

Working Paper Series

Work Stress and Alcohol Use Among Women in the Health Industry: A Longitudinal Study

Nancy L. Marshall,
Rosalind C. Barnett

(1991) Paper No. 239

Working Paper Series

The goal of the Wellesley Centers for Women Working Paper Series is to share information generated by the Centers' research and action projects, programs, and staff and to do so expeditiously, without the usual delay of journal publication. All papers in the extensive Working Paper Series have been peer-reviewed.

The Wellesley Centers for Women

The Wellesley Centers for Women (WCW) conducts scholarly research and develops sound training and evaluation programs that place women's experiences at the center of its work. WCW focuses on three major areas:

- The status of women and girls and the advancement of their human rights both in the United States and around the globe;
- The education, care, and development of children and youth; and
- The emotional well-being of families and individuals.

Issues of diversity and equity are central across all the work as are the experiences and perspectives of women from a variety of backgrounds and cultures. Since 1974, WCW has influenced public policy and programs by ensuring that its work reaches policy makers, practitioners, educators, and other agents of change.

The Wellesley Centers for Women is the single organization formed in 1995 by combining the Center for Research on Women (founded 1974) and the Stone Center for Developmental Studies (founded 1981) at Wellesley College. For more information, please visit: www.wcwonline.org.

Ordering Information

Working Papers and other publications of the Wellesley Centers for Women (WCW) are available for purchase through the WCW Publications Office. For a complete list of current publications, visit our online catalog at: www.wcwonline.org/publications.

Publications Office - Wellesley Centers for Women
Wellesley College, 106 Central Street, Wellesley, MA 02481
Phone: 781-283-2510 Fax: 781-283-2504

Unless otherwise noted, the authors hold the copyright to their WCW publications. Please note that reproducing a WCW publication without the explicit permission of the author(s) is a violation of copyright law.

Data for this paper were collected as part of a project, "Occupational Stress and Health of Women Social Workers and licensed Practical Nurses," funded by the National Institute of Occupational Health and Safety (#OH-1968).

Abstract

Using individual growth-model statistical techniques, we tested the relationship between changes over time in work stress and changes over time in alcohol use among a random sample of 339 women employed as social workers or licensed practical nurses. We found partial confirmation for Karasek's Job Demand -Job Decision Latitude model among women without a family history of drinking problems. However, we found that the rewards of helping others was an even more effective buffer of the impact of job demands on alcohol use for these women employed in the helping professions.

Alcohol problems among employed women are potentially costly in human and financial terms, when they contribute to increased absenteeism, injuries on the job, reduced productivity, job loss and illness. A full understanding of the causative processes contributing to worksite-related alcohol problems is a necessary foundation for policies and practices that can hope to reduce these costs. Towards this end, we present a model of these causative processes that is based on existing research. We then test this model, using longitudinal data from a stratified random sample of 403 women employed in two health occupations.

Theoretical Model

Our theoretical model posits that 1) change over time in work stress is associated with change over time in alcohol use; and 2) the relationship between change in work stress and change in alcohol use will be moderated by whether or not an individual has a family history of drinking problems.

We focus on change in alcohol use, rather than alcoholism, because alcoholism is relatively rare in a population sample, such as the one under study here. While heavy alcohol use is not synonymous with alcoholism or with alcohol-related problems, alcohol use is strongly correlated with other indicators of alcohol abuse, and heavy users may be more likely to develop certain types of alcohol-related problems (Armor & Polich, 1982). Understanding the causative processes in alcohol use will increase the knowledge base needed to understand drinking behavior among workers.

The Job Demand-Job Decision Latitude Model

Work stress, arising from work overload, lack of control over work activities, monotony, and other stressors at work, is argued to contribute to feelings of strain that can result in problematic drinking (Trice & Sonnenstuhl, 1988; Price, 1985), as well as in poorer mental and physical health. Karasek and colleagues (1982, 1990) have advanced this field by pulling together two traditions of research on work stress. One tradition, the "life stress" tradition, has focused on mental and physical illness induced by "stressors" on the job, including such job demands as work load, deadlines, or conflicts (Theorell, 1976; Caplan, Cobb, French, Van Harrison, & Pinneau, 1975; Quinn et al, 1971). A second tradition, including studies of job satisfaction, has focused on decision latitude (Turner & Lawrence, 1965; Walker & Guest, 1952; Hackman & Lawler, 1971). Joining these two traditions into a single model, Karasek and colleagues have posited that psychological and physiological strain result from jobs with a combination of high psychological demands and low decision latitude (Karasek et al, 1982; Karasek & Theorell, 1990). The Karasek model has been shown to be a significant predictor of cardiovascular disease and depression and anxiety (Karasek & Theorell, 1990; Marshall, Barnett, Baruch, & Pleck, forthcoming).

While the Karasek model is recognized as promising in the study of alcohol use (Price, 1985), it has not yet had an adequate test. Some studies have examined the importance of various job-stress variables, and their results lend general credence to the

predictive role of job stress (Margolis, Kroes & Quinn, 1974; Fennell, Rodin, & Kantor, 1981; Ferguson, 1974; Hingson, Mangione & Barrett, 1981; Parker & Brody, 1982). However, other studies do not find effects for job stress (Seeman & Anderson, 1983; Harris & Fennell, 1988; Cooper, Russell & Frone, 1990). This inconsistency may exist because the models being tested did not include the combination of high job demands and low job decision latitude that Karasek has found to be so powerful. A few studies of alcohol use have attempted to test the Karasek model directly (Seeman, Seeman, & Budros, 1988; Mensch & Kandel, 1988), but their results have not supported the model. However, these studies were hampered by methodological difficulties, as the authors point out, including inadequate measures of job demand and job decision latitude. In this paper, we conduct a test of the Karasek model with adequate measures.

