Preventing Workplace Substance Abuse

Beyond Drug Testing to Wellness

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Nearly 8 million Americans experience alcohol abuse or dependence in any given 6-month period (Regier et al., 1984). In a study of alcohol consumption and dependence within the United States, 13.2% of working men and 5.9% of working women were classified as alcohol dependent (Harford, Parker, Grant, & Dawson, 1992). Daily drinking (more than 20 days in the past month) or heavy drinking occurs among at least 15% of full-time employees (Voss, 1989) and can be as high as 25% among some occupational groups (Taggart, 1989). Although men abuse alcohol to a greater extent than women do (Grant, 1997; Hanna & Grant, 1997), rates of lifetime use by men versus women are less discrepant among young adults than among older cohorts (Grant, 1997; Voss, 1989), a finding suggesting that differences in alcohol consumption between men and women may be narrowing.

The prevalence and severity of alcohol problems result in substantial direct and indirect social and economic costs in the workplace (Harford et al., 1992; Harwood, Napolitano, Kristiansen, & Collins, 1984). Yet, only 10% of people with a diagnosis of alcohol abuse or dependence in the
previous 6 months seek treatment during that period (Shapiro et al., 1984). Given the enormous costs of alcohol abuse to organizations, on the one hand, and the reluctance of most people with alcohol problems to seek treatment, on the other, the development of alternative strategies to reach this population has gained some momentum. Locating such innovative programs in work settings makes it possible to reach large numbers of working adults, not only those who already abuse alcohol but also those at risk of developing problematic drinking behavior. The workplace offers the potential for implementing broad-based preventive interventions, and employers are increasingly motivated to offer such programs to their employees to address issues of decreased productivity, increased health care costs, and maintenance of an able work force in a tight labor market.

In this chapter we first present a model, central to prevention research and intervention, that focuses on the identification and modification of key risk and protective factors that influence such health-related behaviors and outcomes as alcohol use and abuse. We then summarize research linking selected risk and protective factors to alcohol use, namely work and work–family stressors, social support, and individual coping strategies. We then describe a workplace coping-skills intervention that is based on that model and present findings from two studies that examined the effects of the intervention on employee alcohol use. We conclude by discussing lessons learned and suggesting possible directions for future workplace research and intervention strategies.

RISK AND PROTECTIVE FACTORS

In the emerging field of prevention science, a core theoretical element is the notion of modifiable risk and protective factors (Coie et al., 1993; Reiss & Price, 1996). Risk factors are characteristics of both individuals and their environments that contribute to increased levels of psychological symptomatology and problem behaviors, such as alcohol and other drug (AOD) abuse. Risk-focused approaches to prevention aim to determine the factors that play an important role in the formation of a given problem and the processes through which they influence that problem. Those processes most likely involve interactions of individual and environmental characteristics that have various levels of influence, depending on the developmental, situational, and cultural contexts in which they occur (Hawkins, Catalano, & Miller, 1992; Reiss & Price, 1996). It is increasingly clear, however, that exposure to multiple risk factors increases total risk for serious psychological disorder or problem behavior and that the deleterious effects of risk factors are cumulative (Coie et al., 1993; Hawkins et al., 1992; Heller, 1996).

Protective factors are “those factors that modify, ameliorate, or alter a
person's response to some environmental hazard that predisposes to a mal-
adaptive outcome" (Rutter, 1985, p. 600). Exposure to risk can be mitigated
by a variety of individual characteristics (e.g., active coping strategies, sense
of self-efficacy and personal control) and social factors (e.g., availability
of social support; Coie et al., 1993). Protective factors operate to moderate
or mediate the relationship between risk factors and outcomes and lead to
reductions in risk. The focus on protective factors is particularly important
in situations in which it is not possible to alter risk factors directly. For
example, in the work setting, it may not be possible to reduce the level of
job stressors affecting employees. If workers have a strong network of co-
worker and supervisor support, however, the stressors may be less likely to
lead to negative outcomes, such as increased alcohol use in an effort to
reduce work-related tension. In such cases, protective factors have en-
thirded the employees' resilient responses to risk exposure (i.e., have in-
creased their ability to withstand risk; Rutter, 1985).

Preventive interventions that are based on the knowledge derived
from research on risk and protective factors are designed to eliminate or
reduce risk factors and/or enhance protective factors, thereby mediating or
moderating the effects of risk (Hawkins et al., 1992). Methods may involve
individual, group, organizational, or community interventions and may be
universal (i.e., directed at either all people within a given setting or com-
munity) or targeted (i.e., directed toward a high-risk subgroup). The effec-
tiveness of the intervention is determined by the extent to which it results
in modifications of designated risk and protective factors and leads to cor-
responding changes in maladaptive behavior.

RISK AND PROTECTIVE FACTORS RELATED
TO ALCOHOL USE

Research on risk and protective factors in the workplace has focused
considerable attention on determining the extent to which stressors, cop-
ing, and social support increase or mitigate the risk for alcohol use or abuse.
Using a basic stress—social support—coping paradigm, this research is guided
by the assumption that work and family stressors and avoidance coping
strategies serve to increase risk, whereas social support and the use of active
coping strategies operate as protective factors. This model is illustrated in
Figure 2.1.

As depicted in the model, higher levels of work and family stressors
predict greater alcohol use. In addition, higher stressor levels also lead to
increased use of avoidance coping, which in turn predicts increased use of
alcohol. By contrast, greater levels of social support both directly and in-
directly reduce the likelihood of alcohol use by enhancing the use of active
coping strategies and by decreasing the perception or experience of work
and family stressors. Similarly, although increased use of active coping predicts reduced alcohol consumption, the use of active coping strategies is also instrumental over time in building and using social networks and in modifying stress-inducing conditions in work and family environments. The following sections summarize empirical evidence regarding the relationship of each major component of the model to alcohol use.

Work Stressors

Considerable research has been conducted on the impact of work-related stressors, such as workload, role conflict and ambiguity, time pressures, and role and organizational change, on alcohol use and abuse. This research has encompassed a wide range of occupational groups, work settings, and demographic characteristics (Ferguson, 1974; Kunda, 1992; Ragland, Greiner, Krause, Holman, & Fisher, 1995; Snow & Kline, 1995; Trice, 1992; Trice & Roman, 1971). A number of early studies in this area suggested a significant relationship between work stressors and the development of problem drinking (Parker & Farmer, 1988; Trice & Sonnenstuhl, 1988). Watts and Short (1990) found a relationship between job overload and alcohol use among a mostly female sample of teachers, and Mensch and Kandel (1988) reported that work pressure was associated with increased alcohol use, a relationship that held for men but not for women. Furthermore, higher work role conflict emerged as a significant correlate of increased alcohol use among both male and female managers (Havlovic & Keenan, 1991), and chronic strain from ongoing work circumstances and intermittent life events, coupled with high powerlessness, typified a sample
of men most vulnerable to high drinking quantity and drinking problems such as drinking alone, missing work because of drinking, and morning drinking (Seeman & Seeman, 1992).

A number of recent studies have provided further evidence that people who experience increased levels of work-related stressors are at increased risk for engaging in alcohol use and abuse (Frone, Russell, & Cooper, 1995, 1997; Jasinski, Asdigian, & Kantor, 1998; Kjerheim, Haldorsen, Anderson, Mykletun, & Aasland, 1997; Steptoe et al., 1998). Role ambiguity and work pressure were associated with heavy alcohol use in a community sample of employed adults especially when the job role was important for self-identity (Frone et al., 1995). Work stressors emerged as a strong predictor of alcohol use among urban transit workers (Ragland et al., 1995). Further, participants believed that alcohol use had a significant role in reducing stress and that increased levels of stress were directly related to AOD problems. Finally, a large study of employed men and women (Crum, Muntaner, Eaton, & Anthony, 1995) found that men in high-strain jobs were 27.5 times more likely to develop alcohol abuse or dependence and were at 3.4 times greater risk for an alcohol disorder than men in low-strain jobs. No increased risk was found for women in high-strain job categories.

Work–Family Stressors

Although research on the contribution of work stressors to alcohol use and abuse underscores the important role those risk factors play, the research evidence reflects a certain degree of inconsistency (e.g., in some studies, gender differences emerge), suggesting that a more complex set of factors needs to be taken into account. In this regard, models have been advanced to include stressors from family as well as work domains. As Snow and Kline (1995) wrote, “multiple-role occupancy increases the chances of experiencing higher levels of demand and of being exposed to a broader range of stressful conditions, as well as the potential for conflict between work and family domains” (p. 225). One such model (Greenhaus & Parasuraman, 1986) identifies three categories of stressors: job stressors, stressors related to conditions within nonwork domains, and stressors involving the interface of work and nonwork domains. All three types of stressors are viewed as having the potential to make unique contributions to well-being.

