

The Bennett and Lehman's (1996) investigation is arguably the most comprehensive study to date to examine the relationship between alcohol use and workplace aggression and has greatly advanced our understanding of this link in the work setting. Although the findings of the study are consistent with previous research investigating the link between alcohol use and aggression, certain limitations of the investigation were highlighted by the authors. Alcohol use was operationalized as the amount of drinking in which others were engaging (to obtain information on alcohol use at an organizational level) versus use of a self-assessment of a person's own drinking behavior. Respondents were framed as observers, rather than participants, for both violence and alcohol use. Of course, this could cause inflated correlations due to personal and cultural beliefs that alcohol causes aggression. In addition, the measures used in the study did not have well-established psychometric properties.

In a recent study, McFarlin and Fals-Stewart (1999) examined the relationship of alcohol use and workplace aggression in a random sample of employees ($N = 147$) from three companies (i.e., Ford Motor, Smith Corona, and General Electric). These authors found that, after controlling for demographic factors, individuals' alcohol use frequency during the year prior to evaluation was significantly related to higher levels of workplace aggression during the last year and during the respondents' lifetimes. The McFarlin and Fals-Stewart's (1999) study had several important strengths, including: (a) use of a psychometrically sound telephone survey of workplace aggression to assess both perpetration of aggression and victimization from aggression; (b) use of an extensive, widely used, and well-validated measure of alcohol use frequency; and (c) assessment of the incremental validity of the relationship between alcohol use frequency and workplace aggression after controlling for demographic factors. However, along with a relatively small number of participants, a major limitation of the investigation was the use of a convenience sample of employees based in New York State; thus, the generalizability of these findings to US workers in general is not clear.

The purpose of the present investigation was to use the methods of the McFarlin and Fals-Stewart's (1999) study to examine the link between alcohol use and workplace aggression, but to improve on the methods of that study by recruiting a nationally representative sample of US employees. For the year prior to the interview, we tested the following hypotheses: (a) there would be a significant relationship between the level of perpetration of verbal workplace aggression and frequency of alcohol use; (b) there would be a significant relationship between the level of perpetration of physical workplace aggression and frequency of alcohol use; (c) there would be a significant relationship between the level of victimization from verbal workplace aggression and frequency of alcohol use; and (d) there would be a significant relationship between the level of victimization from physical workplace aggression and frequency of alcohol use. In all of these hypotheses, the incremental validity of alcohol use predicting workplace aggression was to be explored, with sociodemo-

graphic variables controlled. Thus, the question addressed was whether a measure of alcohol use frequency would have a significant predictive relationship with workplace aggression over and above more easily obtained and readily available demographic variables (e.g., age, education, and race/ethnicity).

2. Method

2.1. Participants

Employed individuals ($N = 300$), selected via random digit dialing from the general US population, served as participants for this investigation. To be eligible for the survey, a respondent had to (a) be at least 18 years old, (b) be currently working at least 35 h or more per week outside the home for only one employer, (c) have been working 35 h per week for at least 8 of the last 12 months, (d) not be self-employed, and (e) not be in the military. If more than one person in the household contacted was eligible for inclusion, each was assigned a number and a random number generator was used to select one person for inclusion.

The sociodemographic characteristics of the selected sample are located in Table 1. Because of the relatively small sample recruited as part of a national survey, the representativeness of the participants in the present study of the US employed civilian population was a concern. Table 2 presents the sociodemographic data of our sample as well as demographic figures from the Current Population Survey (CPS; US Department of Labor, 1993). The CPS is a national random sample of the civilian noninstitutional population of the United States consisting of approximately 60,000 households. Using single sample binomial tests, no significant differences ($P < .05$) were found between participants in our study and US figures for employed civilians; thus, it appears the present sample is representative of the US civilian employed population.

2.2. Measures

2.2.1. Response to workplace conflict scale (RWC; Mcfarlin, Fals-Stewart, Cole, & Major, 1999)

The RWC is a brief telephone survey inventory measuring verbal and physical aggression among coworkers. It has four subscales measuring workplace aggression in the last year, each of which has five items: (a) perpetration of physical aggression in the last year (PP), (b) perpetration of verbal aggression in the last year (PV), (c) victimization from physical aggression in the last year (VP), and (d) victimization from verbal aggression in the last year (VV). For items measuring these behaviors during the last year, each is scored on a scale of 0–6; thus, each subscale has a score range of 0–30, with higher scores indicating higher levels of aggression.

