Relation of Supervisor Social Control to Employee Substance Use: Considering the Dimensionality of Social Control, Temporal Context of Substance Use, and Substance Legality

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ABSTRACT. Objective: Research on supervisor social control provided little evidence for a relation to employee alcohol use, and only one study explored illicit drug use. Based on past research, several hypotheses were developed that the relation between supervisor social control and substance use depends on (a) the dimension social control (contact vs. enforcement), (b) the temporal context of substance use (on the job vs. off the job), and (c) substance legality (alcohol vs. illicit drugs). **Method:** Data came from a national probability sample of U.S. workers. Supervisor social control represented both supervisor contact and supervisor enforcement. Measures of alcohol and illicit drug use each assessed several dimensions of off-the-job use (overall use, overall impairment, and use after work) and on-the-job use (use before work, use during the workday, and impairment during the workday). **Results:** As

hypothesized, the results did not support a relation of supervisor contact to off-the-job or on-the-job alcohol use and illicit drug use. Supervisor enforcement was unrelated to off-the-job alcohol use but was negatively related to on-the-job alcohol use. Supervisor enforcement was negatively related to both off-the-job and on-the-job illicit drug use. **Conclusions:** These findings help clarify the generally unsupportive findings from past research for a relation between supervisor social control and employee alcohol use, as well as extend this line of research to include illicit drug use. The results suggest that to fully understand the relation of supervisor social control to employee substance use, one must consider the dimension of supervisor social control, temporal context of substance use, and substance legality. (*J. Stud. Alcohol Drugs*, 73, 303–310, 2012)

BASED ON WORKPLACE SOCIAL CONTROL theory of alcohol use, employees may engage in elevated levels of alcohol use when they are not integrated into or regulated by the work organization (Ames et al., 2000; Trice and Sonnenstuhl, 1990). In other words, alcohol use is expected to be higher when workplace social constraints are weak or absent. Among workplace social constraints, supervisor social control is of particular interest. Supervisor social control consists of two dimensions (Bacharach et al., 2002; Harris and Heft, 1992; Trice and Roman, 1972). The first dimension, supervisor contact, represents opportunities for substance use problem detection through normal employee contact with a supervisor. The second dimension, supervisor enforcement, represents the ability of supervisors to identify employee substance use problems as well as their willingness to address employee substance use problems. Although workplace social control

theory predicts that supervisor social control is negatively related to alcohol use (Ames et al., 2000; Bacharach et al., 2002; Trice and Sonnenstuhl, 1990), the prediction has not been unanimously supported by the little research exploring this relation.

As outlined below, simultaneous consideration of the dimensionality of supervisor social control and the temporal context of an employee's alcohol use may explain the general lack of support for a relation between such control and employee alcohol use. In addition, more attention needs to be devoted to the relation of supervisor social control to illicit drug use because workplace social control theory is more broadly applicable to any substance use. Building from prior research, the goal of the present study is to take a broader look at supervisor social control in relation to employee substance use by considering the dimensionality of supervisor social control (supervisor contact vs. supervisor enforcement), temporal context of substance use (on-the-job use [use and impairment at work and during hours associated with work] vs. off-the-job use [use away from work and during hours not associated with work]), and substance legality (alcohol vs. illicit drugs).

Supervisor social control and employee alcohol use

Of four prior studies providing data on the relation between supervisor social control and alcohol use, three

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studies failed to support the relation (Bacharach et al., 2002; Macdonald et al., 1999; Parker and Farmer, 1988) and one study supported the relation (Ames et al., 2000). Using a random sample of 3,392 workers from eight blue-collar unions in the construction, service, and manufacturing sectors, Bacharach et al. (2002) failed to find a relation between an overall measure of supervisor social control (combining supervisor contact and supervisor enforcement) and overall problem alcohol use. Using a random sample of 882 workers from Ontario, Canada, Macdonald et al. (1999) failed to find a relation between two measures of supervisor contact (being closely supervised at work and working without supervision) and overall problem alcohol use. Using a random sample of 1,367 workers from Detroit, MI, Parker and Farmer (1988) failed to find a significant relation between supervisor contact (freedom from supervision) and several measures of overall alcohol use (frequency of bar patronage, volume of consumption, symptomatic alcohol use, and alcohol problems). In contrast, Ames et al. (2000) found significant relations between two measures of supervisor enforcement (enforcement of policy and disciplinary action) and on-the-job alcohol use and impairment (use just before work, use during the workday, and hangovers during the workday) using a random sample of 1,732 workers from manufacturing plants in the midwestern and western regions of the United States.