Women, work and alcohol use. Much of the research on work stress and alcohol use has involved male samples. Among female samples, work stress has been shown to be related to greater job dissatisfaction and burnout, absenteeism, intentions to leave the profession, poorer job performance and higher levels of anxiety, depression and somatic complaints (Jayaratne & Chess, 1984; Gray- Toft & Anderson, 1985; Jayaratne, Chess, & Kunkel, 1986; Tetrick & LaRocco, 1987; Fimian, Fastenau, Thomas, 1988). Job stress has also been found to be associated with problem drinking among women (Parker & Farmer, 1988; Alfredsson, Spetz & Theorell, 1985). Alfredsson and colleagues found that low levels of intellectual discretion (monotonous work and few opportunities to learn new things) were associated with hospitalizations for alcohol-related illness. In women, hectic work, in addition to low intellectual discretion, added substantially to the risk.

Work stress in a service economy. Much of the work that has supported the Karasek job demand-job decision latitude model has focused on manufacturing occupations. Our own work (Barnett & Marshall, 1991; Marshall, Barnett, Baruch & Pleck, forthcoming) suggests that the job characteristics predictive of high-strain in non-manufacturing occupations may differ from those proposed by Karasek and colleagues. Service industries (such as the health industry) are fast becoming the largest segment of the American economy, currently employing more than twice as many workers as the manufacturing sector (Karasek & Theorell, 1990, p.27). Occupations in these service industries, including social work and nursing, are often characterized by a focus on the social relationships between the client and the caregiver, as opposed to the physical component of production, which is paramount in conventional manufacturing occupations. We have found that, for women employed in the helping professions, there is a strong interaction between job overload and the rewards of helping others on the job. Specifically, the mental and physical health of women in jobs with high overload are protected from the damaging effects of overload if their jobs also provide them with the opportunity to help others effectively (Marshall, Barnett, Baruch & Pleck, forthcoming; Barnett, Davidson & Marshall, 1991; Barnett & Marshall, forthcoming). The rewards of helping others, among caregivers in the service industries, may be a more salient job reward, and job demand mitigator, than is decision latitude.

Family History of Drinking Problems

The central purpose of this paper is to examine the relationship between work stress and alcohol use. However, biological factors or antecedent environmental factors may mask the role of work stress or other environmental factors. According to the DSM-III, alcohol abuse is more common among family members than in the general population, suggesting that a family history of drinking problems may represent a biological or antecedent environmental factor. In this paper we examine the relationship between work stress and alcohol use separately for women with and without a family history of problem-drinking.

A Longitudinal Approach

As in most research in the social sciences, studies of job stress and alcohol use have relied primarily on cross-sectional analyses. While this work has advanced our understanding, a longitudinal research design offers a more rigorous test of our theoretical models, by examining the relationship between change in one variable, and change in another variable. We will return to this issue in the methods section below.

Hypotheses

Based on the above discussion, we hypothesize that:

- 1) changes over time in work stress will be associated with changes over time in alcohol use;
- 2) the Job Demand-Job Decision Latitude Model will be a better predictor of changes over time in alcohol use than will the main effects model alone;
- 3) changes over time in the rewards of helping others will moderate the relationship between changes over time in job demand and changes over time in alcohol use;
- 4) the relationship between work stress and alcohol use will differ for individuals with and without a family history of drinking problems.

Methods

Sample

A sample of 403 Massachusetts women, ages 25-55, employed at least half-time as social workers or licensed practical nurses was initially recruited in 1985-86. Three waves of data, each one year apart (1985-86, 1986-87, 1987-88), were collected on this sample. The sample was restricted to women employed as licensed practical nurses (LPNs) and social workers who were included in the state registry of social workers. These two occupations were chosen because they are highly stressful (Jayaratne & Chess, 1984; Gray-Toft & Anderson, 1985; Jayaratne et al, 1986; Tetrick & LaRocco, 1987; Fimian, Fastenau,

Thomas, 1988; Revicki & Harold, 1989; Karasek & Theorell, 1990) and their respective licensing registries made drawing a random sample feasible. We also chose licensed practical nurses (LPNs) and social workers because they represent two different social classes. LPNs have a high school education plus training as LPNs, compared to social workers who have college degrees, and, in more than 85% of the cases in our sample, graduate training.

The sample was restricted to women who were employed at least 20 hours a week at the time of the first interview. In addition, respondents had to have been employed in their field for at least one year, and in their current job for at least three months, to avoid tapping those strains unique to entry into an occupation or a new job. Failure to meet these criteria was the main reason for ineligibility. Potential respondents were also ineligible if they were primarily self-employed or if they worked rotating or night shifts, since these populations tend to experience unique stressors.

The sample was stratified, within occupation, by race, parental status, and partnership status (a woman was considered partnered if she was married or living with a romantic partner). Occupation, race, parenthood and partnership status are confounded in the general population. For example, among women ages 25 to 55, white women are more likely to be currently married than are black women. Thus, in order to avoid the problem of trying to disentangle such variables as race and occupation, or race and partnership status, the sample was stratified.

The respondents were randomly selected from their respective professional registries. The consent rate was 97.3% of those social workers who were contacted and who met the eligibility criteria for the study, and 96% for eligible LPNs contacted. For details on the sampling procedures, see Barnett & Marshall (forthcoming).

Attrition

For the second wave of data, collected one year later in 1986-87, 4 of the respondents had moved out of the area and 11 refused to be interviewed. In the third wave, collected in 1987-88, 3 respondents had moved out of the area and 2 had died; 11 refused to participate. Of the 403 women in the first wave of data, fully 92% (371) were interviewed in all three years.

At the time of the first wave of data collection, the sample consisted of 403 health-care providers; 248 social workers (204 white and 44 black social workers), and 155 licensed practical nurses (138 white and 17 black LPNs). The mean age of the sample was 39.5 years ($SD = 7.4$). On average, the women had been working in their respective occupations for 11 years (range was from 2 to 35 years), and at their current jobs for 6 years.

