

Intervening processes in the relationship between unemployment and health

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SYNOPSIS A considerable amount of research documents the negative effects of job loss on both physical and mental health. Yet we know comparatively little about the mechanisms through which these effects occur. Unemployment, like other events, is not the same experience for everyone exposed to it. An understanding of this variation might be facilitated by breaking down the analysis of unemployment into a consideration of the various stresses that it creates or exacerbates. This is our purpose in the present paper.

We demonstrate that, for one area of the United States, the effect of job loss on several health outcomes involves two mechanisms: (1) unemployment results in increased financial strain which, in turn, results in negative health effects, and (2) unemployment leaves the individual more vulnerable to the impact of unrelated life events. Controlling for financial strain, unemployed people in our sample who have not experienced an additional life event in the previous year are in no worse health than the stably employed. This provides useful insights into the nature of the unemployment experience in this particular setting. It also provides a basis for future detailed explorations of the various ways people cope with this event.

INTRODUCTION

Although found consistently, the positive associations between the experience of stressful life events and symptoms of physical and psychological distress have been almost uniformly small in magnitude (Rabkin & Streuning, 1976). As a result, many research workers have tried to identify the characteristics of stressful events that are most relevant for negative health outcomes. For example, effort in this area has demonstrated that the impact of stressful life events varies according to the desirability of the event, the degree to which its occurrence was under the individual's control, the degree to which it was expected, and how much it was clustered in time with other life events (Thoits, 1983).

It is useful to obtain information on these dimensions in studies that examine the combined impact of a number of different life events. Studies that focus more intently on a single event, however, provide an opportunity to

examine in even greater detail the special features of particular events which cause them to be stressful.

In the literature which focuses on single events, a variety of concrete stress dimensions have been generated which are particular to the events in question (Silver & Wortman, 1980). The idea implicit in this work is that individuals are not stressed by abstract point-in-time occurrences known as 'events', but by the stresses and strains that events cause or exacerbate. Furthermore, it is assumed that some part of individual variability in reactivity to events can be explained by variation in the stresses and strains that the event creates for different people.

Our goal here is to apply an analysis of these types to the health-damaging effects of unemployment. It has been widely documented that job loss significantly affects several different aspects of physical and mental health (for reviews see Jahoda, 1982; Brenner & Mooney, 1983). It is now important to account for these effects, in order to document the stresses and strains with which the unemployed must contend. As shown below, we find that the adverse health effects of unemployment in the area we studied can be

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accounted for by considering a small number of stresses which are created or exacerbated by this event.

METHOD

Sample

Respondents in this study were selected from a multi-stage probability sample of 14 contiguous census tracts with high unemployment rates in the southeastern region of the state of Michigan.^{1*} An equal probability sample of 2333 occupied housing units was drawn from a total of over 14000 in the sample frame. Screening for household composition was successfully completed in 96% ($N = 2234$) of the sampled households, and 848 were found to contain no eligible respondent. Persons were ineligible if they were under the age of 18 or over the age of 69, were living in the area primarily for the purpose of attending college, did not have and did not want a steady paying job for at least 12 months of the preceding six years.

The sample was stratified with disproportionate weights to select roughly equal numbers of respondents in three strata: currently unemployed people who had lost a job during the US recession of 1981–85; previously unemployed people who had lost a job during this same period but who were re-employed at the time of the interview; and stably employed people who had not lost a job during the time of the recession. The conditional selection probabilities used in this procedure were 1 for the currently employed, 0.833 for the previously unemployed, and 0.262 for the stably employed. These yielded subsamples of 146 currently unemployed, 162 previously unemployed, and 184 stably employed respondents.

This sample reflects the demographic composition of the largely blue-collar population in this geographic area. The mean education of respondents was 12 years. They were 60% male, 20% black, 50% married and averaged 35 years of age. They were all intensely interested in the economic situation in their labour market and readily agreed to a face-to-face interview in their homes. Their cooperativeness is indicated by the 90% response rate among currently unemployed and 78% response rate among currently employed pre-designated respondents.

* The notes will be found on pages 960–961.

Special limitations of this sample are important to note. First, while the United States government definition of unemployment includes those individuals who have entered the labour force for the first time and failed to find work, ours focuses on people who have *lost* permanent jobs. Thus, it is an incomplete sample for studying the overall impact of unemployment.

Secondly, our research was carried out in an area in which the unemployment rate is very high and in which a substantial portion of the unemployed have been without a job for a considerable period of time. Our currently unemployed sample had been out of work for an average of 26.2 months. The previously unemployed sample had been out of work for an average of 31.7 months prior to finding a new job. It is possible that job loss is a more distressing circumstance in an economic environment in which the prospects for becoming quickly re-employed are poor. We were unable to examine this possibility because we could not draw upon a geographically diverse sample. However, our employed comparison group may themselves have been emotionally affected by the uncertain job environment in which they were living. Thus the estimated health-damaging effects of unemployment, in the area we studied, are probably conservative.

Measures

Stresses associated with job loss.

A great deal has been written about the impact of unemployment. Although no systematic quantitative analysis has been undertaken to document the main stresses associated with job loss, the literature provides a number of hypotheses about what these might be. Our reading of this literature, combined with our experience working with unemployed people in this area, led us to focus on four core features of life potentially damaged by job loss, namely, financial security, marital tranquillity, social integration and protection from unrelated life events. We discuss each of these in turn.

