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The Relationship Between Workplace Absenteeism and Alcohol Use: A Day-to-Day Examination

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**THE RELATIONSHIP BETWEEN WORKPLACE ABSENTEEISM
AND ALCOHOL USE: A DAY-TO-DAY EXAMINATION**

by

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ABSTRACT

THE RELATIONSHIP BETWEEN WORKPLACE ABSENTEEISM AND ALCOHOL USE: A DAY-TO-DAY EXAMINATION

Susan Kay McFarlin
Old Dominion University, 2001
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This investigation examined the conditional day-to-day relationship between alcohol use and workplace absenteeism among participants ($N = 302$) employed full-time in one of three large companies located in the northeastern U.S. Semi-structured interviews were used to gather information from employees on their daily use of alcohol and other drugs during a 1-month period. Employees' absenteeism and work injury data during the same target time period were gathered from personnel files residing in the companies' human resources departments. The presence of a current alcohol use disorder also was determined. The following primary hypotheses were tested: (a) there would be a significant conditional relationship between alcohol use and workplace absence the following day, and (b) workplace absence would be more likely on days after heavy drinking than on days after nonheavy drinking. This investigation also explored: (a) whether the presence of an alcohol use disorder influences the day-to-day conditional relationship between alcohol use and subsequent workplace absence; (b) the conditional relationship between employees' use of psychoactive substances, other than alcohol, and workplace absence the following day; (c) the day-to-day relationship between alcohol consumption during working hours and the occurrence of workplace injury; and (d) the day-to-day conditional relationship between alcohol consumption and workplace absence among different classifications (e.g., executives, administrators, skilled laborers) of

employees. The findings support the primary hypotheses. There was a significant conditional day-to-day relationship between alcohol use and workplace absence the following day. Those who engaged in any drinking the day before a scheduled workday were roughly 1.5 times more likely to be absent than on a day after no drinking. Moreover, workplace absence was more likely on days after heavy drinking than on days after nonheavy drinking. Those who engaged in heavy drinking 1 day before a scheduled workday were 1.7 times more likely to be absent the next day. Results indicate no relationship between nonheavy drinking 1 day before a scheduled workday and workplace absence. In addition, drinking was not associated with workplace absence when alcohol was consumed 2 days before a scheduled workday. The exploratory hypotheses were not supported.

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CHAPTER I

INTRODUCTION

Absenteeism, defined from a business perspective as “any failure of an employee to report for or to remain at work as scheduled, regardless of reason” (Cascio, 1995), is a widely investigated negative workplace behavior. A problem faced by companies worldwide, absenteeism threatens the economic viability and future financial success of any organization. In the U.S., it has been estimated that, on any given day, roughly one million employees are absent from their jobs (Dalton & Enz, 1988). Smither (1998) estimated that absenteeism costs employers \$40 billion dollars annually. In 1993, the cost of unscheduled absences in American workplaces varied from approximately \$250 to \$550 per employee per year (HR Magazine, 1993). Absenteeism also compromises employee safety. Workers, for example, who lack familiarity with procedures and work environments and who substitute for absent employees, put themselves at greater risk for accidents than workers who are not absent (Goodman & Garber, 1988).

Despite complexities in measurement (e.g., frequency, duration) and variations in data source used (e.g., self-report, archival), a considerable body of information about the causes and consequences of absenteeism has been collected. Many studies have linked workplace absences to variables such as the background and sociodemographic characteristics of employees (e.g., Steel & Rentsch, 1995), mood (e.g., George, 1989), working environments (e.g., Melamed, Ben-Avi, Luz, & Green, 1995), absence culture (i.e., norms regarding acceptable absence levels; e.g., Mathieu & Kohler, 1990;

This dissertation uses the following Journal Model: *Journal of Applied Psychology*.

Markham & McKee, 1995), and economic conditions (e.g., Markham & McKee, 1991). For a review of the predictors of absenteeism, see Harrison and Martocchio (1998).

Other models of absenteeism are more complex and contain several variables in the designs identified as causes and correlates of absenteeism, including individual differences, work-group factors, and situational factors (e.g., Baba & Harris, 1989). Steers and Rhodes (1978) and Rhodes and Steers (1990) developed a widely referenced model of absenteeism, which holds that absenteeism is a consequence of attendance motivation (i.e., the product of job satisfaction plus pressures to attend) and ability to attend (i.e., factors including health and transportation). Brooke (1986) and Brooke and Price (1989) further extended this model, by adding other worker characteristics that influence job attendance including level of job involvement, perception of fairness concerning the pay system, and involvement with alcohol.

Empirical Studies Examining the Link Between Absenteeism and Alcohol Use

Alcohol use and its associated effects on employees in the American workforce and workplace in general have received considerable attention in the last several decades (e.g., Bensinger, 1985; Lehman & Simpson, 1992; Macdonald & Roman, 1994; Scanlon, 1982; Weiss, 1987). Among other problems, drinking¹ is associated with a variety of negative workplace behaviors including lowered productivity, impaired job performance, and workplace violence (e.g., Gerstein & Grossman, 1989; Martin, Blum, & Roman, 1992; McFarlin, Fals-Stewart, Major, & Justice, 2001). Some estimates suggest alcohol consumption costs American businesses over \$86 billion annually in lost productivity, absenteeism, and health care costs (e.g., Mintcloud, 1991). Because absenteeism is

¹For the purposes of this discussion, “drinking” refers to alcohol consumption.

considered by both practitioners and researchers to be a critical issue in the landscape of the work world, over the last two decades many investigations have explored the association between workplace absences and alcohol use.

Several studies, for example, have examined the link between alcohol use and absenteeism through analysis of archival data (e.g., existing personnel files, insurance records, health surveys). Beaumont and Hyman (1987) used the details of accident and absence records over a 5-year period to examine the relationship between work performance indicators and problem drinking. Their findings indicated participants identified as problem drinkers ($N = 100$) had above-average absence rates and work performances significantly below that of employees in a control group. Using social insurance records, Spak, Hensing, and Allebeck (1998) assessed the use of sick-leave among women ($N = 399$) in a general population survey of alcohol dependence and abuse. These authors found women meeting criteria for alcohol abuse or dependence had an increased number of annual sick-leave instances compared to women who did not meet these criteria.

In an investigation based on survey data from the Stockholm Health of the Population Study, a consistent pattern of increased sickness absence was seen for high alcohol consumers and for those with indications of problem drinking in a sample of 985 women and 870 men (Upmark, Moeller, & Romelsjoe, 1999). In another survey that examined economic costs of alcohol-related absenteeism in a sample of workers in New Zealand, Jones, Casswell, and Zhang (1995) found that 3.7% of the participants ($N = 4,662$) reported alcohol-related absenteeism. Also, Dash (2000) examined the effects of alcoholism on industrial employee absenteeism. Among a group of 2,151 employees at a

factory in India, 204 (9%) were habitually absent. Their results indicated that 114 of these habitually absent employees were absent because of primary effects (e.g., intoxication) or secondary effects (e.g., hangovers) of alcohol use.

Webb et al. (1994) explored the relationship between alcohol use and various work-related outcomes, such as injuries on the job and related absences, in a sample of 833 employees at an industrial worksite. These authors found that problem drinkers were 2.7 times more likely to have injury-related absences than non-problem drinkers.

Examination of the Relationship Between Alcohol Use and Absenteeism Over Time

Nearly all investigations examining the link between alcohol use and absenteeism share certain limitations. For example, most studies have largely or exclusively relied on participant self-report data, even though participants' preconceived notions, beliefs, or fears concerning alcohol use, absenteeism, or the association of these variables may have biased their reports. One method to address the effects of potential perception bias is to collect information about these behaviors from knowledgeable collateral informants. Unfortunately, collateral informants rarely have been used to gather data on workers' alcohol use or absences.

In most past research, measures of alcohol use can be characterized as "global." That is, researchers typically ask participants about lifetime habits of drinking (i.e., so-called "problem drinking"), but fail to solicit specific information about recent or current drinking behavior. Thus, the relationship between recent or current drinking behavior and recent or current absenteeism is impossible to discern.

Nearly all investigations that have explored the link between absenteeism and alcohol use have been correlational, cross-sectional studies. Few studies have examined

the relationship between these two behaviors in a longitudinal design. For example, researchers typically ask participants how many days they drank a certain amount of alcohol and how many days they were absent. This “between-subjects” approach to investigating the relationship is weak in that it does not track drinking behavior and its effects over time. Collecting “within-subjects” information about the use of alcohol and its co-occurrence with absenteeism over time would provide the basis for explaining the potential time-dependent sequential process that exists between these behaviors.

To address some of these limitations, McFarlin, Strobel, Fals-Stewart, and Storer (2000) used a telephone survey to collect information from a nationally representative sample consisting of 393 U.S. workers on the day-by-day co-occurrence of alcohol use and days of absence from work. These investigators found a significant day-to-day correspondence between alcohol use and work absences. More specifically, these authors found that, on the day after an employee drank alcohol, a work absence was over 3 times more likely than following a day after the worker did not drink. Furthermore, there was no relationship between alcohol use and absenteeism for lags between drinking and days absent greater than 1 day.

The McFarlin et al. (2000) investigation was the first to examine systematically the relationship between alcohol use and absenteeism in a longitudinal design. This study also had a number of important strengths, including recruitment of a relatively large, nationally representative sample of U.S. workers and use of a psychometrically sound measure of daily alcohol use. However, certain limitations of the investigation should also be noted. Self-report data were used. That is, the days of reported drinking and days of reported absences were unverified by other objective sources (i.e., informants’

observations of the participants' drinking incidences, and records from human resources departments to determine absences). The results, therefore, may have been distorted by a percept-percept bias. For example, participants may recall days on which they drank and, based on their assumption that absences co-occur with drinking, also may have "remembered" that absences occurred closer in time to drinking behavior than actually occurred. Additionally, participants' stated reasons for the absences were not collected. Consequently, it is plausible that absences due to illness would be far more likely to occur after alcohol use (perhaps because of alcohol hangovers) than absences due to family problems (e.g., deaths, family illnesses).

A follow-up study by McFarlin and Fals-Stewart (in press) also examined the day-to-day relationship between alcohol use and work absences in a sample of employees ($N = 280$) from three large companies in the northeastern U.S. In this study, workers provided information by marking a calendar provided them on the specific days they used alcohol during a 1-month period. Two other methodological improvements over the McFarlin et al. (2000) study were added. First, collateral information was collected from knowledgeable informants about participants' alcohol use. Second, information on days of absence along with reasons given for the absence from the human resources departments' records were recorded. Consistent with the findings of the McFarlin et al. (2000) investigation, results indicated a significant relationship between alcohol use and workplace absences. Workers were roughly 2 times more likely to be absent from work when the lag between the day of alcohol consumption and absence was one (that is, there was one day between drinking and absence) than for other lags.

This latter study (McFarlin & Fals-Stewart, in press) was marked by several

important strengths in comparison to prior studies examining the relationship between alcohol use and absenteeism. Collateral information was collected from human resources department records to verify participants' self-report absence data. Also, a psychometrically sound measure was used to assess daily alcohol use. More specifically, the Timeline Followback Interview (TLFB) was used to assess daily patterns of drinking. Numerous studies in the last 25 years have shown the TLFB to be reliable and valid (see Sobell & Sobell, 1996, for a review). With this instrument, the investigators obtained collateral information from knowledgeable informants about participants' daily alcohol use, which allowed for more valid conclusions to be drawn about the association between alcohol use and absenteeism.

The studies by McFarlin and colleagues (2000, in press) were the first to explore the conditional relationship between drinking behavior and workplace absenteeism and have advanced the field's understanding of this relationship. The similarity of the McFarlin and Fals-Stewart (in press) findings and those obtained by McFarlin et al. (2000) in their national survey, suggest that alcohol consumption is predictive of workplace absenteeism on a day-to-day basis.

Purpose of the Present Investigation

In the conclusion of their comprehensive review of absenteeism, Harrison and Martocchio (1998) called for a more complete understanding of factors that antecede and flow from absence episodes. In particular, these authors recommend that future research on absenteeism needed to conduct longitudinal studies to understand the temporal relationship between predictors of absenteeism and absenteeism itself. Clearly, more investigations examining antecedent and consequent factors associated with absenteeism

over time are needed.

The purpose of the present study was to extend the work conducted by McFarlin and colleagues (2000, in press). More specifically, the present investigation sought to examine the day-to-day conditional relationship between alcohol and other drug use and work absences and injury. The following hypotheses were tested: (a) There is a significant day-to-day conditional relationship between alcohol use and absence from work the following day; and (b) Workplace absence is more likely on days after heavy drinking than on days after nonheavy drinking.

The following improvements to the research methods over previous research by McFarlin and Fals-Stewart (in press) were included in this study. First, information regarding the quantity of drinking by participants was collected. That is, details about whether an individual consumed any alcohol or a heavy amount of alcohol on a given day were obtained (Sobell & Sobell, 1996). This information is valuable in understanding whether the quantity of alcohol consumed improves the prediction of absenteeism.

Second, the present study explored whether the day-to-day conditional relationship between alcohol use and subsequent workplace absenteeism is influenced by the presence of an alcohol use disorder (i.e., alcohol dependence or alcohol abuse). In this study, the presence of an alcohol use disorder was determined for each participant using a standard, psychometrically sound diagnostic interview. Results from several studies (e.g., Beaumont & Hyman, 1987; Marmot, North, Feeney, & Head, 1993) indicate employees who are problem drinkers are absent more frequently from work than employees who are not problem drinkers. Thus, such diagnostic information allows for the examination of whether having alcohol abuse or dependence influences the conditional relationship

between drinking and workplace absence.

Third, information regarding employees' use of psychoactive substances other than alcohol was collected. Thus, the day-to-day conditional relationship between drug use other than alcohol consumption and workplace absence the following day was determined. In comparison to studies examining alcohol use and absenteeism, research exploring the relationship between drug use and absenteeism is far less evolved. However, the available literature suggests that illicit drug use may be connected reliably to absence from work (e.g., Bass, Bharucha-Reid, Delaplane-Harris, Schork, 1996). For example, according to Lehman and Simpson (1992), drug users have 2.5 times as many absences of 8 days or more and request early dismissal or time off 2.2 times as often as non-drug users. Unfortunately, as with the extant literature on alcohol use and absenteeism, the day-to-day conditional relationship between drug use and subsequent workplace absence has not been explored. Data about daily drug use generally can be obtained as part of certain drug use assessments and, if gathered, the day-to-day conditional relationship between substance use and subsequent workplace absenteeism can be examined.

Fourth, this study collected data concerning whether or not a participant drank during work hours. Moreover, information was collected on the relationship between daily drinking and workplace injury. According to the National Council on Alcoholism and Drug Dependence (as cited in Cascio, 1995), alcohol is involved in 47% of industrial accidents. Work injuries and accidents attributable to employee abuse of alcohol and drugs result in substantial economic and personnel losses to organizations (e.g., Crouch, Webb, Peterson, Buller, & Rollins, 1989). Some of these expenses result from employee

absenteeism, the cost of wages paid for lost time, damage to material or equipment, cost of overtime work by others, costs of decreased output of the injured worker after returning to work, uninsured medical costs borne by the company, and cost of time spent by higher management and clerical workers to investigate or to process workers' compensation forms (Cascio, 1995). Because accidents exert a considerable financial and staffing toll on organizations, the relationship between drinking, work injury, and resulting absences should be considered more fully.

Finally, this study collected information concerning the day-to-day conditional relationship between alcohol use and subsequent workplace absence among different classifications of employees (e.g., executives, administrators, unskilled laborers). For managers and others, the extant literature has recognized and therefore addressed the impact of alcohol use on business negotiations (e.g., Schweitzer, & Kerr 2000), business decision making (e.g., Jobs, Fiedler, & Lewis, 1990), and complex functioning and problem solving (e.g., mathematical ability; Streufert, et al., 1993). Researchers also have investigated employee drinking practices and work performance for different kinds of jobs, such as drill press operators and managers (e.g., Price & Flax, 1982; Mangione, et al., 1999). However, as in the McFarlin et al. (2000) study, none of the previous investigations addressed whether employee classification and drinking differentially affect work absences. Although it is likely that alcohol use influences workplace absences at every level, it may be the costliest for senior manager positions. For example, an absence by a well-paid executive would be more costly to a company than an absence by an individual whose salary is significantly lower.

The collection of this additional information (i.e., alcohol use disorder, other drug

use, alcohol consumption during work hours and injury, and employee classification) not only allows for the primary hypotheses to be tested, but also allows the following exploratory hypotheses to be examined: (a) Does the presence of an alcohol use disorder moderate the day-to-day conditional relationship between alcohol use and subsequent workplace absenteeism?, (b) Is use of non-alcohol psychoactive substances conditionally related to workplace absences the following day?, (c) Is alcohol consumption during working hours conditionally related to the occurrence of workplace injury, and (d) Does the status of the employee (e.g., executives, administrators, unskilled laborers) affect the conditional relationship between alcohol consumption and subsequent workplace absence?