For each item, scores were as follows: (a) 0 indicated the event never occurred during the last year; (b) 1 indicated the event happened one time in the last year; (c) 2 indicated the event happened twice in the last year; (d) 3 indicated the event happened 3–5 times in the last year;

Table 1
Sociodemographic characteristics of sample ($N = 300$)

Characteristic	Summary statistic
Mean (S.D.)	
Age (years)	37.3 (11.2)
Education (years)	14.4 (2.6)
Annual income (US dollars)	36,359 (13,028)
Number (%)	
Sex	
Men	160 (53)
Women	140 (47)
Marital status	
Married	109 (36)
Single	60 (20)
Divorced	39 (13)
Separated	55 (18)
Cohabiting	23 (8)
Widowed	14 (5)
Race/ethnicity	
White	251 (84)
African American	35 (12)
Hispanic	10 (3)
'Other'	4 (1)
Hollingshead Employment Classification	
Menial	16 (5)
Unskilled	54 (18)
Machine operator	43 (14)
Skilled manual	42 (14)
Clerical and sales	37 (12)
Technicians	38 (13)
Small business owners	34 (11)
Administrators	17 (6)
Higher executives	19 (6)

(e) 4 indicated the event happened 6–10 times in the last year; (f) 5 indicated the event happened 11–20 times in the last year; and (g) 6 indicated the event happened more than 20 times in the last year. Sample items from the RWC subscales include the following: (a) PP: "During the last year, did you push, grab, slap, or shove someone you work with in anger?"; (b) PV: "During the last year, did someone you work with push, grab, slap, or shove you in anger?"; (c) VP: "During the last year, did you insult, shout obscenities, or scream out in anger at someone you work with?"; and (d) VV: "During the last year, did someone you work with insult, shout obscenities, or scream out in anger at you?" For this investigation, interviewees were asked to respond to RWC items regarding episodes that happened at their work site.

In the original psychometric examination of the RWC, the test–retest reliabilities (when administered after a 2-week interval) for the subscales range from .86 (VP) to .94 (PP), which

Table 2
Sociodemographic characteristics of sample and comparison with US workforce

Characteristic	Current sample (%)	US employed civilian population (%)
Sex		
Men	53	54
Women	47	46
Race		
White	84	86
Non-white	16	14
Age		
18–24	12	12
25–34	33	29
35–44	31	29
45–54	16	20
55–64	8	10
Union status		
Member	20	18
Nonmember	80	82
Employer type		
Private sector	78	83
Government	22	17
Occupation		
Professional	12	14
Managerial	16	13
Sales	12	12
Administrative, clerical, and technical	19	19
Craft and production occupations; operators and laborers; agriculture	27	29
Services	14	13
Region		
Northeast	21	20
South	33	34
Midwest	26	25
West	20	21

are acceptable. The internal consistency reliability estimates for the four subscales measuring workplace aggression in the last year ranged from .78 (PV) to .86 (VV), which are also acceptable. The RWC also had high convergent validity, correlating with other measures of negative workplace behaviors, as well as acceptable factorial validity (i.e., four factors emerged from a multiple group confirmatory factor analysis with designated items loading

highly on a priori subscales). It also did not correlate highly with measures of social desirability. The mean (S.D.) scores on the subscales from the original psychometric analysis of RWC were as follows: (a) VV = 7.20 (4.96); (b) VP = 7.49 (5.55); (c) PV = 1.49 (2.87); and (d) PP = 1.11 (2.31).

2.2.2. Timeline followback interview (TLFB; Sobell & Sobell, 1996)

The TLFB is among the most well-researched self-report methods for measuring alcohol use. The TLFB uses a calendar and other memory aids to gather retrospective estimates of an individual's daily drinking over a specified time period up to 12 months from the interview date. As part of the TLFB, each day of the time period is coded according to the amount of alcohol consumed on that day. Studies of the psychometric properties of the TLFB have shown (a) good temporal stability with the majority of test–retest correlations greater than .85 across many types of drinkers including alcohol-dependent patients, low-dependence problem drinkers, male and female normal drinkers in the general population, and African American and white male and female college students; and (b) a generally similar level of correlations between self-reports and collateral reports and between self-reports and official records of verifiable events such as hospitalizations and jail stays. As was done in the present study, TLFB interviews have been conducted with participants by telephone in several other investigations (e.g., Connors, Tarbox, & Faillace, 1992; Litt, Babor, DelBoca, Kadden, & Cooney, 1992).