Measures

Work stress. Research on job stress requires measures that assess the specific aspects of a job that are believed to be related to the outcomes under investigation. Most of the measures currently in use were developed at a time when manufacturing dominated the economy. As a result, they do not adequately assess occupations in the growing service economy (Cain & Treiman, 1981). The Job Role Quality Scales, developed by Barnett, Baruch and Marshall (Marshall, Barnett & Sayer, 1990) address this gap.

The Job Role Quality Scales were originally developed based on data from extensive interviews with 72 women, ages 35 to 55. The scales were then modified and expanded, drawing on psychometric data from a sample of 238 women, focus groups with an additional 30 women employed as licensed practical nurses or social workers, as well as the work of other researchers. There are two 25-item Job Role Quality Scales: one to assess the rewards of a role, the other to assess the costs or concerns.

In this sample, Cronbach's alpha for the Job-Reward Scale was 0.88, for the Job- Concern Scale, 0.89. The test-retest correlations over a three-month period were .87 for the Reward Scale and .81 for the Concern Scale. Both Job-Reward Scale scores and Job- Concern Scale scores are significantly correlated in the expected direction with measures of mental and physical health. Compared to women with lower Reward scores and higher Concern scores, those with higher Reward and lower Concern scores report less psychological distress, greater well-being, less work-related anxiety, and better physical health.

Using LISREL for confirmatory factor analysis (Joreskog & Sorbom, 1986), six factors were confirmed for the Job-Reward Scale: Decision Authority, Challenge, Helping Others, Recognition, Good Supervision, and Satisfaction with Salary. This six-factor model provided an adequate fit to the data, $\chi^2(155) = 276.46$, $p = .000$. The Chi-square/degrees of freedom ratio is 1.14. Additional evidence of fit was provided by the high goodness-of-fit index (.884) as well as the small root mean square value of the residuals (.06). The Challenge and Decision Authority factors are similar in content to the two component scales of Karasek's Job Decision Latitude.

Five factors were confirmed for the Job-Concern Scale: Overload, Poor Supervision, Lack of Advancement, Discrimination, and Hazard Exposure. This five-factor model provided an adequate fit to the data, $\chi^2(94) = 174.26$, $p = .000$. The Chi-square/degrees of freedom ratio is 1.85. Additional evidence of fit was provided by the high goodness-of-fit index (.908) as well as the small root mean square value of the residuals (.06). Internal consistency reliability coefficients (Cronbach's alphas) for the rewards and concerns factors ranged between .65 and .87, except for Discrimination, with an alpha of .48. Because of the theoretical importance of job demands to the Karasek model, we focus on the Job Overload factor, our measure of job demands, in this paper.

Family history of drinking problems. Each respondent was asked if she had ever been worried about the drinking of either parent, or any of her siblings. A "yes" for any family member is scored as a family history of drinking problems, since her concern is an important indicator of drinking behavior that interferes with social relationships, one of the characteristics of alcohol abuse.

Respondent's alcohol use. Following standard practice in the field (c.f., Miller, Downs & Gondoli, 1989; Czarnecki, Russell, Cooper & Salter, 1990), we assessed both quantity and frequency of alcohol use. Alcohol use was measured with three items that ask (1) whether the respondent ever drinks, or has ever used alcohol; (2) on how many days in the past month the respondent has had beer, wine or other alcohol; and (3) on those days in the past month when the respondent had something to drink, about how many drinks did she have per day, on average (one drink equals one can or bottle of beer, or 4-6 oz. of wine, or 1-2 oz. of hard liquor). These last two measures are used to calculate the number of drinks per month (number of days on which R drank, times the number of average drinks on those days).

These measures are self-report measures. Ideally, we would prefer direct measures of consumption, such as Blood Alcohol Concentration data, but such measures are not feasible in a population study where most individuals have not had a drink in the week prior to assessment. For a population study such as this, we believe, along with Selzer (1971), that self-report measures of consumption are preferable to the use of physical findings. In a review of measures, Armor, Polich and Stambul (1978) report that consumption measures are similar in reliability and validity to measures of impairment symptoms. Seeman and colleagues (1988, p. 188) argue that self-report measures in a variety of domains are "considerably more reliable and valid than is commonly supposed." In addition, the consistency of reported consumption over 3 years for the majority of respondents in the sample supports the accuracy of these self-reports. Czarnecki and colleagues (1990, pg. 75) conclude "...the concordance between original and retrospective reports suggests that both current and retrospective reports yield data appropriate for correlational research and analyses. In this type of research, error introduced by underreporting may matter little. The present data suggest that one may place considerable confidence in nonalcoholic women's self-reports of alcohol consumption and [that this] bode[s] well for the validity of self-report methodologies in alcohol research."

Longitudinal Analysis Procedures

During the 1980's, statisticians began to agree that the proper characterization of change over time had to be preceded by the adoption of an individual growth model perspective (Bryk & Raudenbush, 1987; Rogosa, et al., 1982; Rogosa & Willett, 1985; Willett & Singer, 1989). This perspective uses two stages of analyses. First, we conduct within-individual analyses to estimate the change over time in a given variable, for each individual respondent. Then we use these estimates of within-individual change in a series of analyses to investigate whether change in the independent variables are associated with changes in the outcomes. For details on the analytic techniques, see Barnett, Marshall & Singer (forthcoming).

