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Chronic Medical Problems, Coping Resources, and Depression: A Longitudinal Study of Rural Tennesseans[1]

J. Gary Linn[2]
Center for Health Research and School of Nursing, Tennessee State University

Baqar A. Husaini
Center for Health Research and Department of Sociology, Tennessee State University

This analysis examined chronic medical problems as a risk factor for depressive symptomatology using longitudinal survey data from a sample of rural Tennesseans. Two waves of data (1977 and 1983) were collected on 532 rural Middle-Tennessee residents. An initial investigation found chronic medical problems a powerful predictor of depression. Furthermore, internal and external resources (personal resources and social support) operated as moderating factors between the stress of medical problems and psychiatric impairment. Panel regression analyses indicated that Time 1 depression level as well as medical problems at Time 2 (t2) were significant predictors of depression at t2 in rural areas of the mid-South. Finally, the buffering effects of both social support and personal resources were explored.

Little question exists that one's psychological well-being may have a direct influence upon one's physical health and vice versa. The issue of how medical problems relate to psychiatric impairment in large populations warrants further investigation because the pattern of association between psychiatric and physical illness has considerable policy importance in developing strate-

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[2]All correspondence should be sent to J. Gary Linn, Center for Health Research, Box 431, Tennessee State University, Nashville, Tennessee 37203.

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gies to meet the needs of the ill population. Further, a better understanding of the relationship of medical problems to psychiatric impairment is especially important in rural populations because of the relative scarcity of health and mental health professionals (Hassinger, 1982). Given this shortage of health professionals, if psychiatric and physical disease occur together, they should be diagnosed and treated jointly.

A number of cross-sectional studies in urban (Crandell & Dohrenwend, 1967; Husaini, 1983; Langer & Michael, 1963; Leighton, Harding, Macklin, Macmillan, & Leighton, 1963) and rural (Neff, Husaini, & McCorkel, 1980) settings have obtained strong statistical associations between self-reports of physical illness and self-reports of psychiatric impairment. Further, a similar relationship was observed in a study of rural blacks (Husaini & Neff, 1981).

Evidence for a direct influence of physical problems, including surgery, thyroid hormone disturbance, and cancer, upon depression has also been provided by patient studies (Hall, 1983; Hankin, 1980; McGuire, Lee, & Bevington, 1978). The principal objective of this paper is to analyze this relationship longitudinally, i.e., to examine chronic medical problems as a risk factor associated with symptoms of depression over time in a rural sample.

Several plausible outcomes for this longitudinal relationship are evident. First, the depressive effect of a high level of chronic illness may strongly persist over time so that individuals with many medical problems at Time 1 (t1) are highly depressed at Time 2 (t2). Second, limited psychological adjustments to illness over time could mean that medical problems at t1 have a direct but attenuated influence on symptoms at t2. Finally, the impact of physical disability on mental well-being could be relatively ephemeral, i.e., symptoms of depression could fade rapidly following the disappearance of illness. Hence, t1 medical problems would be unrelated to t2 depression.

A secondary focus of this analysis is on the buffering effects of social support and personal resources as related to the impact of chronic physical illness on depression. The expectation here is that those individuals who are high in social support or personal resources will be less psychologically vulnerable to the influence of medical problems. Considerable evidence congruent with this hypothesis, particularly regarding the stress-buffering qualities of social support, has been reported in the life stress literature (Dean & Lin, 1977; Husaini, 1982; Husaini & Linn, 1984; Mueller, 1980; Turner, 1983).

METHOD

The Sample

The data used in this study concern 532 individuals from rural areas of middle-Tennessee interviewed in 1977 and 1983. Time 1 data were ob-

tained through a 70-minute interview of randomly selected respondents in the spring and summer of 1977. Because of the rural focus of the study, nine counties in the mid-Cumberland region of Tennessee were selected as meeting the 1970 criterion of being defined at least 60% rural by the U.S. Bureau of the Census. In the absence of an adequate sampling frame within these counties, a multistage area sampling procedure (Kish, 1965) was used to select geographic areas, households, and finally, respondents within those households. Within each selected household, one adult aged 18-60 was selected randomly for a personal interview. The final sample comprised 713 individuals: 63% female and 37% male; 90% white and 10% nonwhite.