In comparing the Ames et al. (2000) study with the other three studies, the generally unsupportive results regarding supervisor social control and employee alcohol use might be explained by two factors simultaneously. The first factor is related to the dimensionality of supervisor social control. Prior research suggests that mere contact with a supervisor is not likely to affect employee alcohol use. Instead, the operative dynamic that may affect employee alcohol use is supervisor enforcement. The second factor is related to the temporal context of employee alcohol use (on-the-job use vs. off-the-job use). Prior results suggest that supervisor social control may be negatively related to alcohol use measures that capture on-the-job use and unrelated to alcohol use measures that capture off-the-job use. There are several reasons why supervisor social control may have a negative relation to on-the-job alcohol use and no relation to off-the-job alcohol use. First, off-the-job alcohol use is legal and has few implications for workplace performance and workplace safety (Ames et al., 1997; Frone 2004, 2011). Even bouts of heavy drinking away from work by employees occur infrequently and are not likely to have a consistent and substantial relation to absenteeism (Foster and Vaughan, 2005; Frone, 2011). Thus, off-the-job alcohol use is not likely to be a major direct concern for supervisors. Second, on-the-job alcohol use is more likely to be related to job performance and job injuries (Ames et al., 1997; Frone, 2004). Third, workplace substance use policies typically prohibit on-the-job alcohol use and impairment, making it

subject to disciplinary action, whereas off-the-job alcohol use is not subject to workplace policy for most workers.

Taking into account simultaneously the dimensionality of supervisor social control and the temporal context of employee alcohol use, we propose the following three hypotheses: (ALC1) supervisor contact will be unrelated to measures of off-the-job and on-the-job alcohol use and impairment; (ALC2) supervisor enforcement will be significantly and negatively related to measures of on-the-job alcohol use and impairment; and (ALC3) supervisor enforcement will be unrelated to measures of off-the-job alcohol use and impairment. Because these three hypotheses have not been simultaneously evaluated in prior research, the present study provides a more detailed examination of the relation between supervisor social control and employee alcohol use using a large national sample of U.S. workers.

Supervisor social control and employee illicit drug use

Although workplace social control theory of alcohol use should apply to employee illicit drug use, only one study has explored this issue. The study described earlier by Macdonald et al. (1999) failed to find a relation between two measures of supervisor contact (being closely supervised at work and working without supervision) and overall problem illicit drug use. As with alcohol use, we expect that neither off-the-job nor on-the-job illicit drug use is responsive to mere contact with supervisors. The operative dynamic that affects employee illicit drug use is supervisor enforcement. Also, as with alcohol use, we expect that supervisor enforcement will be negatively related to on-the-job illicit drug use because such use has the potential to impair performance, undermine safety, and is disallowed and sanctioned in company substance use policies.

However, in contrast to off-the-job alcohol use, supervisor enforcement is expected to be negatively related to off-the-job illicit drug use even though it is just as unlikely as off-the-job alcohol use to have a major impact on absenteeism, job performance, and work injuries (Frone, 2004, 2006b, 2011; Normand et al., 1994). Off-the-job illicit drug use may be more responsive to supervisor enforcement because it is a greater direct concern to many employers than is off-the-job alcohol use for a variety of reasons. First, the use of illegal drugs and the illicit use of prescription drugs is an illegal activity no matter where it occurs. Second, Executive Order No. 12,564—Drug-Free Federal Workplace—issued in 1986 by then-President Ronald Reagan, explicitly states that federal employees are required to refrain from the use of illegal drugs, whether on duty or off duty, and those who use them are not suitable for federal employment. Although this executive order does not directly address the nonfederal workforce, the implicit message to other employers and their employees was clear. Since this executive order was issued, both federal and nonfederal workplaces have increasingly