Results

Alcohol Use

Of the 371 women who were interviewed in all 3 waves, 3% had never had any alcohol, 5% had stopped drinking prior to the first wave of data collection and did not drink during the duration of the study, 11% abstained in some years but not in others, and 81% reported they sometimes drank alcohol in all three waves. Table 1 presents the drinking behaviors of social workers and LPNs in the third wave of the study. Almost half (42%) of the respondents reported a family history of drinking problems (indicated by the respondent's concern about the drinking of a parent or sibling). The sample includes 67 medium volume drinkers (18% of the sample) and 59 heavy drinkers (16% of the sample). We also asked the respondents if anyone had ever been concerned about her (the respondent's) drinking. Of the 371 respondents, 27 (7%) reported that someone else has been concerned about their drinking, and 4 women report that they have been diagnosed with alcoholism. While these data are not directly comparable to other surveys because the measures, sample age and employment status differ, they are consistent with reports that 4% of adult women are heavy drinkers (defined as the equivalent of 2 drinks per day) and 5% of women report one or more adverse social consequences of their drinking, such as drinking-related problems with family or friends (Clark & Midanik, 1982). The occupational differences are also consistent with other research on abstinence and education and income (Roman, 1988) - LPNs are more likely than social workers to abstain, but among those women who drink, LPNs are more likely than social workers to be heavy drinkers.

The purpose of this paper is to examine the extent to which social workers and LPNs respond to job stress by increasing their alcohol use. However, some of the respondents have never had a drink, are not now drinkers, or drink infrequently. Including in our analyses these women who are unlikely to use alcohol in response to work stress would obscure the predicted effects (Cooper, et al., 1990). Therefore, to avoid biasing our analyses, we restricted the sample to those women who describe themselves as drinkers and who have had at least one drink in the month prior to one or more interviews ($N = 339$).

Change over time in alcohol use. Over time, most respondents who drink either did not change or decreased the number of drinks they had in a month. The average range in one year was a decrease of one drink a month ($SD = 7$ drinks). However, 18% of the respondents increased the number of drinks they had in a month by from one to five drinks. An additional 8% increased their drinking by more than 5 drinks.

Respondents without a Family History of Drinking Problems

As noted above, biological factors, or antecedent environmental factors, may mask environmental effects such as job stress. Accordingly, we examined the relationship between work stress and alcohol use separately for respondents with and without a family history of problem-drinking.

Table 1Drinking Behaviors in 1987-88

	LPNs ^a	Social Workers ^b	Total ^c

Family history of drinking problems	49%	37%	42%
Diagnosed with alcoholism	2%	0.04%	1%
Someone has been concerned about respondent's drinking	9%	7%	7%
Abstainers			
No drinks in past month)	38%	20%	26%
Low Volume Drinkers (1-9 drinks in past month)	37%	41%	40%
Medium Volume Drinkers (10-27 drinks in past month)	9%	24%	18%
Heavy Drinkers			
a. 28-70 drinks in past month	4%	10%	8%
b. 3 or more drinks on those days			
Respondent drinks	13%	5%	8%

Note:

^a n = 141^b n = 230^c n = 371

Hypothesis 1: Changes in work stress and changes in alcohol use. To test hypothesis 1, we estimated the relationship between changes over time in job stress and changes over time in alcohol use among women who drink, but do not have a family history of drinking problems. Because of multi-collinearity among the independent variables, we estimated five separate regression models, one for each job factor under investigation (change in Overload, Decision Authority, Challenge, Helping Others, and Supervisor Support). Because individuals who drink less at Time 1 may be less likely to increase their drinking over time, each regression also controlled for the level of drinking at the first interview. Table 2 presents the results of these regressions for respondents with no family history of drinking problems.

As can be seen in Table 2, respondents who reported increased Overload, decreased Decision Authority, and decreased Challenge were significantly more likely to report increased alcohol consumption. The relationship between decreased rewards from Helping Others and increased consumption was in the same direction but not significant. Surprisingly, respondents who reported increased Supervisor Support also reported increased alcohol consumption. There are two possible explanations for this finding. One is that individuals whose drinking is increasing may seek greater support from their supervisors. It is also possible that this relationship reflects the existence of work-based social networks that encourage drinking, as has been found in other occupations (Trice & Sonnenstuhl, 1988; Seeman & Anderson, 1983).

Hypothesis 2: The Job Demand-Job Decision Latitude Model and Alcohol Use. To test hypothesis 2, we next examined whether Karasek's Job Demand-Job Decision Latitude Model explains increases in alcohol consumption. Stated in cross-sectional terms, the model posits that individuals whose jobs have heavy demands, and inadequate decision latitude to meet those demands, will suffer negative health consequences. Stated in longitudinal growth-model terms, the Job Demand-Job Decision Latitude Model posits that, if job demands rise, negative health consequences (i.e., alcohol consumption) will increase, unless there is a concomitant increase in decision latitude to meet those rising demands. To test the Job Demand-Job Decision Latitude Model, we estimated a regression model that includes the number of drinks at Time 1, change in Overload, change in decision latitude (Decision Authority or Challenge), and the interaction of change in Overload and change in decision latitude. As Table 3 shows, the interaction between change in Overload and change in Decision Authority was statistically significant, resulting in a significant increment to R^2 ($p < .01$), while the interaction between change in Overload and change in Challenge was not.

Figure 1 graphically represents the nature of the relationship between change in Overload, change in Decision Authority and change in alcohol use. As respondents' job Overload increases, alcohol consumption increases, if Decision Authority does not also increase. However, when Decision Authority increases over time, the relationship between

Table 2

Main Effects Models of Change in Job Factors and Change in Alcohol Use Among Women
without a Family History of Drinking Problems

Model	R ² (N)	B ^a	SE	β ^b
Number of drinks at T1	.61**	-.38**	.03	-.68
Change in Overload	(171)	1.41**	.47	.17
Number of drinks at T1	.60**	-.44**	.03	-.78
Change in Decision Authority	(169)	-1.40*	.69	-.10
Number of drinks at T1	.62**	-.41**	.03	-.74
Change in Challenge	(170)	-2.29**	.72	-.16
Number of drinks at T1	.60**	-.44**	.03	-.78
Change in Helping Others	(171)	-.91	.59	-.08
Number of drinks at T1	.57	-.42**	.03	-.93
Change in supervisor support	(159)	1.75**	.48	.28