Time 2 data were collected (again with an approximately 70-minute personal interview) in the spring and summer of 1983. The elapsed time between the interviews was approximately 6 years. A total of 532 of the t1 respondents were reinterviewed. The t2 sample was 63.5% female and 36.5% male, 88% white and 12% nonwhite.

Concept Measurement

Depressive symptoms, which constituted our main dependent measure, were assessed with the Center for Epidemiologic Studies Depression Scale (CES-D; Radloff, 1977). This 20-item index taps the presence and frequency of symptoms over the past 7 days. Psychometric properties of this scale have been reported by Radloff (1977) and Husaini, Neff, Harrington, Hughes, and Stone (1980).

The presence of chronic illnesses was assessed with a chronic medical problems checklist derived from the National Health Interview Survey (Wilder, 1973). Respondents were asked to indicate which items on a list of medical problems had been a problem to them during the past year.

Since the focus of this study is upon psychiatric impairment in relation to chronic physical illness, mental illnesses reported on the chronic illness checklist have been dropped from the analysis to avoid potentially spurious correlations between measures that are not independent of each other.

Social support was examined in two ways. The initial approach measured available support and perception of available support. To measure availability, the sample was divided into married versus unmarried and also into living with others versus living alone. The assumption is that both having a spouse or living with a companion is likely to be a potential source of assistance. Perceived availability was assessed by asking respondents if they had more trusting friends/relatives now than 5 years ago.

A second type of measure tapped the actual use of social support. Individuals were asked if they had spoken with a trusted friend or relative about some personal/serious problems in the last month.

Finally, two measures of personal resources were used. The first of these was a seven-item scale of personal competence developed by Campbell, Con-

verse, Miller, and Stokes (1960). This index provides a general assessment of the individual's sense of control over his or her environment. A second scale, ego strength (Zander & Thomas, 1960), consists of opinions of self-worth and behavioral tendencies/abilities of self-direction and tension management.

RESULTS

Regressions of Chronic Illnesses and Symptoms of Depression

The principal question in this study concerns the long-term consequences of chronic physical illnesses for symptoms of depression. This issue, and several other related issues, is addressed with a two-wave, two-variable linear model (see Fig. 1). The model includes three regression analyses. In the first of these, depression (t2) was regressed on all of the three other variables. Second, chronic medical problems (t2) was regressed on chronic medical problems (t1) and depression (t1). Finally, depression (t1) was regressed on chronic medical problems (t1).

The beta of −.03 between t1 chronic diseases and t2 symptoms of depression indicates that the number of illnesses reported by respondents in 1977 was not related directly to their level of depressive symptoms recorded in 1983. Yet, the large coefficient ($\beta = .55$) for the relationship between t1 and t2 chronic medical problems shows that the occurrence of these illnesses, as

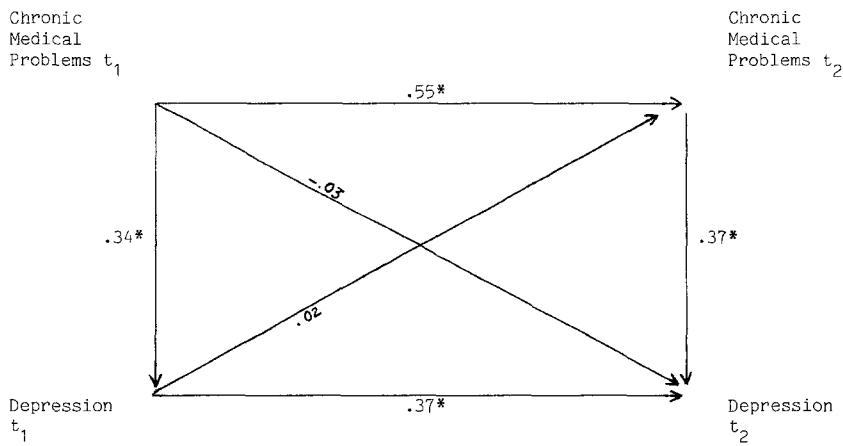

Fig. 1. Standardized regression coefficients between chronic medical problems and depression: two-wave, two-variable panel model ($n = 532$). *$p < .05$.

one would expect, tends to be stable over time, i.e., those individuals who suffered from many chronic illnesses in 1977 were likely to experience a high level of chronic diseases 6 years later.