CHAPTER II

METHOD

Participants

Participants for the investigation were recruited from one of three companies, all of which were located in New York State. To be eligible for the study, participants had to be: (a) full-time employees at one of the three participating companies, (b) willing to sign informed consent forms to participate in the investigation, and (c) available for interviews concerning specific behaviors during the target interval. Individuals who indicated they did not drink alcohol or use other drugs were still eligible to participate in the investigation.

Of the 369 full-time employees from the three companies who were approached to be participants in the investigation (i.e., 125 from Company A, 121 from Company B, and 123 from Company C), 322 (87%) agreed to participate and signed the necessary informed consent documents. More specifically, of those who were asked to participate, 109 (87%) employees from Company A, 103 (85%) employees from Company B, and 110 (89%) employees from Company C, signed the informed consent documents agreeing to participate. No differences were found in the proportion of employees who were approached and agreed to participate among the three companies, $\chi^2(2, N = 369) = 1.02, ns$.

Of the 322 employees who agreed to participate, 11 (3%) did not complete the three required interviews and 9 (3%) did not provide informed consent to allow a review of their HR records. This resulted in complete data from 302 (94%) employees.

Comparisons of those who agreed to participate but did not provide sufficient information and those who completed all phases of the investigation revealed no significant differences between these groups in terms of age, $t(320) = -0.08$, *ns*, years of education, $t(320) = 0.42$, *ns*, gender, $\chi^2(2, N = 322) = 0.02$, *ns*, race, $\chi^2(2, N = 322) = 2.16$, *ns*, income $t(320) = -0.25$, *ns*, years of employment at the company $t(320) = -0.66$, *ns*, or type of employment position, $\chi^2(2, N = 322) = 5.97$, *ns*.

The sociodemographic characteristics of the participants recruited from each of the three companies and the combined sample are located in Table 1. Contingency table (“chi-square”) and Analysis of Variance (ANOVA) tests indicated that participants recruited from the three companies were not significantly different on any of the characteristics shown (i.e., all $ps > .05$). Thus, data collected from the participants were pooled for all analyses.

The number of participants recruited for this investigation was based on *a priori* power calculations using effect size estimates from McFarlin & Fals-Stewart (in press). To achieve a power of .80 or greater for the planned analyses which is considered minimally acceptable (Cohen, 1988), a minimum of 300 participants was required. The power formula used for these calculations (Hsieh, 1989) is located in Appendix A.

Measures

Timeline followback interview (TLFB; Fals-Stewart, O’Farrell, Freitas, McFarlin, & Rutigliano, 2000; Sobell & Sobell, 1996). The TLFB is among the most well-researched interview tools for coding research participants’ daily use of alcohol and other drugs. Use of the TLFB requires that a trained interviewer use a calendar and other memory aids (e.g., appointment book, day planner, personal diary) to gather research

Table 1
Sociodemographic Characteristics of Participants

Characteristic	Company												Combined Sample			
	A				B				C							
	<i>M</i>	<i>SD</i>	No.	%	<i>M</i>	<i>SD</i>	No.	%	<i>M</i>	<i>SD</i>	No.	%	<i>M</i>	<i>SD</i>	No.	%
Age	41.22	12.33			41.33	12.53			41.84	12.11			41.46	12.28		
Years of education	13.89	2.03			13.89	2.03			13.79	2.02			13.85	2.02		
Years at company	6.55	4.97			6.48	4.86			7.22	4.99			6.76	4.94		
Income	\$37.59	\$16.02			\$40.18	\$15.55			\$40.00	\$15.49			\$39.24	\$15.69		
Male			77	76			77	79			77	75			231	77
White			76	75			70	71			64	62			210	70
Executives			2	2			3	3			4	4			9	3
Business managers			6	6			6	6			7	7			19	6
Administration			6	6			8	8			4	4			18	6
Clerical			6	6			12	12			9	9			27	9
Skilled labor			39	39			43	44			49	48			131	43
Semi-skilled labor			31	31			18	18			23	22			72	24
Unskilled labor			11	11			8	8			7	7			26	8
Alcohol use disorder			17	17			19	19			13	13			49	16

Note. $n = 101$ for Company A; $n = 98$ for Company B; $n = 103$ for Company C; $n = 302$ for Combined Sample. Income figures are in thousands U.S. dollars.

participants' retrospective estimates of their daily drinking and drug use over a specified time period.

Studies of the psychometric properties of the TLFB for the measurement of alcohol consumption have shown high temporal stability, with most test-retest correlations exceeding .85 (Fals-Stewart, O'Farrell, Freitas, McFarlin, & Rutigliano, 2000). Similar correlations between self- and collateral reports and between self-reports and official records of verifiable events, such as hospitalizations and jail stays, have been found when assessing the TLFB's criterion validity (see O'Farrell & Langenbucher, 1988, for a review).

With the TLFB, the interviewer coded each day of the time period that the participant drank or used drugs. Three codes were used to represent (a) days of any drinking, (b) days of heavy drinking (i.e., 6 or more ounces of alcohol consumed in a 24-hour period for men and 4 or more ounces of alcohol in a 24-hour period for women), and (c) days of any other drug use. Use of over-the-counter medications or prescriptions containing alcohol (e.g., cold medications) or other psychoactive drugs were not coded.

The target interval for this study was a 4-week period. For each participant, the identified day of substance use was defined in accordance with the start of the work day. The workday was defined as the 24-hour period beginning after the participant started his or her workday. For example, drinking the day before work was defined as drinking during the 24-hour period before the participant was to begin work. Drinking the day of work was defined as the 24-hour interval after the workday had begun, and so forth.

For each company, participants' days absent from work were collected from records retained in the respective human resources departments. A day of absence was defined as

the failure of a participant to report for or to remain at work as scheduled, regardless of reason (Cascio, 1995). As in the study by McFarlin et al. (in press), to count as a day absent, the participant must have been absent at least 50% of the workday. Data coders recorded the days absent and days of work injury on the TLFB calendar and a daily record sheet along with information about days of substance use. An example of the TLFB interview, which includes interviewer instructions, a daily recording sheet, and April and May 2001 monthly calendars, is located in Appendix B.

Structured clinical interview for DSM-IV (SCID; First, Spitzer, Gibbon, & Williams, 1995). The SCID is a widely used inventory designed to assess whether a research participant meets the criteria for substance dependence or substance abuse as outlined in the *Diagnostic and Statistical Manual of Mental Disorders, 4th Edition (DSM-IV)*; American Psychiatric Association, 1994). The *DSM-IV* system describes two subcategories within the general diagnostic categories of alcohol or psychoactive substance use disorders: dependence and abuse. *Substance Dependence* is marked by a cluster of cognitive, behavioral, and physiological symptoms indicating that the individual continues to use a given psychoactive substance despite significant substance-related problems. To meet diagnostic criteria for dependence on a psychoactive substance, an individual must display at least three of the following seven symptoms: (a) physical tolerance, (b) withdrawal, (c) unsuccessful attempts to stop or control substance use, (d) use of larger amounts of the substance than intended, (e) loss or reduction in important recreational, social, or occupational activities, (f) continued use of the substance despite knowledge of physical or psychological problems that are likely to have been caused or exacerbated by the substance, and (g) excessive time spent using the

substance or recovering from its effects.

In contrast, the essential feature of *Substance Abuse* is a maladaptive pattern of problem use leading to significant adverse consequences. This includes one or more of the following: (a) failure to fulfill major social obligations in the context of work, school, or home, (b) recurrent substance use in situations that creates the potential for harm (e.g., drinking and driving), (c) recurrent substance-related legal problems, and (d) continued substance use despite having persistent social or interpersonal problems caused or exacerbated by the effects of the substance. The SCID was administered to all participants by one of six trained Master's-level interviewers. The SCID is located in Appendix C.

Hollingshead employment classification (Hollingshead, 1975). This widely used scale is derived from the occupational scale of the Four Factor Index of Social Status, which was developed to evaluate the social status of individuals across four dimensions: (a) education, (b) occupation, (c) sex, and (d) marital status. The occupation a person ordinarily pursues during gainful employment is graded on a 9-step scale. In most instances, the scale has been keyed to the occupational titles used by the United States in the 1970 census. The Hollingshead Employment Classification is located in Appendix D.

Sociodemographic interview form. Interviewers conducted a brief interview to determine study eligibility and to collect demographic and background information on participants. The sociodemographic questionnaire is located in Appendix E.

Procedure

Employee participants. A roster of all full-time employees for the regional Company A, Company B, and Company C factories were obtained and entered into a spreadsheet.

The names were sorted alphabetically and given consecutive ascending numbers. Next, using a computer assisted random-number program, employees were randomly selected for possible inclusion in the study.

A research assistant (RA) approached the employees who had been randomly pre-selected as possible participants and used the “approach script” (Appendix F) to invite these workers to participate in the study. Those who declined to participate were not pursued further. The RA escorted those who chose to learn more about the investigation to a private interview room. At Company A, a floater replaced line workers while they participated in the interview. At the other factories, the company gave workers permission to participate. No substitute workers were used in these factories. Those who indicated they do not drink alcohol or use drugs were still eligible to participate.

For workers who desired to learn more about the study, RAs used a study description script (Appendix G) to provide an overview of the investigation. During the private meeting with employee-participants, the RAs explained the details of the informed consent document (Appendix H). At that time, RAs also informed each employee-participant that the study’s principal investigators wished to contact a collateral informant familiar with his or her drinking and drug use behavior, as explained in the informed consent document. The RAs showed employee-participants all materials to be sent to the collateral. These materials included a brief letter signed by the employee-participant stating that he or she had given the RA permission to talk to the collateral via telephone about his or her alcohol and substance use (Appendix I), a cover letter from the RA explaining the study (Appendix J), an informed consent document (Appendix K), and two calendar (i.e., April and May, 2001) sheets (Appendix L). They also explained that if an

employee-participant could not name a collateral familiar with his or her daily patterns of alcohol and drug use or if he or she refused to identify a collateral informant, he or she was still eligible to participate in the study. Employees who agreed to participate were asked to sign the informed consent document, which also was signed by the RA and witnessed by a secretarial support person, who then copied the consent form and provided a copy to the employee. Each participating employee was thereafter asked to provide the name, address, and telephone number of the collateral informant and was asked to sign the form which gave permission to the RA to interview the collateral. As noted, this form was included in the postal package sent to the collateral. The RA then interviewed the employee-participant, face to face, using the sociodemographic form, the Hollingshead Employment Classification, and the SCID. The employee was then assigned a unique code number, which was used as an identifier on all completed forms.

Employees were scheduled for two other interviews, 2 weeks and 4 weeks from the date of the first interview. These follow-up interviews also were conducted face to face at the job site. It should be noted that the RAs explained to all participants at the time of the administration of the informed consent document that the intent of the study was to examine drug and alcohol use over a 4-week period. It is likely therefore that participants either mentally or actually recorded their drug and alcohol use to facilitate recall of such behavior. Participants were not paid for participating in the first interview. However, they were told that they would receive payment of \$25.00 for each follow-up interview that they completed within five working days of the scheduled interview.

During the second interview, RAs administered the TLFB to participating employees to assess days of alcohol and drug use over the previous 2 weeks. Those who completed

the TLFB interview within 5 working days of the scheduled second interview were paid \$25.00.

Those who did not participate in this interview within 5 working days of the scheduled time or refused to participate in this interview were not paid. Additionally, those who did not complete this interview were deemed ineligible for the remainder of the study along with their collateral informant.

During the third interview, the TLFB was administered to participating employees to assess days of alcohol and drug use over the previous 2 weeks. Those who completed the TLFB interview within 5 working days of the scheduled third interview were paid \$25.00 for their participation in the interview. Conditions similar to those following the second interview applied to those who did not participate in the third interview within 5 working days of when it was scheduled.

After completion of the third interview, RAs asked employees for permission to examine the employee-participants' human resources (HR) records. From these HR records, the investigative team gathered absence and injury information. Participants were not told that work absences or injury information were to be reviewed. However, they were informed about the type of information contained in the records (e.g., dates of work absences, injuries) before giving permission for the review. Employee participants were asked to sign a separate informed consent (Appendix M) for review of their HR files. Payment for participation in the third interview was contingent upon completion of the TLFB interview only, and not on signing the consent to allow investigators access to the HR records. Data collected from those employees who did not allow the investigators access to the HR records were of limited value because no absenteeism or injury data

could be gathered. Payment to participants who refused access to their HR records was instituted to reduce the likelihood that participants would discern the nature of the study's hypotheses and to eliminate any appearance of coerciveness in the study's procedures.

Collateral informant participants. RAs used the telephone and a prepared script (Appendix N) to invite collateral informants to participate in the study. The script indicated that the informants had been identified by the study's participant who had given permission to discuss his or her daily drinking and drug use patterns over the 2-week time intervals. If the collateral agreed to participate, the RA reviewed with the collateral the cover letter and the informed consent document that had been sent to them earlier. As noted in the materials sent to the collateral informants, their participation was contingent upon consent from the employee who initially identified them. If employee-participants withdrew from the investigators (or their agents) permission to contact the collaterals, the collaterals could no longer participate. In addition, if employees were withdrawn from the study for failure to participate, collaterals also were withdrawn from the investigation at that point.

If the collateral agreed to participate, he or she was asked a preliminary question about how well he or she knew the employee's daily drinking on a scale of 1 to 5, with 1 being "certain" and 5 being "guessing". As indicated in the prepared script to invite collateral informants to participate in the study, if the collateral gave a response of 4 or 5, he or she was informed that their participation was probably not very helpful. However, if the collateral gave a response of 1, 2, or 3, he or she was asked to participate in two subsequent interviews. The collateral was then asked to sign the enclosed informed consent document and send it back to the RA in an enclosed, stamped envelope. As

noted in the script, if the collateral did not return the form, it was assumed that he or she had declined to participate in the investigation and thus was not contacted for future interviews. Additionally, an interview was scheduled for a date and time roughly 2 weeks and 4 weeks from the first interview. The RA queried the collateral about the participant's alcohol and drug use during the two target 2-week time periods.

During the first TLFB interview with collaterals (Appendix O), which occurred at the 2-week time point, the RAs asked collaterals to provide a day-by-day accounting of the given employee-participant's drinking and substance use behavior. The TLFB interview differed from that administered to the employee-participants in important ways. If collaterals did not know the amount of an employee's drinking or amount or type of drug use on a given day, two additional codes were added to the TLFB: (a) "drinking, but amount unknown", and (b) "drug use, type unknown". In addition, a "behavior unknown" code was added for days when the collateral indicated a lack of knowledge of the participants' substance use on a given day.

Collaterals who completed the TLFB interview within 5 working days of the scheduled second interview were paid \$25.00 for their participation in the interview. Those who did not were not paid. Additionally, those who did not complete this interview were not eligible to participate in the remainder of the study.

At the second TLFB interview, which occurred at the 4-week time point, the collaterals were asked to provide a day-to-day accounting of the employee's drinking and substance use behavior over the targeted previous 2 weeks. Those who completed the TLFB interview within 5 working days of the scheduled second interview were paid \$25.00 for their participation in the interview. Those who did not were not paid.

The interviewers collected data by means of the TLFB, SCID, Hollingshead Scale, sociodemographic form, and HR records. The interviewers were 6 Master's-level research assistants. The RAs were trained thoroughly in the data collection and interview processes and have extensive experience administering the semi-structured interviews (i.e., TLFB, SCID). Previous assessment of the RA's interrater reliability on these measures has exceeded .70. Landis and Koch (1977) consider such interrater reliability to be excellent.

Primary Statistical Analytic Method

To examine the conditional relationship between alcohol use and workplace absence, binary logistic regression was used, with the occurrence of absence on a given day as the dependent measure and employees' drinking on previous days as the primary independent measure of interest. The focus of the analysis was on the joint dependency of these two behaviors (i.e., on the extent to which the likelihood of an event or behavior is influenced by the occurrence of another behavior). The change in the odds of workplace absence occurring when an employee drank alcohol compared to days of no drinking or heavy drinking was examined. If the occurrence of drinking was found to be significantly related to the occurrence of absence, follow-up simple contrasts were conducted to examine the relationship between different amounts of drinking on a given day (i.e., heavy and nonheavy drinking) and absence.

In these logistic regression models, two variables serving as controls also were examined along with the drinking variable of interest. The first variable represents a control for interparticipant differences. This control is necessary when observations are pooled from several different participants allowing for the problem that some participants

may unduly influence the results (Bakeman, Adamson, & Strisik, 1995). In the current study, because employee-participants may differ in the frequency of drinking, in the frequency of workplace absence, and in the association between these behaviors, these intersubject differences in the drinking-absence association were controlled by means of a procedure described by Wickens (1993) in which each participant is given a unique numerical (dummy) code, and treated as an explicit factor in the designs. This approach allows for analysis of data from several subjects and avoids inappropriate pooling of data across participants that ignores intersubject variability (see Wickens, 1989, for a review).

