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# Relationship of Financial Strain and Psychosocial Resources to Alcohol Use and Abuse: The Mediating Role of Negative Affect and Drinking Motives\*

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*Limited research has examined the relationship between financial strain and alcohol use and abuse. Building on affect regulation theory and recent research in the stress and alcohol literatures, this study developed and tested a model relating financial strain, social resources, personal resources, depression, and drinking to cope to alcohol use and abuse. Data were obtained from a random sample of 1,424 adults who indicated that they had drunk alcohol in the previous year. We tested and then revised our model using structural equation modeling analysis. Results supported the affect regulation model of financial strain and alcohol use and abuse. Generally, depression mediated the relationship between financial strain and drinking to cope, and drinking to cope mediated the relationship between depression and alcohol use and abuse. In addition, both gender and race moderated six of the relationships in our revised model.*

## INTRODUCTION

The fundamental activities of daily living and many of life's chances to further one's economic standing are closely tied to an individual's current financial resources (Pearlin and Radabaugh 1976). Thus, financial strain is likely to represent an elemental source of stress in people's lives. Although prior research has begun to examine the relationships between financial strain, psychological distress, and alcohol use and abuse, no study has conducted a comprehensive and integrative test of these relationships. Hence, a complete understanding about how

financial strain influences psychological distress and alcohol use and abuse is lacking. Given the current stagnating economy and the continuing trend toward corporate downsizing (Kozlowski et al. 1993), which both result in increased unemployment and underemployment, a better understanding of the effects of financial strain is warranted. Therefore, the goals of this study are briefly to review prior research in this area, and to develop and test a comprehensive model of the relationships among financial strain, depression, and alcohol use and abuse.

### *Prior Research on Unemployment and Alcohol Involvement*

As several reviews have noted (Forcier 1988; Winton, Heather, and Robertson 1986; see also Catalano et al. 1993), the relationship between unemployment and alcohol involvement remains inconclusive. Research has

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shown that unemployment is positively related to alcohol use (Kessler, Turner, and House 1987), consumption rates and binge drinking (Crawford et al. 1987), alcohol problems (Crawford et al. 1987; Smart 1979), alcohol-related diseases (Brenner 1987; Brenner and Mooney 1983; Heien and Pompelli 1987; Linsky, Straus, and Colby 1985), and alcohol disorders (Catalano et al. 1993). One explanation for these findings is that unemployment causes financial strain, which leads to alcohol use as a way to cope with the strain. However, other studies have indicated that unemployment is not related to or is negatively related to alcohol use (Cooke and Allan 1983; Groeneveld, Shain, and Simon 1990; Iversen and Klausen 1986; Warr 1984; Warr and Payne 1983). The latter authors argue that the decrease in alcohol consumption can be attributed to a decrease in income, which makes alcohol less affordable.

A major criticism of these studies is that unemployment may not lead to a substantial loss of income, and a loss of income may not result in financial strain. Unemployment may not be related to large reductions of income in the short-term, because many people are able to collect unemployment and/or union subsidy. Further, if there is a loss of income, an individual may receive support from family members who are working. Hence, the income loss may not reach a threshold in which financial strain develops. In addition, the loss of a job not only entails a potential loss of income, but also the loss of one's work identity and a reduction of contact with one's co-workers. Loss of one's work identity may be positively related to negative affect, which in turn promotes elevated alcohol involvement. In contrast, loss of contact with co-workers may lead to lower levels of alcohol consumption, to the extent that co-workers were a salient part of an individual's drinking milieu. Finally, as noted above, if unemployment leads to a severe loss of financial resources, alcohol may become a luxury that is no longer affordable. Thus, the relationship between unemployment and alcohol involvement may be affected by a set of confounded, and potentially counterbalancing, mediating processes. Unemployment studies that do not directly assess and model simultaneously the various mediating processes are limited in their ability to determine if and why increases in alcohol consumption occur.

### *Prior Research on Financial Strain and Alcohol Involvement*

If unemployment is believed to be, in part, related to alcohol involvement because of its link to financial strain, one strategy to address the limitations noted above is to assess financial strain directly. Only two studies, however, have tested the relationship between financial strain and alcohol involvement (Pearlin and Radabaugh 1976; Moos et al. 1989). Pearlin and Radabaugh (1976) found that chronic financial strain was positively related to anxiety, and that anxiety was positively related to drinking to cope (i.e., the tendency to use alcohol for control of emotional distress). However, this study did not assess alcohol consumption per se. Moos et al. (1989) found that chronic financial strain at an initial interview was positively related to alcohol consumption and drinking problems during a follow-up interview 18 months later.

Although both these studies support a positive relationship between financial strain and alcohol involvement, they are limited in several ways. First, both studies lack a conceptual framework to explain how financial strain affects alcohol involvement. In other words, they did not model mediating variables. Second, only chronic financial strain was assessed, thereby leaving unaddressed the question of whether acute financial problems are also related to alcohol involvement. Third, no attempt has been made to control for the potentially confounding influence of psychosocial resources.

### A MODEL OF FINANCIAL STRAIN AND ALCOHOL USE AND ABUSE

In order to address the three major limitations of prior research on financial strain and alcohol involvement, we developed the conceptual model illustrated in Figure 1. However, before discussing the specific hypotheses that underlie the model, the general extensions to prior research should be noted.

First, in order to provide a conceptual framework that explains the relationship between financial strain and alcohol involvement, the model is based on affect regulation theory (see Cappell and Greeley [1987] for a review) and prior research on drinking

motives (Cooper et al. 1992; Cooper, Russell, and Frone 1993; Cooper, Russell, and George 1988; Pearlin and Radabaugh 1976). Affect regulation theory asserts that people consume alcohol in order to regulate or relieve negative emotions. In other words, negative affect is hypothesized to mediate the relationship between financial strain and alcohol use. Consistent with this hypothesis, prior research supports a positive relationship between chronic financial strain and depression (e.g., Ensminger and Celentano 1988; Hamilton et al. 1990; Kessler, Turner, and House 1987, 1988; Menaghan 1989; Pearlin et al. 1981; Ross and Huber 1985; Voydanoff and Donnelly 1988), and a positive relationship between depression and alcohol use (e.g., Aneshensel and Huba 1983; Berger and Adesso 1991; Birnbaum, Taylor, and Parker 1983; Haack, Harford, and Parker 1988; Parker et al. 1987; Wilsnack, Wilsnack, and Klassen 1984; for a recent meta-analysis see Hartka et al. 1991). With regard to research on drinking motives, prior studies suggest that negative emotion increases people's motivation to drink to relieve—i.e., to cope with—the negative emotion (Cooper et al. 1993; Pearlin and Radabaugh 1976). And, as we have argued elsewhere, (Cooper et al. 1988, 1992, 1993), the tendency to drink to cope with negative emotions should be

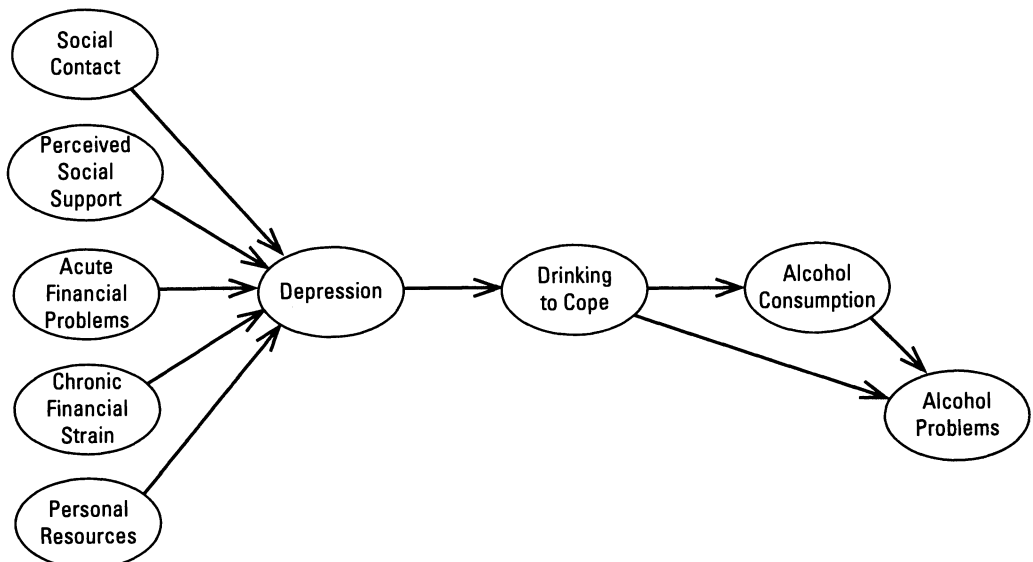
positively related to alcohol use and abuse. Thus, based on the discussion above, it is expected that negative affect and drinking to cope represent two important variables that mediate the relationship between financial strain and alcohol involvement.