been seen by some as a convenient battleground for the U.S. “war on drugs.” Third, and related to President Reagan’s executive order, many companies test employees for illicit drugs but not for alcohol use. Because such drug tests cannot determine the time of use, they primarily detect use that has occurred off the job (Frone, 2004; Macdonald et al., 1997; Normand et al., 1994). This means that off-the-job use of illicit drugs identified in pre-employment drug testing programs is used to deny employment to job applicants, and off-the-job use identified in random drug testing programs might lead to sanctions or termination of employment among current employees. Fourth, workplace policy and sanctions against off-the-job illicit drug use serve a symbolic function to (a) show employees that management is in charge and (b) legitimize the organization to its constituents and stakeholders by showing that it is addressing a perceived societal problem (Cavanaugh and Prasad, 1994). These motives fueling interest among many employers in employee illicit drug use off the job, and the associated sanctions, are likely not lost on most employees.

Based on this collective line of reasoning, we offer two hypotheses: (DRG1) supervisor contact will be unrelated to off-the-job and on-the-job illicit drug use; and (DRG2) supervisor enforcement will be negatively related to off-the-job and on-the-job illicit drug use. By testing these hypotheses, this study extends research on the relation of supervisor social control to illicit drug use among U.S. workers.

Method

Sample and study design

The study participants took part in a random telephone survey called the National Survey of Workplace Health and Safety. The population from which the study participants were sampled was all noninstitutionalized adults, ages 18–65 years, who were employed in the civilian labor force, and who resided in households in the 48 U.S. contiguous states and the District of Columbia. A list-assisted, two-stratum truncated design (Levy and Lemeshow, 1999; Tucker et al., 2002) was used to identify the sampling frame of telephone numbers. The numbers in the sampling frame were then stratified by county, and the actual sample of telephone numbers was selected from the sampling frame using systematic sampling. Data were collected by 19 extensively trained interviewers using computer-assisted telephone interviewing stations from January 2002 to June 2003. Of all selected eligible individuals, 57% participated in the study. On average, the interview lasted 45 minutes, and participants were paid \$25 for their time. Of the 2,829 study participants, the present analyses were restricted to the 2,429 wage and salary workers (i.e., owner/operators were not included) who had complete data on all variables

used in this study. For more detail on the study design, see Frone (2006a, 2006b).

Sampling weights

For all analyses, the participants were weighted according to standard procedures for sample survey data to generalize to the target population defined earlier (Korn and Graubard, 1999; Levy and Lemeshow, 1999). The sampling weights adjust for unequal probabilities of selection and differential nonresponse, and were poststratified based on gender, race, age, and region of the country to average population totals obtained from the Current Population Survey. For more detail on the sampling weights, see Frone (2006b) and Schat et al. (2006).

Participant characteristics

The respondent (i.e., population) characteristics are described using weighted means and percentages. Fifty-two percent were male. In terms of race and ethnicity, 72.1% were White; 12.6% were Black; 8.2% were Hispanic; and 7.1% were of other racial and ethnic makeup. The average age of participants was 38.6 years. In terms of highest level of education, 4.3% did not complete high school; 23.8% graduated from high school or obtained a General Education Development (GED) credential; 27.7% had some vocational training or college; 9.9% received an associate’s degree; 19.2% received a bachelor’s degree; 3.2% attended some graduate school; 10.0% received a master’s degree; and 2.0% received a doctoral-level degree. Average total family income was \$59,604. The participants worked an average of 41.8 hours per week and held their present job for an average of 4.7 years. In terms of work patterns, 32.4% worked weekends (Saturday or Sunday) and 5.2% held seasonal jobs. In terms of occupational groups, 10.9% were in management/business/financial occupations; 25.1% were in professional occupations; 16.0% were in service occupations; 8.5% were in sales occupations; 17.5% were in office administrative occupations; 0.3% were in farming/fishing/forestry occupations; 4.5% were in construction/extraction occupations; 4.8% were in installation/maintenance/repair occupations; 5.7% were in production occupations; and 6.6% were in transportation/material moving occupations. For more detail on the participant characteristics from this study, see Frone (2006a).

