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Workplace Substance Use Climate: Prevalence and Distribution in the U.S. Workforce

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Abstract

This study explored the prevalence and distribution of employee exposure to three dimensions of workplace substance use climate—availability, descriptive norms, and injunctive norms. Data were collected from a national probability sample of 2148 U.S. wage and salary workers (957 men; 1191 women) using a random digit dialed telephone survey. Approximately 63.09% of the workforce reported that they could easily bring alcohol into work, use alcohol while working, use alcohol during lunch and other breaks, or obtain alcohol at work. Similarly, 59.05% of the workforce reported that they could easily engage in the same behaviors regarding illicit drugs. During the preceding 12 months, 23.00% of the workforce reported exposure to a coworker who used or was impaired by alcohol during the workday and 12.65% of the workforce reported exposure to a coworker who used or was impaired by an illicit drug during the workday. Approximately, 7.03% of the workforce reported exposure to a coworker who approved of alcohol use or impairment during the workday and 3.55% of the workforce reported exposure to a coworker who approved of using or being impaired by illicit drugs during the workday. The distribution of exposure to a permissive workplace substance use climate differed by gender, age, occupation, and work shift.

Research on the prevalence and distribution of overall alcohol and illicit drugs use in the workforce has received a fair amount of research attention (Frone, 2008; 2006a). More recently, researchers in the U.S. and elsewhere have begun to explore the prevalence and distribution of alcohol and drug use in the workplace (Frone, 2008, 2006a, 2006b). The issue of workplace substance use and impairment may have more direct relevance for employers in terms of workplace safety and productivity than workforce substance use (Ames et al., 1997; Frone, 2008, 2004). And the reported prevalence rates underscore the importance of understanding the predictors and work-related outcomes of workplace substance use and impairment among those individuals who engage in such behaviors. Nonetheless, a broader issue has received much less attention. This issue involves workplace climate related to substance use and impairment during the workday. Understanding workplace substance use climate is an important issue because it may promote substance use outside and inside the workplace (Ames and Grube, 1999; Bacharach et al., 2002; Frone, 2003; Frone and Brown, in press; MacDonald et al., 1999). Also, among the majority of employees who do not use alcohol and drugs at work, exposure to a permissive workplace substance use climate is negatively related to perceive safety at work, positively related to work strain, and negatively related to employee morale (Frone, 2009). Given the potentially broad impact of workplace substance use climate, it is important to have a clear understanding of the prevalence and distribution of workers exposed in order to better focus future research and workplace policy.

Defining workplace substance use climate

Workplace substance use climate can be defined broadly as employees' perceptions of the extent to which their work environment is supportive of alcohol and drug use at work. Ames and colleagues suggested that workplace substance climate is comprised of three dimensions (e.g., Ames and Grube, 1999; Ames et al., 2000). Although originally discussed with regard to workplace alcohol use, these dimensions also extend to the use of illicit drugs at work.

The first dimension is the perceived physical availability of alcohol and drugs at work. This dimension represents the ease of obtaining alcohol or other drugs at work and the ease of bringing them into the workplace or using them during work hours and during breaks. The second dimension represents descriptive norms or the extent to which members of an individual's workplace social network use or work while impaired by alcohol or drugs at work. The third dimension represents injunctive norms or normative approval or disapproval of workplace substance use and impairment by members of one's workplace social network.

Past prevalence data on workplace substance use climate

Prevalence data on substance availability, descriptive norms, and injunctive norms at work are scarce. Only one study has explored the prevalence of exposure to all three dimensions of workplace alcohol use climate. Ames et al. (2000) explored prevalence rates in two U.S. manufacturing plants. The Midwestern plant operated with a traditional U.S. organizational culture (traditional employees). In contrast, the western plant operated with an organizational culture based on Japanese management principles (transplant employees). Regarding physical availability, 70% of traditional employees and 23% of transplant employee said it would be easy/very easy to obtain alcohol at work; 89% of traditional employees and 71% of transplant employees said it would be easy/very easy to bring alcohol into the plant; 74% of traditional employees and 32% of transplant employees said it would be easy/very easy to drink at their work station; and 87% of traditional employees and 58% of transplant employees said it would be easy/very easy to drink during breaks. Turning to descriptive norms, 36% of traditional employees and 6% of transplant employees reported that their best friend at work drank at work; 65% of traditional employees and 21% of transplant employees reported that other friends at work drank at work; and 66% of traditional employees and 12% of transplant employees reported that their work team members drank at work. Finally, looking at injunctive norms, 40% of traditional employees and 7% of transplant employees reported that their best friend at work approved of workplace drinking; 51% of traditional employees and 10% of transplant employees reported that other friends at work approved of workplace drinking; 51% of traditional employees and 6% of transplant employees reported that their work team members approved of workplace drinking, and 19% of traditional employees and 2% of transplant employees reported that their supervisor approved of workplace drinking.