Given those models, therefore, much of what influences employees’ drinking may be a result of factors outside the workplace or of the complex interplay of factors between work and nonwork domains (Hollinger, 1988; Parker & Brody, 1982). Drawing on those models, a growing body of literature suggests that factors in nonwork domains that involve the interface of work and family stressors contribute to alcohol use and abuse (Frone,
Russell, & Barnes, 1996; Frone, Russell, & Cooper, 1993; Frone et al., 1997; Moos, Fenn, Billings, & Moos, 1989). In a study of employed parents from two community samples (Frone et al., 1996), work–family conflict was significantly and positively related to increased levels of alcohol consumption, depression, and poor physical health. Work–family conflict also was positively related to heavy alcohol use at follow up in a 4-year longitudinal study of employed parents (Frone et al., 1997). Parker and Harford (1992) analyzed data on men and women from a national longitudinal survey and found interactions of job pressure and gender role attitudes related to increased alcohol consumption. Greater alcohol consumption was found with employed traditional women and egalitarian men who believe they have substantial obligations at home and who have high job competition. Other research supports the contention that the combination of work and family stressors contributes to increased alcohol use for both women (Cohen, Schwartz, Bromer, & Parkinson, 1991; Ehrensaft, 1980) and men (Bray, Fairbank, & Marsden, 1999).

Frone et al. (1993) examined the relationship between work–family conflict and alcohol abuse in relation to gender and tension reduction expectancies. They found that work–family conflict was associated with alcohol abuse among employees who believed that alcohol use results in relaxation and tension reduction. Gender was not found to be a moderating variable between work–family conflict and frequency of alcohol use. Finally, two types of work–family conflict—work impeding family and family impeding work—were related to high rates of alcohol use, depression, and poor physical health (Frone et al., 1996).

Social Support

Compared with the large body of research on work and work–family stressors and alcohol use, a relative dearth of literature systematically examines the role of social support. Although the findings typically are complex, the available research does suggest that social support can serve as a protective factor in relation to alcohol use and the development of problem drinking, at least with certain populations and under certain conditions. In a study examining the effects of work load and job social supports on alcohol use and other health outcomes (Steptoe et al., 1998), men but not women with poor social supports consumed a greater quantity of alcohol as work load increased. McCreary and Sadava (1998) studied two samples of men and women in their 20s and 30s and found some evidence that social support moderated the relationship between certain measures of life stress and alcohol use.

Whether the moderating effect of social support is found may require taking into account specific components of social support in relation to specific sources of life stress. Pierce, Frone, Russell, and Cooper (1996), for
example, examined whether tangible support moderated the relationship between financial stress and alcohol use. Results supported the buffering influence of tangible support on the financial stress–alcohol use relationship. The combination of low workplace social support and low work control contributed to higher risk for later alcoholism among a sample of young, employed men (Hemmingsson & Lundberg, 1998). The findings of this study support the need to consider multiple factors when assessing the role of social support.

One such factor is whether the employee is embedded in a drinking subculture within his or her work setting or occupational group (Trice & Sonnenstuhl, 1988). If work is a primary source of social support and the norms of the group promote drinking, then social support from work may be related to increased drinking. In a study of hospitality managers, for example, Corson and Young (1998) found compelling evidence for the presence of an occupational subculture whose norms promoted drinking. Similarly, high levels of involvement in work-related support networks were significantly correlated with heavy drinking and drinking problems, even when employees found work intrinsically rewarding (Seeman, Seeman, & Budros, 1988). The authors concluded that work-based social networks may encourage alcohol use and abuse.

Evidence of social support as a protective factor was found in two studies of problem drinkers. Late-onset problem drinkers reported fewer social resources than non-problem drinkers (Brennan & Moos, 1990), and support from family and friends had a positive impact on drinking-behavior outcomes (Humphreys, Moos, & Finney, 1996). Finally, social support also emerged as a protective factor in relation to alcohol use in samples of college students. First-year students who reported low levels of social support demonstrated high levels of use (Zaleski, Levey-Thors, & Schiaffino, 1998), and social support was found to moderate the stress–alcohol use relationship (Streptoe, Wardle, Pollard, & Canaan, 1996).

Coping Strategies

Research on the role of coping as a correlate or precursor of problem drinking provides support for the positive effects of active coping strategies and the particularly adverse effects of avoidance coping strategies. Laurent, Catanaro, and Callan (1997) replicated Cooper, Russell, Skinner, Frone, and Mudar's (1992) stressor vulnerability model of adult drinking in a sample of adolescents and found a pattern of results similar to those of earlier studies of adults and undergraduates. The Cooper et al. model simultaneously assesses the stress-moderating effects of gender, expectancies, and coping on alcohol use and abuse. Generally, positive expectancies for alcohol use (i.e., the individual holds more favorable beliefs about the pharmacological and behavioral effects of drinking alcohol), avoidance
coping, and level of stress were predictive of frequency of alcohol use, using alcohol as a coping method, and alcohol-related problems in routine activities (Laurent et al., 1997). Late-onset problem drinkers reported higher rates of avoidance coping than non-problem drinkers (Brennan & Moos, 1990), and male alcoholics followed over a 30-month period rated active coping strategies as more important in the maintenance of abstinence than other coping strategies (McKay, Maisto, & O'Farrell, 1996). Furthermore, greater reliance on active as opposed to avoidance coping in the first 3 months predicted better drinking outcomes during the next follow-up period.

In a longitudinal study of military officers (Johnsen, Laberg, & Eid, 1998), those who used avoidance-focused coping styles scored higher on problem drinking and showed increases in problem drinking over time. In a study of production workers (Grunberg, Moore, & Greenberg, 1998), employees exhibiting an escapist coping style engaged in alcohol use and believed that drinking alcohol was an effective way to reduce stress. By comparison, those who used non-escapist coping (i.e., a greater number of active coping strategies) engaged in lower frequencies of alcohol use and believed that alcohol was not an effective means to reduce stress.

A number of other researchers have reported a relationship between avoidance coping strategies and alcohol use. Cooper et al. (1992) found that stress was highly predictive of alcohol consumption and drinking problems in men who used avoidant forms of emotional coping. Nowack and Pentkowski (1994) found that women working in dental offices who reported higher frequencies of alcohol use were more likely than women who did not drink alcohol to use avoidance coping strategies in relation to work and personal obstacles. Finally, Snow and Kline (1991) found that avoidance coping was highly related to psychological symptomatology and increased use of alcohol and tobacco among female secretarial employees.

In summary, considerable research evidence links work and family stressors, social support, and coping to alcohol use and abuse. This knowledge forms the basis for designing workplace interventions aimed at preventing problem drinking. The next section describes an intervention that builds on a risk and protective factor model and emphasizes the modification of employee coping skills.

A WORKPLACE COPING-SKILLS INTERVENTION

The Yale Work and Family Stress Project has developed a workplace intervention that is based on a tripartite conceptual model of adaptive coping behavior: attacking the problem, rethinking the problem, and managing the stress. The model is derived from Pearlin and Schooler's (1978) hierarchy of coping mechanisms: (a) responses that change the situation,
(b) responses that control the meaning of the stressful experience, and (c) responses that function to control stress after it has emerged. The aim is to teach employees behavioral, social, and cognitive coping strategies for bringing about changes in risk and protective factors for alcohol use and abuse.

The interventions in the two studies summarized in this chapter are similar. In the first study (Snow & Kline, 1995), the intervention consisted of 15 sessions, each lasting 1.5 hours, conducted at the workplace during regular work hours. The major program components of the intervention were aimed at reducing work and family stressors and the use of avoidant coping strategies while enhancing social support and the use of active behavioral, social, and cognitive coping strategies. A detailed description of the intervention used in the first study can be found in Snow and Kline (1995).

Although the major program components of the second study were the same as those of the first study, the intervention was modified in two ways: First, the intervention was increased to 16 sessions, and second, several sessions were redesigned to teach behaviors aimed more directly at decreasing AOD use as a means of stress reduction.

The first component of the intervention (sessions 1–4 and 6–9) focused on teaching employees ways to eliminate or modify the sources of stress so that the ongoing need to cope with a particular stressor was reduced. This part of the curriculum included training on the identification and analysis of stressful situations and effective problem solving (e.g., effective communication is a problem-solving skill that can change the external demands on a person and thereby modify stress at the source). An additional theme was social support and the variety of material, emotional, and instrumental benefits that people can derive from a well-developed social network.