Two alcohol use adjustment measures derived from the TLFB were used in the present study: (a) percentage of days not abstinent (PDNA), which was operationally defined as the percentage of days in the measurement interval the interviewee reported alcohol use, and (b) percentage of days of heavy drinking (PDHD), which was defined as six or more standard drinks in a 24-h period for men and four or more standard drinks in a 24-h period for women (Project MATCH Research Group, 1997). A standard drink equals one ounce of ethanol (e.g., one beer, one shot of hard liquor). The measurement interval for this study was the past year before the interview.

2.2.3. Hollingshead Employment Classification (Hollingshead, 1975)

This widely used measure is used to grade occupations on nine-step scale. In most instances, the inventory has been keyed to the occupational titles used by the United States in the 1970 census.

2.2.4. Sociodemographic interview form

A brief interview schedule to determine study eligibility and to collect demographic and background information about participants (e.g., age, education, marital status, and occupation) was developed for the present study.

2.3. Procedure

The data were collected by an independent survey research firm located in the northeastern US, using a random digit dialing survey method. All telephone calls were made between

February 1 and 8, 1999, until a total sample of 300 respondents had been interviewed. Of the 727 individuals contacted who appeared to meet study inclusion criteria and were provided a description of the survey, 427 refused to provide information. Thus, our overall response rate (300 of 727) for the investigation was 41%.

At least three attempts to reach a respondent at each telephone number were made. If more than one member of the household met inclusion criteria for the study, the household member interviewed was chosen randomly. Participants who completed the interview were paid US$100.00 for their participation. Nine interviewers, who were extensively trained and supervised in the administration of the TLFB and the RWC by the second author, participated in gathering this data.

2.4. Statistical analysis to test primary hypotheses

To test the hypotheses regarding the relationship between alcohol use and workplace aggression in the last year, ordinary least squares (OLS) regression analyses were used, with subscales of the RWC as dependent variables. The OLS regression models were tested using hierarchical-by-blocks regression. For all planned analyses, the blocks of variables shown below were entered in the following sequence:

Block 1: age, education, sex, race/ethnicity, Hollingshead Employment Classification, annual income
Block 2: PDNA
Block 3: PDHD

For the OLS regressions, ΔR^2 for Blocks 2 and 3 were evaluated for significance. First, an omnibus hierarchical-by-blocks general linear model analysis (Gorsuch, 1991) was conducted with all of the RWC subscales as dependent variables in one model, with the variable blocks entered in the order described. This analysis was followed with each RWC subscale used in separate models. Because our hypotheses concerned the relationship between alcohol use frequency and workplace aggression, we entered PDNA after sociodemographics; in a more exploratory analysis, we sought to determine if frequency of heavy drinking (PDHD) contributed significantly to workplace aggression above that of frequency of any drinking and sociodemographics.

3. Results

3.1. Days of drinking and days of heavy drinking in the last year

The mean (and standard deviation) PDNA for the sample was 25.5% (21.1). The distribution of PDNA was positively skewed, with half the sample reporting that they drank alcohol on 20% or less of the days in the year prior to the interview. The mean (and standard deviation) PDHD was 1.9% (1.3). The distribution of PDHD was also positively skewed,

with 15% of the sample reporting no days of heavy drinking and less than half the sample reporting more than 2% days of heavy drinking in the last year.

3.2. RWC subscale scores measuring workplace aggression during the last year

The mean and standard deviations on the RWC subscales measuring victimization from and perpetration of workplace aggression during the last year are located in Table 3. As would be expected, participants reported greater severity (i.e., higher subscale scores) of acts of verbal aggression (i.e., verbal victimization and verbal perpetration) in the workplace during the last year than physical aggression (i.e., physical victimization and physical perpetration). These subscale scores are very similar to those obtained as part of the psychometric analysis of the RWC. Of the 300 interviewees, (a) 212 (71%) reported being a victim of verbal aggression, (b) 193 (64%) reported being a perpetrator of verbal aggression, (c) 37 (12%) were victimized by physical aggression, and (d) 19 (6%) were perpetrators of physical aggression at least once during the last year.