A study by Lehman et al. (1998) looked at workplace descriptive norms for both alcohol and illicit drug use. These researchers found that, in a sample of 1,491 U.S. municipal employees, 23% reported being exposed to coworkers using or being under the influence of alcohol at work. Also, 21% of employees reported being exposed to illicit drug use at work among coworkers. A study by Fillmore (1990) reported on workplace descriptive norms for alcohol use work in six occupations in the U.S. (technicians, $N = 30$; sales representatives, $N = 39$; recording clerks, $N = 24$; protective service workers, $N = 40$; food handlers, $N = 31$; and truck drivers, $N = 61$). The percentage of employees reporting that other people drank on the job where they worked ranged from 15% for protective service workers to 50% for recording clerks.

Present study

Although the research reported above is important because it presents a first look at prevalence data dealing with workplace substance use climate, there remain several issues that need to be addressed. First, we do not know the overall prevalence of exposure to the three dimensions of workplace substance use climate in the broader U.S. workforce because prior research used convenience samples or probability samples of specific employers. Second, although prevalence data on workplace alcohol use climate is sparse, even less data exists on workplace illicit drug use climate. Finally, no research has explored broadly the distribution of exposure to workplace substance use climate. In other words, exposure may differ by general demographic (e.g., gender, age) and occupational (occupation, work shift, union membership) characteristics of workers. Therefore, the current study sought to characterize the prevalence and distribution of exposure to permissive workplace substance use climates involving alcohol and illicit drug use in the workplace using a national probability of U.S wage and salary workers.

Method

Sample and study design

The 2,829 study participants took part in the National Survey of Workplace Health and Safety. The population from which the study participants were sampled was all noninstitutionalized adults ages 18–65 who were employed in the civilian labor force and residing in households in the 48 contiguous United States and the District of Columbia. Of all selected eligible individuals, 57% participated in the study. This study was approved by the Social and Behavioral Sciences Institutional Review Board at the State University of New York at Buffalo. Before being interviewed, informed consent was obtained from all participants. As part of obtaining informed consent, participants were informed that their place of employment was not known and they would not be asked to provide that information. Also, each participant was informed that a Certificate of Confidentiality was obtained from the U.S. National Institutes of Health in order to assure the confidentiality of responses and the privacy of study participants. On average, the interview lasted 45 minutes and participants were paid \$25.00 for their time. Additional detail on the study design, sampling weights, and sample characteristics is provided elsewhere (Frone, 2006a, 2006b; Schat et al., 2006).

Of the 2,829 study participants, the present analyses on workplace substance use climate were restricted to the 2051 workers who met two sets of selection criteria. The first set of selection criteria was that respondents (1) were wage and salary workers (i.e., owner/operators were excluded) and (2) had to have at least one coworker at their work location and had to interact with other employees. This first set of selection criteria reduced the sample from 2829 to 2416. The second set of selection criteria was that the remaining respondents had to have data on each of the variables used in this report. This further reduced the sample from 2416 to 2148.

Measures

General demographic characteristics. The general demographic characteristics were gender; race (White vs. minority); age (in years); and years of formal education (less than high school; some high school without graduating; high school graduate or general equivalency diploma (GED); trade, technical, or vocational training beyond high school; some college; associate's degree; bachelor's degree; some graduate school; master's degree; doctoral-level degree).

Occupational demographic characteristics. The occupational characteristics were number of employees at the respondents' work location; job tenure (in years); number of weekly work hours; work shift (fixed day shift; fixed evening shift; fixed night shift; rotating shift; nonstandard shift); seasonal job (no vs. yes); union membership (no vs. yes); and work weekends (no vs. yes). In addition, occupation was assessed and coded into the detailed 1998 Standard Occupational Classification (SOC) codes. The detailed occupation codes were then aggregated into the 10 SOC intermediate occupation groups: (1) management, business, and financial Occupations; (2) professional and related occupations; (3) service occupations; (4) sales and related occupations; (5) office and administrative support occupations; (6) farming, fishing, and forestry occupations; (7) construction and extraction occupations; (8) installation, maintenance, and repair occupations; (9) production occupations; and (10) transportation and material moving occupations.