Second, our model incorporates both acute financial problems and chronic financial strain. As noted earlier, prior research has generally focused only on chronic financial strain. Third, the simultaneous relationship of several psychosocial resources to depression is also examined. The psychosocial variables were modeled in order to provide a stronger test of the relationship between financial strain/problems and both depression and alcohol use/abuse by examining these relationships in a more comprehensive model, thereby ruling out potential spurious relationships. In addition, although not shown in Figure 1, the model is also estimated controlling for the potentially confounding influence of age, race, gender, education, income, and marital status.

#### *Hypotheses*

In outlining our model, we begin by discussing hypotheses concerning the prediction of depression. We then summarize, in

**FIGURE 1. Hypothesized Path Model Predicting Alcohol Use and Alcohol Problems from Financial Strain**



*Note.* Although not shown, age, race, sex, marital status, family education, and family income are modeled as covariates.

turn, hypotheses regarding the predictors of drinking to cope, alcohol consumption, and alcohol problems.

*Financial strain, psychosocial resources, and depression.* As mentioned before, previous research indicates that chronic financial strain is positively related to depression. Chronic financial strain has generally been operationalized as the extent to which people have trouble acquiring the basic necessities of life. In contrast to chronic financial strain, little research has examined the relationship between depression and acute financial problems (e.g., a foreclosure on a mortgage or loan), which can be defined in terms of discrete financial setbacks (Dohrenwend et al. 1978). A study by Kessler et al. (1987) measured both acute financial problems and chronic financial strain, but failed to report the simultaneous direct effects between these measures and depression. Therefore, in the absence of prior research examining the simultaneous relationship of chronic financial strain and acute financial problems to depression, we hypothesize that both variables will be positively and uniquely related to depression.

In addition to financial strain, personal resources and social resources also should be related to depression. With regard to personal resources, research consistently shows that low self-esteem or self-regard puts people at risk for depression (Kernis, Grannenmann, and Mathis 1991; Tennen and Herzberger 1987; see also Kernis 1993; Tennen and Affleck 1993, for relevant reviews). For example, Pearlin et al. (1981) found that self-esteem (or self-worth) and perceived mastery (feelings about being in control) were negatively related to depression. Likewise, a recent study among women professionals (Marshall and Lang 1990) found that mastery was negatively related to depression. We therefore hypothesize that the personal resource variables of self-esteem and mastery will be negatively related to depression.

Our model also incorporates two measures of social resources as predictors of depression: perceived social support (the perception that one can turn to family and friends for advice and help) and the frequency of social contact (the number of times that a person interacts with members of his or her social network). Recent research has shown that the perception of social support is negatively related to depression and psychological ill-

health (Brennan and Moos 1990; Gore 1978; Pearlin et al. 1981; Ullah, Banks, and Warr 1985; Warr and Jackson 1985; Williams, Ware, and Donald 1981; for a review see Cohen and Wills 1985). Moreover, research suggests that frequent contact with one's social network is negatively related to depression and positively related to affective well-being (Kilpatrick and Trew 1985; Ullah et al. 1985; Warr 1984). Based on these findings, we hypothesize that both perceived social support and the frequency of social contact will be negatively related to depression.

*Depression and drinking to cope.* Affect regulation theory suggests that negative emotion should increase people's motivation to drink for psychological relief—i.e., to cope. In fact, prior research supports this contention with regard to both anxiety (Pearlin and Radabaugh 1976) and depression (Cooper et al. 1993). Furthermore, research examining motives for drinking consistently reveals that a substantial percentage of drinkers, typically ranging from 10 percent to 25 percent, report drinking to regulate negative emotion (Cahalan, Cisin, and Crossley 1969; Mulford and Miller 1963; Polich and Orvis 1979). We hypothesize, therefore, that depression will be positively related to people's motivation to drink to cope with negative emotions.

*Drinking to cope, alcohol use, and alcohol problems.* Prior research has documented that the tendency to drink to cope with negative emotions is positively related to alcohol consumption (e.g., Cooper et al. 1988, 1992, 1993; Polich and Orvis 1979). Moreover, alcohol consumption is positively associated with alcohol-related problems (e.g., Cooper et al. 1988; Hilton 1987; Polich and Orvis 1979; see Caetano [1988] for a review). Research has also found that drinking to cope and alcohol problems are positively related, even after controlling for alcohol consumption (e.g., Cooper et al. 1988, 1993; Polich and Orvis 1979). If people use alcohol as a way to cope with negative affect, they may subsequently become psychologically dependent on alcohol, and this dependency may contribute to problems independent of the amount of alcohol consumed. In other words, changes in both the qualitative or motivational (drinking to cope) and quantitative (amount consumed) dimensions of alcohol use may be independently related to alcohol problems. In sum, we hypothesize that

drinking to cope will be positively related to alcohol consumption, and that both drinking to cope and alcohol consumption will be positively and independently related to alcohol problems.

### *Generalizability*

In addition to providing an overall test of the model described above (see Figure 1), this study also allowed us to examine the generalizability of the model with respect to gender, race, and socioeconomic status (SES). First, with respect to gender, several researchers have suggested that gender may influence stress processes (Conger et al. 1993; Cooper et al. 1992; Pearlin 1989). However, to date, evidence supporting consistent gender differences has remained elusive (see Conger et al. 1993). Therefore, we provide a detailed test of gender differences by comparing the fit of the model across men and women. Second, Pearlin (1989) suggests that race also may play a moderating role in the stress process. To the extent that race influences the amount of "resources, opportunities, and self-regard" that one has (Pearlin 1989), it may moderate the magnitude of relationships in models of stress processes. Although prior research has generally failed to support this premise (Cooper et al. 1992; Kessler 1979; Neff 1985), we provide an additional and more detailed examination of potential race differences. Finally, the potential moderating role of SES in the stress process was examined. Because financial strain is relative (e.g., it occurs when expectations or real expenses exceed income), it may be experienced by both high and low SES families. However, financial strain may have a weaker impact among high versus low SES people, because the former may realize that they have the educational and baseline financial resources to change their current financial situation over time. In sum, we examined whether the hypothesized model generalized across gender, race, and SES.

## METHOD

### *Sample*

Respondents in this study were drawn from a random sample survey of 1,933 household

residents in Erie County, New York, who took part in a study of stress processes. Designated respondents 19 years of age and older were identified in a three-stage probability sample designed to yield equal representation of two racial groups (Blacks and non-Blacks) and three educational groups (less than high school, high school, at least some college). The overall completion rate was 78.3 percent.

The major criterion for selection into the present study was that respondents reported that they had drunk alcohol within the last year; this represented 1,495 respondents.<sup>1</sup> An additional 71 respondents were excluded from the analyses because they failed to provide valid data for one or more of the variables, yielding a final sample of 1,424 respondents. Among these respondents, approximately half were Black (51%), and about 60 percent were female. In addition, average age was 40.6 years (*s.d.* = 15.5); slightly fewer than half of the respondents were married or living as though married (46%); the average family education level (in years) was 12.9 years (*s.d.* = 2.1); and the average annual family income was \$23,739.

### *Procedures*

Data for this study were collected by a team of professionally-trained interviewers during the spring and summer of 1986. Interviews were conducted in respondents' homes using a highly structured interview schedule. The complete interview required approximately 90 minutes to administer. Respondents were compensated \$25 for their time.