An additional regression analysis was done to see if the association between chronic medical problems over time could be accounted for by antecedent variables such as age, sex, race, education, and income; however, the coefficient remained virtually unchanged when the demographic controls were added ($\beta = .53$). Further, as expected, chronic illnesses and symptoms of depression when measurred at the same point in time are associated. The t1 and t2 coefficients for this relationship are .34 and .37, respectively.

The remaining two paths in Figure 1 also deserve comment. First, the beta (.37) between t1 and t2 symptoms of depression suggests some stability of depression over time, i.e., if a respondent reported many symptoms of depression in 1977, it is somewhat likely that he or she would be equally depressed in 1983. A similar finding has been obtained in three other panel studies of shorter duration (no more than 2 years between interviews) with urban samples (see Eaton, 1978; Husaini & Von Frank, 1985; Lin & Ensel, 1984).

Finally, we see that symptoms of depression at t1 are unrelated to medical problems at t2. This finding is contrary to the work of Brenner (1979) who observed that psychiatric distress is often followed by many kinds of chronic physical illness.

The Buffering Effects of Social Support and Personal Resources

To assess the effects of support and personal resources in reducing/lowering vulnerability to chronic medical problems, regressions were employed on groups dichotomized into high and low categories for social support, personal competence, and ego strength at t2. The expectation here is that if there is a buffering effect, medical problems at t2 should have relatively little relationship to depression among those high in social support and personal resources.

Given the unequal group sizes, unstandardized partial regression coefficients (see Table I) were used in comparing groups because differences in variance in subsamples could alone have produced a difference in the beta coefficients (Eaton, 1978).

The interactions of chronic medical problems at t2 with various measures of available support (i.e., being married, living with someone, having more confidants) provided evidence congruent with our buffering hypothesis. Further, it is interesting that both the groups who objectively appeared to have more support available to them (i.e., the married and those living with someone) and the group that perceived greater availability of support

Table I. Unstandardized Regression Coefficients Showing Buffering Effects of Social Support on Depression at t2[a]

Variable	Married	Unmarried	Living with others	Living alone	Confidants		Used confidant	
					More	Less	Yes	No
Depression t1	.27	.48	.31	.74	.31	.30	.25	.35
Chronic medical problems								
t1	−.07	−.17	−.01	−1.52	−.07	.15	.26	−.24
t2	.70	1.04	.75	1.22	.67	1.35	.88	.53
R^2	.31	.46	.18	.69	.18	.31	.18	.21
n	383	96	452	27	450	30	120	360

[a]Controlling for age, sex, race, income, and education.

(i.e., those who said they presently have more confidants than 5 years ago) were less vulnerable to the effect of current physical illness.

However, a caveat is in order here. These interactions also support the following alternative explanation. People who are depressed may be isolated. Thus, individuals experiencing depression because of chronic physical illness may tend not to be married, to live alone, and to have less confidants.

Finally, as a counterpoint to the pattern observed with the measures of available support, it is noteworthy that utilized support does not mediate the effects of chronic illness of symptoms of depression. In fact, individuals who reported talking to their confidants about personal/serious problems in the last month appeared to be somewhat more impacted by biogenic stressors (b = .88) than persons who had not talked with them (b = .53). It may have been that the individuals who were more depressed as a result of chronic illnesses were more likely to use the assistance of trusted others than persons who were affected less negatively.

In Table II, the results showing the buffering effects of personal resources on depression also tended to confirm our expectations. For both variables (personal competence and ego strength), those with higher internal resources showed relatively smaller partial slopes. Persons with a greater sense of personal control or self-worth appear to be less vulnerable to the negative psychological effects of chronic diseases. However, as with the social support interactions, the findings also suggest an alternative explanation, namely, that people who are depressed because of chronic physical illness also experience low levels of personal competence and ego strength.