Measures

Supervisor social control. Based on items developed by Bacharach et al. (2002), two dimensions of supervisor social control were assessed. The first dimension—supervisor contact—was assessed with one item, “I have a lot of contact with my supervisor during a typical workday.” The

second dimension—supervisor enforcement—was assessed with four items, which were averaged into a single measure ($\alpha = .70$). Example items included, “I believe my supervisor is very skilled at identifying workers who might have an alcohol or drug problem,” and, “I believe my supervisor is willing to confront a worker who appears to be working high on or under the influence of alcohol or drugs.” The two dimensions of supervisor social control were used as separate predictors in the analyses. All five items used response anchors that ranged from (1) *strongly agree* to (4) *strongly disagree* and were reverse scored as needed so that high scores represented high levels of their respective dimension of supervisor social control.

Off-the-job employee substance use. Overall alcohol use during the preceding 12 months was assessed with two items. One item assessed the overall frequency of drinking alcohol, and one item assessed the overall frequency of drinking to intoxication. A third item asked respondents how often during the past 12 months they used alcohol just after work (within 2 hours of leaving work). These three items were treated as separate outcomes in the analyses. Overall illicit drug use during the preceding 12 months was assessed with separate items regarding the use of the following six drugs: marijuana or hashish, cocaine or crack, sedatives, tranquilizers, stimulants, and narcotic analgesics. For the later four substances, respondents were specifically asked about using them illicitly—without a prescription or with a prescription but using them more frequently or at higher dosage than prescribed. An overall measure of the frequency of illicit drug use was obtained by selecting the maximum value for each respondent across the six drug types (Frone, 2008a; Frone and Brown, 2010; Frone et al., 1994). Respondents were also asked how frequently they were impaired by each of the six types of drugs. An overall measure of the frequency of being impaired by an illicit drug was obtained by selecting the maximum value for each respondent across the six drug types. Finally, respondents were asked how often they used each of the six types of drugs after work (within 2 hours of leaving work). An overall measure of the frequency of illicit drug use after work was obtained by selecting the maximum value for each respondent across the six drug types. These three measures were used as separate outcomes in the analyses. Each item described above used a six-point frequency response scale: 0 = *never*, 1 = *less than monthly*, 2 = *1–3 days per month*, 3 = *1–2 days per week*, 4 = *3–5 days per week*, and 5 = *6–7 days per week*.

On-the-job employee substance use. To assess on-the-job alcohol use and impairment, respondents were asked how often during the past 12 months they used alcohol in each of the following two temporal contexts: just before work (within 2 hours of reporting to work) and during the workday (during lunch breaks, other breaks, and while working). Respondents were also asked how frequently they were

impaired by alcohol during the workday. These three on-the-job alcohol use and impairment items were considered separate outcomes in the analyses. To assess the frequency of on-the-job illicit drug use, respondents were asked how often during the past 12 months they used each of the six drugs described earlier just before work and during the workday. Respondents were also asked how frequently they were impaired by each of the six drugs during the workday. Separate measures of the frequency of illicit drug use before work, during the workday, as well as the frequency of working impaired by illicit drugs, were obtained by selecting the maximum value for each respondent across the six drug types in each context. These three on-the-job illicit drug use and impairment measures were separate outcomes in the analyses. Each item described above used a 6-point frequency response scale: 0 = *never*, 1 = *less than monthly*, 2 = *1–3 days per month*, 3 = *1–2 days per week*, 4 = *3–5 days per week*, and 5 = *6–7 days per week*.