3.3. Product-moment correlations between independent and dependent variables

As recommended by Darlington (1968), the independent contribution of each independent variable to each of the dependent variables should be evaluated before conducting regression analyses. To evaluate the independent contribution of each independent variable to each dependent variable, zero-order product-moment correlations between the independent variables and the dependent variables were calculated and are presented in Table 4. The pattern of correlations suggests that (a) increased age is generally associated with lower scores on the RWC subscales related to perpetration of aggression, (b) men tend to score higher on the RWC subscales than women, (c) whites tend to score higher on the RWC subscales than non-whites, (d) increased drinking is generally associated with higher scores on the RWC subscales, and (e) increased heavy drinking is generally associated with higher scores on the RWC subscales.

We also evaluated the relationships among the independent variables to explore possible problems with multicollinearity. None of the variance inflation factors among the independent variables exceeded 10, which indicated multicollinearity was not a concern (Myers, 1990).

Table 3
RWC subscale scores

RWC subscale	Statistic
Mean (S.D.)	
VV	7.28 (5.98)
VP	7.55 (6.22)
PV	1.42 (2.53)
PP	1.28 (2.57)

VV = verbal victimization—last year; VP = verbal perpetration—last year; PV = physical victimization—last year; PP = physical perpetration—last year.

Table 4
Product moment correlations between independent variables in the proposed regression models and the dependent variables (i.e., subscales of the RWC)

	RWC subscales			
Independent variables	VV	VP	PV	PP
Age	− .06	− .22**	− .04	− .20**
Sex	− .23**	− .34**	− .08	− .27**
Race	− .20**	− .16**	− .16**	− .09
Education	.12	.00	.11	.01
Hollingshead	.07	− .04	.06	− .02
Income	.05	− .12*	.03	− .12*
PDNA	.33**	.51**	.27**	.49**
PDHD	.35**	.54**	.31**	.44**

VV = verbal victimization — last year; VP = verbal perpetration — last year; PV = physical victimization — last year; PP = physical perpetration — last year; PDNA = number of days in the last year any drinking of alcohol occurred; PDHD = number of days of heavy drinking of alcohol in the last year (i.e., six standard drinks for men and four standard drinks for women in a 24-h period). Sex was coded "1" for men and "2" for women. Race was coded "1" for white and "2" for non-white.

* $P < .05$.

** $P < .01$.

3.4. Omnibus analysis of the relationship between drinking, heavy drinking, and workplace aggression

As noted earlier, separate regression analyses were planned to examine the relationship between drinking, heavy drinking, and the four separate RWC subscales. Implicit in such an approach is that the dependent variables in these separate models are independent of each other (e.g., Finn, 1974). To determine the validity of this assumption prior to these planned analyses, the relationships among the four RWC subscales were examined. The product-moment correlations among the four RWC subscales ranged from .49 (i.e., the correlation between PP and VV) to .78 (i.e., the correlation between VP and PP), all of which were significant ($P < .01$). These correlations indicate strong interrelationships among all of the RWC subscales.

Thus, before conducting the planned separate regression analyses, an omnibus hierarchical-by-blocks linear model analysis was conducted, with the four RWC subscales as dependent variables and the following sequentially ordered blocks of independent variables: (a) Block 1: age, sex, race, education, Hollingshead Employment Classification Index, annual income; (b) Block 2: PDNA; and (c) Block 3: PDHD. Such an analysis, by considering all dependent variables in one model, accounts for the interrelationship among the variables and provides information about the contribution of days of drinking and days of heavy drinking to workplace aggression, as operationalized by all the RWC subscale scores simultaneously.

The amount of variance accounted for in the RWC subscales by Block 1 was significant, overall averaged $R^2 = .03$, χ^2 (64, $N = 300$) = 116.65, $P < .001$. When Block 2 was entered, it accounted for a significant increase in the amount of variance, $\Delta R^2 = .06$, $F(1,291) = 5.81$,

Table 5
Summary of hierarchical-by-blocks multiple regression analysis for variables predicting scores on the RWC subscales