(1) *Financial strain.* This is perhaps the most intuitively obvious feature of life change by job loss. From the very first qualitative studies of the impact of unemployment on mental health (Bakke, 1934; Angell, 1936), this has been a

focal concern. Aiken *et al.* (1968), in a study of car workers displaced by a plant closing, found that the level of economic deprivation differentiated unemployed workers in terms of psychological well-being.²

In fact, most recent research reports that financial strain interprets a significant proportion of the relationship between unemployment and ill health. In a study carried out in the Chicago metropolitan area in the late 1970s Pearlin *et al.* (1981) showed clearly that economic strain is an important mediator of the impact of disruptive job events (not all of which were involuntary unemployments) on depression. In a study conducted in Baltimore in the early 1980s Ensminger & Celentano (1984) found much the same result. Less direct evidence consistent with this finding has been reported by others (Ferman & Gardner, 1979; Warr & Jackson, 1984), while we know of no recent study that has documented the absence of a financial strain mediation.

In our study, we measured financial strain using a six-item scale developed by Pearlin *et al.* (1981). This index is based on concrete and objective questions about financial constraints on buying food, medical care and clothing, and on whether there is enough money to cover the basic bills each month. The internal consistency reliability of this scale is 0.78.

(2) *Marital strain.* Another component of the unemployment experience that has received much explicit attention is *marital strain*. Family support and optimism apparently characterize the initial phase of unemployment, as the unemployed person starts to search for a new job (Farran & Margolis, 1983). However, after an extended period during which initial hopes are frustrated, marital and family relationships become strained. This seems to occur between six and twelve months after job loss and to persist or become more intense as the period of unemployment increases (Powell & Driscoll, 1973; Liem, 1983). This is particularly critical in our study sample, in which the average length of unemployment is more than two years.

In our analysis we employ the dyadic satisfaction subscale of the Dyadic Adjustment Scale (Spanier, 1976) to assess marital strain. We also ask about the frequency of two confrontive aspects of marital arguments: spouses yelling at or insulting each other and spouses pushing or

hitting each other. Although somewhat more severe than the items asked in the dyadic satisfaction subscale, responses to these two items correlate with the Spanier items as strongly as the subscale items do with each other. They were therefore included in a revised measure of marital satisfaction. The internal consistency reliability of this scale is 0.85.

(3) *Affiliative interaction.* Another commonly cited consequence of job loss is a decrease in *affiliative interaction*. In losing their jobs, many people lose their primary source of contact with friends (Bolton & Oatley, 1987). Even when their friendships remain intact, the frequency of contact with friends decreases over time among the unemployed (Atkinson *et al.* 1983). The impact of this decline in social contact seems to be particularly pronounced in urbanized areas similar to the one from which our sample was drawn, presumably because in urbanized areas social networks are less strongly tied to neighbourhood contacts than in more rural areas (Kasl & Cobb, 1979).

In our analysis, social integration was measured by a series of three questions which asked respondents how often they have had informal contact with neighbours, friends or relatives. We interpret the three measures as functional alternatives that define ways in which our respondents can have access to affiliative interaction. Therefore, no assessment of internal consistency reliability is made. A composite measure was created by summing responses to these questions, thereby arriving at an overall assessment of the frequency of social contact.

(4) *Financial and general life events.* Finally, we assessed a series of life events which may be caused by job loss or which may modify its effects. Ferman (1981) has pointed out that job loss can trigger a wide variety of other events. These include, for example, other family members entering the labour force, deferment of educational plans, forced relocation and marital separation. Catalano & Dooley (1977), in an aggregate analysis of changes in the unemployment rate through time, documented a relationship between rates of unemployment and rates of other life events. No comparable analysis has yet been done at the individual level.

Two separate summary measures of life events were created for this paper. The first

consists of life events of a financial nature, such as moving to a worse home or neighbourhood (or moving in with relatives) or experiencing a foreclosure. We believed that these might have some special relevance for the unemployed and, therefore, examined them separately from a second, more general set of undesirable events such as problems with health or interpersonal relationships.³

Outcome measures

Four health outcomes are considered in this paper; anxiety, depression, somatization and symptoms of physical ill health. The first three of these are subscales of the 90-item Hopkins Symptom Checklist (SCL-90), a widely used symptom checklist inventory which asks respondents to describe how often they experienced each of 5 symptoms of anxiety (e.g. 'suddenly scared for no reason'), 11 symptoms of depression (e.g. 'feeling hopeless about the future') and 11 symptoms of somatization (e.g. 'headaches') during the past 30 days. These scales have been validated in comparative studies of psychiatric patients and general population controls and have been subjected to considerable reliability analyses (Derogatis, 1977).

The physical illness measure is a four-item index consisting of modified versions of standard self-report measures of overall health used in surveys conducted by the US National Center for Health Statistics (e.g. NCHS, 1981). Included here are a general self-report rating of one's health on a four-point scale ranging from excellent to poor; a rating of how often health problems keep one from doing 'the kinds of things other people your age do' on a rating scale from 'all the time' to 'none of the time'; a yes-no question asking whether, for the most part, 'you feel healthy enough to carry out the things that you would like to do'; and a yes-no question asking whether any particular health problems are present.