Workplace substance availability was assessed with 12 items adapted from Ames and Grube (1999) (see Frone, 2009, for psychometric data). Specifically, respondents were asked how easy or difficult it would be to (a) bring [substance] into work, (b) use [substance] while working, (c) use [substance] during lunch or other work breaks, and (4) get or buy [substance] from someone at work. These four questions were asked separately for alcohol, marijuana, and other drugs (i.e., cocaine and the nonmedical use of prescription stimulants, sedatives, tranquilizers, and narcotic analgesics). The response anchors for these items were (1) very difficult, (2) somewhat difficult, (3) somewhat easy, and (4) very easy. For alcohol, each of the four items was dichotomized for the prevalence estimates, such that very difficult and somewhat difficult were coded as 0 and somewhat easy and very easy were coded as 1. For illicit drug use, each of the four items was asked separately for marijuana and other drugs. To create dichotomized variables for the prevalence estimates, the two items were combined for each dimension of availability. For example, for ease of bringing drugs into work, if the respondent answered somewhat difficult/very difficult for both marijuana and other drugs, they were given a score of 0; and if they responded somewhat easy/very easy for marijuana or other drugs, they were given a score of 1. Also, overall ordinal measures were created for alcohol and other drugs. Specifically, the overall measure of workplace alcohol availability was created by taking the maximum score across the four items and for illicit drugs the overall score was created by taking the maximum score across the eight items. These two measures were dichotomized using the cutoffs described above for the individual items for overall prevalence estimates and were used in ordinal form in the regression analyses.

Workplace substance use descriptive norms were assessed with four items developed for this study (Frone, 2009). Respondents were asked how often during the past 12 months the coworkers they typically interact or work with each day did each of the following: (a) used alcohol during the workday, including lunch and other break; (b) used marijuana or other drugs during the workday, including lunch and other break; (c) been at work high on or under the influence of alcohol, and (d) been at work high on or under the influence of marijuana or other drugs. The response anchors for these items were (0) never, (1) less than once a month, (2) 1 to 3 days a month, (3) 1 to 2 days a week, (4) 3 to 5 days a week, and (5) 6 to 7 days a week. For prevalence estimates of each of the four dimensions of descriptive norms, a dichotomous measure was created by giving respondents a score of zero if they said never and a score of 1 if they reported any use during the past year. An overall ordinal measure was created for alcohol and other drugs. Specifically, the overall measure of exposure to workplace alcohol use or impairment was created by taking the maximum score across the two alcohol items. The same was done for the two items assessing coworker illicit drug use during the workday. These two measures were dichotomized using the cutoffs described above for the individual items to obtain overall prevalence estimates and were used in ordinal form in the regression analyses.

Workplace substance use injunctive norms were assessed with eight items developed for this study (see Frone, 2009). Respondents were asked the extent to which their closest friend at work approved or disapproved of (a) drinking alcohol during the workday, (b) using marijuana or other drugs during the workday, (c) coming to work high on or under the influence of alcohol, and (d) coming to work high on or under the influence of marijuana or other drugs. Respondents also were asked the extent to which their other coworkers approved or disapproved of these same four behaviors. The response anchors for these items were (1) strongly disapprove, (2) somewhat disapprove, (3) somewhat approve, and (4) strongly approve. For prevalence estimates of each of the eight items assessing injunctive norms, a dichotomous measure was created by giving respondents a score of zero if they said strongly disapprove or somewhat disapprove and a score of 1 if they said somewhat approve or strongly approve. An overall ordinal measure of injunctive norms was created for alcohol and other drugs. Specifically, the overall measure of workplace approval for alcohol use or impairment during the workday was created by taking the maximum score across the four alcohol items. The same was done for the four items assessing workplace approval for illicit drug use or impairment during the workday. These two measures were dichotomized using the cutoffs described above for the individual items to obtain overall prevalence estimates and were used in ordinal form in the regression analyses.