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

^a Unstandardized regression coefficient

^b Standardized regression coefficient

Table 3

Interaction Effects of Change in Job Factors and Changes in Alcohol Use
Among Women without a Family History of Drinking Problems

Model	R ² (N)	Delta R ²	B ^a	SE	β ^b
Number of drinks at T1	.76**	.01**	-.30**	.03	-.54
Change in Overload	(169)		6.53**	.64	.77
Change in Decision Authority			-8.57**	.91	-.61
Change in Overload x Change in Decision Authority			-6.92**	2.07	-.18
Number of drinks at T1	.68	.00	-.29**	.04	-.51
Change in Overload	(170)		2.98**	.50	.35
Change in Challenge			-4.53**	.81	-.31
Change in Overload x Change in Challenge			1.17	2.76	.02
Number of drinks at T1	.80**	.11**	-.43**	.03	-.77
Change in Overload	(171)		6.96**	.58	.82
Change in Helping Others			-7.81**	.70	-.65
Change in Overload x Change in Helping Others			-18.08**	1.93	-.50

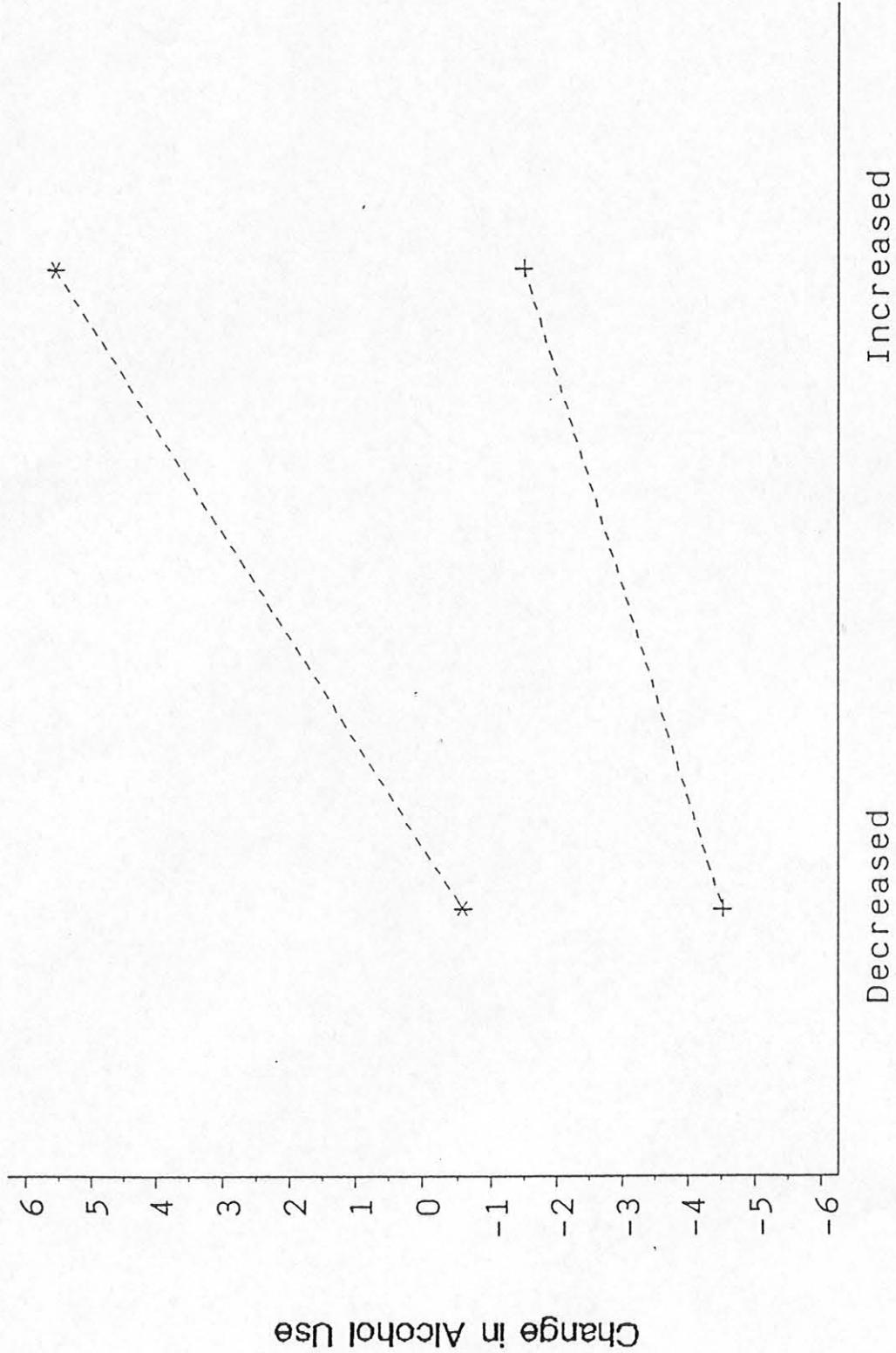
* $p < .05$; ** $p < .01$

^a Unstandardized regression coefficient

^b standardized regression coefficient

Legend

- *--*--* Decreased Decision Authority
- +--+--+ Increased Decision Authority



Change in Overload

Figure 1. Change in Overload, Decision Authority and Alcohol Use.

changes in job Overload and changes in alcohol consumption is attenuated. These findings provide partial confirmation of the predictive utility of the Job Demand-Job Decision Latitude Model, for social workers and nurses without a family history of drinking problems.

Hypothesis 3: Change in Helping Others and Change in Alcohol Use. Because our prior work has shown the importance of the rewards of Helping Others to other indicators of social workers' and nurses' health (hypothesis 3), we estimated a regression model that included the interaction of change in Overload and change in Helping Others. As Table 3 shows, the interaction between change in Overload and change in Helping Others was statistically significant, resulting in a significant increment in R^2 ($p < .01$).