The second component (sessions 10–11) taught techniques that do not eliminate stressors, but help modify the cognitive and appraisal processes that lead to or exacerbate the experience of stress. Such approaches are particularly necessary for stressors that cannot be directly modified. Cognitive restructuring and other methods that change how a problem is assessed and understood were central to this component.

The third component (sessions 5 and 12–15) emphasized stress management and included strategies that moderate the psychophysiological impact of stress, such as deep breathing and progressive relaxation, as well as those aimed at minimizing or eliminating the use of avoidance coping responses. Stress management techniques were taught in session 5 and were practiced for a few minutes at the beginning of each subsequent session for reinforcement purposes. The other four sessions in this component (i.e., sessions 12–15) covered alternatives to using substances to manage stress.
how to identify the misuse of substances for stress reduction purposes, and effective ways of resisting AOD use.

The curriculum emphasized the development and application of skills to meet the demands encountered in employees' work and family environments. The final session of the intervention (session 16) integrated the course material by helping participants create personal stress management plans. Participants were to continue to use their plan following the completion of the intervention to extend and maintain positive program effects. A session-by-session description of this intervention is presented in Exhibit 2.1.

**COPING WITH WORK AND FAMILY STRESS: STUDY 1**

This first study (Snow & Kline, 1991, 1995) investigated the effectiveness of a work-based coping-skills intervention in reducing the negative psychological and behavioral consequences of work and family stressors among female secretarial employees. It was hypothesized that employees who participated in the intervention, compared with no-treatment control individuals, would report at posttest and 6-month follow up (a) lower levels of employee role, family role, and work-family stressors; (b) higher perceived social support from work and nonwork sources; (c) lower avoidance and higher behavioral and cognitive coping; and (d) lower alcohol use.

**Implementation of Coping-Skills Intervention**

Participants were 239 female secretarial employees at one of four job sites in Connecticut-based corporations. Site 1 was a large manufacturing company; sites 2, 3, and 4 were components of utility and telecommunications companies. Of the original sample, 136 employees participated in the intervention, and 103 served as control participants. The sample was predominantly White (83%), had completed high school or vocational training (43%) or some college (46%), had worked in the company an average of 9.4 years, and had an annual family income ranging from less than $30,000 (37%) to more than $50,000 (36%). The mean age was 40.2 years, and about half (53%) of the women had children living at home.

The posttest sample (Time 2) consisted of 205 employees, or 85.8% of the original sample. Of that number, 125 employees participated in the intervention, and 80 served as control participants. The sample at 6-month follow up (Time 3) consisted of 185 employees (77.4% of the original sample). Of those employees, 110 were intervention participants, and 75 were control participants. The proportions of intervention and control participants across each of the demographic categories remained relatively constant across all three time periods.
EXHIBIT 2.1
Managing Work and Family Stress: A Coping-Skills Intervention

Session 1. Understanding Stress: Multiple Roles and the Stress Cycle
Participants identify the diverse roles they assume and the kinds of pressures they face while attempting to meet the demands of each role. The causes, symptoms, and possible consequences of stress faced by working women and men are examined.

Session 2. Solving the Problem: Examining Stressful Situations
Participants identify problem situations from their own experiences. They learn to analyze problems as the first step in mastering them by utilizing their own individual resources as well as those of a supportive group.

Session 3. Solving the Problem: Eight Steps
Procedures for rational problem solving are learned and practiced. As a group, participants generate various problem-solving strategies and consider the potential costs and benefits of those strategies.

Session 4. Solving the Problem: Using Personal Networks
Participants consider “significant others” and members of their social networks as sources of support in time of need. Enhancement of personal networks, the costs and benefits of social support, and the group mobilization process are discussed.

Session 5. Managing Your Stress: Deep Breathing and Muscle Relaxation
Deep breathing and muscle relaxation are used to ameliorate the physical and psychological impact of stress. Ongoing practice of these techniques continues throughout the program so that participants will become reasonably expert with them.

Session 6. Solving the Problem: Listening
The benefits and elements of effective communication are discussed. Participants focus on paraphrasing and empathic responding as essential skills for resolving problems in work and related situations.

Session 7. Solving the Problem: Responding
Ineffective methods of communication are reviewed. Participants focus on messages as a tool of successful problem resolution.

Session 8. Solving the Problem: Assertive Communication
Participants discuss the different styles of communication and learn to express their needs directly, effectively, and assertively. These skills are critical in identifying and overcoming barriers and in attacking the problem at its source.

Session 9. Solving the Problem: Communicating for Change
All the communication skills are brought together and practiced as means for changing conditions that may cause difficulties and stress for the individual.

Session 10. Rethinking the Problem: Stress Reassessment
The way one thinks about a situation often influences the severity of the stress experienced. Participants examine effective and ineffective assessment styles and practice ways of rethinking the problem.

Session 11. Rethinking the Problem: Self-Talk
Participants share the ways in which they have thought through recent personal situations and examine how those thoughts have influenced their self-esteem. Alternative ways of thinking about these situations are considered. Self-monitoring is introduced.

Exhibit continues
EXHIBIT 2.1 (Continued)

Session 12. Managing Your Stress: Eating Patterns and Exercise
Participants explore ways in which their eating and exercise patterns affect their individual stress levels. Participants develop exercise programs appropriate to their lifestyles.

Session 13. Managing Your Stress: The Chemical Dependency Cycle
Participants learn how substance use can turn to substance abuse when used as a coping strategy for stress management. After the chemical dependency cycle is examined, participants learn to identify their own social cues, triggers, and urges.

Participants review self-monitoring and set revised, realistic goals to change their patterns and habits. Barriers to achieving these goals are discussed. Refusal techniques are practiced in small groups.

Session 15. Managing Your Stress: Using Social Supports
Participants learn about enabling behavior in the chemical dependency cycle. Strategies for strengthening and expanding social supports are explored.

Problem solving, rethinking the problem, and stress-management techniques are integrated as participants consider the costs and benefits of applying each strategy to situations drawn from their own family and work experiences. A systematic procedure for choosing among these options is introduced. Participants review their accomplishments and create a personal stress management plan to follow after completion of the program. Implementation of this plan in gradual steps is discussed.

Participants were recruited first by circulating a program description to all eligible employees within each workplace inviting their participation. It was explained that half of those who volunteered would be randomly selected to receive the intervention and half would serve as control participants. It was also explained that all participants would complete a set of research measures prior to and at the completion of the intervention (4 months later) and at 6- and 22-month follow-up periods. Employees who volunteered signed a consent form and were randomly assigned within each site to the program or control conditions. The number of program and control participants as cited above (136 vs. 103) is not equal because a number of individuals assigned to the control condition withdrew from the study prior to the initial assessment once they learned they had not been assigned to the coping-skills intervention. Following the completion of Time 1 measures, program participants met in small, facilitator-led groups of approximately 10 to 12 employees for 1.5 hours each week for 15 weeks. Sessions were held at the company site and took place during work hours; each company provided release time to support employee participation.

At Time 1 (pretest), participants completed the Work and Family Stress Questionnaire, a self-report instrument that included sections on demographic information; family history of health problems; and assess-
ments of stressors, coping, social support, psychological symptoms, and substance use. The same instrument, omitting the demographic and family history items, was readministered at Time 2 (following completion of the intervention) and at the two follow-up periods. The study presented in this chapter involves the work and family stressor, coping, social support, and alcohol use variables; therefore, only those measures are discussed below. Please refer to Snow and Kline (1995) for a more extensive description of measures used in the larger study.

**Work-Family Stressors**

Three role stressor variables were obtained using the 48-item Role Quality Scale (Baruch & Barnett, 1986). Respondents rated the extent to which their roles as employee (e.g., “having too much to do”), spouse or partner (e.g., “conflict over housework”), and parent (e.g., “problem with children’s education/school”) were a source of concern or demand for them. The internal reliability of the subscales (Cronbach’s α) ranges from .71 to .94 (Baruch & Barnett, 1986). The work–family stressor variable (4 items) was derived from items developed specifically for this project (α = .81). Those items (e.g., “Considering your different roles, how often do the things you do add up to being just too much?”) assessed the extent to which demands from work and family were perceived as too extensive, conflictual, or overlapping.

**Coping**

The Health and Daily Living Form (Billings & Moos, 1982) was used to assess participants’ coping strategies for addressing problem situations or events. This 33-item instrument, consisting of three subscales, provided an indication of the extent to which participants used behavioral, cognitive, and avoidant coping strategies.