Variable	*B*	S.E. B	β	ΔR^2
VV—last year				
Block 1				.11***
Age	− 0.01	0.03	− .02	
Sex	− 1.61	0.66	− .14*	
Race	− 1.66	0.55	− .16**	
Education	0.30	0.16	.13	
Hollingshead	0.08	0.23	.03	
Income	0.00	0.00	− .02	
Block 2				.11***
PDNA	0.02	0.01	.20**	
Block 3				.04***
PDHD	0.30	0.70	.23**	
VP—last year				
Block 1				.18***
Age	− 0.07	0.03	.13*	
Sex	− 2.29	0.56	− .18**	
Race	− 0.81	0.47	− .07	
Education	0.14	0.13	.06	
Hollingshead	0.16	0.20	.06	
Income	0.00	0.00	− .11	
Block 2				.20***
PDNA	0.03	0.01	.34**	
Block 3				.11**
PDHD	0.45	0.06	.36**	
PV—last year				
Block 1				.04*
Age	− 0.00	0.02	− .00	
Sex	− 0.05	0.29	.01	
Race	− 0.53	0.24	− .12*	
Education	0.13	0.07	.13	
Hollingshead	0.00	0.10	.00	
Income	0.00	0.00	− .02	
Block 2				.17**
PDNA	0.01	0.00	.19**	
Block 3				.11**
PDHD	0.11	0.03	.22**	
PP—last year				
Block 1				.12**
Age	− 0.02	0.01	− .11*	
Sex	− 0.66	0.26	− .13**	
Race	− 0.09	0.22	− .02	
Education	0.05	0.06	.06	
Hollingshead	0.13	0.09	.11	

(continued on next page)

Table 5 (*continued*)

Variable	*B*	S.E. B	β	ΔR^2
PP—last year				
Income	0.00	0.00	− .17*	
Block 2				.18***
PDNA	0.01	0.02	.35**	
Block 3				.06***
PDHD	0.14	0.03	.27**	

PDNA = number of days in the last year any drinking of alcohol occurred; PDHD = number of days of heavy drinking of alcohol in the last year (i.e., six standard drinks for men and four standard drinks for women in a 24-h period). Sex was coded "1" for men and "2" for women. Race was coded "1" for white and "2" for non-white.

* $P < .05$.

** $P < .01$.

*** $P < .001$.

$P < .01$. This result indicates days of drinking are uniquely associated with the RWC subscales after controlling for the variables in Block 1. Block 3 accounted for a significant increase in the amount of variance in the RWC subscales, $\Delta R^2 = .05$, $F(1,290) = 4.97$, $P < .01$, suggesting that heavy drinking is uniquely associated with the RWC subscales after controlling for the variables in Blocks 1 and 2. To further understand the significant omnibus relationships of days of drinking and days of heavy drinking to the RWC subscales, the separate planned regression analyses were conducted, using one of the RWC subscales as a dependent variable in each of the four proposed models.

3.5. Analysis of the relationship of days of drinking and days of heavy drinking to workplace aggression in the last year

Summaries of the hierarchical-by-blocks multiple regression analyses for each of the RWC subscales measuring victimization from and perpetration of verbal and physical workplace aggression during the last year are located in Table 5. The consistent findings in each of the analyses were that percentage of days of any drinking was significantly associated with each of the RWC subscales measuring perpetration of and victimization from verbal and physical workplace aggression in the last year after controlling for variables in Block 1. Furthermore, percentage of days of heavy drinking was significantly related to each of the RWC subscales measuring perpetration of and victimization from verbal and physical workplace aggression in the last year after controlling for variables in Blocks 1 and 2.

4. Discussion

The a priori hypotheses regarding the relationship between workplace aggression and alcohol use during the last year were supported. After controlling for sociodemographic variables, increased days of any drinking during the year before assessment were significantly associated with increased verbal victimization from and verbal perpetration of workplace

aggression during the last year. Increased days of heavy drinking were also associated with increased verbal victimization from and verbal perpetration of workplace aggression. Drinking was also found to be associated with physical workplace aggression. Increased days of any drinking during the year before assessment were significantly associated with increased physical victimization from and physical perpetration of workplace aggression. In addition, increased days of heavy drinking were associated with increased physical victimization from and physical perpetration of workplace aggression, after controlling for sociodemographic variables and percentage of days of any drinking.