Figure 2 illustrates the nature of the relationship among these variables. Without an increase in the rewards of Helping Others, rising job Overload is associated with increased drinking. When the rewards of Helping Others increase over time, the relationship between increases in job Overload and increased alcohol use is almost completely negated.

Respondents with a Family History of Drinking Problems

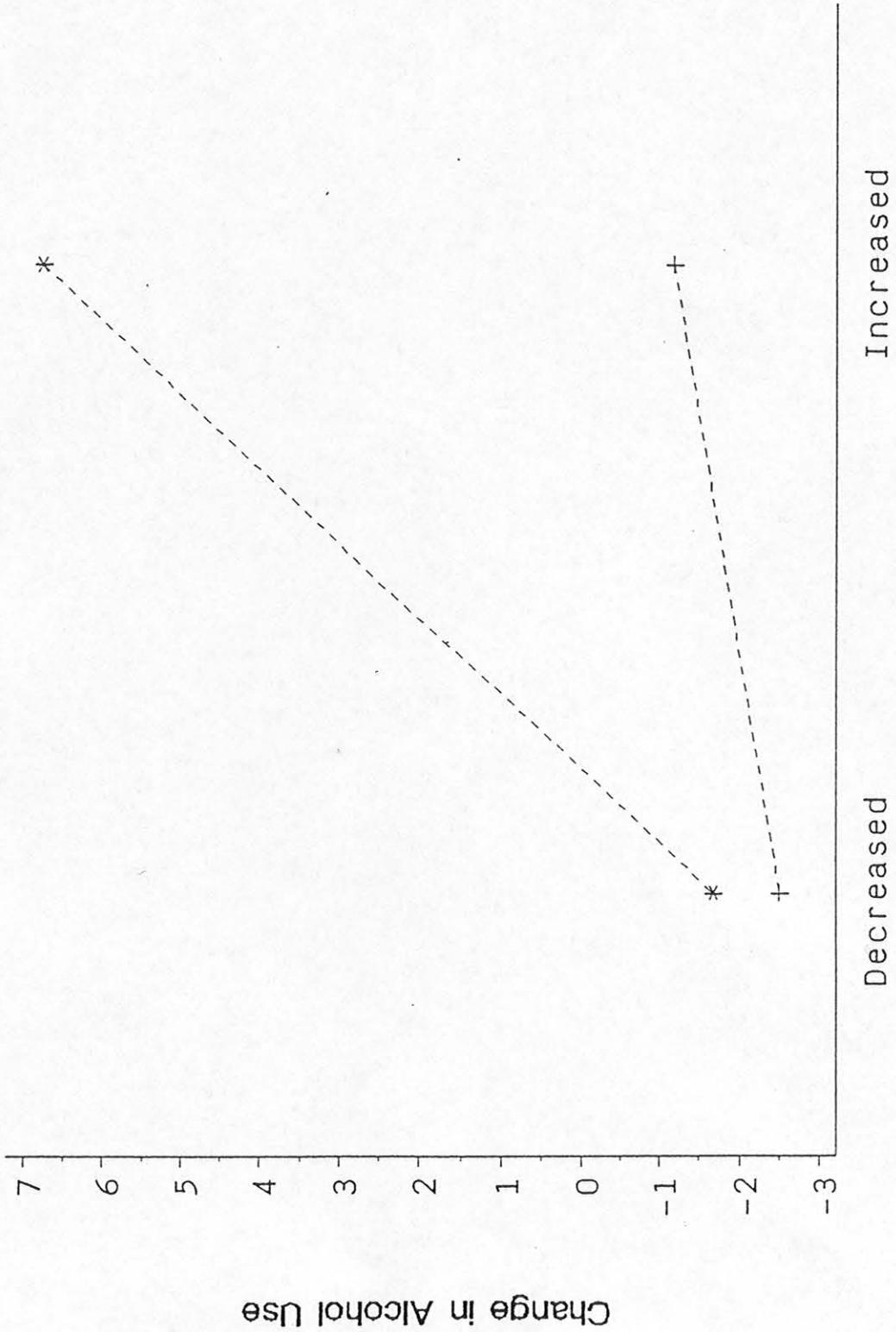
We next examined the relationship between changes in job characteristics and changes in alcohol use among respondents who drink and who have a family history of drinking problems. Again, because of multi-colinearity among the independent variables, we estimated separate regression models for each job factor. Each regression also controlled for the level of drinking at the first interview. Table 4 presents the results of these regressions.

The relationships are almost the exact opposite of those for respondents without a family history. Increased alcohol consumption is associated with decreasing Overload, and increasing decision latitude and Helping Others. While at first counterintuitive, we believe these findings suggest that, for social workers and LPNs with a family history of drinking problems, variables other than job stress are predictors of alcohol use. It appears that, when these women find themselves with fewer demands at work, and more decision latitude, they increase their alcohol consumption. In contrast, when women with family histories hold jobs that restrict their autonomy, and keep them busy, they drink less. Further research is necessary to unravel whether this is a function of different work cultures or norms for drinking behavior, or of the social or physical availability of alcohol. Clearly, however, the drinking behavior of women with a family history of drinking problems is reactive to variables other than job stress.

Legend

--*-* Decreased Helping Others

+--+--+ Increased Helping Others



Change in Overload

Figure 2. Change in Overload, Helping Others and Alcohol Use.