### *Measures*

The measures are described in detail below. Descriptive statistics (i.e., means, standard deviations, and reliability estimates) and zero-order correlations are provided in Table 1.

*Chronic financial strain* was assessed using a five-item measure developed by Pearlin and colleagues (Pearlin and Lieberman 1979; Pearlin et al. 1981). Four items assessed how often it happens that the respondent does *not* have enough money to afford food, medical care, clothing, and family leisure activities.

**TABLE 1. Correlations, Reliabilities, Means, and Standard Deviations**

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	Mean	s.d.
1. Social Contact	(.59)															.03	.65
2. Perceived Social Support	.30*	(.84)														3.52	.40
3. Acute Financial Problems	.01	-.12*														.16	.43
4. Chronic Financial Strain	.04	-.26*	.30*	(.83)												-.04	.73
5. Personal Resources	.12*	.39*	-.11*	-.24*	(.88)											3.20	.43
6. Depression	-.06*	-.36*	.20*	.39*	-.55*	(.89)										1.65	.45
7. Drinking to Cope	-.06*	-.21*	.09*	.18*	-.25*	.29*	(.81)									1.38	.48
8. Alcohol Consumption	.08*	-.08*	.07*	.09*	-.04	.04	.43*	(.73)								.21	.78
9. Alcohol Problems	.02	-.10*	.09*	.14*	-.12*	.20*	.37*	.45*								.32	1.03
10. Marital Status	-.18*	.06*	-.06*	-.18*	.03	-.15*	-.06*	-.09*	-.07*							.46	.50
11. Race (Black)	.00	-.11*	.06*	.23*	-.05*	.19*	.04	-.04	.05*	-.19*						.51	.50
12. Sex (female)	.10*	.09*	.03	.11*	-.06*	.16*	-.11*	-.37*	-.19*	-.11*	.04					.60	.49
13. Age (years)	-.23*	.00	-.10*	-.21*	-.07*	-.16*	-.08*	-.14*	-.11*	.14*	-.22*	.00				40.56	15.47
14. Family Education (years)	.11*	.15*	-.01	-.14*	.27*	-.14*	-.06*	-.03	-.07*	-.04	-.12*	.02	-.28*			12.93	2.13
15. Family Income (\$)	-.05*	.11*	-.10*	-.34*	.16*	-.16*	-.02	.06*	.01	.32*	-.15*	-.13*	-.02	.23*		23.74	19.74

\*  $p < .05$ .

Note: Reliabilities are presented on the diagonal; family income is measured in thousands of dollars.

The response anchors ranged from 1 = 'almost never/never' to 4 = 'almost always.' The fifth item assessed how the respondents' finances usually work out at the end of the month. Response anchors included whether they had 1 = 'some money left over,' 2 = 'just enough money to make ends meet,' and 3 = 'not enough money to make ends meet.' Because the response anchors had different ranges, the items were standardized before averaging.

A measure of *acute financial problems* was derived from financial life events taken from the Psychiatric Epidemiologic Research Inventory Life Events Scale (Dohrenwend et al. 1978). Examples of specific events include having less money than usual, experiencing a foreclosure on a loan or mortgage, or going on welfare. In addition to reporting whether each event occurred during the preceding 12 months, respondents were asked to rate the overall effect of the event on their life using a 6-point scale ranging from extremely positive to extremely negative. The self-rated negative financial events were counted to provide an index of acute financial problems. Overall, 9.8 percent of the respondents reported having less money than usual, 2.7 percent reported having to borrow money, 1.8 percent reported going on welfare, .6 percent reported a foreclosure, and 1.2 percent reported a miscellaneous event.

Two measures of social resources were assessed. The first measure consisted of four questions that assessed the respondent's frequency of *social contact* with family and friends (Donald and Ware 1982). These included the frequency of: (1) getting together with relatives during the *past month*; (2) getting together with friends during the *past month*; (3) getting together with friends or relatives during the *past year*; and (4) being on the phone with relatives or close friends during the *past month*. The response anchors ranged from 1 = 'not at all' to 6 = 'every day' for the *past month* questions, and from 1 = 'less than 5 times a year' to 7 = 'every day' for the *past month* questions, and from 1 = 'less than 5 times a year' to 7 = 'every day or almost every day' for the *past year* question. The four responses were standardized before averaging.

The second social resources measure, *perceived social support*, was an average of the respondents' responses to 15 statements from the Interpersonal Support Evaluation

List (Cohen and Hoberman 1983). The 15 statements assessed three areas of perceived availability of support: (1) tangible assistance or material aid, (2) appraisal support (i.e., the availability of a confidant and trusted advisor), and (3) belonging support (i.e., the availability of someone with whom the respondent could socialize or relax). Respondents reported how true or false each statement was for them using categories ranging from 1 = 'completely false' to 4 = 'completely true.'

Measures of mastery and self-esteem were combined to form a *personal resources index*. Mastery (Pearlin et al. 1981; 7 items) assesses the extent to which individuals see themselves as controlling the forces that affect their lives. Self-esteem assesses one's general perception of self-worth (Rosenberg 1965; 10 items). The response anchors for all 17 items ranged from 1 = 'strongly disagree' to 4 = 'strongly agree.' Because mastery and self-esteem were highly correlated ( $r = .61, p < .001$ ), the 17 items were averaged to form one scale that assessed personal competence and self-worth.

*Depression* was assessed with the 20-item Center for Epidemiologic Studies Depression Scale (CES-D; Radloff 1977). The scale assesses nonclinical dimensions of depressive symptomatology, such as depressed mood, feelings of guilt and worthlessness, feelings of helplessness and hopelessness, psychomotor retardation, loss of appetite, and sleep disturbance. A 4-point scale, ranging from 1 = 'almost never/never' to 4 = 'almost always,' was used to determine how frequently each of the 20 items was experienced during the past month.

*Drinking to cope* was assessed by a 5-item scale (Cooper et al. 1992) that required respondents to report the frequency of drinking to manage or cope with negative emotions (e.g., "to forget your worries" and "to cheer up when you're in a bad mood"). The response items, answered on a 4-point scale from 'almost never/never' to 'almost always,' were averaged to create the drinking to cope scale.

*Alcohol consumption* was assessed with three measures, each standardized before averaging: alcohol quantity, alcohol frequency, and the frequency of heavy drinking. Alcohol quantity and frequency were estimated from standard questions employed in the National Health and Leisure Time Survey



(Wilsnack, Klassen, and Wilsnack 1984). The alcohol quantity question asked respondents to report the typical number of drinks consumed on a drinking day. This question used an open-ended response format. The alcohol frequency question asked respondents to report how often they drank any type of alcohol during the past 12 months. The response anchors ranged from 0 = 'none' to 8 = 'every day.' Frequency of heavy drinking was assessed by asking respondents how often they consumed five or more drinks in a single day during the past 12 months. The response anchors ranged from 0 = 'never' to 8 = 'five times a week or more.'

*Alcohol problems* were assessed with 17 items designed to yield a DSM-III diagnosis of alcohol abuse and dependence, which were taken from the National Institute of Mental Health Diagnostic Interview Schedule (Robins et al. 1981). Representative problems include going on "binges or benders," losing a job because of drinking, and having "blackouts" or the "shakes." Rather than identifying respondents as DSM-III alcohol dependent, we computed a drinking problem index by counting the total number of problems that had occurred at least once during the past 12 months.

Six sociodemographic *covariates* were assessed: sex (0 = male, 1 = female), age (in years), race (0 = non-Black, 1 = Black), marriage (0 = not married, 1 = married or living as though married), family income (annual dollar amount), and family education (in years). Family education represents the respondent's education if there was no partner in the household; if a partner was present, it represents the average of the respondent's and partner's education. Race and education were controlled because of the highly-stratified sampling design used in the present study; sex and age were controlled because of documented differences in patterns of alcohol use and abuse as a function of these sociodemographic characteristics (e.g., Hilton 1987; Olkinuora 1984); and family income and marital status were controlled to ensure that financial strain was not a reflection of absolute income per se, but rather a perception of relative financial strain.