**Social Support**

Work and nonwork social support were assessed using an adaptation of House’s (1980) measure of perceived social support. Participants rated the extent to which their supervisor, coworkers, spouse or partner, family, and friends were perceived as supportive regarding difficulties both at home and at work (e.g., “How much can each of these people be relied on when things get tough at work?”). Social support from supervisor and coworkers was combined to create a measure of social support from work sources (α = .88), whereas support from spouse or partner, family, and friends was combined to create a measure of social support from nonwork sources (α = .90).
Alcohol Use

Current alcohol use was assessed using a self-report form adapted from the National Household Survey on Drug Abuse (Miller et al., 1982). Participants were asked to indicate both the frequency and the amount of use of AODs in the past 30 days. Total alcohol use was derived by multiplying the number of days in the past month the respondent reported drinking alcohol times the average number of drinks consumed on a given day when drinking occurred. In addition, one avoidance coping item (i.e., “I tried to reduce tension by drinking alcoholic beverages”) from the Health and Daily Living Form was used to assess the extent to which participants used alcohol as a means of reducing tension.

Intervention Effectiveness

A relatively high level of participation in the intervention was attained. Employees completed an average of 11.7 ($SD = 3.7$) sessions. To be included in the analysis, an employee had to participate in at least 10 sessions; participants who fell below 10 sessions missed a significant portion of the intervention and did not learn many of the important skills being taught in the program. Including them could confound a true test of intervention effectiveness. Employees not reaching criterion were categorized as dropouts and were included in subsequent attrition analyses to assess threats to external and internal validity. A total of 85.2% of intervention participants completed 10 or more sessions ($M = 13.1$, $SD = 1.4$), and 14.8% attended 9 or fewer sessions ($M = 4.4$, $SD = 3.2$).

Comparisons between the intervention and control groups were made at posttest and 6-month follow up using repeated-measures analysis of variance (ANOVA).\(^1\) Time × Condition interaction effects for both Time 1

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\(^1\) Repeated-measures ANOVA is a statistical procedure for evaluating treatment effects when a study uses a mixed design in which participants are randomly assigned to treatment condition and assessed longitudinally at pretest, posttest, and follow up. Critics of this approach to analysis of longitudinal treatment research have suggested that such data rarely conform to the assumptions of compound symmetry or sphericity (e.g., Gibbons et al., 1993). Compound symmetry refers to the homogeneity of variances and covariances across all time points; sphericity is a less restrictive situation requiring that variances be homogeneous. Girden (1992) notes that sphericity is the primary concern in using the repeated-measures ANOVA procedure, and describes a number of corrections to the univariate F test in the repeated-measures ANOVA procedures when the data violate this assumption. The Greenhouse–Geisser (1959) and Huynh–Feldt adjustments provide epsilon adjustments to the degrees of freedom prior to computing F-test significance levels when longitudinal data do not meet the assumption of sphericity. The Greenhouse–Geisser adjustment may be overly conservative when epsilon is between 1 and .75 (Girden, 1992); in such instances, the Huynh–Feldt adjustment is preferred (Huynh & Feldt, 1976; Ott, 1988). Epsilon adjustments reduce power to detect treatment effects, but they help protect the validity of the significance test when violations of sphericity occur in the repeated-measures ANOVA design. The epsilon values for the Greenhouse–Geisser and Huynh–Feldt procedures were in the range of .89 to 1.00 in the analyses, revealing positive intervention effects in Study 1. Use of either procedure to adjust the degrees of freedom did not alter the basic nature of the findings reported.
TABLE 2.1
Summary of Time × Condition Interaction Effects Comparing Intervention and Control Conditions from Pretest (Time 1) to Posttest (Time 2) and from Pretest (Time 1) to 6-Month Follow Up (Time 3) in Study 1

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<td>Social Support</td>
<td></td>
<td></td>
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<td></td>
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<td></td>
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<tr>
<td>Nonwork sources</td>
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<td>.210</td>
<td>1,144</td>
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<td>.592</td>
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<td>Work sources</td>
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<td>6.44</td>
<td>.012</td>
<td>1,146</td>
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<td>.017</td>
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<tr>
<td>Coping</td>
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<td></td>
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</tr>
<tr>
<td>Behavioral</td>
<td>1,136</td>
<td>2.26</td>
<td>.135</td>
<td>1,136</td>
<td>2.92</td>
<td>.090</td>
</tr>
<tr>
<td>Cognitive</td>
<td>1,136</td>
<td>0.30</td>
<td>.586</td>
<td>1,136</td>
<td>0.35</td>
<td>.558</td>
</tr>
<tr>
<td>Avoidance</td>
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<td>3.53</td>
<td>.062</td>
<td>1,130</td>
<td>5.94</td>
<td>.016</td>
</tr>
<tr>
<td>Alcohol Use</td>
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<td></td>
</tr>
<tr>
<td>No. drinks per month</td>
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<td>0.47</td>
<td>.877</td>
<td>1,158</td>
<td>4.10</td>
<td>.045</td>
</tr>
<tr>
<td>Drink to reduce tension</td>
<td>1,130</td>
<td>1.34</td>
<td>.249</td>
<td>1,130</td>
<td>3.38</td>
<td>.068</td>
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</tbody>
</table>

Note. N = 160 (intervention n = 96; control n = 64).

to Time 2 (i.e., pretest to posttest) and Time 1 to Time 3 (i.e., pretest to 6-month follow up) were examined to determine whether greater positive changes occurred over time for the intervention group than for the control group in the stressor, social support, coping, and alcohol use variables. A summary of the F tests and significance levels for the interaction effects is shown in Table 2.1.

The intervention had limited effects on the stressor variables. Intervention participants did report a significantly greater decrease in employee role stressors from Time 1 to Time 2, although the Time 1 to Time 3 comparison indicated that by 6-month follow up, this interaction effect was no longer significant (see Figure 2.2). No effect on work–family stressors was observed from pretest to posttest, but a greater decrease in reported work–family stressors occurred for the intervention group than for the control group by 6-month follow up; this effect did not reach statistical significance. No interaction effects were observed for spouse or partner role or for parent role stressors for either time period.

Regarding the social support variables, significant Time × Condition interaction effects were observed across both time periods for social support from work. As shown in Figure 2.2, intervention participants reported an increase in social support from work from Time 1 to Time 2, an effect that was maintained at 6-month follow up. Control participants, by comparison, indicated a slight decrease in support by Time 2 and an even further decline
Figure 2.2. Comparisons between intervention and control groups on stressors, social support, coping, and alcohol use at Time 1, Time 2, and Time 3 for the Time × Condition interaction effects observed in Study 1.
by 6-month follow up. No effects were observed for social support from home.

The most substantial impact of the intervention on coping occurred in relation to avoidance coping. At posttest, intervention participants showed a greater decrease in the use of avoidance coping strategies than did control participants, an interaction effect that only approached significance. By 6-month follow up, however, the Time × Condition interaction effect was significant. Intervention participants continued to show the same reduction in use of avoidance coping strategies at 6-month follow up that they had reported at posttest, whereas control participants had returned to the level reported at pretest. The Time × Condition interaction for avoidance coping is also illustrated in Figure 2.2. No significant interaction effects were observed for behavioral or cognitive coping, although the changes in behavioral coping were in the predicted direction by 6-month follow up.

The effects of the intervention on alcohol use were examined in relation to two variables: number of drinks consumed in the past month and the extent to which participants used alcohol to reduce tension. For drinking in the past month, the Time × Condition interaction effect for Time 1 to Time 2 was not significant; both intervention and control participants showed little change between pretest and posttest. The interaction effect at 6-month follow up was significant, however. As shown in Figure 2.2, the extent of alcohol use in the past month among control group participants declined only modestly from pretest to 6-month follow up (declining by 2.9 drinks per month), whereas intervention participants reported a more substantial decrease in alcohol use (a decline of 6.6 drinks per month). The reduction in use primarily occurred during the 6-month period following the intervention.

The intervention showed some positive influence at 6-month follow up on participants’ use of alcohol to reduce tension, although the effect did not reach statistical significance. As shown in Figure 2.2, intervention participants made less use of alcohol to reduce tension by posttest and even less use by 6-month follow up. By contrast, control participants’ use of alcohol to reduce tension actually increased slightly by 6-month follow up compared with their baseline level.