Table 1 displays the internal consistency reliabilities and the intercorrelations among these scales. The extremely high correlation between the anxiety and depression scales, relative to their reliabilities, indicates that we may not be justified in considering the two separately. However, in earlier analyses (Kessler *et al.* 1987) we found somewhat different effects of unemployment on anxiety and depression.

Table 1. *Outcome measures: reliabilities and intercorrelations in the total sample**

Correlations	Anxiety	Depression	Somatization	Physical illness
Depression	0.81			
Somatization	0.65	0.63		
Physical illness	0.37	0.35	0.59	
Reliabilities (Cronbach's α)	0.80	0.90	0.85	0.69

* Listwise deletion of missing values was used to compute correlations ($N = 484$). Reliabilities are based on samples that vary in size from 484 (somatization) to 492 (physical illness).

For example, the previously unemployed had elevated levels of anxiety relative to the stably employed, whereas the impact of unemployment on depression appeared largely to disappear with re-employment. For this reason we continue to consider anxiety and depression as separate outcomes in this paper.

RESULTS

Characteristics of the sample

The automobile manufacturing industry is the main source of employment in the area studied. Most jobs are blue collar. Workers are unionized and seniority determines job security. The last person hired is usually the first to be fired. This means that young people and people who have only recently been able to work their way into unionized jobs were most severely affected by the recession which hit this area in the early 1980s.

Table 2 provides descriptive demographic data which show this differential influence of the recession. The comparison at the left side of the table shows that respondents who lost jobs are younger than the stably employed. They are more likely to be female, black and never married. Job losers also have somewhat lower educational levels, reflecting the fact that those workers with a white-collar job were more protected from the plant closings and reductions in work force which occurred mainly in large, blue-collar, factory settings.

The right side of the table provides a second contrast, between job losers who were able to find a new job and those who remained unemployed at the time of interview. It can be seen that there is a double disadvantage to being

Table 2. Characteristics of the employment groups

	Ever unemployed		Stably employed		Currently unemployed		Previously unemployed	
	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.
Age (years)	33.2	10.3	36.9	11.5	32.6	10.5	33.9	10.0
Education (years)	12.2	2.4	12.6	2.6	12.0	2.3	12.3	2.4
Sex 0 = male, 1 = female	0.416	0.497	0.364	0.483	0.534	0.501	0.309	0.463
Race 0 = other, 1 = black	0.235	0.424	0.165	0.372	0.315	0.466	0.162	0.369
Marital status								
Never married 0 = other 1 = never married	0.289	0.454	0.196	0.398	0.322	0.469	0.259	0.440
Previously married 0 = other 1 = previous married	0.250	0.434	0.272	0.446	0.281	0.451	0.222	0.417
Married 0 = other, 1 = married	0.461	0.499	0.533	0.500	0.397	0.491	0.519	0.501
N	308		184		146		162	

Table 3. Mean scores on psychological and physical measures by employment subgroup

	Anxiety		Depression		Somatization		Physical illness	
	Gross	Net†	Gross	Net	Gross	Net	Gross	Net
Currently unemployed	0.380*	0.292*	0.392*	0.314*	0.160*	0.105*	0.185*	0.164*
Previously unemployed	-0.076*	-0.040	-0.089	-0.067	0.082*	0.110*	-0.021	0.004
Stably employed	-0.238	-0.197	-0.236	-0.190	-0.201	-0.179	-0.127	-0.134

† 'Net' means control on age, sex, race, education and marital status.

* Significantly different from the mean for the stably employed subgroup ($P = 0.05$).

young, female, black, unmarried and poorly educated. Individuals with these characteristics not only had a comparatively high risk of losing their jobs, but also a comparatively low chance of becoming re-employed.

Significant associations of these demographic variables with the outcome variables considered here are well established (Kessler *et al.* 1985). It is therefore necessary to control for these effects on the risk of unemployment and chances of re-employment in analyses which attempt to estimate the impact of job loss on health. As a result, all the analyses described below make use of controls for these demographic influences.

Overall effects of unemployment

Table 3 presents mean scores on the four outcomes within each of the three subsamples of respondents. All outcome scores were standardized to a mean of 0 and variance of 1 before computation, so the means can be interpreted in standard deviation units. For example, the score

of 0.380 in the top left corner of the table indicates that currently unemployed respondents reported an average level of anxiety that is 38% of a standard deviation above the average for the entire sample. Negative numbers indicate a subsample mean which is below the average for the entire sample.

Inspection of the first column within each of the four pairs in Table 3 (gross effects) shows that currently unemployed people are significantly more distressed than others in the sample on all four outcomes. The distress scores of the previously unemployed are also consistently higher than those of the stably employed, although this difference is statistically significant in only two of the four contrasts. (Note that this in an instance where, despite the high correlation between anxiety and depression in the entire sample, a significant effect is found for anxiety but not for depression.)