The second control pertains to serial dependency in the data. It is important to recognize that the conditional probability observed between two behaviors collected over time is a function not only of the joint dependencies between the behaviors, but also the serial dependency or autocorrelation for each behavior (Dumas, 1986; Gottman & Ringland, 1981). Conceptually, the problem is that the occurrence of a given behavior of interest often is best predicted by the previous occurrence of that behavior versus some other behavior. More specific to the present study, the occurrence of previous episodes of absence may better predict subsequent episodes of absence than does alcohol consumption. Therefore, the extent to which a behavior of interest (i.e., workplace absence) is dependent on the occurrence of another behavior (i.e., drinking) can only be established first by controlling for the previous occurrence of the behavior of interest (i.e., workplace absence). Thus, it is important to partial out this autodependence before concluding another variable (in this investigation, drinking) is related to the occurrence of a target behavior (in the present study, workplace absence).

Thus, the occurrence of absence was lagged 1 day and was included as a control

variable in the models, thereby controlling for autocorrelation by partialing the effect of the occurrence of absence on the previous day (Allison & Liker, 1982). In these analyses, the significance of the relationship between drinking and the occurrence of workplace absence was examined after inclusion of the control variables (i.e., intersubject variability and autodependence) in each of the different logistic regression models.

Because it was hypothesized that the occurrence of drinking and drug use would increase the likelihood of occurrence of absence, all tests of the logistic regression coefficients were treated as one-tailed tests. That is, positive values for these coefficients were expected.

CHAPTER III

RESULTS

Absences During the Assessment Interval

The aggregate number of scheduled workdays for the participants in this sample was 6008. Of the 302 employees in the final sample, 292 (97%) participants were scheduled to work each of the 20 workdays of the assessment period; the remaining 10 (3%) participants had vacation days during the assessment, ranging from 1 to 5 days. Of the aggregate scheduled workdays, participants were absent 385 (6%) days; 224 (74%) of the participants were absent on at least one occasion during the target period. The mean (*SD*) number of days absent was 1.27 (1.20), with a range of 0 to 7 days of absence.

Comparisons of participants from the three companies revealed no differences in the number of days of absence, $F(2, 299) = 1.17, ns$.

Alcohol and Other Drug Use

The mean and standard deviation of the number of times any drinking, heavy drinking, nonheavy drinking, and other drug use occurred during 1 day and 2 days before a scheduled work day are located in Table 2. ANOVAs revealed no significant differences among participants from the three companies on any of these variables (i.e., all $ps > .05$).

The number and percentage of participants who engaged in any drinking, heavy drinking, nonheavy drinking, and other drug use 1 day and 2 days before a scheduled workday are located in Table 3. Chi-square tests revealed that the proportions of participants from the three companies who engaged in any drinking, nonheavy drinking,

Table 2
Mean and Standard Deviation for Number of Times Drinking and Other Drug Use Occurred During 1 Day and 2 Days Before a Scheduled Workday

Substance use	1 Day Before A Scheduled Day of Work		2 Days Before A Scheduled Day of Work	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Any drinking	3.84	5.02	3.87	4.76
Heavy drinking	1.87	3.70	1.93	3.48
Nonheavy drinking	1.96	3.46	1.93	2.97
Other drug use	0.37	2.16	0.46	2.34

Note. Any drinking = consumption of any alcohol. Heavy drinking = consumption of six or more standard drinks for men and four or more standard drinks for women on a given day. Nonheavy drinking = consumption of less than six standard drinks for men and four standard drinks for women on a given day.

Table 3
Number and Percentage of Participants Who Engaged in Drinking and Other Drug Use During 1 Day and 2 Days Before a Scheduled Workday on at Least One Occasion

Substance use	1 Day Before A Scheduled Day of Work		2 Days Before A Scheduled Day of Work	
	No.	%	No.	%
Any drinking	260	86	261	86
Heavy drinking	168	56	177	59
Nonheavy drinking	192	64	196	65
Other drug use	17	6	20	7

Note. Percentages are based on 302 participants. Any drinking = consumption of any alcohol. Heavy drinking = consumption of six or more standard drinks for men and four or more standard drinks for women on a given day. Nonheavy drinking = consumption of less than six standard drinks for men and four standard drinks for women on a given day.

and other drug use 1 day and 2 days before a scheduled workday were not significantly different (i.e., all $ps > .05$). However, the omnibus comparison of the proportion of participants who engaged in heavy drinking 1 day before a scheduled workday among the different companies was significant, $\chi^2 (2, N = 302) = 7.11, p < .05$. Follow-up pairwise comparisons between the companies indicated that a greater proportion of participants from Company B engaged in heavy drinking 1 day before a scheduled workday ($N = 64, 65\%$) than the proportion of participants from Company A, ($N = 47, 47\%$), $\chi^2 (1, N = 199) = 7.11, p < .01$. The pairwise comparison between Company B and Company C ($N = 57, 55\%$) was not significant, $\chi^2 (1, N = 201) = 2.02, ns$. Additionally, the pairwise comparison between Company A and Company C was not significant, $\chi^2 (1, N = 204) = 1.58, ns$.

Similarly, the omnibus comparison of the proportion of participants who engaged in heavy drinking 2 days before a scheduled workday from the different companies was significant, $\chi^2 (2, N = 302) = 10.87, p < .01$. Pairwise comparisons between the companies indicated that a greater proportion of participants from Company B engaged in heavy drinking 2 days before a scheduled workday ($N = 68, 69\%$) than the proportion of participants from Company A, ($N = 47, 47\%$), $\chi^2 (1, N = 199) = 10.65, p < .01$. The pairwise comparison between Company B and Company C ($N = 62, 60\%$) was not significant, $\chi^2 (1, N = 201) = 1.86, ns$. Additionally, the pairwise comparison between Company A and Company C was not significant, $\chi^2 (1, N = 204) = 3.82, ns$.

Of the aggregate number of scheduled workdays, participants drank 1,159 (19%) days 1 day before a scheduled workday. Of these days of drinking 1 day before a scheduled workday, 593 (51%) were heavy drinking days and the remaining 566 (49%)

days were nonheavy drinking days. Participants reported they used illicit drugs on the day before scheduled workdays 113 (2%) times. Participants drank 2 days before scheduled workdays on 1,168 (19%) days. Of these days of drinking, 584 (50%) were heavy drinking days and 584 (50%) were nonheavy drinking days. Participants reported they used illicit drugs 2 days before scheduled workdays 145 (2%) times.

The Relationship Between Workplace Absence and Substance Use

Pearson product-moment correlations between number of absences and number of days of alcohol and other drug use. For each employee-participant, the following were calculated: (a) number of days of absence, (b) number of occurrences of any drinking 1 day before a scheduled workday, (c) number of occurrences of heavy drinking 1 day before a scheduled workday, (d) number of occurrences of nonheavy drinking 1 day before a scheduled workday, (e) number of occurrences of other drug use 1 day before a scheduled workday, (f) number of occurrences of any drinking 2 days before a scheduled workday, (g) number of occurrences of heavy drinking 2 days before a scheduled workday, (h) number of occurrences of nonheavy drinking 2 days before a scheduled workday, and (i) number of occurrences of other drug use 2 days before a scheduled workday. The Pearson product-moment correlations between the number of days of absence and the number of occurrences of any drinking, heavy drinking, nonheavy drinking, and other drug use during 1 day and 2 days before a scheduled workday were then calculated. The results of these calculations are located in Table 4. These results suggest that the number of times participants drank alcohol the day before or 2 days before a scheduled workday was associated with an increased number of absences. Furthermore, the number of occurrences of heavy drinking 1 and 2 days before a

Table 3
Number and Percentage of Participants Who Engaged in Drinking and Other Drug Use During 1 Day and 2 Days Before a Scheduled Workday on at Least One Occasion

Substance use	1 Day Before A Scheduled Day of Work		2 Days Before A Scheduled Day of Work	
	No.	%	No.	%
Any drinking	260	86	261	86
Heavy drinking	168	56	177	59
Nonheavy drinking	192	64	196	65
Other drug use	17	6	20	7

Note. Percentages are based on 302 participants. Any drinking = consumption of any alcohol. Heavy drinking = consumption of six or more standard drinks for men and four or more standard drinks for women on a given day. Nonheavy drinking = consumption of less than six standard drinks for men and four standard drinks for women on a given day.

scheduled workday also was associated with an increased number of absences.

Day-to-day conditional relationship between absences and the occurrence of drinking and other drug use. The results of the binary logistic regression examining the conditional relationship between participants' alcohol and other drug use 1 day before a scheduled workday and the occurrence of a workplace absence are located in Table 5. The occurrence of any drinking 1 day before a scheduled day of work was associated with an increased likelihood of absence the next day, $B = 0.38$, $SE = 0.16$, Wald $\chi^2 (1, N = 6008) = 5.48$, $p = .02$. The odds of an absence occurring 1 day after an episode of drinking were nearly 1.5 times higher than on a day after no drinking.

The subsequent analysis examined different amounts of alcohol consumption to determine their relationship to workplace absence. In comparison to no drinking 1 day before work, the occurrence of nonheavy drinking 1 day before a scheduled workday was not related to the likelihood of absence, $B = 0.21$, $SE = 0.21$, Wald $\chi^2 (1, N = 6008) = 0.98$, $p = .32$. However, the occurrence of heavy drinking was associated with an increased likelihood of absence from work the next day, $B = 0.55$, $SE = .20$, Wald $\chi^2 (1, N = 6008) = 7.18$, $p = .007$. Participants were over 1.7 times more likely to absent from work the day after engaging in heavy drinking. Use of drugs other than alcohol 1 day before a scheduled workday was not significantly associated with absence, $B = -1.91$, $SE = 1.05$, Wald $\chi^2 (1, N = 6008) = 3.31$, $p = .07$. This p value is not considered significant because this was a one-tailed test and the parameter estimate is in the opposite direction of what was hypothesized.

The results of the binary logistic regression examining the conditional relationship between participants' alcohol and other drug use 2 days before a scheduled workday and

Table 5
Parameter Estimates for Binary Logistic Regression Models Examining the Day-to-Day Relationship Between Any Drinking, Heavy and Nonheavy Drinking and Use of Other Drugs 1 Day Before a Scheduled Workday and the Occurrence of Workplace Absences

Variable	B	SE	Wald	df	p	Odds Ratio
Any Drinking						
Constant	-1.19	0.64	3.47	1	.06	0.30
Participant code (constrained)			126.39	301	1.00	
1-day lag absence	-0.42	0.17	6.36	1	.01	0.66
Any drinking	0.38	0.16	5.48	1	.02	1.47
Heavy and Nonheavy Drinking						
Constant	-1.17	0.64	3.33	1	.07	0.31
Participant code (constrained)			127.48	301	1.00	
1-day lag absence	-0.37	0.17	4.58	1	.03	0.69
Nonheavy drinking	0.21	0.21	0.98	1	.32	1.24
Heavy drinking	0.55	0.20	7.18	1	.01	1.73

Table 5 (continued)

Variable	<i>B</i>	<i>SE</i>	Wald	<i>df</i>	<i>p</i>	Odds Ratio
Other Drug Use						
Constant	-2.21	0.83	7.19	1	.01	0.11
Participant code (constrained)			127.02	301	1.00	
1-day lag absence	-0.58	0.16	13.86	1	.00	0.56
Any drug use	-1.91	1.05	3.31	1	.07	0.15

Note. Participant code is a unique identifier given to each participant and was used as a categorical variable in each model to control for intersubject variability. The 1-day lag absence variable was entered into the models to control first-order autodependence of the occurrence of absences the previous day. In the model examining heavy and nonheavy drinking, simple contrasts were performed with no drinking as the base category for both types of drinking.

the occurrence of a workplace absence are located in Table 6. The occurrence of any drinking 2 days before a scheduled workday was not associated with an increased likelihood of absence the next day, $B = -0.12$, $SE = 0.16$, Wald $\chi^2(1, N = 6008) = 0.55$, $p = .46$. The occurrence of nonheavy drinking 2 days before a scheduled day of work was not associated with an increased likelihood of absence, $B = -0.09$, $SE = 0.21$, Wald $\chi^2(1, N = 6008) = 0.19$, $p = .66$. The occurrence of heavy drinking 2 days before a scheduled day of work was not associated with an increased likelihood of absence, $B = -0.15$, $SE = 0.21$, Wald $\chi^2(1, N = 6008) = 0.50$, $p = .49$. The occurrence of any other drug use 2 days before a scheduled day of work also was not associated with an increased likelihood of absence, $B = 0.26$, $SE = 0.51$, Wald $\chi^2(1, N = 6008) = 0.26$, $p = 0.61$.

Potential Moderators of the Conditional Daily Relationship Between Workplace Absence and Drinking and Other Drug Use

To examine the moderating effects of employment classification and a diagnosis of an alcohol use disorder on the conditional relationship between drinking and absence, 2-level hierarchical generalized linear model analyses (HGLM; Snijders & Bosker, 1999) were conducted using the HLM 5 program (Raudenbush, Bryk, Cheong, & Congdon, 2001). These analyses were conceptualized as multilevel regressions, with a binary dependent measure (absence or no absence on a given day) clustered, or nested, within participants.

Drinking the day before a scheduled workday was considered a time-dependent Level 1 covariate. Employment classification and alcohol use diagnosis were considered time-invariant Level 2 characteristics of participants. Because the dependent measure can take values of either 0 (i.e., no absence) or 1 (i.e., absence), the HGLMs used a

Table 6
Parameter Estimates for Binary Logistic Regression Models Examining the Day-to-Day Relationship Between Any Drinking, Heavy and Nonheavy Drinking and Use of Other Drugs 2 Days Before a Scheduled Workday and the Occurrence of Workplace Absences

Variable	<i>B</i>	<i>SE</i>	Wald	<i>df</i>	<i>p</i>	Odds Ratio
Any Drinking						
Constant	-1.32	0.64	4.19	1	.04	0.27
Participant code (constrained)			126.61	301	1.00	
1-day lag absence	-0.58	0.16	14.00	1	0.00	0.56
Any drinking	-0.12	0.16	0.55	1	0.46	0.89
Heavy and Nonheavy Drinking						
Constant	-1.34	0.65	4.25	1	.04	0.26
Participant code (constrained)			126.62	301	1.00	
1-day lag absence	-0.58	0.16	14.04	1	0.00	0.56
Nonheavy drinking	-0.09	0.21	0.19	1	0.66	0.91
Heavy drinking	-0.15	0.21	0.50	1	0.49	0.86

Table 6 (continued)

Variable	<i>B</i>	<i>SE</i>	Wald	<i>df</i>	<i>p</i>	Odds Ratio
Other Drug Use						
Constant	-1.14	0.69	2.71	1	0.10	0.32
Participant code (constrained)			126.29	301	1.00	
1-day lag absence	-0.57	0.15	13.71	1	0.00	0.57
Any drug use	0.26	0.51	0.26	1	0.61	1.30

Note. Participant code is a unique identifier given to each participant and was used as a categorical variable in each model to control for intersubject variability. The 1-day lag absence variable was entered into the models to control first-order autodependence of the occurrence of absences the previous day. In the model examining heavy and nonheavy drinking, simple contrasts were performed with no drinking as the base category for both types of drinking.

Bernoulli sampling distribution and a logit link function. An unrestricted covariance structure was used and restricted maximum likelihood (REML) was implemented for parameter estimation (Raudenbush, Yang, & Yosef, in press). An unrestricted covariance structure assumes a basic repeated measures model, which means that data from different participants are considered independent while data within participants are assumed to be correlated in some fashion. REML often is preferred as a method to estimate parameters because the commonly used alternative, full maximum likelihood, can lead to biased variance estimates (Bryk & Raudenbush, 1992).

To determine if there was a significantly different conditional relationship between the relationship between drinking the day before a scheduled workday and absence for individuals with different employment classifications or for individuals who have an alcohol use disorder, the cross-level interactions between drinking the day before work (i.e., the Level 1 predictor) and employment classification and alcohol use disorder (i.e., the Level 2 predictors) were tested. To control for first-order autocorrelation, absence the day before the workday of interest was included in the models as a Level 1 covariate.

Employment classification. The Hollingshead Employment Classification score was used as a continuous Level 2 predictor. The main effect for the Hollingshead Employment Classification score was not significant, $B = 0.04$, $SE = 0.04$, $t(6003) = 0.82$, $p = 0.42$; the amount of variance explained by this main effect was also small, $\Delta R^2 = .001$. This indicates that scores on the Hollingshead Employment Classification were not associated with a significantly greater likelihood of being absent on any given day. The cross-level interaction between drinking the day before a scheduled workday and the

Hollingshead Employment Classification score was also not significant, $B = -0.14$, $SE = 0.09$, $t(6003) = -1.56$, $p = 0.12$; the amount of variance explained by this interaction term was also small, $\Delta R^2 = .01$. Thus, the conditional relationship between drinking the day before a scheduled workday and absence was not significantly related to differences in employment classification.

The main effects and cross-level interactions between the Hollingshead Employment Classification Score and heavy drinking, nonheavy drinking, and drug use, both for 1 day and 2 days before a scheduled workday were also tested; none of these effects were significant (i.e., all $ps > .15$).