### *Path Analyses*

The analyses for this report involve testing the hypothesized path model (see Figure 1)

using Bentler's (1989) EQS structural equations program. Input for the EQS program consisted of a  $15 \times 15$  covariance matrix, and estimated reliabilities (i.e., coefficient alpha). Each multi-item scale was treated as a single indicator of its corresponding latent construct, and its error variance was fixed to equal the product of its variance and the quantity one minus its estimated reliability (Bollen 1989). In contrast, because the single-item measures (i.e., the six covariates, acute financial problems, and alcohol problems) lack reliability information, no measurement error correction was made for these variables.

The substantive relationships depicted in Figure 1 were tested while controlling for the potential confounding influence of the six sociodemographic covariates. To do this, the covariates were added to the model as additional exogenous variables that were allowed to correlate among themselves and with the five substantive exogenous variables. In addition, each covariate was allowed to predict each of the four endogenous variables.

To evaluate the overall fit of the model, EQS provides a chi-square goodness-of-fit statistic. The chi-square statistic is based on a comparison of the predicted and observed covariance matrices. A nonsignificant chi-square value indicates good fit. However, because trivial differences between the predicted and observed matrices may lead to a significant chi-square when large samples are used, three other goodness-of-fit indices were employed that are less dependent on sample size: the Normed Fit Index (NFI), the Nonnormed Fit Index (NNFI), and the Comparative Fit Index (CFI), (e.g., see Bentler [1989] and Bollen [1989] for computational details). Briefly, the NFI, NNFI, and CFI compare the fit of a substantive model to the fit of some predetermined baseline model, usually a null model where covariation among variables is constrained to equal zero. The value for each of these indices varies between 0 and 1, with values greater than or equal to .90 used to indicate a good fit. After testing the hypothesized model, the univariate modification indices (i.e., La Grange Multiplier tests) were examined to determine whether overall model fit could be improved by freeing any of the 17 substantive paths that were constrained to equal zero (e.g., Bentler 1989; Bollen 1989). If the modification indices suggested freeing additional paths, a

chi-square difference test was used to test the relative improvement in model fit (Bentler 1989; Bollen 1989).

### *Multiple Group Comparisons*

To examine whether the results obtained from the full sample were invariant across gender, race, and SES, we conducted a series of simultaneous between-group analyses. For example, to examine whether the magnitude or direction of the parameter estimates was invariant across gender, we specified two simultaneous between-group models. The first between-group model did not contain any cross-group invariance constraints. In other words, all of the parameter estimates were freely estimated within gender groups. The second between-group model, however, constrained each of the parameter estimates to be invariant across gender. If the chi-square for the constrained model is significantly larger than the chi-square for the unconstrained model, the assumption of invariance is not tenable. Finally, if the overall chi-square difference test revealed a lack of invariance, we examined the univariate modification indices to locate specific parameters that significantly differed across gender (Bentler 1989; Bollen 1989).

## RESULTS

### *Model Fit*

The goodness-of-fit information for overall model fit is presented in Table 2. As can be seen in this table, the large and highly significant chi-square value for the null model reveals a poor fit to the data, indicating that there was significant covariation among the variables.

Table 2 also shows that the hypothesized model, shown in Figure 1, had a substantially and significantly smaller chi-square value than the null model, indicating that it fit the

data better than the null model. However, the chi-square value was still relatively large and significant, indicating that substantial covariation could still be explained. Further, examining the other goodness-of-fit indices yielded inconsistent conclusions regarding absolute fit. Although the NFI and CFI were both close to 1.0, the NNFI was below the conventional .90 cutoff.

Because the hypothesized model had a significant chi-square value, as well as a NNFI below .90, the univariate modification indices were examined to determine whether the model's fit could be improved by freeing any of the 17 substantive paths that were constrained to equal zero. Parameters were freed if they improved model fit ( $p < .05$ ), and it made substantive sense to do so. The univariate modification indices revealed that the overall fit of the hypothesized model could be improved by freeing five of the 17 substantive paths. These five paths were: social contact to alcohol consumption, social support to drinking to cope, chronic financial strain to drinking to cope, personal resources to drinking to cope, and depression to alcohol problems. Turning again to Table 2, it can be seen that freeing the five paths in the revised model led to a statistically significant reduction in the chi-square value when compared to the hypothesized model. Furthermore, the chi-square value was nonsignificant, indicating that the revised model fit the data well. Moreover, for the revised model, the NFI and CFI were slightly larger, and the NNFI was much larger than the goodness-of-fit indices for the hypothesized model. Hence, there was an excellent level of overall fit for the revised model.

### *Path Coefficients*

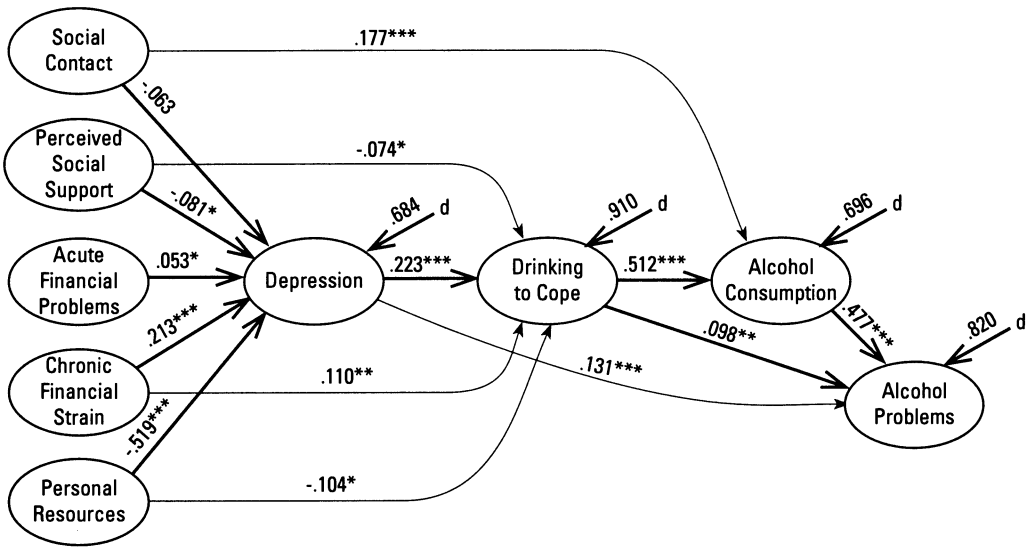
The standardized, covariate-adjusted path estimates for the revised model are shown in Figure 2. To facilitate interpretation of the model, we will discuss the model sequentially. It should be pointed out that wide arrows represent originally hypothesized

**TABLE 2. Goodness-of-Fit Summary**

Model	d.f.	$\chi^2$	$p$	$\Delta$ d.f.	$\Delta\chi^2$	$\Delta p$	NFI	NNFI	CFI
Null	105	3906.234	<.001						
Hypothesized	17	83.053	<.001	88	3823.181	<.001	.979	.893	.983
Revised	12	17.869	.120	5	65.184	<.001	.995	.986	.998

*Note:* NFI = Normed Fit Index; NNFI = Nonnormed Fit Index; and CFI = Comparative Fit Index.

**FIGURE 2. Summary of Standardized, Covariate-adjusted Parameter Estimates for the Revised Model**



**Intercorrelations Among Exogenous Variables**

Exogenous Variables	1	2	3	4	5
1. Social Contact	--				
2. Perceived Social Support	.43	--			
3. Acute Financial Problems	.02	-.13	--		
4. Chronic Financial Strain	.07	-.31	.33	--	
5. Personal Resources	.17	.46	-.12	-.28	--

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

Note. The letter 'd' represents the disturbance term for each endogenous variable. Wide arrows represent originally-hypothesized paths, whereas narrow arrows represent model modifications. Although not shown, age, race, sex, marital status, family education, and family income are modeled as covariates.

paths, whereas narrow arrows represent model modifications.