Attrition Analyses

The attrition rate in this study was 14.6% at posttest and 22.6% at 6-month follow up. A significantly higher rate of attrition occurred in the control group (22.3%) than in the intervention condition (8.8%) at posttest ($\chi^2 = 8.55, df = 1, p = .003$), but that difference did not occur at 6-month follow up. To assess potential threats to external validity, stayers and dropouts were compared at posttest and 6-month follow up on the demographic variables and on mean pretest levels for the stressor, social
support, coping, and alcohol use variables. To test for potential threats to internal validity, MANOVAs were conducted using pretest scores on the study variables to assess Condition × Attrition Status interactions.

Stayers and dropouts did not differ significantly along any of the dimensions at posttest. At 6-month follow up, dropouts reported a higher level of work–family stressors, $F(1,235) = 3.42, p < .07$, and lower social support from work sources, $F(1,235) = 9.20, p < .01$, at pretest than stayers. No Condition × Attrition Status interactions were significant.

Summary and Implications of Findings

Among this sample of female secretarial employees, results suggest that the intervention helped women cope more effectively with work and family sources of stress and reduce their use of alcohol. One of the strongest effects of the intervention was on women's perceptions of social support received from their supervisors and coworkers. The structure of the intervention, in which women learned new skills and shared experiences and strategies with coworkers in small groups, likely contributed to the sustained increase women reported in social support from others in the workplace. Women who participated in the intervention reported greater social support from work than the control women did, not only just after completion of the intervention (which might be expected on the basis of their weekly group participation) but 6 months later as well. Apparently, processes had been put into effect within the workplace that helped maintain an increased level of social support over time.

The intervention also had beneficial effects in modifying participants' coping strategies. Those effects were most evident in the significant decrease in program participants' use of avoidance coping. Intervention participants also reported greater use of behavioral coping strategies, although the effect did not reach significance; the difference emerged at 6-month follow up. No effects of the intervention were found for cognitive coping. The results likely reflect differences in emphasis inherent in the intervention itself. Within the curriculum, greater attention was paid to reducing the use of avoidance coping and encouraging the use of active, behavioral coping strategies; cognitive coping strategies were less strongly emphasized. In addition, it may be more difficult, in general, to enhance participants' use of cognitive coping strategies than to modify their use of avoidant and behavioral strategies. The positive intervention effects observed were encouraging, especially given the extensive evidence identifying avoidance coping as a risk factor for alcohol abuse as well as the indications that active coping strategies, such as behavioral coping, serve a protective function.

Women who participated in the intervention also consumed significantly less alcohol than control women. Six months after the intervention
ended, women in the intervention group consumed 15 drinks per month — a 29% decrease from the number of drinks they reported at pretest. In addition, the intervention had a positive effect in that it decreased the reliance on alcohol to reduce tension, although this finding did not reach significance. Interestingly, the effects became evident not at posttest, but during the 6-month period following the completion of the intervention.

Compared with reductions in drinking behavior, the intervention was less effective in modifying work and family stressors, although participants did show less employee role stress at posttest than did control individuals. Company support for the intervention and its provision of release time to participate may have contributed to the reduction in reported role stress by the completion of the intervention. At 6-month follow up, a positive but nonsignificant effect was observed for work–family stressors with intervention participants reporting less work–family stress than control individuals. The initial intervention effect of reducing employee role stress had dissipated by 6-month follow up, however. Following the intervention, employees may have found conditions related to their work relatively unchanged or discovered that they were unable to maintain changes introduced during the intervention phase. The findings suggest that the ability of individuals to make lasting changes in stressful conditions in work and family environments have certain inherent limitations. To complement individual-level efforts, workplace interventions most likely need to include components that address organization- and system-level sources of stress.

No intervention effects were observed for the other two family role stressor variables: spouse and partner role stress and parent role stress. In addition, the intervention did not help participants increase the social support they received from people outside of work. To bring about reductions in stress across both family and work domains, interventions may need to include other family members in certain components as well as focus on how to effectively manage multiple, overlapping work and family roles.

Many of the positive effects of the intervention (e.g., increased social support from work and decreased use of avoidance coping) were evident at posttest and were maintained 6 months later. This pattern of maintained effects speaks to the strength of the intervention. Other positive effects (e.g., reduced drinking, increased behavioral coping, and a reduction in work–family stress) occurred not immediately following the intervention, but 6 months afterward. The results suggest that employees require time to learn, practice, and reinforce new skills and that a relatively extensive program (15 weeks, in this case) may be necessary to bring about desired changes.

The attrition analyses support the validity of the observed results, and only limited restrictions apply to the generalizability of the findings at 6-
month follow up. The greater attrition in the control group (22.3%) than in the intervention group (8.8%) at posttest suggests that participants may have been more motivated to stay in the study because they found the intervention helpful. The control group participants, who were simply filling out measures, may have been more likely to withdraw because the study was not benefiting them personally. The results provide support for the model that guided the investigation and suggest that interventions aimed at modifying risk and protective factors can lead to positive changes in problem behaviors such as alcohol abuse.

COPING WITH WORK AND FAMILY STRESS: STUDY 2

The second study built on the initial investigation in a number of ways. First, the basic aim continued to be the modification of selected risk and protective factors through the implementation of a workplace coping-skills intervention. Certain refinements were made to the original intervention, however, so that direct attention was paid to changing employees’ drinking behavior and discouraging the use of alcohol for stress management purposes. Second, the intervention again focused on helping employees develop a range of active coping strategies and discouraging the use of avoidance strategies for addressing stressors in both work and family domains. Third, because a primary objective of the intervention was to create substantive change in employees’ abilities to manage work and family stressors through the acquisition of coping skills, an attention control condition was included to help determine whether a specific focus on coping-skills enhancement, rather than simply providing release time, attention, or information, was a necessary ingredient to producing changes in outcomes such as alcohol use.

Therefore, three groups were compared in the second study: a 16-session coping-skills intervention group, an 8-session attention control group, and a no-treatment control condition. Both condition and worksite were included as independent variables in a series of analyses that examined the immediate effects of the intervention at posttest (i.e., at the completion of the intervention) on the various risk- and protective-factor variables and on participants’ alcohol use. Worksites was included in the analyses because of evidence that setting characteristics (e.g., tasks, processes, structures, and cultures) contribute uniquely to drinking behavior (Howland et al., 1996; Plant, 1979; Trice & Sonnenstuhl, 1988). It was of interest, therefore, to determine whether intervention effects were consistent across settings or whether worksite interacted with treatment conditions to produce differential outcomes. In addition, a subgroup of heavy alcohol users was examined to see how the intervention affected employees particularly at risk for alcohol-related problems. Given the high rate of
attrition in the attention control condition (discussed below), it was not possible to conduct 6-month follow-up analyses. Data imputation methods will be used at a later time to assess long-term program effects. For the present analyses, it was hypothesized that participants in the coping-skills intervention, compared with the attention control and no-treatment control conditions, would report the following outcomes at posttest: (a) lower levels of employee role, family role, and work–family stressors; (b) higher perceived social support from work and nonwork sources; (c) greater use of active coping and less use of avoidance coping strategies; and (d) lower alcohol use and fewer indications of problem drinking. Although it was expected that the effects would hold across worksites, it was possible that certain of the effects would be stronger in some settings than in others.

Implementation of Coping-Skills Intervention and Attention Control Group

The participants were 468 male and female employees working at one of three sites in Connecticut: two large water authority companies and one manufacturing plant. The sample consisted of a cross-section of all occupational groups represented in the sites, including managerial and supervisory employees, plant and field workers, and secretarial and other support staff. Of the original sample, 171 employees participated in the coping-skills intervention, 174 participated in the attention control condition, and 123 served as control participants. The sample was predominantly White (89%) and was relatively well educated. The smallest proportion had completed high school or vocational training (18%), about a quarter had attended some college (26%), and more than half had completed college or beyond (57%). Most participants were male (71%); 11% were age 30 and younger, 37% were age 31 to 40 years, 28% were age 41 to 50, and 24% were older than age 50. The smallest proportion of participants (5%) had annual family income of less than $30,000; 28% had family incomes between $30,000 and $50,000, and 67% had family incomes of more than $50,000. Most participants were Catholic (57%); others indicated Protestant religion (27%) or other/no religious affiliation (16%). The majority were married or living with a partner (80%) and had one or more children living at home (58%).

The posttest sample (Time 2) consisted of 340 employees, representing 72.6% of the original sample. Of this number, 124 employees had participated in the intervention, 96 were in the attention control condition, and 120 were in the no-treatment control group. No significant differences were found on any of the demographic variables among the three conditions at either pretest or posttest.