Data analysis

For all analyses, the data are weighted so that the results can be generalized to the U.S. workforce. The sampling weights adjust for unequal probabilities of selection and differential nonresponse, and were post-stratified based on gender, race, age, and region of the country to average population totals obtained from the Current Population Survey. To obtain the various prevalence estimates and estimated population totals, weighted frequency distributions were computed. To explore the relations of the ordinal dimensions of the workplace substance use climate to the general and occupational demographic variables, weighted ordered logistic regression analyses were used. All general and occupational demographic variables were simultaneously entered into the models. In addition, the standard errors used for significance tests were based on Taylor linearization and overall model fit for the ordered logistic regression analyses was assessed with adjusted Wald F-tests (e.g., Lehtonen and Pahkinen, 2004).

Results

Prevalence of workplace substance use climate

Table 1 presents the prevalence estimates for workplace availability. Overall, approximately 63.09% of the workforce reported that they could easily bring alcohol into work, use alcohol while working, use alcohol during lunch and other breaks, or obtain alcohol at work. Similarly, 59.05% of the workforce reported that they could easily bring illicit drugs into work, use illicit drugs while working, use illicit drugs during lunch and other breaks, or obtain illicit drugs at work. Looking at the four dimensions of availability, the ease of using alcohol or drugs at work or bringing alcohol or drugs into work was much more prevalent than the ease of obtaining alcohol or drugs at work. Nonetheless, a sizeable minority of workers reported that they could easily obtain alcohol (20.41%) or illicit drugs (15.10%) at work.

Table 2 presents the prevalence estimates for descriptive workplace norms or perceived coworker use of alcohol or illicit drugs at work. Overall, over the preceding 12 months, 23.00% of the workforce reported exposure to a coworker who used or was impaired by alcohol during the workday. Overall, 12.65% of the workforce reported exposure to a coworker who used or was impaired by an illicit drug during the workday.

Table 3 presents the prevalence estimates for injunctive norms or perceived coworker approval of alcohol or illicit drugs at work or coming to work under the influence of alcohol or illicit drugs. Overall, 7.03% of the workforce reported exposure to a coworker who approved of alcohol use during the workday or to coming to work under the influence of alcohol. Overall, 3.55% of the workforce reported exposure to a coworker who approved of using illicit drugs during the workday or to coming to work under the influence of illicit drugs.

Distribution of workplace substance use climate

Table 4 shows the results of the ordered logistic regression analyses exploring the relation of the general and occupational demographic variables to the three overall dimensions of workplace substance use climate for alcohol and illicit drug use. Beginning with the four general demographic characteristics, it can be seen that compared to women, men reported higher levels of both workplace availability of alcohol and illicit drugs and higher levels of alcohol-related descriptive and injunctive norms in the workplace. Race was unrelated to the three dimensions of workplace substance use climate. Age was negatively related to workplace descriptive and injunctive norms involving both alcohol and illicit drugs. In contrast, age was not related to the workplace availability of alcohol or illicit drugs. Education was positively related to workplace availability of alcohol and illicit drugs, but was unrelated to descriptive and injunctive norms in the workplace.

Turning to the results for the eight occupational characteristics, the regression results suggest that number of workers at the respondents' work location, job tenure, weekly work hours, having a seasonal job, union membership, and working weekends were not important predictors of workplace substance use culture. The most consistent relations involved occupation and workshift. Compared to those in management occupations, individuals in professional occupations reported lower levels of workplace availability, workplace descriptive norms, and workplace injunctive norms. Also, compared to those in management occupations, individuals in office/administrative support occupations reported lower levels of workplace availability of alcohol and drugs and lower levels of workplace injunctive norms regarding alcohol use. Finally, compared to those working a fixed day shift (and other shifts), individuals working a nonstandard (irregular or flexible) shift reported higher levels of workplace availability, descriptive norms, and injunctive norms regarding alcohol use at work.

Discussion

Past research has shown that workplace substance use climate is related to employee substance use outside and inside the workplace (Ames and Grube, 1999; Bacharach et al., 2002; Frone, 2003; Frone and Brown, in press; MacDonald et al., 1999). It is also related to lower levels of perceived workplace safety, high work strain, and lower morale among employees who do not use alcohol and drugs at work (Frone, 2009). However, despite its potential relevance for worker substance use and health, little detailed data exist on the prevalence and distribution of employee exposure to a permissive workplace substance use culture. Thus, a primary goal of this national study was to provide such information for managers, policy makers, and researchers so that these stakeholders have a better understanding of the extent of permissive workplace substance use cultures when formulating policy and designing future research exploring the antecedents and outcomes of exposure to such cultures.