As hypothesized, both chronic financial strain and acute financial problems had a positive direct effect on depression. Also, as hypothesized, personal resources had a negative direct effect on depression. There was weaker support, however, for the hypothesized effects of social resources. Although perceived social support had a negative direct effect on depression, social contact was not directly related to depression.

Partial support was obtained for the hypothesis that depression mediates the relationships of financial strain, perceived social support, and personal resources to drinking to cope. Although depression had a positive direct effect on drinking to cope, chronic

financial strain also had a positive direct effect on drinking to cope. In addition, both perceived social support and personal resources had a negative direct effect on drinking to cope.

Turning to our measure of alcohol consumption, strong support was found for the hypothesis that drinking to cope mediates the relationship between depression and alcohol consumption. Specifically, drinking to cope had a positive direct effect on alcohol consumption. In addition, only one other variable, social contact, was found to have a positive direct effect on alcohol consumption.

Finally, as hypothesized, both alcohol consumption and drinking to cope had a positive direct effect on alcohol problems. In

addition, depression was also found to have a positive direct effect on alcohol problems.<sup>2</sup>

### Multiple Group Comparisons

To evaluate whether the findings based on the full sample were invariant across gender, race, and socioeconomic status (SES), unconstrained and constrained simultaneous between-group analyses were specified for each of the three variables. For gender, these analyses revealed a significant overall chi-square difference ( $\chi^2[14] = 79.33; p < .001$ ). Results are summarized in Table 3. Examination of these results revealed that six of the 14 relationships were stronger among males than among females. Multiple group comparison procedures also revealed a significant overall chi-square difference for race ( $\chi^2[14] = 30.11; p < .01$ ). Results are presented in Table 4. As shown, six relationships were stronger among Blacks than among non-Blacks. Finally, the multiple group comparison procedure was used to compare high versus low SES subgroups. The SES dichotomy was calculated by a median split of a continuous measure of SES, which was the average of standardized measures of family education and income. The analyses revealed a nonsignificant overall chi-square difference ( $\chi^2[14] = 16.93; p > .05$ ). In sum, simultaneous between-group analyses revealed a consistent pattern of gender and race differences in the model, but no differences with respect to SES.

### DISCUSSION

This research examined the relationships among financial strain, personal resources, social resources, psychological distress (i.e., depression), drinking to cope, alcohol use, and alcohol problems. A comprehensive model was developed from affect regulation theory and research on drinking motives, which was tested using structural equation modeling. Upon evaluation of the hypothesized model, the model was revised.

Unlike previous research, this study simultaneously employed measures of both chronic financial strain and acute financial problems. Consistent with past research, we found that both chronic and acute financial strain were positively related to depression (Hamilton et al. 1990; Pearlin et al. 1981). However, the standardized parameter estimate for the relationship between chronic financial strain and depression was four times larger than the estimate for the relationship between acute financial problems and depression. Hence, it would appear that Pearlin et al.'s (1981) chronic measure is a better predictor of depression than a count of acute financial problems. Perhaps poor financial resources have a lesser impact on depression when they are of short duration (i.e., acute), and only strongly affect depression to the extent that they affect everyday living over time (i.e., if they become chronic).

The model was also consistent with prior studies examining personal and social resources (Kernis et al. 1991; Kernis 1993; Tennen and Herzberger 1987). As expected,

**TABLE 3. Significant Subgroup Differences for Gender**

PATH	UNSTANDARDIZED PATH COEFFICIENTS		$\chi^2$ for Gender Difference
	MALE	FEMALE	
1. Depression → Drinking to Cope	.40***	.14**	18.08***
2. Personal Resources → Drinking to Cope	-.18*	-.05	10.08***
3. Chronic Financial Strain → Drinking to Cope	.14**	.04	7.74**
4. Depression → Alcohol Problems	.80***	.09	29.98***
5. Drinking to Cope → Alcohol Problems	.30†	.20*	25.21***
6. Alcohol Consumption → Alcohol Problems	.85***	.52***	22.20***

†  $p < .10$ ; \*  $p < .05$ ; \*\*  $p < .01$ ; \*\*\*  $p < .001$ .

TABLE 4. Significant Subgroup Differences for Race

PATH	UNSTANDARDIZED PATH COEFFICIENTS		$\chi^2$ for Race Difference
	Non-Black	Black	
1. Depression → Drinking to Cope	.19**	.27***	5.62*
2. Perceived Social Support → Drinking to Cope	-.04	-.14*	5.71*
3. Drinking to Cope → Alcohol Consumption	.66***	.89***	12.53***
4. Depression → Alcohol Problems	.26***	.34**	3.92*
5. Drinking to Cope → Alcohol Problems	.11†	.35*	10.50***
6. Alcohol Consumption → Alcohol Problems	.71***	.76***	5.68*

†  $p < .10$ ; \*  $p < .05$ ; \*\*  $p < .01$ ; \*\*\*  $p < .001$ .

personal resources (self-esteem and mastery) showed a strong negative relationship to depression. However, although perceived social support showed a negative, direct relationship to depression, the frequency of social contact was not directly related to depression. The failure to find a direct relationship between social contact with one's overall social network and depression might be due to several factors. First, many members of one's social network may not represent potential sources of social support or social resources. Second, even among social network members who provide various types of support, they may not provide support at every contact or for every problem a respondent encounters. Third, social contact may be indirectly related to depression via perceptions of social support. Although beyond the scope of this study, additional research is needed to clarify the nature of the relationships among contact with one's social network, types of perceived social support, and negative affect.

As we described above, perceived social support had a negative relationship to depression. In addition, it was also negatively related to drinking to cope. Hence, perceived social support exhibits an indirect negative relationship to alcohol consumption which is entirely mediated through depression and drinking to cope. In contrast, although the frequency of social contact has no direct relationship to depression or drinking to cope, it has a direct *positive* relationship to alcohol consumption. This relationship is reasonable in that the more frequently people report

getting together with family and friends, the more likely they are to consume alcohol in social settings. This also underscores the distinction between perceived social support and the frequency of social contact with one's social network. Although the former may indirectly reduce alcohol consumption, the latter may directly increase consumption.

In addition to perceived social support, three other variables were directly related to drinking to cope. The direct effect of depression on drinking to cope is consistent with affect regulation theory. However, the direct effects of chronic financial strain, perceived social support, and personal resources on drinking to cope are less easily explained. It may be that other dimensions of psychological distress, not captured by our measure of depression (e.g., anxiety, anger, somatization), may also mediate the relationships of financial strain, perceived social support, and personal resources to drinking to cope.

Consistent with previous research (Cahalan et al. 1969; Cooper et al. 1988, 1992, 1993; Polich and Orvis 1979), drinking to cope had a positive relationship to alcohol consumption. These results revealed that drinking to cope mediated the relationship between depression and alcohol consumption. In addition, as was discussed earlier, the frequency of social contact was positively related to alcohol consumption.

Finally, as hypothesized, both alcohol consumption and drinking to cope were positively related to alcohol problems. This suggests that one's reasons for drinking (i.e.,

motivation), as well as the quantity of alcohol consumed, may both be important in the development of alcohol problems. In addition, we found that depression was positively related to alcohol problems, independent of drinking to cope and alcohol consumption. This finding provides further indirect evidence that the qualitative context in which one drinks may increase the likelihood of problems. Perhaps depressed individuals drink at inauspicious or inappropriate times, which could lead to the development of alcohol problems regardless of the amount of alcohol consumed. In sum, our data suggest that the qualitative context in which one drinks, along with the quantity consumed, may both increase the likelihood of experiencing alcohol-related problems.