Alcohol use disorder. A DSM-IV alcohol use disorder diagnosis was used as a nominal Level 2 predictor. The main effect for alcohol use diagnosis was not significant, $B = 0.07$, $SE = 0.11$, $t(6003) = 0.68$, $p = 0.50$; the amount of variance explained by this main effect was also small, $\Delta R^2 = .001$. This result indicates that an alcohol use disorder diagnosis was not associated with a significantly greater likelihood of being absent on any given day. The cross-level interaction between drinking the day before a scheduled workday and alcohol use disorder diagnosis also was not significant, $B = -0.09$, $SE = 0.17$, $t(6003) = -0.58$, $p = 0.57$; the amount of variance explained by this term was also small, $\Delta R^2 = .002$. Thus, the conditional relationship between drinking the day before a scheduled workday and absence was not significantly related to a diagnosis of an alcohol use disorder.

The main effects and cross-level interactions between the alcohol use disorder variable and heavy drinking, nonheavy drinking, and drug use, both for 1 day and 2 days before a scheduled work day also were tested; none of these effects were significant (i.e.,

all $ps > .30$).

Drinking During Scheduled Work Hours and Workplace Injury

The review of the HR records indicated six employees had reported injuries while on the job during the time of the study. Eighteen employees reported that they drank on a day when they attended work and during their scheduled work hours. In all of these reported drinking episodes, participants reported that they only drank alcohol during their lunch breaks, but not other times. No conditional relationship was found between the occurrence of drinking during working hours and workplace injury. An examination of a cross table between workplace injuries and reported drinking during working hours revealed no instances of employees who were injured on the job on a given day who also drank during work hours.

Use of Collateral Informants' Reports of Employee-Participants' Alcohol Consumption and Drug Use in Analytic Models

As noted, employee-participants were asked to identify an individual who would be familiar with each employee-participant's daily drinking and drug use over the 20-day target interval. Of the 302 employee-participants whose data were analyzed, 255 (84%) identified an individual who was able to provide reports about daily drinking and drug use during the target time period. Aggregated across employee-participants, these collateral informants were asked to describe the drinking and drug use of employee-participants on 5073 days. Of these days, the collateral informants were able to provide reports about drinking behavior (i.e., no drinking, nonheavy drinking, or heavy drinking) for 4,250 (84%) of the days; on the other days, collaterals reported they were unaware of the employee-participants' drinking behavior and thus could not provide information.

For drug use other than alcohol, the collateral informants were able to provide reports about drug using behavior (i.e., no drug use or drug use) on 4,861 (96%) of days.

These data were used in all of the previous analyses that involved examination of drinking or drug-using behavior. The same pattern of results emerged from these analyses; all significant and nonsignificant relationships were the same in both analyses.

CHAPTER IV

DISCUSSION

Workplace absenteeism, a widely investigated negative workplace behavior, is an important problem faced by all organizations, resulting in lost revenues, lowered performance, and compromised employee safety, among others. In an effort to more fully understand employee withdrawal, investigators have focused on alcohol use as one of several factors contributing to employee absences. Several of these studies have shown a relationship between workplace absenteeism and alcohol use. Although previous investigations exploring the alcohol use-absenteeism relationship have contributed greatly to the withdrawal literature, they often have been plagued by one or more of several limitations including (a) exclusive reliance on self-report data, (b) use of cross-sectional, correlational designs, and (c) use of global indicators of drinking and workplace absences rather than specific, recent, and verifiable information on these behaviors.

The present investigation addressed these limitations by recruiting collateral information sources (e.g., information in human resource records, reports by others familiar with the substance use behavior of employee-participants), soliciting specific information about recent or current drinking behavior, and using a longitudinal design. The aim of this investigation was to examine the day-to-day temporal relationship between substance use and subsequent workplace absenteeism. A psychometrically sound, innovative interview technology (i.e., TLFB) was used to test the primary hypotheses that there would be a significant conditional relationship between alcohol use

and workplace absence the following day, and that workplace absences would be more likely on days after heavy drinking than on days after nonheavy drinking.

Moreover, as part of this investigation, other exploratory analyses were conducted to examine the following: (a) whether the presence of an alcohol use disorder influences the day-to-day conditional relationship between alcohol use and subsequent workplace absence; (b) the conditional relationship between employees' use of psychoactive substances, other than alcohol, and workplace absence the following day; (c) the day-to-day relationship between alcohol consumption during working hours and the occurrence of workplace injury; and (d) the day-to-day conditional relationship between alcohol consumption and workplace absence among different classifications of employees (e.g., executives, administrators, unskilled laborers).

The primary *a priori* hypotheses regarding the relationship between the occurrence of workplace absences and alcohol use were supported. The results of this study supported the hypothesis that there is a significant conditional day-to-day relationship between alcohol use and workplace absence the next day. More specifically, the occurrence of any drinking 1 day before a scheduled workday was associated with a significantly increased likelihood of absence the next day. Results indicated that those who engaged in any drinking the day before a scheduled workday were roughly 1.5 times more likely to be absent than on a day after no drinking.

Additionally, the findings also suggested that quantity of alcohol consumed on a given drinking occasion is significantly related to the occurrence of workplace absence. More specifically, results indicated the relationship between nonheavy drinking 1 day before a scheduled workday and subsequent workplace absence was not significant.

However, workplace absence was more likely on days after heavy drinking than on days of no drinking; those who engaged in heavy drinking 1 day before a scheduled workday were 1.7 times more likely to be absent the next day.

The conditional relationship between drinking and workplace absence 2 days later was also examined. In these models, any drinking, nonheavy drinking, and heavy drinking were not found to be significantly associated with an increased likelihood of workplace absence.

The results of the exploratory hypotheses suggest there is no day-to-day relationship between the use of non-alcohol psychoactive substances and workplace absenteeism. Perhaps not surprisingly, reports of frequency of psychoactive drug use other than alcohol were much lower than reports of alcohol use. Interestingly, a nonsignificant trend was found suggesting that drug use was associated with *increased* likelihood of attending work the following day. Anecdotal reports by employees who engaged in drug use suggested that many were either using low-level stimulants as a means of enhancing work performance or were using prescription drugs they had obtained illegally to self-medicate. Of course, other studies have found drug *abuse* to be related to workplace absence (e.g., Dash, 2000), but in the brief time window explored in the present study, only drug *use* and absenteeism were examined.

Similarly, the conditional relationship between alcohol use and subsequent workplace absence was not moderated by the presence of an alcohol use disorder; those individuals who met abuse or dependence criteria were just as likely to be absent after a day of drinking than those who did not have one of these diagnoses. Surprisingly, the presence of an alcohol use disorder was not associated with an increased likelihood of

absence in our sample; other studies have found those employees who have a drinking problem are more frequently absent from work (e.g., Upmark, Moeller, & Romelsjoe, 1999). However, in studies that have found this relationship, they have examined absence over longer intervals of time. Because the time interval examined in the present study was comparatively short (i.e., 20 work days), the relationship between the presence of an alcohol use disorder and frequency of workplace absence may have been reduced due to restricted range.

The finding that the conditional relationship between alcohol use and subsequent workplace absence was not moderated by the presence of an alcohol use disorder also may suggest that individuals who are diagnosed with an alcohol use disorder may be accustomed to meeting successfully a variety of work demands, including being a reliable employee who is not typically absent. That is, perhaps some highly functioning individuals who have an alcohol use disorder are, in some contexts and particularly in the work context, not hindered to a large degree by the effects of alcohol use. These findings suggest that perhaps these individuals are functional to the extent that they are present for work on a daily basis and, depending on their ability to cope, are similarly functional in work task productivity.

Results indicate no conditional association between alcohol consumption and workplace absences among different classifications of employees. One possible reason for this finding may have been the use of a classification inventory that defines job categories too broadly. Although the Hollingshead Classification Scale, as noted earlier, is a standard, psychometrically sound, widely used tool to denominate job categories, the use of an improved, refined, and updated measure that more accurately denotes job

categories and rankings may have better captured differences between job divisions. In turn, results may have better reflected the variability between participants and may have led to more precise findings.

No relationship was found between the occurrence of alcohol consumption during working hours and workplace injury. Based on employee-participants' reports, participants in this sample reported very infrequently drinking during working hours during the short time interval, making it difficult to fully explore the relationship of these two variables.

The findings of this study are consistent with prior investigations that examined the conditional relationship between alcohol use and absenteeism; that is, alcohol use has been found to be significantly associated with absence from work the next day. Although the present investigation used a convenience sample located in a particular region of the U.S. to examine the day-to-day co-occurrence of alcohol use and days absent from work, the results were similar to the McFarlin, Strobel, Fals-Stewart, and Storer (2000) telephone survey which collected information from a nationally representative sample of U.S. workers.

More specifically, the McFarlin, Strobel, Fals-Stewart, and Storer (2000) study found work absence was over 3 times more likely on the day after a participant drank alcohol, than on a day after which the participant did not drink alcohol. In the present investigation, those who engaged in any drinking the day before a scheduled workday were found to be roughly 1.5 times more likely to be absent than on a day after no drinking. Thus, the magnitude of the relationship between alcohol use and absence the following day in the McFarlin, Strobel, Fals-Stewart, and Storer (2000) study was twice

that of the effect found in the present investigation. One possible reason for this difference may be that the results in the McFarlin, Strobel, Fals-Stewart, and Storer (2000) study were more susceptible to a 'percept-percept' bias. More specifically, in the present investigation, participants' self-report data were used along with data from other sources (e.g., absence information from human resources records). However, in the McFarlin, Strobel, Fals-Stewart, and Storer (2000) study, information about workplace absences and drinking was based exclusively on participants' self-report. Participants' preconceived notions about a potentially positive relationship between drinking and workplace absence may have biased their responses, which could have inflated the association.

The findings in the present investigation were very similar to those reported by McFarlin and Fals-Stewart (in press) that examined the day-to-day relationship between alcohol use and work absences. As in the present study, the McFarlin and Fals-Stewart (in press) results indicated a significant relationship between alcohol use and workplace absence; participants were found to be roughly 2 times more likely to be absent from work the next day when they drank alcohol 1 day before a scheduled workday.

This finding is not surprising, given that the McFarlin and Fals-Stewart (in press) study recruited employees from the same geographic region and from the same companies as the present study. Moreover, the McFarlin and Fals-Stewart (in press) study used a very similar method (e.g., in both studies, the TLFB was used to assess drinking and human resources records were used to ascertain days of absence). However, in comparison to the McFarlin and Fals-Stewart (in press) study, an important improvement in the methods of the current investigation was the collection and analysis

of information concerning *quantity* of daily alcohol consumption. The primary findings of the present investigation suggest that it is *heavy* drinking that most contributes to workplace absence. Thus, the present investigation not only replicates the results of McFarlin and Fals-Stewart (in press) by finding a temporal relationship between alcohol consumption and workplace absence, but also, *qualifies* the conditional relationship between alcohol use and subsequent absenteeism by demonstrating that the quantity of alcohol consumed is an important variable in these models. Overall, the consistency of findings from these three studies suggests that alcohol consumption is predictive of workplace absenteeism on a day-to-day basis.

Implications

Given that workplace absence represents an important organizational problem, identifying factors that are significantly related to absenteeism could potentially inform methods to address this issue. For example, HR officials concerned about employee absenteeism may wish to examine daily patterns of alcohol use with employees who are chronically absent. Raising the level of awareness of drinking behaviors through educational programs and individual and group counseling may help employees and HR departments identify previously unrecognized and potentially problematic patterns of behavior. Moreover, recognition of the association between drinking behaviors and absence may increase employees' motivation for change or rehabilitation, particularly in circumstances in which chronic absenteeism is a threat to job, and perhaps, financial security. EAP and health promotion services can be instrumental in assisting employees with management of problematic drinking behaviors and rehabilitation efforts (Roman, 1990; Shain, 1994).

The results of this investigation are relevant for organizational members who are responsible for provision of health education and promotion of well-being in the work context. Alternative stress reduction strategies (e.g., physical exercise, meditation) may be introduced to and discussed with employees who exhibit a pattern of absence due to alcohol consumption. These findings may help organizational health educators highlight the importance of positive coping strategies and the potential detrimental effects of alcohol consumption to organizational livelihood and personal well-being. Dash (2000) suggests personal counseling, motivational exercises, educational programs, literature distribution, and manager training be used to decrease the negative effects (e.g., absenteeism, poor work quality) of alcohol and drug use and abuse in the work context.

Having made the above argument, however, it is appropriate to add a cautionary note concerning the issue of causality. The results of this investigation seem to suggest that a causal link has been found between alcohol use and subsequent workplace absenteeism. Based on this premise, it can be argued that a decrease in alcohol consumption results in a decrease in workplace absence.

However, as argued by several authors (e.g., Agresti & Finlay, 1997) three requirements must be satisfied for a relationship to be considered causal: (a) there must be an association between the variables, (b) the variables must have an appropriate time order, with the cause preceding the effect, and (c) other plausible alternative explanations must be eliminated. In the present study, the first two conditions clearly have been met; a strong relationship was found between alcohol use and workplace absence the next day and, of course, alcohol use was shown to precede absence.

However, as in most studies attempting to determine causality, the elimination of

alternative explanations is the most difficult criterion to meet because there are often plausible alternative explanations for the resulting behavior. For example, in the present study, participants may know in advance of a drinking episode that they will be absent and that they are, in fact, planning to be absent the following day, and thus they consume alcohol.

Interestingly, when soliciting from employee-participants general reasons for absence on any given day, less than 10% of the time did the employee-participants mention the effects of drinking (e.g., being hung over or being intoxicated) as a factor in being absent. Perhaps collection of qualitative data, derived from event-based detailed semi-structured interviews about days of absence, would further illuminate the role of alcohol use. This approach has been used in studies examining the role of alcohol in episodes of partner violence (e.g., Leonard & Quigley, 1999) and has provided important insights about the causal role of alcohol use in these circumstances.

Finally, absence culture within an organization often influences the choices employees make when considering whether or not to be absent on a given day, regardless of the circumstances (Johns & Nicholson, 1982). With regard to this investigation, an employee's decision to be absent or not after a drinking episode will be based, in part, on the social and organizational context in which an employee works. For example, in one organization it may be less offensive and therefore less punishable to be absent after a drinking episode than in another organization in which absenteeism under any circumstances is criticized and sanctioned. The findings of this study may prompt organizations to consider and perhaps reevaluate their tolerance and management of employee absence behavior.

This study has several important methodological implications. The use of timeline technology is relatively new to the organizational context. The success of its use in this investigation shows that it can be applied to other factors that may impact workplace absenteeism or any other variables of interest in the organizational arena. For instance, perhaps individuals who engage in physical exercise one day before a scheduled workday are less likely to be absent from work the next day. The timeline innovation may be a worthwhile instrument to determine this relationship. Similarly, perhaps individuals that sleep a minimum of 8 hours the night before a scheduled workday are the top sellers in their organization. Again, the timeline technology may provide evidence, or not, of this relationship.

Strengths, Limitations, and Alternative Approaches

Strengths. This study is marked by several important strengths. As noted earlier, investigators have recently called for greater attention to the temporal relationship of the antecedents and consequences of absenteeism and important variables of interest (e.g., Harrison & Martocchio, 1998). Use of the timeline assessment technology in this investigation allowed for the opportunity to address limitations in the literature and explore the critical element of time in the relationship between alcohol use and subsequent workplace absence.

In addition, this investigation had a variety of other noteworthy strengths. This study benefited from a large sample of participants, all of who were assessed with widely used and psychometrically sound measures. A very large proportion of those individuals who were approached agreed to participate, and the proportion of participants who entered the study and who completed all parts of the investigation was also high. Along with self-

report data, collateral information from knowledgeable informants and HR records was collected. Moreover, a brief assessment window was used, which facilitated more accurate recall of the behaviors under investigation. Finally, the investigative team consisted of well-trained research assistants who had extensive previous experience with the procedures.

Limitations. Despite these strengths, certain limitations should be noted. Although data were collected from a large sample of participants, employees were recruited from only three sites. Thus, modeling multi-site differences was not possible. More specifically, site differences could have influenced the relationship between substance use, absenteeism, and injury. Working environments and organizational culture may influence absenteeism rates, which suggests the possibility that absenteeism data from employees within the same company may covary. The data used in the present investigation were hierarchically ordered (i.e., employees were nested within three companies). However, company level variables (e.g., company policies, work environment, absenteeism culture) might influence the link between alcohol use and subsequent workplace absence. Pooling data from the sites tends to mask these differences. Because only three companies were used in the present investigation, it was not possible to model accurately the nested structure of these data and examine site effects in a multi-level framework, due in part to insufficient power (Bassiri, 1988).

Relatedly, the data collected and analyzed in this investigation were obtained from employees in one geographic location. Therefore, findings may not generalize to other geographic locales or subpopulations of employees. Moreover, participants were predominantly male, White, and drawn from relatively large companies. Thus, these

findings may not generalize to employees with varying sociodemographic characteristics or those who work in small or medium-sized organizations.

As noted earlier, the data collection time period was 4 weeks. Although this brief window should allow for more accurate recall than a substantially longer time interval (e.g., 1 year), modeling temporal changes becomes more difficult due to restricted range of observation.

Finally, because interviewers informed participants, before they signed a consent form, that the intent of the study was to examine drug and alcohol use over a specified time period, participants may have modified their behavior. That is, participants' may have deviated from typical alcohol or drug activities during the target interval or falsely reported their actions because they knew they would be required to report their substance use behavior to an interviewer. Social desirability issues, therefore, may have affected overall results.