Covariates. Several demographic covariates were included in the analyses to control for possible spurious relations between supervisor social control and substance use: gender (0 = women, 1 = men), race and ethnicity (0 = White, 1 = minority), age (in years), years of formal education (10 ordinal response options), total family income, number of weekly work hours, seasonal work (0 = nonseasonal, 1 = seasonal), and weekend work (0 = do not work on Saturdays or Sundays, 1 = work on Saturdays or Sundays).

Data analysis

To explore the relations of supervisor social control to each of the six alcohol and six illicit drug use outcomes, weighted ordinal logistic regression analyses was used because each outcome had six discrete ordinal values (Long, 1997; Wooldridge, 2002). For each outcome, the covariates and dimensions of supervisor social control were entered on a single step.

Results

Table 1 shows the unstandardized regression coefficients and adjusted Wald F tests for the set of ordinal logistic regression models for alcohol use. Table 2 shows the unstandardized regression coefficients and adjusted Wald F tests for the set of ordinal logistic regression models for illicit drug use. The adjusted Wald F tests reveal that the group of predictor variables were significantly related to all six alcohol use outcomes and all six illicit drug use outcomes.

Covariates

Gender, race, and age were the covariates most consistently related to each of the off-the-job alcohol use outcomes

TABLE 1. Ordinal logistic regression results for frequency of alcohol use

Variable	On-the-job alcohol use			Off-the-job alcohol use		
	Just before work	During the workday	Impairment at work	Just after work	Overall use	Overall intoxication
Gender (male)	0.73	0.71***	0.78	0.39***	0.45***	0.53***
Race (minority)	-1.00	-0.15	-3.99***	-0.82***	-0.66***	-0.88***
Age	-0.03	-0.02*	-0.07***	-0.01**	-0.02***	-0.07***
Education	0.09	0.12*	0.02	0.11***	0.06**	-0.01
Total family income	0.03	0.09**	0.01	0.06***	0.05***	0.00
Work hours per week	-0.05*	0.01	-0.01	0.00	0.00	-0.01
Weekend work	2.31***	0.01	0.96*	0.13	0.05	0.03
Seasonal work	-0.71	0.26	0.46	-0.21	-0.05	-0.15
Supervisor social control						
Contact	-0.30	0.04	0.08	-0.02	-0.04	0.01
Enforcement	-0.60*	-0.41***	-0.63**	-0.14	-0.08	-0.13
Adjusted Wald $F(10, 2419)$	6.70***	7.11***	6.08***	14.93***	13.14***	24.81***

Notes: $n = 2,429$. All regression coefficients are unstandardized. The coefficients for income have been rescaled to represent increments of \$10,000.

* $p < .05$; ** $p < .01$; *** $p < .001$.

and to some of the on-the-job alcohol use outcomes. Generally, alcohol use was more frequent among male workers compared with female workers, among White employees compared with minority employees, and among younger workers compared with older workers. In terms of illicit drug use, male workers reported more frequent drug use compared with female workers on all dimensions of on-the-job and off-the-job use. Younger workers reported more frequent off-the-job illicit drug use compared with older workers.

Supervisor social control

Regarding the relation of supervisor social control to alcohol use, the results in Table 1 support Hypothesis ALC1 in that supervisor contact was not significantly related to any of the off-the-job or on-the-job alcohol use outcomes. Supporting Hypothesis ALC2, supervisor enforcement was

significantly and negatively related to all three on-the-job alcohol use outcomes. Finally, supporting Hypothesis ALC3, supervisor enforcement was unrelated to all three off-the-job alcohol use outcomes. Turning to illicit drug use, the results in Table 2 largely supported Hypothesis DRG1 in that supervisor contact was unrelated to all three on-the-job and two of the three off-the-job illicit drug use outcomes. The results also support Hypothesis DRG2 in that supervisor enforcement was significantly and negatively related to all three on-the-job and all three off-the-job illicit drug use outcomes.