#### *Gender and Race Differences*

We found six gender differences with respect to the revised model. These differences revealed relationships that were stronger among males than among females. In addition, each of the moderated relationships involved an alcohol measure as the dependent variable (either drinking to cope or alcohol problems); gender did not moderate any of the relationships to depression. Specifically, we found that gender moderated the relationships between (1) depression and drinking to cope, (2) personal resources and drinking to cope, (3) chronic financial strain and drinking to cope, (4) depression and alcohol problems, (5) drinking to cope and alcohol problems, and (6) alcohol consumption and alcohol problems. These six vulnerability effects are consistent with research that has shown that men report more drinking to cope, and experience more alcohol problems than do women (Cooper et al. 1992; Frone, Russell, and Cooper 1993; Frone, Cooper, and Russell, forthcoming; Hilton 1987; Timmer, Veroff, and Colten 1985). In addition, among the hypothesized relationships that were moderated by gender (relationships 1, 5, and 6), the parameter estimates were significant for *both* males and females. In contrast, among the relationships reflecting model revisions that were moderated by gender (relationships 2, 3, and 4), parameter estimates were significant only for males. Hence, although this study revealed that gender differences exist in the financial stress

process, the major paths in the model remain significant for both males and females. Future research should examine further the extent to which gender moderates relationships in the stress process, and should model intervening variables that might explain the gender interactions.

We also found six racial differences with respect to the revised model. These differences revealed relationships that were stronger among Blacks than among non-Blacks. And, as was the case with the gender differences, each of the moderated relationships involved an alcohol measure as the dependent variable. Specifically, we found that race moderated the relationships between (1) depression and drinking to cope, (2) perceived social support and drinking to cope, (3) drinking to cope and alcohol consumption, (4) depression and alcohol problems, (5) drinking to cope and alcohol problems, and (6) alcohol consumption and alcohol problems. Among these six moderated relationships there were significant parameter estimates for non-Blacks as well as for Blacks, with the exception of the relationship between perceived social support and drinking to cope, which was significant only for Blacks. In fact, many of the significant differences appear to be small, and owe their significance to sample size (four of the differences include unstandardized weights that differ by .10 or less). Hence, although differences were found, the model generalizes across Blacks and non-Blacks. Future research should attempt to replicate these racial differences to help build our theoretical understanding of whether and about how race influences the stress process.

#### *Generalization to Other Forms of Stress and Drug Use*

Although the model in this paper used financial strain and problems as stressors and alcohol as the target substance, it is likely that the model will generalize to other forms of stress and substance use (e.g., cigarette and illicit drug use). For example, negative affect and 'using illicit drugs' to cope may mediate the relationship between stress and the use of illicit drugs. Although no studies have specifically examined these relationships with respect to drug use, some research has shown that people report using illicit drugs (Parry et al. 1974; Timmer et al. 1985) and cigarettes

(Ikard and Tomkins 1973; Tate and Stanton 1990) to cope with stress. Further, there is evidence to suggest that positive relationships exist between different forms of stress (such as negative life events, life transitions, daily hassles, chronic life strains, developmental/family strains) and different forms of drug use (for a review, see Lindenberg, Gendrop, and Reiskin 1993; see also Rebach et al. 1992; Frone et al., forthcoming). In short, future research should extend this model to examine whether negative affect and 'using drugs' to cope are effective mediators of the relationship between stress and drug use.

### Limitations

Several important methodological limitations should be acknowledged. First, although our model was conceptualized in terms of putative causes and effects, it is recognized that, as with any cross-sectional study, caution must be exercised with regard to the causal inferences concerning the hypothesized relationships. Second, because the data were based on self-reports, the magnitude of relationships may have been inflated because of method variance or general personality dispositions (Burke, Brief, and George 1993). Although we cannot directly rule out such a possibility, it is useful to point out that the influence of these two methodological artifacts should be relatively constant across all relationships. Thus, if the relationships observed in this study were largely a function of either method bias or personality disposition, we would have expected to find significant structural relationships among the 17 null relationships as well as the hypothesized relationships. Although we find five additional significant relationships, each made strong substantive sense. Hence, it seems unlikely that our findings are solely attributable to method variance or stable personality dispositions. Third, it is acknowledged that there may be reciprocal relationships among the variables in the model. For example, depression and alcohol use may be reciprocally related, although the direction of the alcohol-to-depression relationship is not clear. For example, there is some evidence to suggest that alcohol use may be negatively related to depression in the short run, and positively related to depression in the long run (Aneshensel and Huba 1983; Hartka et al.

1991). From an affect regulation perspective, one would expect that alcohol alleviates depression in the short term, but prolonged and heavy use of alcohol to cope with depression may increase depression in the long term. In the present study, we were unable to test reciprocal relationships, because the needed instrumental variables were not available to identify such a model. Future research should attempt to test reciprocal relationships among pairs of variables included in our model utilizing both cross-sectional and longitudinal data.

### Conclusion

In conclusion, this study shows the utility of using multivariate models to understand the *financial strain* → *alcohol* relationship. Prior research has shown that (1) chronic financial strain is positively related to depression (Ensminger and Celentano 1988; Hamilton et al. 1990; Kessler et al. 1987, 1988; Menaghan 1989; Pearlin et al. 1981; Ross and Huber 1985; Voydanoff and Donnelly 1988); (2) depression is positively related to alcohol use (Aneshensel and Huba 1983; Berger and Adesso 1991; Birnbaum et al. 1983; Haack et al. 1988; Hartka et al. 1991; Parker et al. 1987; Wilsnack, Wilsnack, and Klassen 1984); and that (3) financial strain is positively related to alcohol use (Moos et al. 1989; Pearlin and Radabaugh 1976). By drawing on affect regulation theory, this study has developed and tested a comprehensive model that suggests a causal order among these variables and three psychosocial variables. In short, the data support affect regulation theory in that depression, in part, mediated the relationship between financial strain and drinking to cope, and drinking to cope mediated the relationship between depression and alcohol use/abuse.

### NOTES

1. To avoid biasing our test of the proposed hypotheses, we limited the sample to respondents who drank within the last year. Abstainers, by definition, have scores of zero on drinking to cope, alcohol consumption, and alcohol problems. Thus, they may affect the parameter estimates in two ways. First, because abstainers experience varying amounts of personal and social resources, financial strain, and depression, but have a score of zero on the

alcohol outcomes, including them in the analysis may attenuate the relationships between these two sets of variables. Second, because abstainers have a score of zero on each of the alcohol outcome variables, including them in the analysis may artificially inflate the relationships among these variables. In fact, when we re-ran the model including abstainers, this is what we found. The hypothesized relationships from the personal and social resource, financial strain, and depression variables to the alcohol outcomes decreased slightly. In addition, two significant non-hypothesized relationships were no longer significant (i.e., perceived social support to drinking to cope, and chronic financial strain to drinking to cope). Finally, the magnitude of the hypothesized relationships among the alcohol variables increased slightly.

2. Because of the items used in the alcohol consumption variable and in the alcohol problems scale, the relationship might have been inflated due to a measurement-related confound. As noted earlier, although our alcohol consumption variable was comprised of two items assessing the quantity and frequency of usual or daily consumption, it also contained an item assessing "binge" drinking (the frequency of heavy drinking). Moreover, the alcohol problems scale contained three questions that explicitly assessed heavy consumption. To address the issue of confounding between alcohol consumption and alcohol problems, we first re-computed our alcohol problems scale dropping the three questions that dealt with consumption. We found that this change did not influence the results. Second, using the new alcohol problems scale, we re-ran the model replacing our alcohol consumption variable with an average consumption variable (average drinks per day), and again found no changes in the results. Given that unconfounding the alcohol consumption variable and alcohol problems scale did not affect the results of our study, we chose to report the analyses that utilized the original variables because: (1) the alcohol problems scale represents a standard scale used in the alcohol literature, and (2) we believe that our composite measure of alcohol consumption is internally consistent, and better captures the latent construct of alcohol consumption or involvement.