Meetings were scheduled with groups of employees to present a description of the two programs being offered and their potential benefits and
to invite employees to participate. The companies had already communicated their endorsement of the programs and that release time would be provided during regular work hours to facilitate employee participation. Discussions were conducted in such a way as not to reveal the essential differences between the coping-skills intervention and the attention control condition, but to present both options as interesting and potentially useful. It was explained that participants would fill out a questionnaire at four points in time: prior to and following the implementation of the two programs and at 6- and 12-month follow-up periods. Procedures to be followed to guarantee confidentiality and consent forms to be signed were carefully reviewed. Employees understood that assignment to the three conditions would be done on a random or lottery basis so that among those who volunteered, one-third would participate in each of the two programs and one-third would only be asked to complete the questionnaires. As in Study 1, the no-treatment control group had fewer participants than the other two conditions because a number of employees initially assigned to the control group indicated that they did not wish to remain in the study once they learned they would not be able to participate in one of the two programs being offered.

Program participants met at the company site in small, facilitator-led groups of approximately 10 to 12 employees. Participants in the coping-skills intervention met for 1.5 hours each week for a 16-week period. Those assigned to the attention control condition met for eight 1.5-hour sessions offered every other week. This schedule was used so that the span of time for the two programs and the time of testing were consistent across conditions. The attention control condition was limited to 8 sessions for two reasons. First, it was difficult to convince companies to provide 16 weeks of release time for more employees. Second, developing meaningful sessions for what was meant to serve as an “attention placebo” condition proved difficult, so that offering more than 8 sessions did not seem advisable. The 8-session program itself began with a description of a stress model and the identification of stress symptoms. Physical, psychological, and behavioral stress responses were described, and the social and economic costs of stress were examined. The next five sessions provided information about various patterns of substance use (including food, alcohol, and drugs) and how various substances affect physiological functioning. The seventh and eighth sessions provided information about sources of work and family stress, respectively. Types and sources of conflict were emphasized, but specific approaches to addressing work and family stressors were not included. In this way, specific stress management techniques and coping skills were not introduced or rehearsed. A general discussion of available community-based resources was conducted in the final session.

At both pretest and posttest, participants completed a modified version of the Work and Family Stress Questionnaire used in Study 1. The
stressor, social support, and current alcohol use measures used in Study 2 were the same as those used in the initial study, but two changes were introduced. First, the Alcohol Use Disorders Identification Test (AUDIT; Babor & Grant, 1989; Babor, de la Fuente, Saunders, & Grant, 1989) was included to provide a broad assessment of problem-drinking behavior. The AUDIT is a 10-item screening test that was developed to detect problem-drinking behavior. In constructing and cross-validating the scale, particular attention was given to choosing items that could identify individuals at the midrange of severity; therefore, the AUDIT is suited to detecting people at risk for developing alcohol problems as well as those who are already abusing alcohol. Both the reliability of the instrument and its validity are well established (Babor et al., 1989).

Second, the Coping Strategies Inventory (Tobin, Holroyd, Reynolds, & Wigal, 1989) was administered because the psychometric properties of this instrument are superior to those reported for the Health and Daily Living Form used in Study 1. The instrument comprises eight subscales, which together allow a detailed determination of the types of changes in coping strategies that might occur as a result of participation in the intervention. Six subscales were included: Problem Solving (α = .82), Cognitive Restructuring (α = .83), and Social Support (α = .89) were treated as indexes of active coping strategies, and Problem Avoidance (α = .72), Wishful Thinking (α = .78), and Social Withdrawal (α = .81) were treated as indexes of avoidance coping strategies.

**Intervention Effectiveness**

A reasonably high level of participation in the intervention was attained, although somewhat lower than that of Study 1. Employees were included in the analysis if they participated in more than 50% of the intervention or attention control group sessions. Participants in the 16-session, coping-skills intervention completed an average of 10.8 sessions (SD = 4.7); 71.9% of the employees completed 9 or more sessions (M = 13.2, SD = 2.0), and 28.1% completed 8 or fewer sessions (M = 3.7, SD = 2.6). For the 8-session, attention control condition, the participation rate was lower. Participants completed an average of 4.6 sessions (SD = 2.6), and 54.0% of the employees completed 5 or more sessions (M = 6.7, SD = 1.1); 46.0% completed 4 or fewer sessions (M = 2.1, SD = 1.4). The control group maintained a high level of participation in the study: 95.9% of the sample completed the assessment at posttest.

Comparisons among the three conditions were made at posttest using repeated-measures ANOVA with time, condition, and worksite as the independent variables. The analyses were conducted for both the total sample and for a subgroup of alcohol users who scored above the mean on total drinks per month. This approach allowed comparison of program effects.
TABLE 2.2  
Summary of Time × Condition Interaction Effects Comparing Intervention, Attention-Control, and No-Treatment Control Conditions from Pretest (Time 1) to Posttest (Time 2) for Total Sample and Subsample of Heavier Alcohol Users in Study 2

<table>
<thead>
<tr>
<th>Variable</th>
<th>Total Sample</th>
<th>Heavier Alcohol Users</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>df</td>
<td>F</td>
</tr>
<tr>
<td>Stressor</td>
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<tr>
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<tr>
<td>Spouse/partner role</td>
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<td>Active Coping</td>
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</tr>
<tr>
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</tr>
<tr>
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</tr>
<tr>
<td>Total active coping</td>
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<td>2.70</td>
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</tr>
<tr>
<td>Drink to reduce tension</td>
<td>2,322</td>
<td>3.63</td>
</tr>
</tbody>
</table>

Note. Total sample N = 327 (intervention n = 123; attention-control group n = 95; no-treatment control group n = 119). Heavier alcohol users N = 98 (intervention n = 34; attention-control group n = 24; no-treatment control group n = 40). 

*AUDIT = Alcohol Use Disorders Identification Test. See Babor & Grant (1989); Babor, de la Fuente, Saunders, & Grant (1989).

over time for the three conditions (i.e., Time × Condition interaction effects) and analysis of any evidence for differential effectiveness of the intervention across worksites (i.e., Time × Condition × Worksite interaction effects). Analyses of the subgroup of heavier alcohol users explored whether the intervention was effective with employees at high risk for alcohol abuse. A summary of the F tests and significance levels for the Time × Condition interaction effects for the total sample and the subgroup of heavier alcohol users is shown in Table 2.2.

Total Sample

Intervention participants reported a significantly greater decrease in spouse or partner role stressors at posttest than participants in the attention control and no-treatment control conditions. This effect is illustrated in

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Figure 2.3. No differences, however, were found for employee or parent role stressors, work-family stressors, or social support from home or work.

Highly significant intervention effects were found for two of the coping variables. Intervention participants reported a significant increase in social support coping from Time 1 to Time 2, whereas the attention control and no-treatment control group participants indicated little change in the use of this coping strategy. A significant Time × Condition × Worksite interaction effect for Time 1 to Time 2, $F(4,330) = 3.83, p = .005$, revealed that the impact of the intervention on social support coping was more substantial in the water authority companies than the manufacturing company. Although participants in the coping-skills intervention showed greater gains in social support coping than did the attention control group participants in all three worksites, the difference between the intervention group and the no-treatment control group was evident only in the two water authority companies. No effects were observed for problem-solving or cognitive-structuring coping strategies.

Intervention participants also showed a significantly greater decrease in the use of social withdrawal coping from pretest to posttest than either the attention control group or the no-treatment control group. This intervention effect did not vary by worksite. No interaction effects were observed for coping strategies involving problem avoidance or wishful thinking or for the composite measure of avoidance coping. The interaction effects for social support and social withdrawal coping are illustrated in Figure 2.3.

The effect of the intervention on alcohol use was first examined in relation to an Alcohol factor obtained from a factor analysis of the outcome variables of the study (Snow, 1996). This analysis included various measures of psychological symptoms and substance use. The Alcohol factor that emerged consisted of the following variables: the AUDIT score, the total amount of alcohol use in the past month, and the extent to which alcohol was used to reduce tension. As shown in Table 2.2, the Time × Condition interaction effect for the Alcohol factor demonstrated a significant impact of the intervention on alcohol use. Coping-skills intervention participants showed a decrease in scores on this factor at posttest; both the attention control and no-treatment control groups reported higher scores at posttest as compared to pretest.