Discussion

The goals of this study were to (a) address the lack of support in prior studies for a relation between supervisor social control and employee alcohol use and (b) explore

TABLE 2. Ordinal logistic regression results for frequency of illicit drug use

Variable	On-the-job illicit drug use			Off-the-job illicit drug use		
	Just before work	During the workday	Impairment at work	Just after work	Overall use	Overall impairment
Gender (male)	1.10**	0.95*	1.25**	0.50*	0.40**	0.52**
Race (minority)	0.05	-0.05	-0.08	0.02	-0.09	-0.14
Age	-0.04	-0.04	-0.04	-0.05***	-0.05***	-0.05***
Education	0.03	-0.01	-0.01	-0.05	-0.07	-0.08
Total family income	-0.21*	-0.12	-0.12	-0.04	-0.05	-0.03
Work hours per week	-0.02	-0.01	-0.03	-0.01	-0.01	-0.01
Weekend work	0.95*	0.64	0.81*	0.33	0.32	0.46*
Seasonal work	0.21	0.46	0.31	0.00	0.43	0.61*
Supervisor social control						
Contact	0.16	0.15	0.12	0.22*	-0.01	-0.04
Enforcement	-0.66***	-0.68***	-0.70***	-0.37**	-0.27**	-0.31**
Adjusted Wald $F(10, 2419)$	8.71***	7.89***	8.72***	5.73***	12.50***	11.79***

Notes: $n = 2,429$. All regression coefficients are unstandardized. The coefficients for income have been rescaled to represent increments of \$10,000.

* $p < .05$; ** $p < .01$; *** $p < .001$.

the relation of supervisor social control to employee illicit drug use. To examine these goals, the following factors were considered: dimensionality of supervisor social control, temporal context of substance use, and legality of the substance used. Each of the five hypotheses was supported. Overall, the pattern of results suggest that supervisor contact per se is unrelated to employee substance use, whether it is alcohol or illicit drug use and whether it occurs off the job or on the job. In contrast, supervisor enforcement is related to employee substance use. However, this relation depends on the legality of the substance and the temporal context of use. With alcohol, which is a legal drug, supervisor enforcement is negatively related to on-the-job alcohol use, whereas supervisor enforcement is unrelated to off-the-job alcohol use. In contrast, with the use of illegal drugs, supervisor enforcement is negatively related to both on-the-job use and off-the-job use. The possible reasons underlying this pattern of results in relation to the legality of the substance being used were outlined in the Introduction.

This pattern of findings helps to clarify the generally unsupportive findings from past research for a relation between supervisor social control and employee alcohol use. This study suggests that the difference between the three studies that failed to support such a relation (Bacharach et al., 2002; Macdonald et al., 1999; Parker and Farmer, 1988) and the one study that did support the relation (Ames et al., 2000) was a joint function of the dimension of supervisor social control and the temporal context of alcohol use that was assessed. Regarding the importance of the temporal context of employee substance use, the present study extends past research showing that this dimension also is important to consider when exploring the relations of work stressors (Frone, 2008b) and workplace social norms (Frone and Brown, 2010) to employee alcohol and illicit drug use, and when exploring the productivity outcomes of employee alcohol use (Ames et al., 1997; Frone, 2004).

As with all research, the present study has specific strengths and limitations. Two strengths are particularly relevant. First, the study used a broad set of measures that assessed two important dimensions of supervisor social control and assessed both alcohol and illicit drug use off the job and on the job. Moreover, this study used a large national probability sample of U.S. workers. Relative to small samples, the large sample used in this study provides (a) adequate statistical power and (b) more accurate estimates of population effects (Schmidt, 1992).

Three potential study limitations should be noted. The first is that the cross-sectional study design limits conclusions regarding the causal direction of relations. Nonetheless, the negative relation between supervisor enforcement and employee substance use is most consistent with a causal effect that runs from supervisor enforcement to substance use. If substance use caused the level of supervisor social control, one would expect the relation to be

positive. That is, frequent on-the-job alcohol and illicit drug use and frequent off-the-job illicit drug use would likely increase the level of supervisor enforcement, not decrease it. Nonetheless, future longitudinal studies should still explore the temporal sequencing of the relation between supervisor enforcement and substance use.