These patterns of elevated distress among people who experienced job loss are not due to

the demographic correlates of unemployment reported above. This fact is documented in the second column in each of the four pairs in Table 3, where we present means which have been adjusted for differences in age, education, sex, race and marital status. The failure to explain away the pattern of distress suggests, consistent with the results of many other investigators, that job loss creates risks to mental and physical health and that these risks are not entirely removed by re-employment.

An equivalent way to describe the results in Table 3 is presented in Table 4, where we report multiple regression analyses of the form

$$O = b_0 + b_1CU + b_2PU + \dots + b_8AGE, \quad (1)$$

where O represents the outcome variable, CU is a dummy variable coded 1 for the currently unemployed and 0 otherwise, and PU is a dummy variable coded 1 for the previously unemployed and 0 otherwise. The six other predictors are the demographic control variables. Two separate dummy variables are used to define marital status, a dummy variable for the never-married and a separate dummy variable for the previously married. Currently married people are defined residually by their scores of 0 on both of these dummy variables.⁴ The effects of the control variables have been omitted from Table 4 for the sake of simplicity.

All regression coefficients in Table 4 are expressed as comparisons with the stably employed.⁵ The equivalence between these results and those in Table 3 can be seen by noting that the difference between the mean outcome scores in each contrast in Table 3 is equal to the comparable regression coefficient in Table 4. For example, the difference between the average net anxiety scores among the currently unem-

ployed (0.292) and stably employed (-0.197) in Table 3 is equal to 0.489 – the coefficient associated with anxiety among the currently unemployed in Table 4.

Due to the fact that the outcome variables were standardized before the estimation of these equations, we can interpret the metric regression coefficients in terms of standard deviations. The currently unemployed have elevated levels of ill health between a third and a half standard deviation for the outcomes considered here. The effects of previous unemployment, although more modest, are between one-tenth and three-tenths of a standard deviation.

It is important to note that the interpretation of these coefficients in causal terms requires the assumption that exposure to unemployment was random with respect to the outcomes under consideration. Analyses reported elsewhere offered indirect evidence consistent with this assumption (Kessler *et al.* 1987). This evidence consisted of a demonstration that the regression coefficients remain unchanged when we exclude from consideration all respondents who lose their jobs through their own fault, including those few respondents who were fired for poor job performance or in some other way found themselves without a job for reasons that might plausibly be linked to prior emotional problems.

A causal interpretation also requires the assumption that re-employment occurs for reasons that are random with respect to the health outcomes. This is an assumption that we have not been able to test with these cross-sectional data. We are, however, in the process of obtaining panel data which will allow us to study re-employment prospectively and obtain a direct test of this assumption.

Table 4. *The gross effects of unemployment†*

	Current unemployment			Previous unemployment		
	b	S.E.	β	b	S.E.	β
Anxiety	0.489*	0.110	0.223	0.157	0.104	0.074
Depression	0.504*	0.109	0.230	0.123	0.102	0.058
Somatization	0.284*	0.115	0.130	0.289*	0.109	0.136
Physical illness	0.298*	0.113	0.137	0.138	0.107	0.065

b = unstandardized regression coefficient; S.E. = standard error; β = standardized regression coefficient.

† Controlling for age, sex, race, education and marital status. Samples vary in size from 481 to 489. Listwise deletion of missing values was used to compute the estimates.

* Significant at $P = 0.05$.