In assessing intervention effects in relation to the various components of the Alcohol factor, no Time × Condition or Time × Condition × Worksite interaction effects were observed for the AUDIT scale. Participants in the coping-skills intervention did report consuming less alcohol in the past month at posttest than at pretest, whereas those in the two control conditions showed essentially no change in alcohol consumption, although the effect did not reach statistical significance. Intervention participants indicated that they consumed an average of two fewer drinks in
Figure 2.3. Comparisons among intervention, attention-control, and no-treatment control groups on stressors, coping, and alcohol use at Time 1 and Time 2 for the Time x Condition interaction effects observed with the total sample in Study 2.
the past month, representing a 15.7% reduction in reported alcohol use. Finally, participants in the intervention reported a significant reduction in the use of alcohol to reduce tension, but those in the two control conditions showed a modest increase in their use of alcohol for tension reduction purposes. A significant Time × Condition × Worksite interaction effect revealed that the impact of the intervention in reducing the use of alcohol to alleviate tension was evident in the manufacturing company and one of the water authority companies; no differences among the three conditions were found in the second water authority company. The interaction effects for the alcohol factor and drinking to reduce tension are also depicted in Figure 2.3.

**Attrition Analyses for Total Sample**

The attrition rate in this study for the total sample was 27.4% at posttest. A differential rate of attrition occurred across the three conditions—coping-skills intervention, 27.5%; attention control condition, 44.8%; and no-treatment control condition, 2.4%—that was highly significant ($\chi^2 = 65.16, df = 2, p < .001$).

Differences between stayers and dropouts were found for one demographic variable: The attrition rate was higher among White than among non-White participants ($\chi^2 = 3.92, df = 1, p = .048$). In addition, two Condition Attrition Status interactions were significant. In the no-treatment control condition at pretest, dropouts reported much greater use of problem-solving coping, $F(2,450) = 3.35, p = .036$, than stayers, whereas no differences emerged in the other conditions. Finally, dropouts in the intervention and no-treatment control conditions reported less use of social withdrawal coping at pretest than stayers in their respective conditions, whereas dropouts in the attention control condition reported considerably greater use of social withdrawal coping at pretest, $F(2,440) = 2.58, p = .077$, than stayers.

**Heavier Alcohol Users**

The same set of analyses was conducted for a subgroup of heavier alcohol users (i.e., the 29% of employees within the total sample who scored above the mean on total number of drinks consumed during the prior month at pretest). The average number of drinks consumed per month for the total sample was 11.4, but the average for heavier alcohol users was 31.2. Even though the study did not involve the recruitment and assignment to condition of only those who consumed greater amounts of alcohol, focusing on those employees provided an opportunity to test the effectiveness of the intervention on a group of employees at greater risk for alcohol abuse. As was the case for the total sample, no significant
differences were found among the three conditions at posttest for the heavier alcohol users on any of the demographic variables.

Significant intervention effects were observed for two of the four work and family role stressor variables (see Table 2.2). Significant Time × Condition interaction effects were observed for both employee and parent role stressor variables. In both instances, as illustrated in Figure 2.4, participants in the coping-skills intervention reported a decrease in role stressors from pretest to posttest, whereas attention control participants reported an increase in role stressors and those in the no-treatment control condition showed no change. No interaction effects were observed for spouse or partner stressors or for work–family stressors. In addition, as was the case with the total sample, no effects were found for either social support from home or from work.

As shown in Table 2.2, positive intervention effects were observed for both active- and avoidance-coping strategies. A significant intervention effect was observed for social support coping: By posttest, participants in the coping-skills intervention reported a substantial increase in the use of this coping strategy, whereas attention control and no-treatment control participants showed virtually no change. No differences emerged for problem-solving coping. Finally, the Time × Condition interaction effect for the composite measure of active coping was significant. Both coping-skills intervention and attention control participants showed increased use of active coping at posttest; the intervention group reported a somewhat greater increase in use, although not significantly so. The no-treatment control group indicated decreased use of active coping at posttest. The interaction effects for the coping variables are illustrated in Figure 2.4.

No intervention effects were found for the individual measures of avoidance coping. A positive program effect was observed for the composite measure of avoidance coping; however, and the Time × Condition interaction effect approached significance. As shown in Figure 2.4, participants in the coping-skills intervention reported a substantial decrease in the use of avoidance coping at posttest. By contrast, participants in the attention control group increased their use of avoidance coping, and the nontreatment control group reported only a slight decline.

Two intervention effects on alcohol use were observed (see Table 2.2). First, the Time × Condition interaction effect for the Alcohol factor reached significance. Intervention participants showed a decrease in scores on this factor at posttest, whereas participants in the attention control condition scored higher on the factor and those in the nontreatment control group remained unchanged. Second, the intervention had a positive effect on the number of drinks consumed in the past month. Participants in the coping-skills intervention reported a substantial decrease in alcohol consumption; the attention control group showed a slight increase, and the no-treatment control group a modest decrease. Intervention participants
Figure 2.4. Comparisons among intervention, attention-control, and no-treatment control groups on stressors, coping, and alcohol use at Time 1 and Time 2 for the Time × Condition interaction effects observed with heavier alcohol users in Study 2.
indicated that they consumed an average of 7.9 fewer drinks per month at posttest, representing a 25.6% reduction in reported alcohol use. By comparison, the no-treatment control group reported consuming an average of 2.6 fewer drinks per month, representing only an 8.9% reduction in alcohol consumption. The interaction effects for the two alcohol measures are illustrated in Figure 2.4. Finally, no differences were found among the three conditions on the AUDIT scale or in the reported use of alcohol to reduce tension.

**Attrition Analyses for Heavier Alcohol Users**

The attrition rate for the heavier alcohol users was 33.8% at posttest, and the rate of attrition again was much higher in the attention control condition (61.3%) than in the intervention (27.1%) and no-treatment control (0%) conditions (χ² = 42.86, df = 2, p < .001). No differences between stayers and dropouts were found on any of the demographic variables. Dropouts, however, reported greater use of avoidance-coping strategies than stayers at pretest on two measures: wishful thinking, F(1,149) = 3.39, p = .068, and the composite measure of avoidance coping, F(1,146) = 3.39, p = .068, and they had higher scores than stayers at pretest on the AUDIT, F(1,149) = 2.96, p = .088, and in the amount of alcohol consumed in the past month, F(1,150) = 3.22, p = .075.

A number of Condition Attrition Status interaction effects emerged. For all four stressor variables, dropouts scored lower than stayers in the intervention condition at pretest, whereas the opposite pattern emerged in the attention control condition, in which dropouts scored higher than stayers: work-family stressors, F(1,143) = 3.64, p = .058; employee role stressors, F(1,146) = 11.28, p = .001; spouse or partner role stressors, F(1,100) = 4.30, p = .041; and parent role stressors, F(1,100) = 5.52, p = .021. Similarly, dropouts in the attention control condition reported greater use of avoidance coping at pretest than stayers on three coping variables, whereas dropouts and stayers in the intervention condition indicated relatively comparable levels of avoidance coping: problem avoidance, F(1,145) = 4.23, p = .041; wishful thinking, F(1,145) = 3.54, p = .062; and the composite measure of avoidance coping, F(1,145) = 4.96, p = .028. Finally, on the AUDIT, F(1,149) = 3.58, p = .061, dropouts in the intervention condition reported higher scores than stayers at pretest, whereas stayers and dropouts in the attention control condition reported similar pretest levels.

**Summary and Implications of Findings**

This study provided the opportunity to further investigate the effectiveness of a workplace coping-skills intervention. Replicating Study 1,
Study 2 again found positive effects of the intervention on employees' reported stressor levels, active- and avoidance-coping strategies, and drinking, particularly for employees who were heavier alcohol users. For the total sample, the intervention had a positive effect at posttest in reducing stressors in the role of spouse or partner. Heavier alcohol users reported reductions in both employee and parent role stressors at posttest. In addition, intervention participants as a whole reported an increase in social support coping and a decrease in social withdrawal coping at posttest. Heavier alcohol users participating in the intervention also showed an increase in social support coping as well as increased use of active-coping strategies and a general decrease in the use of avoidance-coping strategies. Finally, all intervention participants reported less alcohol use at posttest than the attention control and no-treatment control participants did. This effect was particularly strong for heavier alcohol users.

Some effects of the intervention proved to be consistent across the two studies. Reported reductions in employee role stressors at posttest occurred in the intervention group in Study 1 and for heavier alcohol users in Study 2. Decreases in the use of avoidance-coping strategies by program participants were observed in both studies. On measures of alcohol use, including drinking to reduce tension and number of drinks per month, participants in the coping-skills intervention reported greater reductions following the intervention in both studies.