Regarding the prevalence results, several general observations can be made. First, the ability to use and even obtain alcohol and drugs at work is not rare. Second, perceived exposure to coworkers who use alcohol or drugs during the workday or coworkers who are impaired by

alcohol or drugs at work is not rare. However, it is interesting to note that the reported rate of exposure to a coworker using or being impaired by an illicit drug during the workday was about half that for alcohol. Finally, the prevalence of exposure to coworkers who approve of using or being under the influence of alcohol or drugs at work (i.e., injunctive norms) showed the lowest prevalence rates.

Several general and occupational demographic characteristics were used to explore the distribution of exposure to a permissive workplace substance use climate. Of the four general demographic characteristics the most consistent results involved gender and age. Exposure to a workplace culture prescribing the use of alcohol or illicit drugs at work was higher among men compared to women and higher among younger workers compared to older workers. On the whole, the eight occupational demographic characteristics provide few significant results. Professional workers reported less exposure and those working flexible shifts reported more exposure to a permissive workplace substance use culture.

Regarding future research on the prevalence and distribution of workplace substance use climate, researchers need to explore samples in a variety of cultures. The results of past research reviewed earlier and those from this study only represent U.S. workers. It would be interesting to see how much cross-cultural variation exists in exposure to permissive workplace substance use climates. Also, future research of workplace predictors of exposure to a permissive workplace substance use climate should consider two sets of variables. The first set represents work stress. To the extent that exposure to certain negative psychosocial aspects of the work environment motivate substance use (e.g., Frone, 1999), they may also predict exposure to the three dimensions of a permissive workplace substance use culture. The second set of work characteristics that might predict exposure to a permissive workplace substance use culture represents social control at work (e.g., Ames et al., 2000; Frone, 2003). Key variables include low levels of commitment or attachment to an organization, high mobility during work hours, low visibility of work behaviors, working in isolation, low levels of supervision, and a lack of formal and informal policies and disciplinary actions regarding workplace substance use.

As with all studies, this research had some limitations that should be pointed out. First, the possibility of nonresponse bias exists when response rates fall short of 100%. However, unit nonresponse is a necessary but not sufficient condition for nonresponse bias. Nonresponse bias also requires that the reason for nonparticipation is associated with the substantive variables of interest in any study or report (e.g., Groves et al., 2004). Although one can never rule out potential nonresponse bias with absolute certainty, there is little reason to expect that nonresponse bias had a major effect on the results reported in this study. For example, Groves et al. (2004) suggest that most noncontact nonresponse is unlikely to be related to the purpose of a study. However, there are also contacted households that refuse to be screened for eligibility and there are eligible individuals who refuse to participate even with efforts at refusal conversion. Nonetheless, refusal nonresponse is unlikely to be associated with the workplace substance use culture variables in the present report because all households refusing to be screened and most eligible individuals who refused to participate did so before the informed consent statement could be read to them. It was only during informed consent that eligible individuals were given a general description of the various types of issues that would be covered. Moreover, when contacting a household to ascertain whether an eligible individual resided in the household, the working title of the study was the National Survey of Workplace Health and Safety, which does not imply an emphasis on substance use issues.

The second potential limitation in this study was the use of self-reports of workplace substance use climate. Although it is naive to assume all self-reports are veridical, Turkkan

(2000) and Baldwin (2000) point out that, with behaviors and attitudes that can be hidden, there may be no better measurement methods. Nonetheless, to minimize any potential for underreporting regarding exposure to a permissive workplace substance use climate, two study precautions are relevant. First, during informed consent, individuals were told that because their telephone number was randomly selected from all possible telephone numbers in the U.S., we did not know where they worked and we would not ask for this information. Second, individuals were informed of the certificate of confidentiality and what it meant in terms of protecting their responses.

In summary, many U.S. workers are exposed to a permissive workplace substance use culture. Therefore, we need to understand better the variables that foster such workplace cultures and understand better the impact of exposure to them on workers who use and do not use alcohol and drugs. Notwithstanding the need for additional research, the present findings suggest that management needs to devote attention to the workplace substance use climate of their organizations. The climate dimensions of physical availability of substances at work and descriptive norms (i.e., the use of alcohol and drugs at work by employees) are the most directly manageable through workplace policy, supervision, and education. The dimension of injunctive norms, or employee approval of workplace substance, is more difficult to alter directly. However, the use of organizational policy, supervision, and education to target directly workplace substance availability and descriptive norms may ultimately have an indirect impact of reducing approval for workplace substance use.