Alternative approaches. Alternative study designs and methods were considered to address the aims of this project. More specifically, recruiting participants from multiple sites throughout the country would have allowed for a more comprehensive analysis of multi-level site effects. Some authors (e.g., Kreft & de Leeuw, 1998) have recommended at least 30 sites from which to gather data to have adequate statistical power for multi-level modeling. However, given the size and scope of such a project, this undertaking would not be financially or practically feasible. The present investigation should be viewed as an incremental step towards a larger multi-site investigation. Future investigations should solicit absenteeism and alcohol use information from multiple workplace settings to examine the nested structure of the resulting data.

CHAPTER V

CONCLUSION

Consistent with research studies in the organizational, management, and clinical literatures, the present investigation found that alcohol consumption is predictive of workplace absenteeism on a day-to-day basis. More specifically, results indicated that those who engaged in any drinking the day before a scheduled workday were roughly 1.5 times more likely to be absent than on a day after no drinking, and those who engaged in heavy drinking 1 day before a scheduled workday were 1.7 times more likely to be absent the next day. Although this study established that a temporal association exists between alcohol use and workplace absenteeism, future investigations should attempt to more fully understand this relationship using a multi-site, multi-level framework that considers other factors that may contribute to workplace absenteeism.

REFERENCES

- Agresti, A., & Finlay, B. (1997). *Statistical methods for the social sciences*. Upper Saddle River, NJ: Prentice Hall.
- Allison, P. D., & Liker, J. K. (1982). Analyzing sequential categorical data on dyadic interaction: A comment on Gottman. *Psychological Bulletin*, *91*, 393-403.
- American Psychiatric Association. (1994). *Diagnostic and statistical manual of mental disorders* (4th ed.). Washington, DC: Author.
- Baba, V. V., & Harris, M. J. (1989). Stress and absence: A cross-cultural perspective. In K. Rowland, A. Nedd, & G. Ferris (Eds.), *Research in personnel and human resources management*. Greenwich, CT: JAI Press.
- Bakeman, R., Adamson, L. B., & Strisik, P. (1995). Lags and logs: Statistical approaches to interaction. In J. M. Gottman (Ed.), *The analysis of change* (pp. 279-308). Mahwah, NJ: Lawrence Erlbaum.
- Bass, A. R., Bharucha-Reid, R., Delaplane-Harris, K., & Schork, M. A. (1996). Employee drug use, demographic characteristics, work reactions, and absenteeism. *Journal of Occupational Health Psychology*, *8*, 55-62.
- Bassiri, D. (1988). *Large and small sample properties for maximum likelihood estimates for the hierarchical model*. Unpublished doctoral dissertation. Michigan State University, East Lansing.
- Beaumont, P. B., & Hyman, J. (1987). The work performance indicators of problem drinking: Some British evidence. *Journal of Occupational Behavior*, *8*, 55-62.
- Bensinger, P. B. (1985). Drugs in the workplace: A commentary. *Behavioral Sciences*

and the Law, 3, 441-453.

Brooke, P. P., Jr. (1986). Beyond the Steers and Rhodes model of employee attendance.

Academy of Management Review, 11, 345-361.

Brooke, P. P., Jr., & Price, J. L. (1989). The determinants of employee absenteeism: An

empirical test of a causal model. *Journal of Occupational Psychology, 62, 1-19.*

Bryk, A. S., & Raudenbush, S. W. (1992). *Hierarchical linear models*. Newbury Park,

CA: Sage.

Cascio, W. F. (1995). *Managing human resources: Productivity, quality of work life,*

profits (4th ed.). New York: McGraw-Hill.

Cohen, J. (1988). *Statistical power analysis for the social sciences* (2nd ed.). Hillsdale,

NJ: Lawrence Erlbaum.

Crouch, D. J., Webb, D. O., Peterson, L. V., Buller, P. F., & Rollins, D. E. (1989). A

critical evaluation of the Utah Power and Light Company's substance abuse

management program: Absenteeism, accidents and costs. *National Institute on*

Drug Abuse: Research Monograph Series, 91, 169-193.

Dalton, D. R., & Enz, C.A. (1988). New directions in the management of employee

absenteeism: Attention to policy and culture. In R. S. Schuler & S. A.

Youngblood (Eds.), *Readings in personnel and human resource management*. St.

Paul, MN: West.

Dash, R. K. (2000). Combating the impact of alcoholism and drug abuse on industrial

workers. *Social Science International, 16, 85-89.*

Dumas, J. E. (1986). Controlling for autocorrelation in social interaction analysis.

Psychological Bulletin, 100, 125-127.

- Fals-Stewart, W., O'Farrell, T. J., Freitas, T., McFarlin, S. K., & Rutigliano, P. (2000). The Timeline Followback interview for substance abuse: Psychometric properties. *Journal of Consulting and Clinical Psychology, 68*, 134-144.
- First, M., Spitzer, L., Gibbon, M., & Williams, J. (1995). *Structural clinical interview for Axis I DSM-IV disorders (SCID)*. Washington, DC: American Psychiatric Association.
- George, J. M. (1989). Mood and absence. *Journal of Applied Psychology, 81*, 474-482.
- Gerstein, D. R., & Grossman, E. (1989). Building a cumulative knowledge base about drugs in the workplace. In *Drugs in the workplace: Research and evaluation data, NIDA Research Monograph, 91*. U.S. Government Printing Office: Washington, DC.
- Goodman, P. S., & Garber, S. (1988). Absenteeism and accidents in a dangerous environment: Empirical analysis of underground coal mines. *Journal of Applied Psychology, 73*, 81-86.
- Gottman, J. M., & Ringland, J. T. (1981). The analysis of dominance and bidirectionality in social development. *Child development, 52*, 393-412.
- Harrison, D. A., & Martocchio, J. J. (1998). Time for absenteeism: A 20-year review of origins, offshoots, and outcomes. *Journal of Management, 24*, 303-351.
- Hollingshead, A. B. (1975). *Four factor index of social status*. Unpublished manuscript, Yale University, New Haven, Connecticut.
- Hsieh, F. Y. (1989). Sample size tables for logistic regression. *Statistics in Medicine, 8*, 795-802.
- Jobs, S., Fiedler, F., & Lewis, C. (1990). Impact of moderate alcohol consumption on

- business decision making. *National Institute on Drug Abuse: Research Monograph Series, 100*, 147-165.
- Johns, G., & Nicholson, N. (1982). The meanings of absence: New strategies for theory and research. In B. M. Staw & L. L. Cummings (Eds.), *Research in organizational behavior* (Vol. 4, pp. 127-172). Greenwich, CT: JAI Press.
- Jones, S., Casswell, S., & Zhang, J. (1995). The economic costs of alcohol-related absenteeism and reduced productivity among the working population of New Zealand. *Addiction, 90*, 1455-1461.
- Kreft, I., & de Leeuw, J. (1998). *Introducing multi-level modeling*. Thousand Oaks, CA: Sage.
- Landis, J. K., & Koch, G. G. (1977). The measurement of observer agreement for categorical data. *Biometrics, 33*, 159-174.
- Lehman, W. E. K., & Simpson, D. D. (1992). Employee substance abuse and on-the-job behaviors. *Journal of Applied Psychology, 77*, 309-321.
- Leonard, K. E., & Quigley, B. M. (1999). Drinking and marital aggression in newlyweds: An event-based analysis of drinking and the occurrence of husband marital aggression. *Journal of Studies on Alcohol, 60*, 537-545.
- Macdonald, S., & Roman, P. (Eds.). (1994). *Drug testing in the workplace: Research advances in alcohol and drug problems*. New York: Plenum Press.
- Mangione, T., Howland, J., Amick, B., Cote, J., Lee, M., Bell, N., & Levine, S. (1999). Employee drinking practices and work performance. *Journal of Studies on Alcohol, 60*, 261-270.
- Markham, S. E., & McKee, G. H. (1991). Declining organizational size and increasing

- unemployment rates: Predicting employee absenteeism from within- and between-plant perspectives. *Academy of Management Journal*, 34, 952-965.
- Markham, S. E. & McKee, G. H. (1995). Group absence behavior and standards: A multilevel analysis. *Academy of Management Journal*, 38, 1174-1190.
- Marmot, M. G., North, F., Feeney, A., & Head, J. (1993). Alcohol consumption and sickness absence: From the Whitehall II study. *Addiction*, 88, 369-382.
- Martin, J. K., Blum, T., and Roman, P. (1992). Drinking to cope and self-medication: Characteristics of jobs in relation to workers' drinking behavior. *Journal of Organizational Behavior*, 13, 55-71.
- Mathieu, J. E., & Kohler, S. S. (1990). A test of the interactive effects of organizational commitment and job involvement on various types of absence. *Journal of Vocational Behavior*, 36, 33-44.
- McFarlin, S. K., & Fals-Stewart, W. (in press). Workplace absenteeism and alcohol use: A sequential analysis. *Psychology of Addictive Behaviors*.
- McFarlin, S. K., Fals-Stewart, W., Major, D., & Justice, E. (2001). Alcohol use and workplace aggression: An examination of perpetration and victimization. *Journal of Substance Abuse*, 13, 303-321.
- McFarlin, S. K., Strobel, K. R., Fals-Stewart, W., & Storer, R. M. (2000). *Alcohol use and absenteeism: A day-to-day examination*. Poster presented at the 108th Annual Convention of the American Psychological Association, Washington, DC.
- Melamed, S., Ben-Avi, I., Luz, J., & Green, M. S. (1995). Objective and subjective work monotony: Effects of job satisfaction, psychological distress, and absenteeism in blue-collar workers. *Journal of Applied Psychology*, 80, 29-42.

- Mintcloud, B. (1991). Money-saving ideas for the profit-minded supervisor. *Supervision, 52*, 22-25.
- O'Farrell, T. J., & Langenbucher, J. (1988). Time-line drinking behavior interview. In M. Hersen & A. Bellack (Eds.), *Dictionary of Behavioral Assessment Techniques* (pp. 477-479). Elmsford, NY: Pergamon Press.
- Price, D. & Flax, R. (1982). Alcohol, task difficulty, and incentives in drill press operation. *Human Factors, 24*, 573-579.
- Raudenbush, S., Bryk, A., Cheong, Y. F., & Congdon, R. (2001). *HLM 5: Hierarchical Linear and Nonlinear Modeling*. Chicago, Ill: Scientific Software International.
- Raudenbush, S., Yang, M. L., & Yosef, M. (in press). Maximum likelihood for hierarchical linear models via higher-order, multivariate Laplace approximation. *Journal of Computational and Graphical Statistics*.
- Rhodes, S. R., & Steers, R. M. (1990). *Managing employee absenteeism*. Reading, MA: Addison-Wesley.
- Roman, P. M. (1990). *Alcohol problem prevention in the workplace: Employee assistance programs and strategic alternatives*. Quorum: New York.
- Schweitzer, M. E., & Kerr, J. L. (2000). Bargaining under the influence: The role of alcohol in negotiations. *Academy of Management Executive, 14*, 47-57
- Scanlon, W. (1982). *Alcoholism and drug abuse in the workplace*. New York: Praeger.
- Shain, M. (1994). Alternatives to drug testing: Employee assistance and health promotion programs. In S. MacDonald and P. Roman (Eds.), *Drug testing in the workplace: Research advances in alcohol and drug problems* (pp. 257-277). Plenum Press: New York.

- Smither, R. D. (1998). *The psychology of work and human performance* (3rd ed). New York: Addison Wesley Longman, Inc.
- Snijders, T., & Bosker, R. (1999). *Multilevel analysis: An introduction to basic and advanced multilevel modeling*. Thousand Oaks, CA: Sage Publications.
- Sobell, L.C., & Sobell, M. B. (1996). *Timeline Followback user's guide: A calendar method for assessing alcohol and drug use*. Toronto, Canada: Addiction Research Foundation.
- Spak, F., Hensing, G., & Allebeck, P. (1998). Sick-leave in women with alcohol dependence or abuse: Effects of additional psychiatric disorders. *Social Psychiatry & Psychiatric Epidemiology*, *33*, 613-619.
- Steel, P. P., & Rentsch, J. R. (1995). Influence of cumulation strategies on the long-range prediction of absenteeism. *Academy of Management Journal*, *38*, 1616-1634.
- Steers, R. M., & Rhodes, S. R. (1978). Major influences on employee attendance: A process model. *Journal of Applied Psychology*, *63*, 391-407.
- Streufert, S., Pogash, R. Gingrich, D., Kanter, A., Lonardi, L., Severas, W., Landis, R., & Roache, J. (1993). Alcohol and complex functioning. *Journal of Applied Psychology*, *23*, 847-866.
- Unscheduled absence costs up. (1993, June). *HR Magazine*, p. 22.
- Upmark, M., Moeller, J., & Romelsjoe, A. (1999). Longitudinal, population-based study of self-reported alcohol habits, high levels of sickness absence, and disability pensions. *Journal of Epidemiology & Community Health*, *53*, 223-229.
- Webb, G. R., Redman, S., Hennrickus, D. J., Kelman, G. R., Gibberd, R. W., & Sanson-Fisher, R. W. (1994). The relationships between high-risk and problem drinking

and the occurrence of work injuries and related absences. *Journal of Studies on Alcohol*, 55, 434-446.

Weiss, R. M. (1987). Writing under the influence: Science versus fiction in the analysis of corporate alcoholism programs. *Personnel Psychology*, 40, 341-356.

Wickens, T. D. (1989). *Multiway contingency table analysis for the social sciences*. Hillsdale, NJ: Lawrence Erlbaum.

Wickens, T. D. (1993). Analysis of contingency tables with between subjects variability. *Psychological Bulletin*, 113, 191-204.

APPENDIX A
POWER FORMULA

$$n = \{ [z_{1-\alpha/s} + z_{1-\beta} \exp(-\beta^2/4)]^2 / p_M \beta^2 \} * (1 + 2p_M \Delta)$$

where

$$\Delta = [1 + (1 + \beta^2) \exp(5 \beta^2 / 4)] / 1 + \exp(-\beta^2 / 4)$$

n = sample size
 z = distribution
 α = alpha level
 s = number of predictors in model
 β = probability of Type II error
 p_M = probability

APPENDIX B

TIMELINE FOLLOWBACK INTERVIEW FOR EMPLOYEE PARTICIPANT

TIMELINE FOLLOWBACK INTERVIEW (EMPLOYEE) ID: _____

I am now going to ask you to think back over the last two weeks leading up to today (*modify as necessary*). As you may remember, I told you I would be asking you about your alcohol and other drug use during the this period. [*SHOW CALENDAR*].

The questions I ask will cover the period from: _____(mm)_____(dd)_____(yy),

through : _____(mm)_____(dd)_____(yy)

[*MARK period on Calendar*].

NOTE: Throughout this section, remind respondent verbally and indicate the period of interest on the Calendar when appropriate or needed.

To help you remember days of drinking and other drug use, as well as other important events, the dates of some standard holidays are on the calendar.

INTERVIEWER: Point out those, if any, in the 2-week time window with the interviewee.

We will also mark days that were important for you such as starting or losing a job, and important events with family and friends that will help you remember your drinking and/or drug use at that time.

INTERVIEWER: *Anniversaries, births, marriages and deaths, and the dates of other important life events also need to be marked on the calendar.*

Can you tell me the times of day you worked for each period on the calendar?

INTERVIEWER: *Write down the time of day person worked on each day of the work week along the bottom of the calendar. If there are days when the person worked different hours or was absent, write that down along the bottom of the calendar.*

Can you tell me the days on which you consumed **no** alcohol or other drugs?

INTERVIEWER: *On the days pointed to by the respondent for the above question, mark the calendar box with a large 'S' across the top half of the box. Probe respondent by asking if he or she is sure that the days marked as no alcohol or drug use occurring are correct.*

Let's take a look at the days in the time period where there are no Ss. What I would like to do is go in order from the date of our first interview to today (*point to dates on calendar*) and, taking this first day, find out about your drinking during this period.

INTERVIEWER: On each day of drinking, find out the number of standard drinks consumed and the time of day alcohol use began and ended. If the number of standard drinks meets criteria for 'heavy' drinking (i.e., 6 or more standard drinks for males or 4 or more standard drinks for females), mark a '2' in the upper left quadrant of the calendar box, along with a time stamp. For days of drinking that are not considered heavy, mark a '1' in the upper left quadrant of the calendar, along with the time stamp. If no drinking occurred on that day, but only drug use, mark a '0' in the upper left quadrant of the calendar.

Now let's take a look at the days in the period where there are no Ss and find out if you used any drugs other than alcohol during that period. Let us proceed in the same order as we did with drinking.

INTERVIEWER: On each day of drug use, determine what type of drug was used. Mark drug use in the upper right quadrant of the calendar box, along with the time when the drug use started and when it ended. Use the following codes for the different drugs: 1 = Cannabis, 2 = Cocaine, 3 = Heroin, 4 = Sedative-hypnotics, 5 = Methamphetamines, 6 = Amphetamines, 7 = Other, 8 = Prescribed Medication. After completion of this, schedule next interview unless this is the last scheduled interview.