Table II. Unstandardized Regression Coefficients Showing Buffering Effects of Personal Resources on Depression at t2[a]

	Personal competence		Ego strength	
Variable	High	Low	High	Low
Depression t1	.37	.25	.13	.34
Chronic medical problems				
t1	-.03	-.20	.20	-.30
t2	.32	.99	.24	.99
R^2	.27	.14	.15	.19
n	260	219	240	239

[a]Controlling for age, sex, race, income, and education.

DISCUSSION

The primary objective of this analysis was to examine chronic medical problems as a risk factor associated with symptoms of depression over time. Findings with regard to this question for this sample of rural Tennesseans suggest that the impact of chronic physical illness on depression is not enduring for a relatively long period, i.e., the 6 years between our initial and follow-up studies.

Similarly, symptoms of depression do not appear to have long-term consequences for medical problems. A further implication of this finding is that mental impairment as measured at t1 does not contaminate the responses concerning medical problems recorded at the follow-up.

To answer the question of the long-term consequences of chronic physical illness for depressive symptoms and vice versa, research with different time lags is needed. Perhaps both of these relationships hold up over some extended period; however, the issue left to be resolved is how long?

Other panel analyses completed in this study demonstrate that both chronic physical illness and depressive symptoms are stable over time. It should come as no surprise that persons who reported many medical problems in 1977, which were labeled chronic, were likely to report many chronic physical illnesses in 1983. In fact, since 80% of the respondents at t1 indicated that they had no problems in getting treatment for their medical problems, the observed long-term continuity in these physical diseases probably can be attributed largely to their chronicity rather than the unavailability of medical practitioners, which is often cited as a problem in rural areas (Hassinger, 1982).

The apparent continuity in depressive symptoms over the 6 years encompassed by the study was not expected, however. In line with other urban-based studies (Eaton, 1978; Husaini & Von Frank, 1985; Lin & Ensel, 1984), it was assumed that episodes of depression might span 1 or 2 years, but they would not be likely to have the extended duration suggested by the results obtained here. Unfortunately, there have been no large-sample longitudinal studies of psychological depression of equal duration (6 years) in either urban or rural areas. Thus we cannot begin to conclude whether our findings largely reflect the rural character of our sample. Nevertheless, it is important to note that at the initial data gathering only two of the nine counties included in our study had full-time mental health services in the form of a clinic or mental health center, although all but one of the counties had at least a part-time formal mental health facility (Husaini & Neff, 1980). Furthermore, at t1, 75% of the respondents were unaware of the availability of clinic- or center-based services in their community. Thus, it is plausible that many people in these middle-Tennessee counties experience long-term

depression, at least in part, because there are few mental health professionals available to provide assistance and because they are generally unaware of the formal services (mental health centers and clinics) that exist.

This analysis also helped confirm the observation of earlier studies that serious physical illness and psychiatric impairment are often found together (see Langer & Michael, 1963; Leighton et al., 1963; Neff et al., 1980). Since reports of depressive symptoms at t1 do not appear to contaminate responses on physical illness at t2, it can be assumed somewhat more safely that the association between these measures observed in the follow-up investigation could not be accounted for by the possibility that mentally impaired respondents with a distorted recall of chronic physical illness inaccurately reported having many medical problems. This further substantiates the policy recommendation of Neff and associates (1980) that those who teach nurses and medical students who are planning to practice in rural areas should equip them to do psychiatric screening.

The findings on the interactions of available social support and personal resources with chronic medical problems on depressive symptoms provide consistent, although inconclusive, evidence of the biogenic stress-buffering qualities of social and personality factors. Given that equally plausible alternative explanations are supported by these results, we conclude that the buffering effects issues addressed here remain working hypotheses. To provide more conclusive evidence on these questions, future studies should, where possible, follow the advice of Thoits (1982) and measure the buffers (i.e., social support and personal resources) immediately before measuring the biogenic stressors. This will assure the temporal priority of the buffers when they are incorporated in interaction terms with measures of chronic physical illnesses.

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