## REFERENCES

- Aneshensel, Carol S. and George J. Huba. 1983. "Depression, Alcohol Use, and Smoking Over One Year: A Four-Wave Longitudinal Causal Model." *Journal of Abnormal Behavior* 92:134-50.
- Bentler, Peter M. 1989. *EQS Structural Equations Program Manual*. Los Angeles, CA: BMDP Statistical Software.
- Berger, Bertrand D. and Vincent J. Adesso. 1991. "Gender Differences in Using Alcohol to Cope with Depression." *Addictive Behaviors* 16:315-27.
- Birnbaum, Isabel M., Thomas H. Taylor, and Elizabeth S. Parker. 1983. "Alcohol and Sober Mood State in Female Social Drinkers." *Alcoholism: Clinical and Experimental Research* 7:362-68.
- Bollen, Kenneth A. 1989. *Structural Equations with Latent Variables*. New York: Wiley.
- Brennan, Penny L. and Rudolf H. Moos. 1990. "Life Stressors, Social Resources, and Late-Life Problem Drinking." *Psychology and Aging* 5:491-501.
- Brenner, M. Harvey. 1987. "Economic Change, Alcohol Consumption, and Heart Disease Mortality in Nine Industrial Countries." *Social Science and Medicine* 25:119-32.
- Brenner, M. Harvey and Anne Mooney. 1983. "Unemployment and Health in the Context of Economic Change." *Social Science and Medicine* 17:1125-38.
- Burke, Michael J., Arthur P. Brief, and Jennifer M. George. 1993. "The Role of Negative Affectivity in Understanding Relations Between Self-Reports of Stressors and Strains: A Comment on the Applied Psychology Literature." *Journal of Applied Psychology* 78:402-12.
- Caetano, Raul. 1988. *The Epidemiology of Alcohol-Related Problems in the U.S.: Concepts, Patterns, and Opportunities for Research*. Paper presented at the NIAAA Ad Hoc Extramural Science Advisory Board Meeting on Incidence and Prevalence, November 29, Washington, DC.
- Cahalan, Don, Ira H. Cisin, and Helen M. Crossley. 1969. *American Drinking Practices: A National Study of Drinking Behavior and Attitudes*. New Brunswick, NJ: Rutgers Center of Alcohol Studies.
- Cappell, Howard and Janet Greeley. 1987. "Alcohol and Tension Reduction: An Update on Research and Theory." Pp. 15-54 in *Psychological Theories of Drinking and Alcoholics*, edited by H.T. Blane and K.E. Leonard. New York: Guilford Press.
- Catalano, Ralph, David Dooley, Georjeanna Wilson, and Richard Hough. 1993. "Job Loss and Alcohol Abuse: A Test Using Data from the Epidemiologic Catchment Area Project." *Journal of Health and Social Behavior* 34:215-25.
- Cohen, Sheldon and Harry M. Hoberman. 1983. "Positive Events and Social Supports as Buffers of Life Change Stress." *Journal of Applied Social Psychology* 13:99-125.
- Cohen, Sheldon and Thomas Ashby Wills. 1985.



- "Stress, Social Support, and the Buffering Hypothesis." *Psychological Bulletin* 98:310-57.
- Conger, Rand D., Frederick O. Lorenz, Glen H. Elder, Jr., Ronald L. Simons, and Xiaojia Ge. 1993. "Husband and Wife Differences in Response to Undesirable Life Events." *Journal of Health and Social Behavior* 34:71-88.
- Cooke, D.J. and Carole A. Allan. 1983. "Self-Reported Alcohol Consumption and Dissimulation in a Scottish Urban Sample." *Journal of Studies on Alcohol* 44:617-29.
- Cooper, M. Lynne, Marcia Russell, and Michael R. Frone. 1993. *Antecedents and Consequences of Enhancement and Coping Motives for Alcohol Use*. Poster presented at the Annual Convention of the American Psychological Association, August 20-24, Toronto, Canada.
- Cooper, M. Lynne, Marcia Russell, and William H. George. 1988. "Coping, Expectancies, and Alcohol Abuse: A Test of Social Learning Formulations." *Journal of Abnormal Psychology* 97:218-30.
- Cooper, M. Lynne, Marcia Russell, Jeremy B. Skinner, and Michael Windle. 1992. "Development and Validation of a Three-Dimensional Measure of Drinking Motives." *Psychological Assessment* 4:123-32.
- Crawford, Alex, Martin A. Plant, Norman Kreitman, and Richard W. Latham. 1987. "Unemployment and Drinking Behaviour: Some Data from a General Population Survey of Alcohol Use." *British Journal of Addiction* 82:1007-16.
- Dohrenwend, Barbara Snell, Larry Krasnoff, Alexander R. Askenasy, and Bruce P. Dohrenwend. 1978. "Exemplifications of a Method for Scaling Life Events: The PERI Life Events Scale." *Journal of Health and Social Behavior* 19:205-29.
- Donald, Cathy A. and John E. Ware, Jr. 1982. *The Quantification of Social Contacts and Resources*. Santa Monica, CA: The Rand Corporation.
- Ensminger, Margaret E. and David D. Celentano. 1988. "Unemployment and Psychiatric Distress: Social Resources and Coping." *Social Science and Medicine* 27:239-47.
- Forcier, Michael W. 1988. "Unemployment and Alcohol Abuse: A Review." *Journal of Occupational Medicine* 30:246-51.
- Frone, Michael R., M. Lynne Cooper, and Marcia Russell. Forthcoming. "Stressful Life Events, Gender, and Substance Use: An Application of Tobit Regression." *Psychology of Addictive Behaviors*.
- Frone, Michael R., Marcia Russell, and M. Lynne Cooper. 1993. "Relationship of Work-Family Conflict, Gender, and Alcohol Expectancies to Alcohol Use/Abuse." *Journal of Organizational Behavior* 14:545-58.
- Gore, Susan. 1978. "The Effect of Social Support in Moderating the Health Consequences of Unemployment." *Journal of Health and Social Behavior* 19:157-65.
- Groeneveld, Judith, Martin Shain, and James Simon. 1990. *Unemployment, Alcohol, and Drugs: A Contextual Study*. Toronto, Canada: Alcoholism and Drug Addiction Research Foundation.
- Haack, Mary R., Thomas C. Harford, and Douglas A. Parker. 1988. "Alcohol Use and Depression Symptoms Among Female Nursing Students." *Alcoholism: Clinical and Experimental Research* 12:365-67.
- Hamilton, V. Lee, Clifford L. Broman, William S. Hoffman, and Deborah S. Renner. 1990. "Hard Times and Vulnerable People: Initial Effects of Plant Closing on Autoworkers' Mental Health." *Journal of Health and Social Behavior* 31:123-40.
- Hartka, Elizabeth, Bryan Johnstone, E. Victor Leino, Michelle Motoyoshi, Mark T. Temple, and Kaye Middleton Fillmore. 1991. "A Meta-Analysis of Depressive Symptomatology and Alcohol Consumption Over Time." *British Journal of Addiction* 86:1283-98.
- Heien, Dale and Greg Pompelli. 1987. "Stress, Ethnic, and Distribution Factors in a Dichotomous Response Model of Alcohol Abuse." *Journal of Studies on Alcohol* 48:450-55.
- Hilton, Michael E. 1987. "Demographic Characteristics and the Frequency of Heavy Drinking as Predictors of Self-Reported Drinking Problems." *British Journal of Addiction* 82:913-25.
- Ikard, Frederick F. and Silvan Tomkins. 1973. "The Experience of Affect as a Determinant of Smoking Behavior: A Series of Validity Studies." *Journal of Abnormal Psychology* 81:172-81.
- Iversen, Lars and Hans Klausen. 1986. "Alcohol Consumption Among Laid-Off Workers Before and After Closure of a Danish Ship-Yard: A 2-Year Follow-Up Study." *Social Science and Medicine* 22:107-109.
- Kernis, Michael H. 1993. "The Roles of Stability and Level of Self-Esteem in Psychological Functioning." Pp. 167-82 in *Self-Esteem: The Puzzle of Low Self-Regard*, edited by R.F. Baumeister. New York: Plenum Press.
- Kernis, Michael H., Bruce D. Grannenmann, and Lynda C. Mathis. 1991. "Stability of Self-Esteem as a Moderator of the Relation Between Level of Self-Esteem and Depression." *Journal of Personality and Social Psychology* 61:80-84.
- Kessler, Ronald C. 1979. "Stress, Social Status, and Psychological Distress." *Journal of Health and Social Behavior* 20:259-72.
- Kessler, Ronald C., J. Blake Turner, and James S. House. 1987. "Intervening Processes in the Relationship Between Unemployment and Health." *Psychological Medicine* 17:949-61.
- \_\_\_\_\_. 1988. "Effects of Unemployment on Health in a Community Survey: Main, Modify-