EMPLOYEE TLFB DAILY RECORD SHEET

ID: _____

DATE: __/__/__

On this date, the participant referenced by the ID number above:

1. Was this a scheduled workday for this participant?
 1. Yes
 2. No

1. Drinking behavior:
 - S. No drinking
 1. Nonheavy drinking
 2. Heavy drinking

2. Based on the time of drinking recorded on the calendar, drinking occurred:
 1. During a period when the participant was working
 2. Not when the participant was working

3. Drug use behavior:
 1. Cannabis
 2. Cocaine
 3. Heroin
 4. Sedative Hypnotics
 5. Methamphetamines
 6. Amphetamines
 7. Other
 8. Prescribed Medication

4. Based on the time of drug use recorded on the calendar, drug use occurred:
 1. During a period when the participant was working
 2. Not when the participant was working

5. Was the participant absent during this day (as noted in HR record)?
 1. Absent
 2. Not absent
 3. Not scheduled to work

6. Was the participant injured on this day while on job (as noted in HR record)?
 1. Participant was injured while on the job
 2. Participant was not injured while on the job

APRIL 2001

SUN	MON	TUES	WED	THURS	FRI	SAT
1	2	3	4	5	6 <i>Payday</i>	7
8	9	10	11	12	13 <i>Good Friday</i>	14
15 <i>Easter</i>	16	17	18	19	20 <i>Payday</i>	21
22	23	24	25	26	27	28
29	30	<i>Work Schedule:</i>				

May 2001

SUN	MON	TUES	WED	THURS	FRI	SAT
		1	2	3	4 <i>Payday</i>	5
6	7	8	9	10	11	12
13 <i>Mother's Day</i>	14	15	16	17	18 <i>Payday</i>	19
20	21	22	23	24	25	26
27	28 <i>Memorial Day</i>	29	30	31	<i>Work Schedule:</i>	

APPENDIX C

STRUCTURED CLINICAL INTERVIEW FOR DSM-IV

SCID: ALC:ALCOHOL USE DISORDERS

SCORING:

7 = inadequate information 0 = absent or false 1 = subthreshold 2 = threshold or true

QUESTIONS/PROBES		ALCOHOL DEPENDENCE CRITERIA	SCORING
I'd now like to ask you some questions about your drinking habits over the last 6 months.		A maladaptive pattern of alcohol use, leading to clinically significant impairment or distress, as manifested by 3 (or more) of the following at any time in the same 12 month period: NOTE: Criteria for alcohol dependence are not in DSM-IV order.	
2.	Have you often found that when you started drinking you ended up drinking much more than you were planning to do? IF NO: What about drinking for a much longer period of time than you were planning to?	(3) Alcohol is often taken in larger amounts OR over a longer period than was intended.	7 0 1 2
3.	Have you tried to cut down or stop drinking alcohol? IF YES: Did you ever actually stop drinking altogether? (How many times did you try to cut down or stop altogether?) IF NO: Did you want to stop or cut down? (Is this something you kept worrying about?)	(4) There is a persistent desire OR unsuccessful efforts to cut down or control substance use.	7 0 1 2
4.	Have you spent a lot of time drinking, being high, or hung over?	(5) A great deal of time is spent in activities necessary to obtain alcohol, use alcohol, or recover from its effects.	7 0 1 2
5.	Have you had times when you would drink so often that you started to drink instead of working or spending time with your family or friends or engaging in other important activities such as sports, gardening, or playing music?	(6) Important social, occupational, or recreational activities given up or reduced because of alcohol use.	7 0 1 2

6.	<p>IF NOT ALREADY KNOWN: Has your drinking ever caused any psychological problems like making you depressed or anxious, making it difficult to sleep, or causing "blackouts?"</p> <p>IF NOT ALREADY KNOWN: Has your drinking ever caused significant physical problems or made a physical problem worse?</p> <p>IF YES TO EITHER OF ABOVE: Did you keep on drinking anyway?</p>	<p>(7) Alcohol use is continued despite knowledge of having a persistent or recurrent physical or psychological problem that is likely to have been caused or exacerbated by alcohol (e.g., continued drinking despite recognition that an ulcer was made worse by alcohol consumption.)</p>	7 0 1 2
7.	<p>Have you found that you needed to drink a lot more in order to get the feeling you wanted than you did when you first started drinking?</p> <p>IF YES: How much more?</p> <p>IF NO: What about finding that when you drank the same amount, it had much less effect than before?</p>	<p>(1) Tolerance, as defined by either of the following:</p> <p>(a) a need for markedly increased amounts of alcohol to achieve intoxication or desired effect.</p> <p>(b) markedly diminished effect with continued use of the same amount of alcohol.</p>	7 0 1 2
8.	<p>Have you ever had any withdrawal symptoms when you cut down or stopped drinking like...</p> <p>... sweating or racing heart?</p> <p>... hand shakes?</p> <p>... trouble sleeping?</p> <p>... feeling nauseated or vomiting?</p> <p>... feeling agitated?</p> <p>... or feeling anxious?</p> <p>(How about having a seizure or seeing, feeling, or hearing things that weren't really there?)</p> <p>IF NO: Have you ever started the day with a drink, or did you often drink or take some other drug or medication to keep yourself from getting the shakes or becoming sick?</p>	<p>(2) Withdrawal, as manifested by either (a) or (b):</p> <p>(a) at least TWO of the following:</p> <ul style="list-style-type: none"> - autonomic hyperactivity (e.g., sweating or pulse rate greater than 100) - increased hand tremor - insomnia - nausea or vomiting - psychomotor agitation - anxiety - grand mal seizures - transient visual, tactile or auditory hallucinations or illusions. <p>(b) Alcohol (or a substance from the sedative/hypnotic/anxiolytic class) taken to relieve or avoid withdrawal symptoms.</p>	7 0 1 2

APPENDIX D

HOLLINGSHEAD CLASSIFICATION SCALE

What is your current job title or position (what kind of work do you do now)?
 (CODE: use Hollingshead scale 1975.)

_____ Hollingshead: _____ (code)

- 09. *Higher executives, proprietors of large businesses, and major professionals*
- 08. *Administrators, lesser professionals, proprietors of medium sized businesses*
- 07. *Smaller business owners, farm owners, managers, minor professionals*
- 06. *Technicians, semiprofessionals, small business owners*
- 05. *Clerical and sales workers, small farm and business owners*
- 04. *Smaller business owners, skilled manual workers, craftsmen, tenant farmers*
- 03. *Machine operators and semi-skilled workers*
- 02. *Unskilled workers*
- 01. *Farm laborers, menial service workers*

APPENDIX E
SOCIODEMOGRAPHIC QUESTIONNAIRE

ID#: _____

1. Age: _____
2. Sex: Male _____ Female _____
3. What is your race/ethnicity? _____
4. How many years of education do you have? _____
5. For how long have you worked at your present workplace setting?
Years _____ Months _____ Days _____
6. What is your income? _____

APPENDIX F

APPROACH SCRIPT TO RECRUIT RANDOMLY SELECTED EMPLOYEE FOR INCLUSION IN THE STUDY

*Hello, Mr./Ms. _____, my name is
(name of potential participating employee)
_____ and I am a research assistant working on a
(name of research assistant)
research study looking at the drinking and drug using behavior of workers here and in
other organizations. With permission of your human resources department, we have
been given a listing of all of the employees in the plant and you were randomly selected
to possibly be in the study. However, your participation in the study is completely
voluntary and I am only here at this point to see if you might be interested in
participating and providing you more information. You don't have to feel obligated to
hear any more about the study and if you decided not to participate in the study, it will
not affect your work in any way and I will not approach you about participation any
further. However, I would like to give you a more complete description of the study if
you are interested in hearing about it. If you are willing, I would like to take you to
_____ to provide an overview of the study and what it requires
(location of interview room)
from you in order for you to participate.*

**[If approached employee declines participation, thank him/her for his/her time. If
approached employee expresses an interest in hearing more about the study, take
him/her to the designated interview room; allow him/her to make arrangements for
use of substitute employee (i.e., a "floater") to take his/her place if necessary.]**

APPENDIX G

DESCRIPTION OF THE STUDY AND REVIEW OF INFORMED CONSENT DOCUMENT

Mr./Ms. _____, thank you for coming back and talking to me further about this study and your possible participation. With your permission, I have a form that I would like to review with you that provides an overview of the study.

[At this point, provide a copy of the informed consent document to the potential participant and read the document aloud, stopping at the end of each section to solicit questions and to query interviewee if he/she has understood the section just read (e.g., ask “Do you understand this section and do you have any questions about this or other parts of the document we have reviewed so far?”)]

[After the document has been read completely, query the potential participant about any questions about the study. At this point, reiterate the parts of the document that note that participation is completely voluntary, that it will not influence in any way his/her employment or activities in the organization, and that if he/she wishes to review the document further, he/she can do so, but must make a decision about participation by a designated time (i.e., 2 hours after the plant closes) or it will be assumed that he/she will not participate.]

[If the employee agrees to participate, state the following:]

*In order to participate in the study, I will need to ask you to sign this form, which I will also be signing. By signing this form, you are agreeing to participate in the study. Furthermore, I will be asking _____ to come in and witness our
(name of RA witness)
signatures. Once everyone signs the form, I will give you a photocopy for your records, which I encourage you to retain. As we discussed, there are some important telephone numbers that you may need during the course of the study or after you have completed the study.*

**[Have potential participant sign informed consent document while being witnessed by _____, then you sign it, followed by the witness.]
(name of RA witness)**

[Go to the next phase.]

[If the employee does not agree to participate, state the following:]

I want to thank you for your willingness to come in here and taking time from your busy day to hear about the study. Have a nice day.

[If the employee wishes not to commit, but wants to consider his/her participation further, state the following:]

It is perfectly understandable that you would want to think about this. Unfortunately, because of the time-sensitive nature of this study, I will need to know by the end of the day if you want to participate. I will be here for the rest of the day and for a few hours after the plant closes, approximately x:00 pm, to answer questions and to discuss any concerns you may have. However, if I don't hear from you by x:00 [same time noted a moment ago], I will assume you don't want to participate and, as we discussed, that is no problem at all. So, please, let me know if you have any questions about this study and I will be glad to answer them. Have a nice day.

APPENDIX H

INFORMED CONSENT DOCUMENT FOR EMPLOYEE PARTICIPANT

Informed Consent Document

for

The Alpha Foundation

1. **INTRODUCTORY STATEMENT**

It is a principle of medical ethics that the human subjects of a research protocol be informed of the purposes, risks, and benefits of any project in which they participate; the research methods to be used; the potential risks and hazards of participation and the right to ask for further information at any time during the research procedure. You have a right to know whether medical treatment or compensation is available to you for physical or psychological injuries as a result of your participation in the project. Your choice to participate in the study is a voluntary one, and even if you decide to participate in the study, you are free to withdraw from the research project at any time. Deciding not to participate or withdrawing from participation at a later time will not affect your relationship with the Alpha Foundation or your employer, or otherwise cause a loss of benefits to you which you might otherwise be entitled. Your signature at the end of this document will indicate that the Principal Investigator, or his agent, has answered all of your questions about the research project and that you voluntarily consent to participate in the investigation.

2. **INVESTIGATOR CONDUCTING THE STUDY**

William Fals-Stewart, Ph.D.
Research Scientist
The Alpha Foundation

3. **TITLE OF PROJECT**

Alcohol Use and Negative Workplace Behavior

4. **PURPOSE OF STUDY AND DESCRIPTION OF PROJECT**

Several studies conducted over the last 20 years have examined how drinking alcohol or use of other drugs might be related to work-related events or behaviors, such as injury on the job, absences from work, the occurrence of workplace violence, employee performance ratings, raises and salary, promotions, and so forth. One of the problems with the studies that have been done up to now is that there has been no examination of how day-to-day patterns of alcohol use or drug use may be related to injury on the job, absences from work, etc.

The purpose of the present study is to examine how day-to-day patterns of drinking alcohol and using other drugs might influence different kinds of work-related outcomes as described above. If you decide to participate, we will conduct three interviews with you over the next 4-5 weeks. A description of what you will be asked in these interviews is provided on the next page.

Interview 1. During the first interview, which we will conduct today if you agree to participate, we will gather some background information from you. You will be asked questions about your age, education, sex, race/ethnicity, yearly income, your marital status, and years you have worked for this company. You will also be asked questions about problems you may have had as a result of your drinking over the last 6 months. The research assistant conducting this interview is not qualified and is not able to provide any type of diagnosis or summary statement about whether you have a problem with alcohol or other drugs.

You will be requested to provide the name, address, and telephone number of a person who is likely to be familiar with your daily drinking and drug use patterns. With your permission only, a research assistant for the project will be contacting this person and asking them questions about your daily drinking and drug use. If you cannot identify such a person or wish not to do so, you can still participate in the study. You will be provided the letter we will be sending the person requesting his or her participation and the questions the research assistant will ask him or her. You will not receive any compensation for this interview.

Interview 2. During the second interview, which will be scheduled for two weeks from today, you will be shown part of a calendar and asked by a research assistant for the project to identify the specific days on which you drank alcohol and will be asked how many alcohol-containing drinks you had on the days during the previous two weeks when you drank. You will also be asked to identify days during the two-week period when you used drugs other than alcohol. The research assistant will mark the calendar using special codes to identify days when you drank alcohol, how much alcohol you drank, and days when you used drugs. You will be paid \$25 for completion of this interview.

Interview 3. During the third and final interview, which will be scheduled for four weeks from today, you will be once again shown part of a calendar and asked by a research assistant from the project to identify the specific days on which you drank alcohol and will be asked how many alcohol-containing drinks you had on the days during the previous two weeks when you drank. You will also be asked to identify days during the two-week period when you used drugs other than alcohol. The research assistant will mark the calendar using special codes to identify days when you drank alcohol, how much alcohol you drank, and days when you used drugs. You will receive \$25 for completion of this interview.

During the last interview, you will also be asked to provide further information and sign an additional informed consent document to allow us to review your personnel record held in your Human Resources department for additional information. However, if you decide not to allow us to view your personnel record but do complete the other parts of the third interview, you will still receive full compensation (i.e., \$25.00) for participating in the third interview. If you decide to participate, your participation will last for roughly 5 weeks and all interviews with you will be conducted in this facility. Approximately 330 employees from this organization and in two other independent organizations, as well as 330 other individuals, will be participating in this study.

5. DISCOMFORTS AND RISKS

If you decide to participate in this study, then you face certain risks. You may conclude that, during the course of the interviews conducted as part of the study, you have a problem with alcohol or other drugs. Relatedly, you may conclude that drinking alcohol or use of other drugs has caused you problems at work and in other parts of your life. You may find it uncomfortable to disclose information about your daily patterns of alcohol or other drug use to a research assistant. If you provide us the name of a person familiar with your daily drinking and drug use, you may find it uncomfortable for that person to be talking about you to a research assistant. You may also have some discomfort in describing information about your background (e.g., age, education, race/ethnicity). The investigator has tried to reduce these risks by providing the names and contact information for the Employee Assistance Program (EAP) for this company, who are available to discuss these discomforts.

There is also a risk that there will be an inadvertent breach in the confidentiality of the project and the information you provide will be obtained by individuals not conducting this research study. In turn, others viewing the information that has been collected might use it against you in your job or in other aspects of your life. The researchers attempted to reduce this risk by treating the information you provide in strict confidence to the extent of the law. Your identity will be coded, using a unique code number assigned to you, and information you provide will be linked only to that code number and not to your name or other identifier (e.g., social security number). The code number will be linked to your identifying information by a "computer-key" or encryption code, which will be retained by the Principal Investigator who will not provide the encryption code to parties not involved in the study except as required by law. The computer-key and the information contained about you from the interviews will be kept in separate facilities, with the interview information stored in a room in a secure facility behind a combination and key-locked office and stored in locked filing cabinets.

As with any research, there is some possibility that you will be subject to risks that have not yet been identified.

6. EXCLUSIONS

If you are not employed at this site or you do not foresee being able to participate during the next five weeks due to vacations, a planned job change, or other similar circumstance, you should not participate in this study.

7. BENEFITS

There are no foreseeable benefits to you for participating in this study.

8. PAYMENT FOR PARTICIPATION IN THE STUDY

The researchers want your decision about participating in this study to be absolutely voluntary. Yet, it is recognized that your participation does pose some costs, in terms of convenience and time from your regularly scheduled work. You will be paid for participation in the study as follows:

- a. You will not receive any payment for participation in this first interview.
- b. You will receive a cash payment of \$25 for participation in and completion of the second interview **if** it is completed within 5 working days of when it is scheduled. If the interview is not completed within 5 working days of when the interview is scheduled, a third interview will not be scheduled and no payment will be given for the second interview and, because a third interview is not scheduled, no payment can be provided for participation in or completion of the third interview.
- c. You will receive an additional cash payment of \$25 for participation in and completion of the third interview **if** it is completed within 5 working days of when it is scheduled. If the interview is not completed within 5 working days of when the interview is scheduled, the third interview will not be conducted and no payment for this interview will be provided.