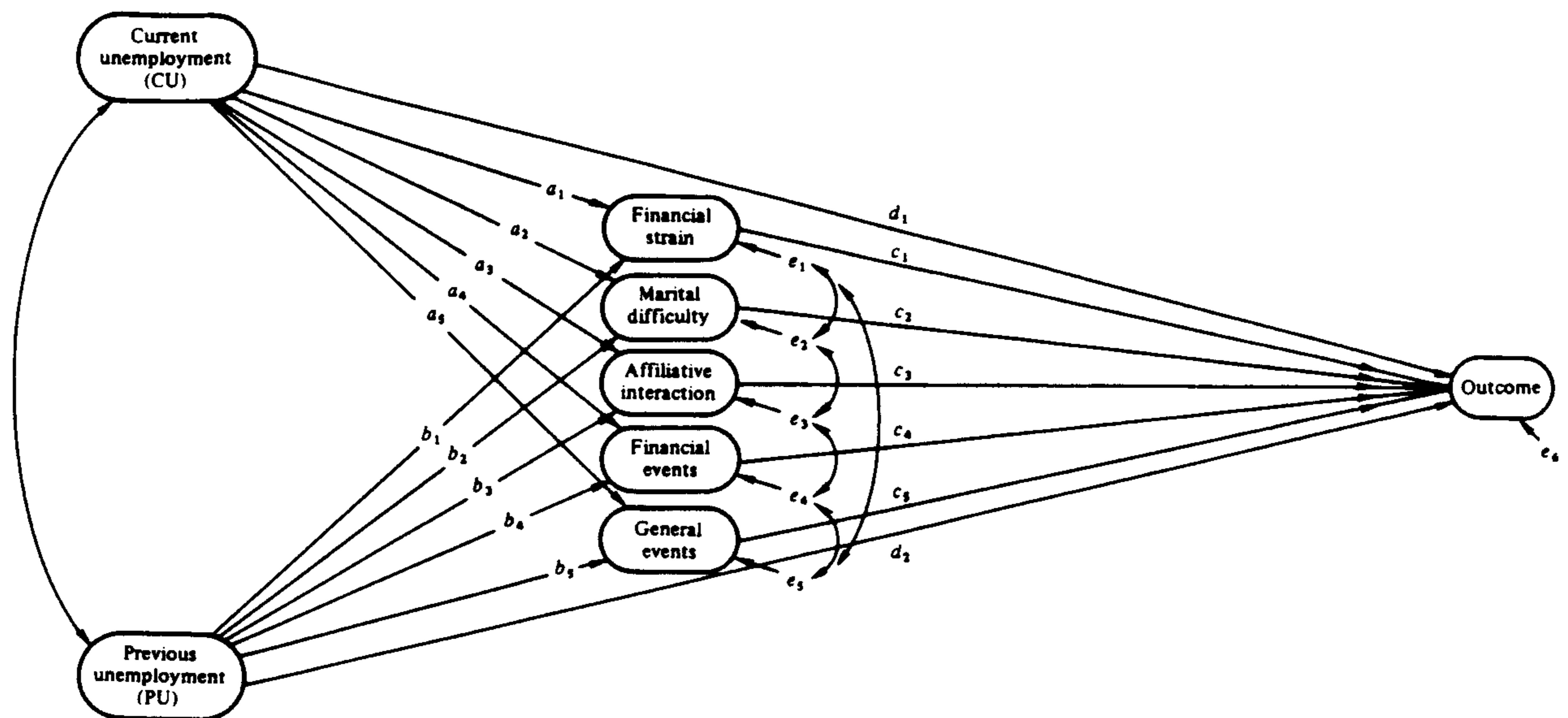


FIG. 1. A model of the impact of current and previous unemployment on a health outcome

Mediating effects

The main purpose of this paper is to investigate whether the strains described above help to explain the health-damaging effects of unemployment. The basic argument is that unemployment creates or exacerbates a variety of strains that, in turn, influence health. A graphic display of this argument is presented in Fig. 1.

This graph has an algebraic analogue which allows us to derive explicit expressions for the intervening influences of each strain on the relationship between unemployment and health. It is possible to estimate all the coefficients in Fig. 1 with a series of multiple regression-equations. Then, using the basic theorem of path analysis (Duncan, 1975), we can express the total association between unemployment and the outcome as a sum of products among these coefficients, as follows:

$$\begin{aligned} \text{Total effect (CU)} &= d_1 + a_1c_1 + a_2c_2 + a_3c_3 + a_4c_4 \\ &\quad + a_5c_5, \\ \text{Total effect (PU)} &= d_2 + b_1c_1 + b_2c_2 + b_3c_3 + b_4c_4 \\ &\quad + b_5c_5; \end{aligned}$$

where the total effects and the other coefficients are expressed in standardized form. In this formulation, d_1 and d_2 are referred to as the *direct effects* of current and previous unemployment, respectively. The $a_n c_n$ and $b_n c_n$ components are referred to as the *indirect effects* of

current and previous unemployment through financial strain, marital difficulty and the other strains.⁶

We undertook this procedure in the more complex case in which the predictors on the left side of the figure include the control variables which appear in equation (1). In this more complex case, the total effect of CU and PU corresponds to the standardized partial regression coefficients for these variables in the estimation of equation (1). These coefficients are reported in Table 4 for each of the four outcomes. The a_n and b_n coefficients are the standardized partial regression coefficients for CU and PU respectively, obtained from a series of five separate multiple-regression equations, each estimating one of the strains using all of the predictors in equation (1) as exogenous variables. The d_n and c_n coefficients are obtained from a single multiple-regression equation in which all of the equation (1) predictors and all five strains are used as joint predictors of outcome.

Results of these computations are reported in Table 5. Note that the total effects correspond to the standardized partial regression coefficients in Table 4 and that the direct and indirect effects in each column sum to the total effect. The results are consistent in showing that financial strain is the only important mediator. It explains between 41% and 100% of the CU effects and

Table 5. *Decomposition of standardized unemployment effects through strains†*

	Anxiety		Depression		Somatization		Physical illness	
	β	%	β	%	β	%	β	%
A. Currently unemployed								
Direct effect	0.107	48	0.082	36	-0.022	-17	0.037	27
Indirect through:								
Financial strain	0.092	41	0.118	51	0.130	100	0.089	65
Marital difficulty	0.007	3	0.014	6	0.008	6	0.001	1
Affiliative interaction	-0.006	-3	-0.007	-3	-0.004	-3	-0.002	-2
Financial events	0.020	9	0.022	10	0.017	13	0.010	7
General events	0.001	0	0.001	0	0.002	2	0.002	2
Total gross effect	0.223	100	0.230	100	0.130	100	0.137	100
B. Previously unemployed								
Direct effect	0.052	70	0.028	48	0.102	75	0.043	66
Indirect through:								
Financial strain	0.028	38	0.037	64	0.041	30	0.027	42
Marital difficulty	0.002	3	0.003	5	0.001	1	0.000	0
Affiliative interaction	-0.007	-10	-0.008	-14	-0.005	-4	-0.002	-3
Financial events	0.003	4	0.003	5	0.003	2	0.002	3
General events	-0.004	-5	-0.004	-7	-0.005	-4	-0.005	-8
Total gross effect	0.074	100	0.058	100	0.136	100	0.065	100

† No significance tests are available for these components. See the text for a discussion.

between 30% and 64% of the PU effects, depending on the outcome. The effects through the other outcomes are trivial in comparison.