The second potential limitation is the possibility of nonresponse bias. Note that unit nonresponse (i.e., a response rate less than 100%) is a necessary but not a sufficient condition for nonresponse bias (Groves et al., 2004). Nonresponse bias also requires that the reason for nonparticipation is associated with the substantive variables of interest (Groves et al., 2004). Although one can never rule out potential nonresponse bias, there is little reason to expect that unit nonresponse had a major effect in the present study. First, although there were potentially eligible households that could not be contacted even with the 20 attempts used in this study, Groves et al. (2004) has suggested that most noncontact nonresponse is unlikely to be related to the purpose of a study. Second, although there were eligible households that refused to be screened and eligible individuals who refused to participate, refusal nonresponse was unlikely to be associated with the substantive variables of interest because all refusals occurred before presentation of the informed consent statement. It was only during informed consent that individuals were given a description of the issues that would be covered. Also, the working title of the study, "The National Survey of Workplace Health and Safety," did not provide a strong basis on which nonrespondents could guess the content of the survey.

The third potential limitation is the use of self-reports of alcohol and illicit drug use. Although self-reports are not without problems, prior research suggests that they provide reliable and valid measures of substance use that are at the same time relatively inexpensive, noninvasive, and acceptable to respondents (Darke, 1998; Del Boca and Darkes, 2003). In fact, there may be no better way of obtaining such data, especially when assessing the context of substance use. Substance use behaviors are often hidden from potential collateral informants (Baldwin, 2000; Turkkan, 2000), collateral reports are subject to similar sources of error (Connors and Maisto, 2003; Del Boca and Darkes, 2003), and biologic tests (e.g., urine, hair, blood, saliva) cannot provide information regarding the context (on-the-job vs. off-the-job) in which substances were used (Frone, 2004; Macdonald et al., 1997; Normand et al., 1994).

As a partial check for both potential nonresponse bias and self-report bias in the present national survey, the prevalence of overall illicit drug use from this study was compared with the estimate obtained from the 2002 National Survey of Drug Use and Health using a subsample of 24,754 employed adults. The estimated overall prevalence of workforce illicit drug use (i.e., marijuana, cocaine, and any psychotherapeutic drugs) from the present study (14.1%) was close to that

found in the 2002 National Survey of Drug Use and Health (16.0%), which had a larger sample, had a higher response rate (79%), and used expensive audio computer-assisted self-interviewing technology on laptop computers to minimize the underreporting of self-reported substance use (Tourangeau et al., 2000). Also, the prevalence of alcohol use and impairment from this study was compared with results from the 2001/2002 National Epidemiologic Survey on Alcohol and Related Conditions using a subsample of 25,026 employed adults (Grant and Dawson, 2006). The estimated overall workforce prevalence rates of alcohol use (73.4%) and alcohol impairment (29.3%) from the present study were similar to the rates of alcohol use (73.1%) and alcohol impairment (25.8%) found in the National Epidemiologic Survey on Alcohol and Related Conditions, which had a larger sample and a higher response rate (81%).

An avenue for future research is to take a broader look at workplace social control. In addition to supervisor enforcement, there are a number of other specific conditions that represent a lack of workplace social control and therefore may put employees at risk for alcohol and illicit drug use (Ames et al., 2000; Trice and Sonnenstuhl, 1990). These additional conditions include low levels of commitment or attachment to an organization, use of contingent or temporary workers, high mobility during work hours, low visibility of work performance, working in isolation, work roles that have little or no interdependency, lack of formal and informal policies and disciplinary actions regarding substance use, and a lack of top-level management support for workplace substance use policies. Future research needs to explore the relation of these other conditions to employee substance use while taking into account the temporal context of substance use and the legality of the substances used.

In summary, the present study challenges Bacharach et al.'s (2002) conclusion that, "managerial efforts to contain employee drinking problems by means of stronger policy enforcement may offer, at best, limited utility" (p. 653). On the contrary, the present study supports our conclusion that on-the-job alcohol use, as well as on-the-job and off-the-job illicit drug use may be responsive to supervisor enforcement.

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