Table 4Main Effects Models of Chancre in Job Factors and Chancre in Alcohol UseAmong Women With a Family History of Drinking Problems

Model	R ² (N)	B ^a	SE	β ^b
Number of drinks at T1	.15**	-.31**	.07	-.42
Change in Overload	(120)	-.71**	.20	-.35
Number of drinks at T1	.61**	-.38**	.05	-.52
Change in Decision Authority	(120)	2.29**	.18	.79
Number of drinks at T1	.13**	-.25**	.07	-.33
Change in Challenge	(118)	1.11**	.34	.30
Number of drinks at T1	.16**	-.05	.07	-.07
Change in Helping Others	(120)	.98**	.27	.35
Number of drinks at T1	.11**	-.07	.08	-.10
Change in supervisor support	(116)	.68*	.29	.26

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

^a Unstandardized regression coefficient

^b Standardized regression coefficient

Discussion

We began with a theoretical model that posited that change over time in work stress is associated with change over time in alcohol use. Specifically, we tested the Job Demand- Job Decision Latitude Model developed by Karasek and colleagues, as well as the role of change in Helping Others as a moderator of the relationship between change in Overload and change in alcohol use. We found that, for social workers and LPNs without a family history of drinking problems, the Job Demand-Job Decision Latitude Model received partial confirmation: when job Overload increased, alcohol use increased, unless there is a concomitant increase in Decision Authority to meet the rising job demands. We also found that, when the rewards of Helping Others increased over time, the relationship between rising job Overload and increased alcohol use was almost completely negated. Future research should examine whether these findings hold for other occupational groups, and for male samples.

This paper has provided a more rigorous test of the posited models than has been possible in other studies of alcohol use, because (1) we used job measures with high reliability and validity; (2) we included measures of both job demands (Overload) and job decision latitude (Decision Authority and Challenge); (3) we included interaction terms in our models, which we believe is the only adequate test of the Job Demand-Job Decision Latitude Model when using continuous variables; (4) we included a measure of the rewards of Helping Others, which our previous research has indicated is important to social workers and LPNs; (5) we restricted the sample to only those individuals who drink, arguing that individuals who rarely or never drink are not likely to respond to stress by increasing their alcohol use; (6) we used individual-growth-model techniques to look at change over time in the variables of interest. Our findings suggest that, when we model work stress properly, we can explain a large proportion of the variance in change over time in alcohol use -- the R^2 s were .76 and .80 for the two significant interaction models for women without a family history of drinking problems (Table 3).

However, further research is needed in this area. Because we had only 3 data points, we could only estimate the linear component of the change over time in the variables in the model. Additional data points are necessary to examine the non-linear change over time. In addition, while this paper clearly demonstrates the role of work stress in increased alcohol consumption, the findings also suggest that other factors may be important, either in certain subgroups or certain work settings. For instance, we found that increased Supervisor Support was associated with increased alcohol consumption for women without family histories of drinking problems. We suspect that this anomalous finding may reflect either the processes of social support (those in need elicit greater support), or the actions of work-based social networks that encourage drinking.

This paper also demonstrated the importance of considering family history variables when examining alcohol use. While work stress was a significant predictor of drinking behavior among women without family histories, the findings for women with family histories of drinking problems ran counter to our hypothesized models. Again, we believe this indicates that different models may be necessary for different groups of individuals.

In this case, we believe it would be fruitful, as others have argued, to examine work cultures, social group norms for drinking behavior, and the social and physical availability of alcohol for women with family histories of drinking problems.

References

- Alfredsson L, Spetz, C.L., & Theorell, T. (1985). Type of occupation and near-future hospitalization for myocardial infarction and some other diagnoses. International Journal of Epidemiology, 14, 378-388.
- Armor, DJ., & Polich, J.M. (1982). Measurement of alcohol consumption. In E.M. Pattison & E. Kaufman (Eds.), Encyclopedic Handbook of Alcoholism. New York: Gardner Press.
- Armor, DJ., Polich, J.M., & Stambul, H.B. (1978). Alcoholism and treatment. New York: Wiley.
- Barnett, R.C., Davidson H., & Marshall, N.L. (1991). Physical symptoms and the interplay of work and family roles. Health Psychology, 10(2), 94-101.
- Barnett, R.C., & Marshall, N.L. (1991). The relationship between women's work and family roles and subjective well-being and psychological distress. In M. Frankenhaeuser, M. Chesney, & U. Lundberg (Eds.). Women, work and health. New York: Plenum.
- Barnett, R.C., & Marshall, N.L. (forthcoming). Worker and mother roles, spillover effects, and psychological distress. Women and Health.
- Barnett, R.C., Marshall, N.L., & Singer, J.D. (forthcoming). Job experiences over time, multiple roles, and women's mental health: A longitudinal study. Journal of Personality and Social Psychology.
- Bryk, A.S., & Raudenbush, S.W. (1987). Application of hierarchical linear models to assessing change. Psychological Bulletin, 101, 147-158.
- Cain, P.S., & Treiman, D.J. (1981). The dictionary of occupational titles as a source of occupational data. American Sociological Review, 46, 253-278.
- Caplan, R.D., Cobb, S., French, J.R., Jr., Van Harrison, R., & Pinneau, S.R., Jr. (1975). Job demands and worker health, HEW Publication (NIOSH) 75-160. Washington DC: U.S. Government Printing Office.
- Clark, W.B., & Midanik, L. (1982). Alcohol use and alcohol problems: Results of the 1979 national survey. In Alcohol consumption and related problems. Alcohol and Health Monograph No.1. U.S. Department of Health & Human Services Publication No. (ADM) 82-1190. NIAAA.
- Cooper, M.L., Russell, M., & Frone, M.R. (1990). Work stress and alcohol effects: A test of stress-induced drinking. Journal of Health and Social Behavior, 31, 260-276.
- Czarnecki, D.M., Russell, M., Cooper, M.L. & Salter, D. (1990). Five-year reliability of self-reported alcohol consumption. Journal of Studies on Alcohol, 51, 68-76.