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Table 1

Prevalence of workplace alcohol and illicit drug availability

Dimensions of Workplace Availability	Prevalence of saying easy or very easy, % (SE) / Estimated Population Totals, <i>n</i> (SE)	
	Alcohol	Illicit Drugs
Bring into work	49.56 (1.23) 48,120,539 (1,367,945)	47.75 (1.23) 46,362,239 (1,342,869)
Use while working	37.18 (1.20) 36,098,968 (1,255,993)	32.28 (1.16) 31,343,190 (1,194,344)
Use during lunch and other work breaks	49.57 (1.23) 48,135,645 (1,365,005)	43.61 (1.22) 42,343,903 (1,301,499)
Obtain at work	20.41 (1.01) 19,815,014 (1,024,976)	15.10 (0.92) 14,662,577 (920,920)
Overall availability ^a	63.09 (1.18) 61,261,848 (1,402,998)	59.05 (1.21) 57,337,445 (1,388,890)

Note: N = 2148. SE = standard error.

^a Overall availability includes a positive response on “bring into work,” “use while working,” “use during lunch and other breaks,” or “obtain at work” (see measures section).

Table 2Prevalence of exposure to coworker substance use at work during past 12 months (**Descriptive Norms**)

Dimensions of Descriptive Norms	Prevalence of exposure to coworker substance use, % (SE) / Estimated Population Totals, <i>n</i> (SE)	
	Alcohol	Illicit Drugs
Coworker use during the workday	17.62 (0.96) 17,108,990 (966,474)	7.95 (0.70) 7,723,397 (687,647)
Coworker impairment during the workday	15.66 (0.93) 15,208,658 (933,705)	12.31 (0.84) 11,954,076 (838,521)
Overall exposure (use or impairment during the workday) ^a	23.00 (1.05) 22,336,655 (1,066,880)	12.65 (0.85) 12,286,227 (850,768)

Note: N = 2148. SE = standard error.

^aOverall exposure represents a positive response to “coworker use during the workday” or “coworker impairment during the workday” (see measures section).

Table 3Prevalence of normative approval of substance use at work (**Injunctive Norms**)

Dimensions of Injunctive Norms	Prevalence of saying somewhat or strongly approve (SE) / Estimated Population Totals (SE)	
	Alcohol	Illicit Drugs
Closest friend at work approval of use during workday	4.78 (0.52) 4,640,441 (505,895)	2.29 (0.38) 2,222,851 (372,457)
Closest friend at work approval of coming to work high or under the influence	2.01 (0.34) 1,951,210 (328,426)	2.04 (0.33) 1,985,108 (318,589)
Other coworker approval of use during workday	4.71 (0.50) 4,572,322 (488,066)	2.38 (0.40) 2,312,512 (387,109)
Other coworker approval of coming to work high or under the influence	2.37 (0.37) 2,302,239 (345,825)	2.21 (0.36) 2,150,705 (355,782)
Overall exposure (any approval)	7.03 (0.62) 6,827,343 (605,720)	3.55 (0.47) 3,449,522 (456,767)

Note: N = 2148. SE = standard error.

^aOverall exposure represents a positive response to “closest friend approval” or “other coworker approval” of use during the workday or coming to work high or under the influence (see measures section).

Table 4

Ordered logistic regression results predicting overall workplace substance use climate dimensions for alcohol and illicit drug use from general and occupational demographic characteristics