Literature from other disciplines also indicated heavy drinking is associated with increased aggressive behavior. For example, Fals-Stewart and O'Farrell (1997) found that number of days of heavy drinking by married or cohabiting alcohol-dependent men was a significant predictor of whether or not severe episodes of violence would occur in these patients' intimate relationships. These authors suggested that increased episodes of heavy drinking may be associated with greater sociopathy on the part of participants; thus, personality factors and drinking might interact and lead to more frequent and severe episodes of violence. Although it is not possible to support such a conjecture with data collected as part of the present investigation, it is an intriguing possibility that days of heavy drinking may be a marker for other employee characteristics that might influence the likelihood of aggression in the workplace.

However, it is important to recognize the relationship of alcohol and workplace aggression is most likely mediated and moderated by other employee- and organization-related factors. For example, social psychological research has extensively explored situational and dispositional causes of aggressive behavior; these include (a) the presence of certain personality traits, such as sociopathy (Olweus, 1979); (b) frustration growing out of exposure to aversive situations and environments (e.g., Berkowitz, 1974); (c) a lack of social awareness (Hull, 1981); and (d) deindividuation (Prentice-Dunn & Rogers, 1982). The use of alcohol while any of these factors are present is apt to increase the likelihood of aggressive behavior. For example, frustration is likely to lead to aggressiveness if involved individuals are intoxicated (Gustafson, 1991, 1993). Individuals with aggressive personality traits (e.g., sociopathy, impulsivity, and hyperactivity) are likely to retaliate when intoxicated (Bailey & Taylor, 1991). Participants who have consumed alcohol are likely to be aggressive when exposed to aversive stimuli, such as noise (Jeavons & Taylor, 1985).

The likelihood that alcohol use will contribute to aggression in the workplace is likely a function of a number of dynamically interacting factors. Organizational environments are complex and often contain elements that create frustration for employees. For example, recent reviews have highlighted factors that may cause anger among employees, including (a) overly hierarchical organizational structures and (b) negative leadership traits, alienation, downsizing, and aversive environmental factors (e.g., excessive heat, exposure to noxious fumes) (e.g., Allcorn, 1994). One or more of these conditions may contribute to alcohol-induced aggression in the workplace.

It is important to highlight, however, that our investigation examined the relationship between alcohol use and workplace aggression, but not the relationship between intoxication while on the job and workplace aggression. We do not know how often respondents were

drinking during working hours or were intoxicated while working. From the information we gathered, drinking and workplace aggression are linked, but the reasons for this link are not clear. Certainly, increased alcohol consumption and workplace aggression may be related because workers drink during working hours or work while intoxicated, increasing the likelihood of aggressive responses to events around them. However, it is also plausible that those who drink heavily are likely to get involved in aggressive behavior, perhaps due to personality factors that covary with drinking behavior.

Our findings have implications for employee selection. Employers in any workplace must determine if their employment setting is a likely environment for aggression. An affirmative answer to such a question may give employers the impetus to investigate more fully a candidate's alcohol drinking behaviors. Although the findings of this study indicate the type of employment setting is inconsequential with regard to victimization from or perpetration of physical and verbal aggression on the job (i.e., aggression occurs across workplace categories), employers of workplace settings more likely to have episodes of aggression due to stress, harsh environmental conditions, or some other variable (e.g., jails, prisons, police officer fieldwork), or that have a known history of aggression (e.g., post offices), in an effort to utilize violence-prevention strategies, may wish to consider behavioral patterns of drinking before employment decisions are made.

This plan of action, however, is complicated by the extent to which employers may question candidates about their drinking patterns (e.g., Barrier, 1995). That is, employers must equitably balance exploring the sensitive area of alcohol intake with committing invasion of privacy. Although there are ambiguous legal questions about how far a company can go in its investigation of a candidate, most state laws are clear about liability after a violent incident occurs (e.g., Mountain States Employers Council and Nicoletti-Flater Associates, 1994). Liability is determined by whether an employer is negligent in the way it screens, hires, trains, and supervises its employees (Flynn, 1996). If an organization overlooks or ignores drinking behaviors that could potentially lead to aggression in the workplace, employers may be held responsible for a negative outcome. Furthermore, candidates for employment in any workplace have many more protections (e.g., Americans with Disabilities Act, state equal opportunity laws) against discrimination in their hiring and continued employment than ever before (Flynn, 1996). Organizations, therefore, must attempt to minimize or prevent episodes of workplace aggression while keeping abreast of the laws and policies that may implicate them for invasion of privacy or other offenses.