- Fennell, M.L., Rodin, M.B., & Kantor, G.K. (1981). Problems in the work-setting, drinking, and reasons for drinking. Social Forces, 60, 114-132.
- Ferguson, D. (1974). A study of occupational health and stress. In W. Welford (Ed.), Man under stress. London: Taylor and Francis.
- Finnian, M.J., Fastenau, P.S., & Thomas, J.A (1988). Stress in nursing and intentions of leaving the profession. Psychological Reports, 62(2), 499-506.
- Gray-Toft, P.A, & Anderson, J.G. (1985). Organizational stress in the hospital: Development of a model for diagnosis and prediction. Health Service Resources, 19, 753- 774.
- Hackman, J.R., & Lawler, E.F. (1971). Employee reaction to job characteristics. Journal of Applied Psychology Monographs, 55, 259-286.
- Harris, J.M., & Fennell, M.L. (1988). A multivariate model of job stress and alcohol consumption. The Sociological Quarterly, 29(3), 391-406.
- Hingson, R., Mangione, T., & Barrett, J. (1981). Job characteristics and drinking practices in the Boston metropolitan area. Journal of Studies on Alcohol, 42(9), 725-738.
- Jayaratne, S., & Chess, W.A. 1984. Job satisfaction, burnout, and turnover: A national study. Social Work, 22, 448-453.
- Jayaratne, S., Chess, W .A., & Kunkel, D.A (1986). Burnout: Its impact on child welfare workers and their spouses. Social Work, 31, 53-58.
- Joreskog, KG., & Sorbom, D. (1986). Lisrel VI: Analysis of linear structure relationships by the method of maximum likelihood. Mooresville, IN: Scientific Software.
- Karasek, R.W., Schwartz, J., & Theorell, T. (1982). Job characteristics, occupation and coronary heart disease. Final report. (NIOSH Contract. No. R-01-OH00906). New York: Columbia University.
- Karasek, R.W., & Theorell, T. (1990). Healthy work: Stress, productivity, and the reconstruction of working life. New York: Basic Books.
- Margolis, G.L., Kroes, W.H., & Quinn, R.P. (1974). Job stress: An unlisted occupational hazard. Journal of Occupational Medicine, 16(10), 659-661.
- Marshall, N.L., Barnett, R.C., Baruch, G.K., & Pleck, J. (forthcoming). More than a job: Women and stress in caregiving occupations. In J.A. Levy, & H.Z. Lopata (Eds.), Current research on occupations and professions. Vol. 4. Greenwich, CT:JAI Press.

- Marshall, N.L., Barnett, R.C., & Sayer, A (1990). Development of the job-role quality scales: An application of confirmatory factor analysis. Working Paper #207, Wellesley College Center for Research on Women, Wellesley, MA
- Mensch, B.S., & Kandel, D.B. (1988). Do job conditions influence the use of drugs? Journal of Health and Social Behavior, 29, 169-184.
- Miller, B.A, Downs, W.R., & Gondoli, B.M. (1989). Spousal violence among alcoholic women as compared to a random household sample of women. Journal of Studies on Alcohol, 50(6), 533-541.
- Parker, D.A., & Brody, J.A (1982). Risk factors for alcoholism and alcohol problems among employed men and women. Occupational Alcoholism: A Review of Research Issues, NIAAA Research Monograph 8. Washington, D.C.: U.S. Government Printing Office.
- Parker, D.A, & Farmer, G.C. (1988). The epidemiology of alcohol abuse among employed men and women. In M. Galanter (Ed.), Recent developments in alcoholism, Vol. 6. New York:Plenum.
- Price, R.H. (1985). Research on mental health problems in the worksite: A state-of-the-art review. In D.F. Godwin, M.L. Lieberman, & C.G. Leukefeld (Eds.), The Business of Doing Worksite Research. Alcohol, Drug Abuse, & Mental Health Administration, U.S. Department of Health and Human Services.
- Quinn, R., Seashore, S., Kahn, R., Mangione, T., Campbell, D., Staines, D., & McCullough, M. (1971). Survey of working conditions: Final report on univariate and bivariate tables. Washington, DC: U.S. Government Printing Office.
- Revicki, D.A., & Harold, J.M. (1989). Organizational characteristics, occupational stress, and mental health in nurses. Behavioral Medicine, 15, 30-36.
- Rogosa, D.R., Brandt, D., & Zimowski, M. (1982). A growth curve approach to the measurement of change. Psychological Bulletin, 92, 726- 748.
- Rogosa, D.R., & Willett, J.B. (1985). Understanding correlates of change by modeling individual differences in growth. Psychometrika, 50, 203-228.
- Roman, P.M. (1988). Woman and alcohol use: A review of the research literature. U.S. Department of Health and Human Services Publication No. (ADM) 88-1574. NIAAA.
- Seeman, M., & Anderson, C.S. (1983). Alienation and alcohol: The role of work, mastery, and community in drinking behavior. American Sociological Review, 48, 60-77.

- Seeman, M., Seeman, A.Z., & Budros, A (1988). Powerlessness, work and community: A longitudinal study of alienation and alcohol use. Journal of Health and Social Behavior, 29, 185-198.
- Selzer, M.L (1971). The Michigan alcoholism screening test: The quest for a new diagnostic instrument. American Journal of Psychiatry, 12, 89-94.
- Tetrick, L.E., & LaRocco, J.M. (1987). Understanding, prediction and control as moderators of the relationships between perceived stress, satisfaction, and psychological well-being. Journal of Applied Psychology, 72(4), 538-543.
- Theorell, T. (1976). Selected illness and somatic factors in relation to two psychological stress indices: A prospective study on middle-aged construction building workers. Journal of Psychosomatic Research, 20, 7-20.
- Trice, H.M., & Sonnenstuhl, W.J. (1988). Drinking behavior and risk factors related to the work place: implications for research and prevention. Journal of Applied Behavioral Science, 24(4), 327-346.
- Turner, AN., & Lawrence, P.R. (1965). Industrial jobs and the worker. Cambridge, MA: Harvard University Press.
- Walker, C., & Guest, R. (1952). The man on the assembly line. Cambridge, MA: Harvard University Press.
- Willett, J.B., & Singer, J.D. (1989). Two types of questions about time: methodological issues in the analysis of teacher career path data. International Journal of Educational Research, 5,421-437.