9. NEW FINDINGS

If the researcher or his agent finds new information that would reasonably change your decision about participating, then they will give it to you. You will also have the opportunity to be told of any new significant findings developed during or after the course of the study.

10. REIMBURSEMENT FOR MEDICAL TREATMENT

Routinely, the Alpha Foundation, its agents, or employees do not compensate for or provide free medical care to human subjects in the event that any injury results from participation in a human subjects protocol. In the unlikely event that you become ill or injured as a direct result of participating in this study, you understand that you may receive medical care, but it will not be free of charge even if the injury is the direct result of your participation. Furthermore, if you agree to participate in this study, your consent does not waive any of your legal rights.

11. CONFIDENTIALITY

Information related to you, including information provided during the interviews, will be treated in strict confidence to the extent provided by law. Your identity will be encrypted and will not be associated with any published results. Your code number and identity will be kept in a locked file of the Principal Investigator. The researcher will remove any personal identifiers from coded interviews prior to storage in locked filing cabinets. Although unlikely, your records may be subpoenaed by court order or inspected by government bodies with oversight authority.

12. FREEDOM TO WITHDRAW

Your participation in this study is completely voluntary; you can say NO to participation. However, even if you agree to participate now, you can withdraw from the study at any time. Furthermore, you can withdraw from the study without prejudice. You can withdraw from the study without a loss of benefits to which you might otherwise be entitled. The researcher or his agent also reserves the right to withdraw your participation in the study, at any time, if he or she observes potential problems with your continued involvement in the study or if you fail to follow necessary and outlined procedures.

You also have the right to withdraw your permission at any time to allow us to talk to the person you identify as having knowledge about your daily alcohol and drug use. If you do so, that person will not be contacted anymore to discuss your alcohol or drug use.

13. VOLUNTARY CONSENT

By signing this form, you are saying that you have read and understand this consent form, and that you are willing to participate in the study. The researcher or his agent should have answered any questions you may have had about the project. If you have questions later on, then the researcher should be able to answer them:

Investigator: Dr. William Fals-Stewart
(716) 887-2210

If at any time you believe you were pressured to participate in this study, or remain as a participant in this study, or if you have any questions or concerns about your rights or this form, please call Dr. John Lee at (315) 210-6080, Institutional Review Board Chair, the Alpha Foundation.

By signing the form below, you are telling the researcher that you agree to participate in the study. The researcher or agent should give you a copy of this form for your records:

Subject's Name (print) Subject's Consent (sign) Date

Witness' Name (print) Witness' Name (sign) Date

INVESTIGATOR'S or AGENT'S STATEMENT

I have explained the purpose of the study to the volunteer subject. To the best of my knowledge, he/she understands the purpose, procedures, risks, and benefits of this study.

Principal Investigator's or
Agent's Name (PRINT) Principal Investigator's or
Agent's Name (SIGNATURE) Date

APPENDIX I

LETTER TO COLLATERAL FROM EMPLOYEE PARTICIPANT

Name of Collateral Informant
 Street Address
 City, State, Zip Code
 (xxx) xxx-xxxx

Dear (*Name of Collateral Informant*):

I have given permission to (*name of research assistant who will be making the telephone contact*) of the Alpha Foundation to contact you by telephone to ask you questions about my daily patterns of alcohol and drug use over the next 4-5 weeks. It is my understanding that Dr. William Fals-Stewart of the Alpha Foundation is the Principal Investigator of this project and if you have questions about the study or your involvement, you can call him at (716) 887-2210. You can also contact (*name of research assistant who will be making the telephone contact*) at (315) 210-6081 for more information about the project.

It is my understanding from (*name of research assistant who will be making the telephone contact*) that your participation in the project is completely voluntary and that you can refuse to participate or stop participating at any time during the course of the study. In addition, your participation does not affect my participation in the project. I have reviewed the other materials that are enclosed in this mailing, including a) a cover letter describing the study, b) an Informed Consent Document, and c) calendars for the months of April and May of 2001, the use of which will be discussed when you are contacted by (*name of research assistant who will be making the telephone contact*).

With this letter, (*name of research assistant who will be making the telephone contact*) has enclosed a letter describing the project and an Informed Consent Document for your review and signature, if you so choose to participate.

Respectfully,

(Print Name of Participating Employee)

(Signature of Participating Employee)

APPENDIX J

EXPLANATORY COVER LETTER TO COLLATERAL
FROM RESEARCH ASSISTANT

Name of Collateral Informant
 Street Address
 City, State, Zip Code
 (xxx) xxx-xxxx

__/__/__

Dear (Name of Collateral Informant):

My name is (*provide name*) and I am a research assistant with the Alpha Foundation and I am working with Dr. William Fals-Stewart, also of the Alpha Foundation and the Principal Investigator on this project. We are involved in a study examining how use of alcohol or other drugs might be related to other work-related events or behaviors, such as injury on the job, absences from work, the occurrence of workplace violence, employee performance ratings, raises and salary, promotions, and so forth. One of the problems with the studies that have been done up to now is that there has been no examination of how day-to-day patterns of alcohol use or drug use may be related to injury on the job, absences from work, etc.

The purpose of the present study is to examine how day-to-day patterns of drinking alcohol and using other drugs might influence different kinds of work-related outcomes as described above. I have interviewed (*name of employee*) who has agreed to participate in the study and identified you as someone who would have knowledge of his/her daily patterns of alcohol and other drug use. I have enclosed a letter from (*name of employee*) who has given me permission to contact you about this study. If you agree to participate, I would be asking you about day-to-day drinking patterns, as well as day-to-day use of other drugs, by (*name of employee*), over a 1-month period. More specifically, I would schedule a telephone interview with you for (date of interview 2 weeks hence) and ask you about (*name of employee 's*) day-to-day use of alcohol and other drugs. If that interview is completed within 5 working days of when it is scheduled, I will pay you \$25.00 for your participation. After that interview is complete, I would schedule another interview with you for (date of interview 4 weeks hence) to once again ask about (*name of employee 's*) day-to-day use of alcohol and other drugs. Again, if that interview is completed within 5 working days of when it is scheduled, I will once again pay you \$25.00 for your participation. I will not pay you for your participation today. I also may find that I cannot use the information you provide or that you cannot provide the information I am looking for; in that case, I will not request any further participation from you in the study.

This telephone call is to request your assistance in gathering this information. There is, of course, no penalty to you or (*name of employee*) should you decide not to participate or to later withdraw from the study. If you agree to participate in the study, please sign and date the form I have provided in this mailing and send it back to me in the envelope I have provided. I will also provide further instructions and ask some preliminary questions today. If you are willing to participate in the study, you can answer the questions I have today and that will be considered permission to use the information provided for the study. If I don't receive the signed document back from you before the next scheduled interview, I will assume you have decided not to participate in the study any further and you will not be re-contacted.

In addition, I want to also point out that your participation is linked to that of (*name of employee*). If (*name of employee*) withdraws from the study or is not allowed for other reasons to continue to participate, you also will not be able to participate. In addition, (*name of employee*) also has the option of letting me know that he or she does not want me to contact you at any point during the study, in which case I will not be in touch and you no longer can participate. However, if you decide not to participate or later withdraw from the study, (*name of employee*) can continue to participate if he or she so chooses.

Please be assured that your responses will be kept absolutely confidential. All of the information you provide will be recorded on a coded form and will be retained in a locked filing cabinet. None of the interview forms I have will have any identifiers, such as names or social security numbers, on them that will link them to you or to (*name of employee*). The code numbers that are assigned to the information you provide will be "computer-keyed" such that the link between the code and your name and that of (*employee name's*) will be encrypted and retained by Dr. Fals-Stewart, who will be the only person who will have a decoder. As I noted in my earlier correspondence, all efforts will be made to keep the information you provide confidential to the extent provided by law.

If you have any questions about this research project, please contact Dr. William Fals-Stewart at (716) 887-2210. If you have any questions or concerns about your rights as a research participant in this study, please call Dr. John Lee, the Institutional Review Board Chair for the Alpha Foundation, at (315) 210-6080. If at any point in the study you want to talk to me, please call me at (315) 210-6081.

Respectfully,

Name of RA
Research Assistant

____/____/____
Date

APPENDIX K**INFORMED CONSENT DOCUMENT FOR COLLATERAL PARTICIPANT**

Informed Consent Document

for

The Alpha Foundation

1. INTRODUCTORY STATEMENT

It is a principle of medical ethics that the human subjects of a research protocol be informed of the purpose, risks, and benefits of any project in which they participate; the research methods to be used; the potential risks and hazards of participation and the right to ask for further information at any time during the research procedure. You have a right to know whether medical treatment or compensation is available to you for physical or psychological injuries as a result of your participation in the project. Your choice to participate in the study is a voluntary one, and even if you decide to participate in the study, you are free to withdraw from the research project at any time. Deciding not to participate or withdrawing from participation at a later time will not affect your relationship with the Alpha Foundation, or otherwise cause a loss of benefits to you, which you might otherwise be entitled. Your signature at the end of this document will indicate that the Principal Investigator, or his agent, has answered all of your questions about the research project and that you voluntarily consent to participate in the investigation.

2. INVESTIGATOR CONDUCTING THE STUDY

William Fals-Stewart, Ph.D.
Research Scientist
The Alpha Foundation

3. TITLE OF PROJECT

Alcohol Use and Negative Workplace Behavior

4. PURPOSE OF STUDY AND DESCRIPTION OF PROJECT

Several studies conducted over the last 20 years have examined how drinking alcohol or use of other drugs might be related to work-related events or behaviors, such as injury on the job, absences from work, the occurrence of workplace violence, employee performance ratings, raises and salary, promotions, and so forth. One of the problems with the studies that have been done up to now is that there has been no examination of how day-to-day patterns of alcohol use or drug use may be related to injury on the job, absences from work, etc.

The purpose of the present study is to examine how day-to-day patterns of drinking alcohol and using other drugs might influence different kinds of work-related

outcomes as described above. If you decide to participate, we will conduct three telephone interviews with you over the next 4-5 weeks asking you about the daily drinking and drug using behavior of (*name of employee*). A description of what you will be asked in these interviews is provided on the next page.

Interview 1. During the first interview, which we will conduct today if you agree to participate, we will review and answer any and all questions you have about the letter that was sent to you about the study in the postal mail, this informed consent document, and the form signed by (*name of employee*) in which he/she gave us permission to seek your participation in the study. You will also be given an overview of the use of the calendar sheets that were enclosed in your mailing. Finally, you will be asked a question about your knowledge of (*name of employee's*) alcohol and drug use.

Interview 2. During the second interview, which will be scheduled for roughly two weeks from the day you are contacted by telephone, you will be asked by a research assistant for the project to identify the specific days on which (*name of employee*) drank alcohol and will be asked how many alcohol-containing drinks he/she had on the days during the previous two weeks when he/she drank. You will also be asked to identify days during the two-week period when (*name of employee*) used drugs other than alcohol. The research assistant will mark a calendar identical to the one sent to you using special codes to identify days when (*name of employee*) drank alcohol, how much alcohol he/she drank, and days when he/she used drugs. You will be paid \$25 for completion of this interview.

Interview 3. During the third and final interview, which will be scheduled for roughly four weeks from today, you will be asked by a research assistant for the project to identify the specific days on which (*name of employee*) drank alcohol and will be asked how many alcohol-containing drinks he/she had on the days during the previous two weeks when he/she drank. You will also be asked to identify days during the two-week period when (*name of employee*) used drugs other than alcohol. The research assistant will mark the calendar using special codes to identify days when he/she drank alcohol, how much alcohol he/she drank, and days when he/she used drugs. You will receive \$25 for completion of this interview.

If you decide to participate, your participation will last for roughly 5 weeks and all interviews with you will be conducted over the telephone. Approximately 660 individuals will be participating in this study.

5. DISCOMFORTS AND RISKS

If you decide to participate in this study, then you face certain risks. You may conclude that, during the course of the interviews conducted as part of the study, that (*name of employee*) has a problem with alcohol or other drugs. You may find it uncomfortable to disclose information about (*name of employee's*) daily patterns of alcohol or other drug use to a research assistant. The investigators have tried to reduce

this risk by offering to provide, upon request, the names and contact information of local therapists who are available to discuss these discomforts. To be clear, these therapists are not affiliated with the project in any way and you would be required to pay any negotiated fees associated with seeing these therapists.

There is also a risk that there will be an inadvertent breach in the confidentiality of the project and, in turn, the information you provide will be obtained by individuals not conducting this research study. In turn, others viewing the information that has been collected might use it against you or (*name of employee*) in different parts of your respective lives. The researchers attempt to reduce this risk by treating the information you provide in strict confidence to the extent of the law. Your identity will be coded, using a unique code number assigned to you, and information you provide will be linked only to that code number and not to your name or other identifier (e.g., social security number). The code number will be linked to your identifying information by a “computer-key” or encryption code, which will be retained by the Principal Investigator who will not provide the encryption code to parties not involved in the study except as required by law. The computer-key and the information contained about you from the interviews will be kept in separate facilities, with the interview information stored in a room in a secure facility behind a combination and key-locked office and stored in locked filing cabinets.

As with any research, there is some possibility that you will be subject to risks that have not yet been identified.

6. EXCLUSIONS

If you do not have enough familiarity with (*name of employee 's*) daily alcohol and drug use patterns, you cannot participate in this study. Additionally, if (*name of employee*) decides that he/she does not wish for the researcher or his agent to contact you at any point during the course of the study, you will not be able continue participating in the study from that point forth. If (*name of employee*) drops out of the study at any point, I also can no longer contact you and you will, from that point forth, be removed from the study.

7. BENEFITS

There are no foreseeable benefits to you for participating in this study.

8. PAYMENT FOR PARTICIPATION IN THE STUDY

The researchers want your decision about participating in this study to be absolutely voluntary. Yet, it is recognized that your participation does pose some costs, in terms of convenience and time from your regularly scheduled daily activities. You will be paid for participation in the study as follows:

- a. You will not receive any payment for participation in this first interview.
- b. You will receive a cash payment of \$25 for participation in and completion of the second interview if it is completed within 5 working

days of when it is scheduled. If the interview is not completed within 5 working days of when the interview is scheduled, a third interview will not be scheduled and no payment will be given for the second interview and, because a third interview is not scheduled, no payment can be provided for participation in or completion of the third interview.

- c. You will receive an additional cash payment of \$25 for participation in and completion of the third interview if it is completed within 5 working days of when it is scheduled. If the interview is not completed within 5 working days of when the interview is scheduled, the third interview will not be conducted and no payment for this interview will be provided.

9. NEW FINDINGS

If the researcher or his agent finds new information that would reasonably change your decision about participating, then they will give it to you. You will also have the opportunity to be told of any new significant findings developed during the course of the study.

10. REIMBURSEMENT FOR MEDICAL TREATMENT

Routinely, the Alpha Foundation, its agents, or employees do not compensate for or provide free medical care for human subjects in the event that any injury results from participation in a human subjects protocol. In the unlikely event that you become ill or injured as a direct result of participating in this study, you understand that you may receive medical care, but it will not be free of charge even if the injury is the direct result of your participation. Furthermore, if you agree to participate in this study, your consent does not waive any of your legal rights.

11. CONFIDENTIALITY

Information related to you, including information provided during the interviews, will be treated in strict confidence to the extent provided by law. Your identity will be encrypted and will not be associated with any published results. Your code number and identity will be kept in a locked file of the Principal Investigator. The researcher will remove any personal identifiers from coded interviews prior to storage in locked filing cabinets. Although unlikely, your records may be subpoenaed by court order or inspected by government bodies with oversight authority.

12. FREEDOM TO WITHDRAW

Your participation in this study is completely voluntary; you can say NO to participation. However, even if you agree to participate now, you can withdraw from the study at any time. Furthermore, you can withdraw from the study without prejudice. You can withdraw from the study without a loss of benefits to which you might otherwise be entitled. The researcher or his agent also reserves the right to withdraw your participation in the study, at any time, if he or she observes potential problems with your continued involvement in the study or if you fail to follow necessary and outlined procedures.

13. VOLUNTARY CONSENT

By signing this form, you are saying that you have read and understand this consent form, and that you are willing to participate in the study. The researcher or his agent should have answered any questions you may have had about the project. If you have questions later on, then the researcher should be able to answer them:

Investigator: Dr. William Fals-Stewart
(716) 887-2210

If at any time you believe you were pressured to participate in this study, or remain as a participant in this study, or if you have any questions or concerns about your rights or this form, please call Dr. John Lee at (315) 210-6080, Institutional Review Board Chair, the Alpha Foundation.

By signing the form below, you are telling the researcher that you agree to participate in the study. The researcher or agent should give you a copy of this form for your records:

Subject's Name (print)

Subject's Consent (sign)

Date

INVESTIGATOR'S or AGENT'S STATEMENT

I have explained the purpose of the study to the volunteer subject. To the best of my knowledge, he/she understands the purpose, procedures, risks, and benefits of this study.