This investigation was marked by several important strengths in comparison to prior studies examining the relationship between alcohol use and workplace aggression. The participants were selected from the entire US population using random digit dialing and, despite the small size of the sample for a national survey, appear to be representative of civilian employees based on comparisons made with data from the CPS. Psychometrically sound measures were also used to assess both alcohol use and workplace aggression, allowing more valid conclusions to be drawn about the association between these two variables.

However, despite these strengths, certain limitations of the investigation should be highlighted. Because this was a telephone survey, it was impractical to obtain collateral information about participants' self-reports. For example, the human resources departments

of participants' work settings were not interviewed to corroborate information about episodes of reported workplace aggression. In addition, others familiar with respective participants' drinking behavior during the last year (e.g., spouses, family members, and coworkers) were not interviewed with the TLFB about participants' drinking; this procedure is often part of clinical studies that use the TLFB (e.g., Fals-Stewart, Birchler, & O'Farrell, 1996). Relatedly, respondents may have had a preconception about the association between alcohol use and workplace aggression; thus, the relationship between these variables may have been inflated. An important next step in this programmatic line of research is to obtain collateral report information from sources familiar with the daily substance use patterns of respondents and human resources departments in which information about workplace aggression incidents are recorded.

Another limitation of telephone surveys is that, to increase response rate, it is often necessary to keep interviews brief (e.g., Adler & Clark, 1999). Unfortunately, this can result in a loss of breadth and depth of information garnered. In the present study, fairly extensive information was collected about both frequency of alcohol use and workplace aggression, but the nature of the relationship between these variables was not explored. For example, the present investigation established a correlation between alcohol use and workplace aggression, but this finding could indicate any one of the following: (a) increased alcohol use is associated with aggression directly, (b) alcohol use is associated with one or more mediating factors, such as poor job performance (e.g., low job evaluations, increased absenteeism); poor job performance (or other possible mediators) may then be related to workplace aggression, or (c) alcohol use has a direct link with aggression and is mediated by other factors. Mediating variables, particularly organizational and individual factors, were not evaluated in this study.

In addition, the temporal relationship between alcohol use and episodes of workplace aggression was not examined. Although the present data suggest that increased alcohol use is associated with increased workplace aggression, it is not clear when the episodes of aggression transpired in relation to when the drinking occurred. Because of the cross-sectional nature of the design, it cannot be ruled out that individuals who perpetrate or are victimized by aggression in the workplace may subsequently drink alcohol, which has been found in other investigations (e.g., Rospenda, Richman, Wislar, & Flaherty, 2000). Thus, the directionality of the relationship between alcohol use and aggression in the workplace needs to be further explicated.

Although the RWC was shown to have acceptable validity and reliability, there are some limitations with the type of information obtained from this measure. Because the RWC was developed to be a brief semistructured telephone survey, it only solicits information about a relatively narrow set of workplace behaviors. Furthermore, the RWC does not distinguish between types of perpetration of and victimization from aggression. For example, suppose an employee was to physically assault a coworker and the coworker, in a defensive posture, were to strike the assailant. In that instance, the coworker who was initially assaulted is both a victim and a perpetrator. Thus, initial perpetration of aggression and defensive perpetration of aggression are not differentiated by the RWC. In addition, the RWC is designed to measure workplace aggression between coworkers. Thus, it may underestimate aggression in the workplace because it does not query respondents about aggression between workers and

nonworkers who may be in an employment setting (e.g., aggression between prison guards and prisoners).

Although the TLFB has excellent psychometric properties and is perhaps the most widely used measure of alcohol consumption, it also has certain limitations. The TLFB was used to evaluate episodes of drinking and heavy drinking. It is implied that days in which no drinking occurred were "sober days." However, use of other psychoactive substances (e.g., cocaine, heroin) was not assessed as part of the TLFB interview; as a result, days classified as abstinent may not have actually been sober days.

Consistent with research studies spanning the sociobehavioral literature, the present investigation found that alcohol use was associated with perpetration of and victimization from verbal and physical workplace aggression. Although the study established that an association exists between alcohol use and workplace aggression, future investigations should attempt to understand employee alcohol use in the context of a multifaceted model that includes other likely factors that contribute to the incidence of aggressive behavior on the job, including individual personality variables, organizational environment, and job performance. In addition, examining the temporal relationship between episodes of drinking, heavy drinking, and instances of workplace aggression would further explicate the nature of this relationship.

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