No significance tests were computed for the indirect effects. A procedure has recently been developed to derive such tests (Sobel, 1986), but the software required to perform the complex calculations is not yet available in standard statistical packages. As a result, we have no formal way of knowing whether the indirect effects of financial strain are significant. It is worth noting, however, that both of the component regression coefficients involving financial strain (equivalent to a_1 , b_1 and c_1 in Fig. 1) are significant for all of the outcomes. This is not true for any of the other strains.

Modifying effects

There is another way in which strains might be implicated in the effects of unemployment. Unemployment people might be more vulnerable than employed people to the health-damaging effects of strains. A serious life event, for example, might take on an added dimension of stressfulness if it occurs while the family's breadwinner is out of work. Coping capacities are stretched thin with prolonged unemployment, and it is reasonable to assume that one's

ability to manage other serious strains would be reduced.

We can evaluate this possibility by estimating a series of regression equations which include all the predictors in equation (1) plus all of the five strain measures, plus terms representing the interactions between each strain and current and previous unemployment. With five strains and two measures of unemployment, ten interaction terms can be created for each prediction equation.

When regression equations of this sort are estimated, the data are clear in showing that only one consistent pattern of differential response exists. The impact of undesirable, non-financial life events is significantly more pronounced among currently unemployed people than among those who are employed.

To facilitate interpretation of this interaction, we have re-parametrized the prediction equations in the form of a two-by-two cross-classification of employment status (currently unemployed *v.* stably employed) and exposure to one or more other major undesirable events. The relationships between this cross-classification and each of the outcomes, statistically adjusting for the control variables and financial strain, are reported in Table 6. The numbers presented in this

Table 6. *Standard means on the outcome variables among respondents cross-classified by current unemployment and exposure to some other major undesirable life event†*

	Anxiety	Depression	Somatization	Physical illness
A. Currently unemployed				
Other life event				
Yes	0.353**	0.359**	0.257	0.241
No	-0.130	-0.210	-0.351	-0.191
Yes-No	0.483*	0.569*	0.608	0.432
B. Stably employed				
Other life event				
Yes	-0.017	-0.021	0.175	0.046
No	-0.202	-0.143	-0.156	-0.124
Yes-No	0.185	0.122	0.331	0.170
R ²	0.256	0.346	0.216	0.126

† Coefficients are standardized means from an analysis of covariance controlling for demographic variables (see note to Table 1) and strains (see Table 2). The number of respondents in the four categories of the cross-classification between employment status (CU v. SE) and exposure to other life events (Yes-No) are: CU/Yes $N = 80$; CU/No $N = 66$; SE/Yes $N = 95$; SE/No $N = 89$.

* Significantly greater than the Yes-No difference among the employed at $P = 0.05$.

** Significantly greater than the Yes mean among the employed at $P = 0.05$.

table are the adjusted average levels of the outcome variables among respondents in each of the cross-classification categories.

The table is clear in showing that the highest levels of ill health are associated with the joint occurrence of unemployment and some other undesirable life event. There are at least two ways to interpret this specification: that unemployment magnifies the impact of other events on the health outcomes, or that other events magnify the impact of unemployment on these same outcomes. Some insight into these two different interpretations might be obtained by looking separately at situations where unemployment occurred after the other event and those where unemployment occurred first. We have not attempted to carry out such a specification empirically for two reasons. First, the sample size is small and the required analysis, which amounts to the estimation of a three-way interaction, cannot be done sensitively without more cases. Secondly, and more fundamentally, there is little reason to believe that any clear primacy could be found for a provoking effect in an analysis which evaluates the joint effects of two different life events.

The important result of this analysis is that the high level of distress found among the unemployed is largely confined to those people who also had to contend with some other recent life event. A comparison of the second row of panel A and the second row of panel B shows that, among those who have not experienced some other recent event, the average levels of ill health among the currently employed are either lower than among the stably employed or only slightly higher. None of these differences is significantly different from zero.

It is important to remember that these results are based on a statistical model which controls for the different levels of financial strain experienced by the unemployed and employed, an influence that we have already shown to explain much of the effects of unemployment. Thus we are able to conclude that the impact of current unemployment on the health indicators considered here can be explained by two influences. First, unemployment leads to financial strain, which in turn promotes both psychological and somatic health problems. Secondly, unemployment enhances vulnerability to the health-damaging effects of other life events.⁷ There are no significant effects of unemployment net of these two influences.

Additional mediators among the re-employed

As noted earlier, we suspect that the small coefficients consistently linking the previously unemployed people to higher rates of ill health reflect genuine effects which are too small to be judged significant in a sample as small as ours. Consequently, we were interested to note that the strains considered in Table 5 play much less of a part in accounting for the PU effects than the CU effects. Furthermore, analyses of interaction effects showed that the previously unemployed people are not any more vulnerable to these strains than are the stably employed. In both these respects then, the explanatory processes we have considered so far are less capable of accounting for the elevated symptom levels of the previously unemployed than for the more dramatically elevated levels among the currently unemployed.