Principal Investigator's or
Agent's Name (PRINT)

Principal Investigator's or
Agent's Name (SIGNATURE)

Date

APPENDIX L

APRIL 2001 AND MAY 2001 CALENDARS

APRIL 2001

<i>SUN</i>	<i>MON</i>	<i>TUES</i>	<i>WED</i>	<i>THURS</i>	<i>FRI</i>	<i>SAT</i>
1	2	3	4	5	6 <i>Payday</i>	7
8	9	10	11	12	13 <i>Good Friday</i>	14
15 <i>Easter</i>	16	17	18	19	20 <i>Payday</i>	21
22	23	24	25	26	27	28
29	30	<i>Work Schedule:</i>				

May 2001

SUN	MON	TUES	WED	THURS	FRI	SAT
		1	2	3	4 <i>Payday</i>	5
6	7	8	9	10	11	12
13 <i>Mother's Day</i>	14	15	16	17	18 <i>Payday</i>	19
20	21	22	23	24	25	26
27	28 <i>Memorial Day</i>	29	30	31	<i>Work Schedule:</i>	

APPENDIX M**INFORMED CONSENT FOR HUMAN RESOURCES RECORDS**

Informed Consent Document

for

The Alpha Foundation

1. INTRODUCTORY STATEMENT

It is a principle of medical ethics that the human subjects of a research protocol be informed of the purpose, risks, and benefits of any project in which they participate; the research methods to be used; the potential risks and hazards of participation and the right to ask for further information at any time during the research procedure. You have a right to know whether medical treatment or compensation is available to you for physical or psychological injuries as a result of your participation in the project. Your choice to participate in the study is a voluntary one, and even if you decide to participate in the study, you are free to withdraw from the research project at any time. Deciding not to participate or withdrawing from participation at a later time will not affect your relationship with the Alpha Foundation or your employer, or otherwise cause a loss of benefits to you which you might otherwise be entitled. Your signature at the end of this document will indicate that the Principal Investigator, or his agent, has answered all of your questions about the research project and that you voluntarily consent to participate in the investigation.

2. INVESTIGATOR CONDUCTING THE STUDY

William Fals-Stewart, Ph.D.
Research Scientist
The Alpha Foundation

3. TITLE OF PROJECT

Alcohol Use and Negative Workplace Behavior

4. PURPOSE OF STUDY AND DESCRIPTION OF PROJECT

Several studies conducted over the last 20 years have examined how drinking alcohol or use of other drugs might be related to work-related events or behaviors, such as injury on the job, absences from work, the occurrence of workplace violence, employee performance ratings, raises and salary, promotions, and so forth. One of the problems with the studies that have been done up to now is that there has been no examination of how day-to-day patterns of alcohol use or drug use may be related to injury on the job, absences from work, etc.

The purpose of the present study is to examine how day-to-day patterns of

drinking alcohol and using other drugs might influence different kinds of work-related outcomes as described above. At this point, you have participated in three interviews and you have been asked about your daily patterns of drinking and drug use. Furthermore, you have also been paid for your participation in these interviews.

At this juncture, we would like to ask your permission to review material from your human resources record. The human resources record contains the following information, among others: (a) date of birth, (b) educational background, (c) gender, (d) days absent, (e) injuries while on the job, (f) wage history, (g) years of employment, (h) disciplinary actions, and (i) supervisor's evaluations.

Permission has been given by your organization to allow us to view these records. The records will be reviewed in a private room in this building and will not be supervised or monitored by individuals who work for the organization.

If you decide to participate in this component of the study, your participation will last for roughly 1 week because it may take this amount of time for the researcher or his agent to review all of the necessary Human Resources records. All of the individuals from this organization and the other organizations who completed the three interviews in the first part of the study will be approached to participate in this part of the study. Approximately 330 employees from this organization and in two other independent organizations will be participating in this component of the study.

5. DISCOMFORTS AND RISKS

If you decide to participate in this study, then you face certain risks. You may find it uncomfortable for the researcher or his agent to review your Human Resources record and examine your absences, workplace injuries, wage history, disciplinary actions, etc. The investigators have tried to reduce this risk by providing the names and contact information for the Employee Assistance Program (EAP) for this company, who are available to discuss these discomforts.

There is also a risk that there will be an inadvertent breach in the confidentiality of the project and the information you provide and recorded from your Human Resources record will be obtained by individuals not conducting this research study. In turn, others viewing the information that has been collected might use it against you in your job or in other aspects of your life. The researchers attempted to reduce this risk by treating the information you provide in strict confidence to the extent of the law. Your identity will be coded, using a unique code number provided to you, and information you provide will be linked only to that code number and not to your name or other identifier (e.g., social security number). The code number will be linked to your identifying information by a "computer-key" or encryption code, which will be retained by the Principal Investigator who will not provide the encryption code to parties not involved in the study except as required by law. The computer-key and the information contained about you from the interviews will be kept in separate facilities, with the interview information stored in a room in a secure facility behind a combination and key-locked office and stored in locked filing cabinets.

As with any research, there is some possibility that you will be subject to risks that have not yet been identified.

6. EXCLUSIONS

If you have not completed the first two interviews for the study, you are not eligible to participate in this part of the study.

7. BENEFITS

There are no foreseeable benefits to you for participating in this study.

8. PAYMENT FOR PARTICIPATION IN THE STUDY

The researchers want your decision about participating in this study to be absolutely voluntary. The researcher is unable to give you any payment for participating in this part of the study. However, if you choose not to participate in this part of the study, it will in no way influence the payment you have already received for your participation in the other parts of the study.

9. NEW FINDINGS

If the researcher or his agents finds new information that would reasonably change your decision about participating, then they will give it to you. You will also have the opportunity to be told of any new significant findings developed during the course of the study.

10. REIMBURSEMENT FOR MEDICAL TREATMENT

Routinely, the Alpha Foundation, its agents, or employees do not compensate for or provide free medical care for human subjects in the event that any injury results from participation in a human subjects protocol. In the unlikely event that you become ill or injured as a direct result of participating in this study, you understand that you may receive medical care, but it will not be free of charge even if the injury is the direct result of your participation. Furthermore, if you agree to participate in this study, your consent does not waive any of your legal rights.

11. CONFIDENTIALITY

Information related to you, including information provided in your Human Resources record, will be treated in strict confidence to the extent provided by law. Your identity will be encrypted and will not be associated with any published results. Your code number and identity will be kept in a locked file of the Principal Investigator. The researcher will remove any personal identifiers from coded interviews prior to storage in locked filing cabinets. Although unlikely, your records may be subpoenaed by court order or inspected by government bodies with oversight authority.

12. FREEDOM TO WITHDRAW

Your participation in this study is completely voluntary; you can say NO to participation. However, even if you agree to participate now, you can withdraw from the study at any time. Furthermore, you can withdraw from the study without prejudice. You can withdraw from the study without a loss of benefits to which you might otherwise be entitled. The researcher or his agent also reserves the right to withdraw your participation in the study, at any time, if he or she observes potential problems with your continued involvement in the study or if you fail to follow necessary and outlined procedures.

13. VOLUNTARY CONSENT

By signing this form, you are saying that you have read and understand this consent form, and that you are willing to participate in the study. The researcher or his agent should have answered any questions you may have had about the project. If you have questions later on, then the researcher should be able to answer them:

Investigator: Dr. William Fals-Stewart
(716) 887-2210

If at any time you believe you were pressured to participate in this study, or remain as a participant in this study, or if you have any questions or concerns about your rights or this form, please call Dr. John Lee at (315) 210-6080, Institutional Review Board Chair, the Alpha Foundation.

By signing the form below, you are telling the researcher that you agree to participate in the study. The researcher or agent should give you a copy of this form for your records:

Subject's Name (print) Subject's Consent (sign) Date

Witness' Name (print) Witness' Name (sign) Date

INVESTIGATOR'S or AGENT'S STATEMENT

I have explained the purpose of the study to the volunteer subject. To the best of my knowledge, he/she understands the purpose, procedures, risks, and benefits of this study.

Principal Investigator's or Agent's Name (PRINT) Principal Investigator's or Agent's Name (SIGNATURE) Date

APPENDIX N

APPROACH SCRIPT TO SOLICIT PARTICIPATION FROM EMPLOYEE-IDENTIFIED COLLATERAL

[Call number provided by participant for reaching Collateral. If someone answers the telephone, identify yourself but *not the organization for which you work* and ask to speak to the Collateral. If your call is answered by an answering machine, leave your name (but not the name of the organization for which you work), your telephone number (i.e., cell phone number), and times during which you can be reached. Do not provide any reason for your call until you are speaking to the identified Collateral.]

[Once you speak to the Collateral, use the following script:]

*Hello Mr./Ms. _____, my name is _____
(name of RA)*

and I wanted to talk to you about participating in a study my organization is conducting. I sent you a mailing about it; have you received it?

[If the identified Collateral *does not* appear to know anything about the study or to what you are referring, please let him/her know that you are sorry for bothering him/her and, while being cordial, say goodbye. At this point, resend the letter describing the study to the address provided.]

[If the Collateral appears to understand that he/she was going to be contacted about the study and would be asked to participate, go on to review the cover letter sent. After this, go to the following:]

So, Mr./Ms. (name of Collateral), are you interested in participating?

[If person answers 'yes', ask him/her the following question:]

Please answer the following question. I need to know how confident you are that you can tell me about (employees name's) daily alcohol and drug use over the next month. On a scale of 1 to 5, with 1 being "certain" and 5 being "guessing", how would you rate your confidence in being able to accurately describe (employees name's) alcohol and drug use.

[If the person answers a '4' or more, state the following:]

Unfortunately, I don't think the level of confidence you just described will allow me to collect the type of information I will need for the project. So, I am sorry, but I don't think I will need you to participate further in the study. Please know that I appreciate your time. It is a very hard task to know about someone else's alcohol or drug use.

[If the person answers a '1', '2', or '3', state the following:]

That is great. What I need to do now is schedule an interview for the day of (date of 2 weeks from employee interview). I will be asking you about (employee's name's) day-to-day alcohol and drug use over the previous two weeks. When would be a good time to talk to you? Let's coordinate our schedules.

[Schedule interviews for the 2-week and 4-week TLFB assessments.]

[If the person answers 'no', indicating he/she is not willing to participate, thank him/her for his/her time and ask him/her if he/she would discard the mailed materials.]

APPENDIX O

TIMELINE FOLLOWBACK INTERVIEW FOR COLLATERAL

TELEPHONE TIMELINE FOLLOWBACK INTERVIEW (COLLATERAL)

ID: _____

I am now going to ask you to think back over the last two weeks leading up to today (*or the designated 2-week target day from employee*). As you may remember, I told you I would be asking you about (*name of employee's*) alcohol and other drug use during the this period. If you could, please pull out the two calendars I sent to you so we can make sure we are talking about the same days. Do you have the calendars I sent you available? If not, can you look at another calendar?

The questions I ask will cover the period from: _____(mm)_____(dd)_____(yy),
through _____(mm)_____(dd)_____(yy)

Could you put a bracket around that period of time or otherwise mark the calendar so those days are marked?

NOTE: Throughout this section, remind respondent verbally and indicate the period of interest on the calendar when appropriate or needed.

To help you remember days of drinking and other drug use by (*name of employee*), as well as other important events, the dates of some standard holidays are on the calendar.

INTERVIEWER: Point out such days, if any, in the 2-week time window with the interviewee.

We will also mark days that you know are important for (*name of employee*), such as starting or losing a job, and important events with family and friends, etc., that will help you remember (*name of employee's*) drinking and/or drug use at that time.

INTERVIEWER: Anniversaries, births, marriages and deaths, and the dates of other important life events also need to be marked on the calendar.

Can you tell me the days on which you believe that (*name of employee*) consumed **no** alcohol or other drugs?

INTERVIEWER: On the days so indicated by the respondent for the above question, mark the calendar box with a large 'S' across the top half of the box. Probe respondent by asking if he or she is sure that the days marked as no alcohol or drug use occurring are correct.

Let's take a look at the days in the time period where there are no Ss. What I would like to do is go in order from the first day in the interval to the last day of the time period (*modify as necessary*) and, taking this first day, find out about (*name of employee's*) drinking during this period.

INTERVIEWER: On each day of drinking, find out the number of standard drinks consumed and the time of day alcohol use began and ended. If the number of standard drinks meets criteria for 'heavy' drinking (i.e., 6 or more standard drinks for males or 4 or more standard drinks for women), mark a '2' in the upper left quadrant of the calendar box, along with a time stamp. For days of drinking that are not considered heavy, mark a '1' in the upper left quadrant of the calendar, along with the time stamp. If no drinking occurred on that day, but only drug use, mark a '0' in the upper left quadrant of the calendar. If the collateral reports that the employee drank but he/she does not know and cannot make a reasonable guess about the behavior, mark the upper left quadrant with a '88.' If the collateral is not aware of the employee's drinking behavior and cannot state whether or not the employee drank, mark the upper left quadrant as '99.'

Now let's take a look at the days in the period where there are no Ss and find out if you are aware if (*name of employee*) used any drugs other than alcohol during that period. Let us proceed in the same order as we did with drinking.

INTERVIEWER: On each day of drug use, determine what type of drug was used. Mark drug use in the upper right quadrant of the calendar box, along with the time when the drug use started and when it ended. Use the following codes for the different drugs: 1 = Cannabis, 2 = Cocaine, 3 = Heroin, 4 = Sedative-hypnotics, 5 = Methamphetamines, 6 = Amphetamines, 7 = Other, 8 = Prescribed Medication. If the collateral is certain drugs were used on a given day, but is not sure which drugs were consumed, mark the upper right quadrant with an '888.' If the collateral does not know if drugs were used on given day, mark the upper right quadrant with a '999.'

After completion of this, schedule next interview unless this is the last scheduled interview.

TLFB DAILY RECORD SHEET ID: _____

DATE: __/__/__

On this date, the collateral referenced by the ID number above:

1. Drinking Behavior:
 - S. No Drinking
 - a. Nonheavy drinking
 - b. Heavy drinking
 - c. Unknown amount of drinking
 - d. Unknown if employee drank or not

2. Based on the time of drinking recorded on the calendar, drinking occurred:
 1. During a period when the participant was working
 2. Not when the participant was working

3. Drug use behavior:
 1. Cannabis
 2. Cocaine
 3. Heroin
 4. Sedative Hypnotics
 5. Methamphetamines
 6. Amphetamines
 7. Other
 8. Prescribed Medication
 9. Drug Use, But Type Unknown
 10. Not Known Whether Drug or Drugs were Used or Not

4. Based on the time of drug use recorded on the calendar, drug use occurred:
 1. During a period when the participant was working
 2. Not when the participant was working

APRIL 2001

SUN	MON	TUES	WED	THURS	FRI	SAT
1	2	3	4	5	6 <i>Payday</i>	7
8	9	10	11	12	13 <i>Good Friday</i>	14
15 <i>Easter</i>	16	17	18	19	20 <i>Payday</i>	21
22	23	24	25	26	27	28
29	30	<i>Work Schedule:</i>				

May 2001

SUN	MON	TUES	WED	THURS	FRI	SAT
		1	2	3	4 <i>Payday</i>	5
6	7	8	9	10	11	12
13 <i>Mother's Day</i>	14	15	16	17	18 <i>Payday</i>	19
20	21	22	23	24	25	26
27	28 <i>Memorial Day</i>	29	30	31	<i>Work Schedule:</i>	

VITA

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Education

B. A. in Communication Studies, University of California, Los Angeles, CA, June, 1988
 M. A. in Counseling Psychology, University of Denver, Denver, CO, November, 1994
 M. S. in Psychology, Old Dominion University, Norfolk, VA, August, 1999

Publications and Presentations

Peer-Reviewed Publications

McFarlin, S. K., & Fals-Stewart, W. (in press). Workplace absenteeism and alcohol use: A sequential analysis. *Psychology of Addictive Behaviors*.

McFarlin, S. K., Fals-Stewart, W., Major, D. A., & Justice, E. M. (2001). Alcohol use and workplace aggression: An examination of perpetration and victimization. *Journal of Substance Abuse, 13*, 303-321.

Fals-Stewart, W., O'Farrell, T., Freitas, T., McFarlin, S. K., & Rutigliano, P. (2000). The Timeline Followback Interview for substance abuse: Psychometric properties. *Journal of Consulting and Clinical Psychology, 68*, 134-144.

Fals-Stewart, W., O'Farrell, T. J., Feehan, M., Birchler, G., Tiller, S., & McFarlin, S. K. (2000). Behavioral couples therapy for male substance-abusing patients: An evaluation of significant individual change and comparison of improvement rates. *Journal of Substance Abuse Treatment, 18*, 249-254.

Presentations

McFarlin, S. K., & Fals-Stewart, W. (2001). *Workplace absenteeism and alcohol use: A day-to-day examination*. Paper presented at the 2001 Academy of Management Meeting, Washington, DC.

McFarlin, S. K., Strobel, K. R., Fals-Stewart, W., & Storer, R. M. (2000, August). *Alcohol use and absenteeism: A day-to-day examination*. Poster presented at the 108th Annual Convention of the American Psychological Association, Washington, DC.

McFarlin, S. K., Fals-Stewart, W., Strobel, K. R., Storer, R. M., O'Neill, S. (2000, August). *An examination of violence in the workplace and alcohol use*. Poster presented at the 108th Annual Convention of the American Psychological Association, Washington, DC.