Predictors	Overall Workplace Availability ^a		Overall Workplace Descriptive Norms ^b		Overall Workplace Injunctive Norms ^c	
	Alcohol b (SE)	Illicit Drugs b (SE)	Alcohol b (SE)	Illicit Drugs b (SE)	Alcohol b (SE)	Illicit Drugs b (SE)
Gender (male)	.48*** (.10)	.31*** (.10)	.30* (.13)	-.12 (.17)	.38** (.14)	.35 (.19)
Race (minority)	.04 (.11)	.03 (.12)	-.11 (.16)	.03 (.20)	.10 (.15)	.06 (.19)
Age	.00 (.01)	.01 (.01)	-.02* (.01)	-.03*** (.01)	-.03*** (.01)	-.03*** (.01)
Education	.09*** (.03)	.07* (.03)	-.04 (.03)	-.08 (.05)	.01 (.04)	-.05 (.06)
Number of Employees at Work Location	-.01 (.02)	.02 (.02)	.08** (.03)	.06 (.04)	.03 (.02)	.03 (.04)
Occupations						
Management/Business/ Finance		Reference Group		Reference Group		Reference Group
Professional	-.52** (.16)	.41** (.16)	-.89*** (.20)	-.46 (.34)	-.99*** (.21)	-.90** (.34)
Service	-.26 (.20)	-.18 (.20)	-.08 (.23)	.80* (.34)	-.38 (.23)	.29 (.34)
Sales	.13 (.22)	-.12 (.21)	.04 (.25)	.71 (.38)	-.22 (.26)	.42 (.37)
Office/Administrative Support	-.35* (.17)	-.41* (.18)	-.20 (.20)	.16 (.36)	-.55* (.23)	-.04 (.35)
Farming/Fishing/Forestry	.89 (.77)	-1.56 (.89)	.64 (1.11)	.82 (1.25)	1.02 (.63)	.43 (1.11)
Construction/Extraction	-.36 (.30)	-.20 (.32)	-.34 (.35)	.49 (.52)	-.39 (.36)	.15 (.51)
Installation/Maintenance/Repair	-.02 (.28)	-.02 (.29)	-.51 (.37)	.57 (.46)	-.49 (.34)	-1.02 (.56)
Production	-.32 (.24)	-.12 (.25)	-.22 (.32)	.99* (.42)	-.42 (.32)	.66 (.43)
Transportation/Material Moving	-.40 (.26)	-.33 (.25)	.15 (.31)	.79 (.41)	-.19 (.32)	.33 (.42)
Job Tenure	.00 (.01)	.00 (.01)	.01 (.01)	-.03 (.02)	.00 (.01)	-.04 (.02)

Predictors	Overall Workplace Availability ^a		Overall Workplace Descriptive Norms ^b		Overall Workplace Injunctive Norms ^c	
	Alcohol b (SE)	Illicit Drugs b (SE)	Alcohol b (SE)	Illicit Drugs b (SE)	Alcohol b (SE)	Illicit Drugs b (SE)
Weekly Work Hours	.00 (.01)	.00 (.01)	.00 (.01)	.00 (.01)	-.01 (.01)	-.02* (.01)
Work Shift						
Days (1 st shift)						
Evenings (2 nd Shift)	-.21 (.20)	-.21 (.18)	.01 (.24)	.27 (.27)	.14 (.24)	.39 (.28)
Nights (3 rd Shift)	.21 (.28)	.22 (.26)	-.12 (.48)	.34 (.46)	.23 (.39)	.54 (.48)
Rotating shift	-.19 (.25)	-.12 (.27)	-.16 (.35)	-.56 (.4)	-.24 (.33)	.04 (.37)
Nonstandard (irregular/Flexible) shift	.40* (.20)	.12 (.21)	.53* (.24)	.38 (.37)	.57* (.24)	.23 (.32)
Seasonal Job (yes)	.32 (.23)	.37 (.22)	.16 (.31)	.49 (.35)	.13 (.23)	.58 (.32)
Union Member (yes)	.05 (.13)	.08 (.13)	.24 (.17)	.38 (.21)	-.11 (.19)	-.08 (.25)
Weekend Work (yes)	-.25* (.12)	-.12 (.12)	.04 (.16)	.36 (.21)	.07 (.16)	.33 (.21)
Overall Model Fit						
Adjust Wald F-Test(df = 21, 2115)	3.53***	2.36***	3.08***	5.29***	4.71***	5.20***

Note: N = 2148. b = unstandardized coefficient. SE = standard error.

^a Overall availability represents the maximum level of ease of "bringing substance into work," "use the substance while working," "using the substance during lunch and other breaks," or "obtaining the substance at work.." See measures section for more detail.

^b Overall descriptive norms represents the maximum frequency of exposure to "coworker use during the workday" or "coworker impairment during the workday." See measures section for more detail.

^c Overall injunctive norms represents the maximum level of approval for use during the workday by a "supervisor," closest friend at work," or "other coworkers." See measures section for more detail.

* p .05,

** p .01,

*** p .001