The sample sizes are too small to pursue this issue with great rigour. The mean differences on the health outcomes between the previously

unemployed and stably employed groups are generally not significant. Therefore, it is unlikely that any more detailed decomposition of these small coefficients would yield stable estimates. The gross effect which we would be decomposing may not be real in the first place.

None the less, we carried out a series of exploratory analyses that investigated the possibility of systematic influences. One possibility considered is that previously unemployed people experience elevated rates of ill health because their new jobs are more stressful than their old jobs. This possibility is consistent with the widely documented fact that unemployed people seldom find a new job as good as the job they lost. Their new jobs are often below their skill level, with fewer chances of promotion and poorer working conditions (Ferman & Gardner, 1979). This pattern of job 'skidding' is thought to have an adverse effect on mental health, although we know of no systematic attempt to investigate this possibility.

We carried out such an investigation by obtaining information about the conditions of both old and new jobs held by our previously unemployed respondents. A wide variety of job conditions were assessed in a battery of nine questions about salary, job benefits, job security, feelings of challenge and pride in the work, and friendships with co-workers. As predicted, we found that current job characteristics are generally less desirable than those of respondents' old jobs. However, in regression equations adjusting for current job conditions, and for changes in job conditions relative to the previous job, the effect of previous unemployment remains. Job characteristics do not account for the elevated levels of ill health among the previously unemployed.

Another possibility is that the small residual effects of unemployment among the re-employed represent nothing more than incomplete emotional recovery from unemployment. We find evidence consistent with this possibility in analyses distinguishing previously unemployed respondents in terms of how long it has been since they found new jobs. Table 7 compares mean scores on the four health outcomes across three groups: previously unemployed workers who have been re-employed for two years or less, previously unemployed workers who have been re-employed for more than two years, and

Table 7. Time decay of the effects of unemployment among the re-employed†

	Anxiety	Depression	Somatization	Physical illness
0-2 years	0.033	0.083	0.145	0.035
> 2 years	0.120	-0.308*	0.079	0.153
Stably employed	-0.099	-0.057	-0.034	-0.054

† Mean scores for each subgroup standardized on the six demographic control variables (see note to Table 3), the five intervening strains, job conditions and changes in job conditions relative to the previous job.

* Significantly different from the mean for the stably employed ($P = 0.05$).

stably employed workers. These means are standardized on job conditions, changes in job conditions and our five intervening strains, as well as on the demographic controls we have employed throughout.

With the exception of physical illness there does, in fact, appear to be a time decay of the elevated levels of distress among the previously unemployed. In the case of depression, the difference between those who are in their first two years of re-employment and those who have been re-employed longer is statistically significant. Indeed, the latter group is significantly *less* depressed than the stably employed. Because a variety of unmeasured variables which affect depression could be related to how long the individual has been re-employed, this is only inferential evidence for the importance of time. None the less, the pattern is consistent with the hypothesis that time has a healing effect not captured by measures of current stress.

DISCUSSION

Our attempt to discover the ways in which unemployment creates ill health points to two clear mechanisms. First, financial strain is of great importance. In its absence the effects of current unemployment are halved. Secondly, unemployment compounds the effects of unrelated life events. In the absence of some other stressful event and net of elevated financial strain the currently unemployed people in this population are in no worse health than people who have been stably employed throughout the recession years.

Because our data are cross-sectional, it is

necessary to inject a note of caution here. Responses to our questions about subjectively experienced financial strain may well be influenced by the levels of the outcome variables. We have recently completed a collection of a second wave of data on these respondents, and in later analyses we will be able to assess the degree to which such an effect influences our results.

Two other interpretations of the unemployment-illness relationship, widely discussed in the literature, were not supported. We found no evidence that either reduction in affiliative interaction or increase in marital tension is an intervening factor in the impact of unemployment on health.

Two comments about the context of our study might help explain these negative findings. First, southeastern Michigan was among the most severely impacted labour markets in the United States during the recession early in this decade. Many workers who had been stably employed found themselves without jobs and without the prospect of finding a job for quite some time. In the census tracts we surveyed, it was not uncommon to find several unemployed workers in close proximity, and to find that all of these people had been without a job for a period of two years or more.

In the face of this situation, it is not unreasonable to assume that alternative affiliative networks would evolve away from work. Indeed, this is precisely what Kasl & Cobb (1979) found in their longitudinal study of plant closings. As time went on, unemployed people built new ties and became less socially isolated than they were in their early unemployment experience.

The failure to find that unemployment increases marital tension might have a related interpretation. In the area we studied, job loss was common. It was widely viewed as out of control of the person who was unemployed. From what we know about the way in which unemployment causes marital tension, it seems that recriminations about lack of effort toward finding a new job play an important part (Liem, 1983). It is possible that in an environment where job loss is common and defined as structural, this sort of issue is less likely to arise.