- ing, and Mediating Effect." *Journal of Social Issues* 44:69-85.
- Kilpatrick, Rosemary and Karen Trew. 1985. "Life-Styles and Psychological Well-Being Among Unemployed Men in Northern Ireland." *Journal of Occupational Psychology* 58:207-16.
- Kozlowski, Steve W.J., Georgia T. Chao, Eleanor M. Smith, and Jennifer Hedlund. 1993. "Organizational Downsizing: Strategies, Interventions, and Research Implications." Pp. 263-332 in *International Review of Industrial and Organizational Psychology*, vol. 8, edited by C.L. Cooper & I.T. Robertson. New York: Wiley.
- Lindenberg, Cathy Strachan, Sylvia C. Gendrop, and Helen K. Reiskin. 1993. "Empirical Evidence for the Social Stress Model of Substance Abuse." *Research in Nursing & Health* 16:351-62.
- Linsky, Arnold S., Murray A. Straus, and John P. Colby, Jr. 1985. "Stressful Events, Stressful Conditions and Alcohol Problems in the United States: A Partial Test of Bale's Theory." *Journal of Studies on Alcohol* 46:72-80.
- Marshall, Grant N. and Eric L. Lang. 1990. "Optimism, Self-Mastery, and Symptoms of Depression in Women Professionals." *Journal of Personality and Social Psychology* 59:132-39.
- Menaghan, Elizabeth G. 1989. "Psychological Well-Being Among Parents and Non-Parents: The Importance of Normative Expectedness." *Journal of Family Issues* 10:547-65.
- Moos, Rudolph H., Catherine B. Fenn, Andrew G. Billings, and Bernice S. Moos. 1989. "Assessing Life Stressors and Social Resources: Applications to Alcoholic Patients." *Journal of Substance Abuse* 1:135-52.
- Mulford, Harold A. and Donald E. Miller. 1963. "Drinking in Iowa: III. A Scale of Definitions of Alcohol Related to Drinking Behavior." *Quarterly Journal of Studies on Alcohol* 21:267-78.
- Neff, James Alan. 1985. "Race and Vulnerability to Stress: An Examination of Differential Vulnerability." *Journal of Personality and Social Psychology* 49:481-91.
- Olkinuora, Martti. 1984. "Alcoholism and Occupation." *Scandinavian Journal on Work Environment and Health* 10:511-15.
- Parker, Douglas A., Elizabeth S. Parker, Thomas C. Harford, and Gail C. Farmer. 1987. "Alcohol Use and Depression Symptoms Among Employed Men and Women." *American Journal of Public Health* 77:704-707.
- Parry, Hugh J., Ira H. Cisin, Mitchell B. Balter, Glen D. Mellinger, and Dean I. Manheimer. 1974. "Increasing Alcohol Intake as a Coping Mechanism for Psychic Distress." Pp. 119-44 in *Social Aspects of the Medical Use of Psychotropic Drugs*, edited by R. Cooperstock. Toronto, Canada: Alcoholism and Drug Addiction Research Foundation of Ontario.
- Pearlin, Leonard I. 1989. "The Sociological Study of Stress." *Journal of Health and Social Behavior* 30:241-56.
- Pearlin, Leonard I. and Morton A. Lieberman. 1979. "Social Sources of Emotional Distress." Pp. 217-48 in *Research in Community and Mental Health*, vol. 1, edited by R. Simmons. Greenwich, CT: JAI Press.
- Pearlin, Leonard I. and Clarice W. Radabaugh. 1976. "Economic Strains and the Coping Functions of Alcohol." *American Journal of Sociology* 82:652-63.
- Pearlin, Leonard I., Elizabeth G. Menaghan, Morton A. Lieberman, and Joseph T. Mullan. 1981. "The Stress Process." *Journal of Health and Social Behavior* 22:337-56.
- Polich, J. Michael and Bruce R. Orvis. 1979. *Alcohol Problems: Patterns and Prevalence in the U.S. Air Force*. Santa Monica, CA: The Rand Corporation.
- Radloff, Lenore Sawyer. 1977. "The CES-D Scale: A Self-Report Depression Scale for Research in the General Population." *Applied Psychological Measurement* 1:385-401.
- Rebach, Howard M., Catherine S. Bolek, Katherine L. Williams, and Robert Russell. 1992. *Substance Abuse Among Ethnic Minorities in America*. New York: Garland.
- Robins, Lee N., John E. Helzer, Jack Croughan, Janet B.W. Williams, and Robert L. Spitzer. 1981. *NIMH Diagnostic Interview Schedule: Version III*. Rockville, MD: National Institute of Mental Health.
- Rosenberg, Morris. 1965. *Society and the Adolescent Self-Image*. Princeton, NJ: Princeton University Press.
- Ross, Catherine E. and Joan Huber. 1985. "Hardship and Depression." *Journal of Health and Social Behavior* 26:312-27.
- Smart, Reginald G. 1979. "Drinking Problems Among Employed, Unemployed, and Shift Workers." *Journal of Occupational Medicine* 21:731-36.
- Tate, James C. and Annette L. Stanton. 1990. "Assessment of the Validity of the Reasons for Smoking Scale." *Addictive Behaviors* 15:129-35.
- Tennen, Howard and Glenn Affleck. 1993. "The Puzzles of Self-Esteem: A Clinical Perspective." Pp. 241-62 in *Self-Esteem: The Puzzle of Low Self-Regard*, edited by R.F. Baumeister. New York: Plenum Press.
- Tennen, Howard and Sharon Herzberger. 1987. "Depression, Self-Esteem, and the Absence of Self-Protective Attributional Biases." *Journal of Personality and Social Psychology* 52:72-80.
- Timmer, Susan Goff, Joseph Veroff, and Mary Ellen Colten. 1985. "Life Stress, Helplessness, and the Use of Alcohol and Drugs to Cope: An

- Analysis of National Survey Data." Pp. 171-98 in *Coping and Substance Use*, edited by S. Shiffman and T.A. Wills. New York: Academic Press.
- Ullah, Philip, Michael Banks, and Peter Warr. 1985. "Social Support, Social Pressures, and Psychological Distress During Unemployment." *Psychological Medicine* 15:283-95.
- Voydanoff, Patricia and Brenda W. Donnelly. 1988. "Economic Distress, Family Coping, and Quality of Family Life." Pp. 97-116 in *Families and Economic Distress: Coping Strategies and Social Policy*, edited by P. Voydanoff and L.C. Majka. Beverly Hills, CA: Sage.
- Warr, Peter. 1984. "Job Loss, Unemployment and Psychological Well-Being." Pp. 263-85 in *Role Transitions*, edited by V.L. Allen and E. van de Vliert. New York: Plenum Press.
- Warr, Peter and Paul Jackson. 1985. "Factors Influencing the Psychological Impact of Prolonged Unemployment and of Re-Employment." *Psychological Medicine* 15:795-807.
- Warr, Peter and Roy Payne. 1983. "Social Class and Reported Changes in Behavior After Job Loss." *Journal of Applied Social Psychology* 13:206-22.
- Williams, Ann W., John E. Ware, Jr., and Cathy A. Donald. 1981. "A Model of Mental Health, Life Events, and Social Supports Applicable to General Populations." *Journal of Health and Social Behavior* 22:324-36.
- Wilsnack, Richard W., Sharon C. Wilsnack, and Albert D. Klassen. 1984. "Women's Drinking and Drinking Problems: Patterns From a 1981 National Survey." *American Journal of Public Health* 74:1231-38.
- Wilsnack, Sharon C., Albert D. Klassen, and Richard W. Wilsnack. 1984. "Drinking and Reproductive Dysfunction Among Women in a 1981 National Survey." *Alcoholism: Clinical and Experimental Research* 8:451-58.
- Winton, Maurice, Nick Heather, and Ian Robertson. 1986. "Effects of Unemployment on Drinking Behavior: A Review of the Relevant Evidence." *The International Journal of the Addictions* 21:1261-83.

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