The results of Study 2 differed in some ways from Study 1. Spouse or partner role stressors were not significantly affected by the intervention in Study 1, but program participants in Study 2 reported reduced levels of spouse or partner role stressors at posttest. Parent role stressors also were unaffected by the intervention in Study 1, yet heavier alcohol users in Study 2 who participated in the intervention reported reduced parental role stressors at posttest. The increased impact on family role stressors in Study 2 may have been due in part to a change in the intervention. In both studies, employees were asked to give examples of role stress situations they encountered and to think about effective coping strategies they could use to deal with those situations. The experience in the first study was that group members tended to mainly provide examples about their work experiences. In Study 2, facilitators made a conscious effort to elicit a better balance of both work and family stressors to address in the group sessions.

Although Study 1 found highly significant increases in social support from supervisors and coworkers for intervention participants, Study 2 found no impact of the intervention on work social support. Gender may have contributed to these differing outcomes: Study 1 involved a female sample, whereas the Study 2 sample was 71% male. Women participating in small groups over a period of weeks may be more likely to bond with and offer support to one another than mixed-gender, primarily male groups. Second, participants in Study 1 were all from the same occupational group (i.e.,
secretarial staff), but in Study 2 they were from diverse occupational groups. The intervention brought employees together on a weekly basis, but differences in roles, locations, and work-related concerns might have made it more difficult for participants to connect with each other in a supportive way.

Despite the fact that Study 2 intervention participants did not report increases in social support from work or nonwork sources, they did report significantly greater use of social support coping and a decrease in social withdrawal coping at posttest than attention control or no-treatment control participants did. Differences in measurement may account for this discrepancy. Many of the social support coping items described seeking support from a particular individual (e.g., “I talked to someone that I was very close to”). In contrast, the scale assessing social support from work and nonwork sources was more general. On this scale, respondents indicated the extent to which supervisors, other people at work, spouses, friends, and relatives can be relied on when things get tough at work. The intervention may have helped participants seek support from certain people, but it did not increase support from their broader social network. This area is deserving of further research to tease out the various interrelated dimensions involving individual perceptions and use of social networks. Certainly, one intention in promoting changes in social support and social withdrawal coping is to increase participants’ social involvement and use of social resources. The pattern of findings that emerged in Study 2 concerning social support again suggests that interventions may need to target broad organizational changes and involve employees’ families to have a stronger impact on employees’ social networks and their perceived usefulness.

Related to the focus on organization-level factors, worksite was included as an independent variable to assess differential effectiveness of the intervention across the three work settings. For the most part, the observed effects of the intervention did not vary by worksite, suggesting that the effects are quite robust. Even so, significant Time × Condition × Worksite interaction effects did emerge in two instances, one involving social support coping and the other the use of alcohol to reduce tension. In both cases, significant intervention effects were observed in two sites but were either less pronounced or absent in the third. Although limited to only these two variables in this study, the findings, along with the limited effects the intervention had on stressor and social support variables, do suggest that it would make sense to pay greater attention to how setting characteristics might operate to either promote or limit intervention effectiveness.

The different attrition rates across conditions raised some issues worthy of note. One issue concerns the dropout rates in the no-treatment control groups across studies. In Study 1, 22.3% of the no-treatment control group dropped out by posttest, and in Study 2, only 2.4% of control group participants dropped out. Because of the dropout rate in Study 1,
greater care was taken in Study 2 to encourage control group participants to stay involved in the study.

Differences also occurred in dropout rates between the intervention and attention control groups in Study 2. Although the participation rate in the coping-skills intervention was relatively high (nearly three-fourths of the participants completed nine or more sessions), almost half of the employees assigned to the attention control condition dropped out without completing at least five of eight sessions. The proportion dropping out of the attention control condition was even greater among the subgroup of heavier alcohol users, whereas that was not the case for the intervention and no-treatment control conditions. Facilitators leading the groups reported that participants in the attention control condition became increasingly dissatisfied as they realized that the program described stressors and their impact but did not teach them skills for coping with stress. In fact, attention control group dropouts had significantly higher scores on all four stressor variables and reported greater use of avoidance coping than did those who stayed in this condition. By comparison, the coping-skills intervention was more effective in sustaining employees' involvement; among heavier alcohol users, those who stayed actually reported higher levels of stressors and greater alcohol consumption than dropouts. Taken together, the differential participation rates, including those among heavier alcohol users, add some credibility to the perceived usefulness to employees of the coping-skills intervention. Such characteristics are essential if employees are to be effectively engaged in preventive interventions within the workplace.

For the total sample, the attrition analyses support the external validity of the observed results with only limited restrictions to the generalizability of study findings. In contrast, attrition analyses for the subgroup of heavier alcohol users revealed that at pretest, those who dropped out reported greater use of avoidance coping, heavier alcohol use, and more problem drinking than stayers. Therefore, for the analyses pertaining to the heavier alcohol users, the generalizability of the findings is restricted to those who show less extreme patterns of problem drinking and avoidance coping.

The attrition analyses lend support to the internal validity of the results for both the total sample and the subgroup of heavier alcohol users. For the total sample, the Condition Attrition Status interaction effect involving social withdrawal coping revealed that employees in the intervention and no-treatment control groups who had lower scores were more likely to drop out of the study, whereas the opposite was true for those in the attention control condition. This pattern suggests that the positive impact of the coping-skills intervention on social withdrawal was likely more substantial than the findings indicated. Likewise, for heavier alcohol users, interaction effects demonstrated that people with higher stress levels...
were more likely to stay in the intervention, but those with higher levels of stress and avoidance coping were more likely to drop out of the attention control group. Therefore, the positive effects of the intervention in reducing stressors and avoidance coping may be even stronger than the results suggest. The remaining attrition analyses did not reveal any threats to the internal validity of the positive effects of the coping-skills intervention in reducing the amount of alcohol consumption among heavier users.

SUMMARY AND FUTURE DIRECTIONS

The results of the two studies provide support for the risk- and protective-factor model that guided the workplace interventions. In both investigations, the intervention had a positive effect in modifying certain risk and protective factors related to alcohol use and in reducing alcohol consumption and reliance on alcohol for tension reduction purposes. The effects have now been demonstrated across diverse work settings and with employees who have diverse occupational and demographic characteristics. Although corresponding changes in risk and protective factors and alcohol use did occur, future research is needed to more clearly determine whether changes in stressor, social support, and coping variables are causally linked to changes in drinking behavior. The inclusion of an attention control condition in the second study allowed an assessment of whether intervention effects can be attributed to the emphasis on modification of coping skills, beyond simply attention and release time. The pattern of findings quite consistently revealed substantially greater changes in predicted directions for the coping-skills intervention than for both the attention control and no-treatment control conditions, lending considerable support to this contention.

The observed effects with heavier alcohol users on stressor, coping, and alcohol dimensions were encouraging, given the potential for serious alcohol-related problems among this subgroup of employees. At the same time, it was apparent that the employees with the most extreme alcohol problems, who also relied heavily on avoidance-coping strategies, dropped out of the study at higher rates than others. It is not unusual for higher-risk participants to drop out of interventions at a greater rate than those at lower risk (Snow, Tebes, & Arthur, 1992). The ongoing challenge is to identify ways to effectively recruit and retain those at greater risk, and to consider the types of interventions that might be best suited for this group of employees. Clearly, the factor of company “buy in,” as exemplified in the commitment of resources, (e.g., release time from work), was essential to the level of participation achieved in the two studies. The results underscore the critical work that needs to be done to form partnerships with...
companies in developing comprehensive and sustained workplace preventive interventions.

The coping-skills intervention presented in this chapter has been used to date as a person-centered approach to prevention in the workplace. It seeks to promote change in individual workers and to provide them with skills to create changes in their environment. The risk- and protective-factor model that underlies this intervention also can be used to design complementary strategies involving organization-level and cross-domain (i.e., work and family) interventions. Although the findings reported above are encouraging, they also reveal the inherent limitations of a person-centered approach and underscore the need to test alternative intervention designs. Other related models, which emphasize the role of the organization, person, and person–organization interactions, have been articulated (Ivancevich, Matteson, Freedman, & Phillips, 1990; Kahn & Byosiere, 1990). The application of these models involves the design of multilevel, workplace interventions aimed at both systemic and individual change (Heaney & van Ryn, 1990). In addition, integrative models of the work–family interface have been advanced (e.g., Frone, Yardley, & Markel, 1998) that provide a framework for developing interventions across multiple systems. Clearly, moving in these directions will enhance the effectiveness of workplace preventive interventions, although doing so will require addressing the barriers to examining and altering the systemic factors encountered when entering worksites.

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