It should also be noted that our ability to

account for the impact of current unemployment in terms of increased financial strain and vulnerability to life events does not necessarily mean that there are not other important factors involved.⁸ This is so for two reasons. First, our sample is not representative of unemployed and employed workers in general. Automobile manufacturing is the predominant industry in the area, and most of our respondents are blue-collar workers. There is reason to believe that such a sample will be characterized by unusually low employment commitment. Blue-collar workers (and low-prestige white-collar workers) are much more likely to say that they would quit their job, if they had no financial need to continue working, than are professional or managerial workers – a finding that has been replicated many times in surveys of national samples of employed workers in the United States (Kahn, 1981). It is not unexpected, then, that financial strain is the most important component of the unemployment experience in this particular population. In other samples, however, other factors may take precedence. Warr & Jackson (1985) have, in fact, found that the psychological health of the unemployed deteriorates more dramatically among individuals with high employment commitment.

The second reason that intervening mechanisms, other than those we found, may be important, is the possible existence of counterbalancing forces. For example, we know from earlier qualitative research that unemployment often has positive effects on family relationships because of the increased time that the unemployed individual has to spend with his family (Thomas *et al.* 1980). If this were the case for our sample, and had we controlled for its effect, we would have fallen short of explaining the entire effect of current unemployment. Thus there would be room for other unemployment-related strains to be considered.

We also examined whether the health-damaging effects of unemployment remain among people who manage to find new jobs. Basing our analysis on previous discussion of the lingering effects of job loss, we anticipated finding a substantial residual effect. This was not the case. We found clear evidence for a small and consistent relationship between previous unemployment and current ill health, but this relationship was much less substantial than previous

discussions of 'skidding' led us to believe. Furthermore, direct evaluation of the mechanisms presumed to play a part in job skidding – low job security, poor wages and benefits, and undesirable job conditions – turned up only very weak evidence that these factors play a part in the lingering effects of unemployment among people who are re-employed. A more likely interpretation, consistent with some inferential evidence, is that the effects observed among the previously unemployed are residual effects of current employment – effects which take time to heal even after a new job is found.

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NOTES

- 1 An attempt was made to choose the census tracts with the highest rates of unemployment, within a target area known to be experiencing high unemployment levels, while maintaining geographic contiguity between the tracts. The unemployment rates in the 14 tracts ranged, in the autumn of 1984, from 7.5 to 31.5%. The overall unemployment rate for the selected tracts was 13.3%.
- 2 In contrast, a later plant closing study (Kasl & Cobb, 1979) found that a measure of 'relative economic deprivation', involving a comparison of one's own economic situation with that of friends and neighbours as well as an assessment of financial difficulties, did not play a role in the health-damaging effects of job loss. This work, however, was carried out at a time when the economy was strong and prospects for re-employment were high. Indeed, the unemployed people in Kasl & Cobb's study found new jobs within a very short period of time, which might account for the failure of these research workers to document an effect of financial deprivation.
- 3 In the analyses reported in the present paper, we combine all events experienced in the year before

interview, whether they occurred before or after unemployment. We do this because we are interested in studying both the intervening effect of unemployment on subsequent events and the effect of unemployment in exacerbating the impact of other events on health and well-being. As we document below, the most important part played by life events in helping us understand the effects of unemployment is as a modifier. This kind of effect is important, whether the events occurred before or after the beginning of unemployment.

- 4 We also analysed the data to determine whether the impact of unemployment varies across different values of the control variables. Multiplicative interaction terms for the joint effects of CU with the control variables and parallel terms for the joint effects of PU with the control variables were included as predictor variables in a series of multiple-regression equations. No consistent patterns of interaction or any significant individual interaction terms were found for education, race, sex or marital status. Failure to find a marital status effect was unexpected, in the light of previous evidence that social support (sometimes indicated indirectly by a measure of marital status) buffers the impact of life events on mental health (Cohen & Wills, 1985; Kessler & McLeod, 1985).

A different result emerged for the interactions involving age. There is a significant positive interaction between CU and age in predicting physical illness ($b = 0.028$) and somatization ($b = 0.023$), which can be interpreted as meaning that the impact of current unemployment on these outcomes increases with age. There are not significant interactions between CU and age in predicting depression or anxiety. The effects of PU on somatization, anxiety and depression vary curvilinearly with age. The strongest effects exist among the young and the old, and the weakest effects among respondents who are middle-aged. There are no interactive CU-age effects in predicting physical illness.

These age effects are inconsistent with the findings of Warr & Jackson (1984), who report a curvilinear effect in which unemployment has the lowest health-damaging effects among young and old people and the largest effects among those in middle age. In the light of this inconsistency, as well as our failure to document a consistent age specification for both CU and PU or across the full range of outcomes, we estimated the final models without any age interaction. This means that the results are averaged over age. There is no nonlinear effect of age on any of the outcomes in this additive specification.

- 5 These coefficients differ slightly from those reported previously (Kessler *et al.* 1987) because they were computed using the sample for which there was complete information available on the five stress variables subsequently introduced into the analysis.
- 6 See Alwin & Hauser (1975) for a technical discussion of decomposition methods.
- 7 As noted above, it would be equally accurate to say that the experience of an unrelated life event makes the individual more vulnerable to unemployment. We state it the way we do because our purpose in this paper has been to decompose the health effect of unemployment. A portion of this effect is the result of heightened vulnerability to other life events.
- 8 The authors would like to thank one of the anonymous reviewers for pointing out the importance of this qualification.

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