Resource Loss, Resource Gain, and Depressive Symptoms: A 10-Year Model

Charles J. Holahan
University of Texas at Austin

Carole K. Holahan
University of Texas at Austin

Rudolf H. Moos
Department of Veterans Affairs Health Care System, Palo Alto, California, and Stanford University

Ruth C. Cronkite
Department of Veterans Affairs Health Care System, Palo Alto, California, and Stanford University

This study examined a broadened conceptualization of the stress and coping process that incorporated a more dynamic approach to understanding the role of psychosocial resources in 326 adults studied over a 10-year period. Resource loss across 10 years was significantly associated with an increase in depressive symptoms, whereas resource gain across 10 years was significantly associated with a decrease in depressive symptoms. In addition, change in the preponderance of negative over positive events across 10 years was inversely associated with change in resources during the period. Finally, in an integrative structural equation model, the association between change in life events and depressive symptoms at follow-up was completely mediated through resource change.

Research on the stress and coping process plays a vital role in conceptualizations of adaptive functioning across the adult life span (Folkman, 1991). Psychosocial resources are central to current conceptualizations in this area (see Cohen & Edwards, 1989; Coyne & Downey, 1991). Yet, a limitation of almost all current models is that psychosocial resources are conceptualized as static. The purpose of the present study was to examine a broadened conceptualization of the stress and coping process that incorporated a more dynamic approach to understanding the role of psychosocial resources in a sample of 326 adults studied over a 10-year period.

Psychosocial Resources

From initially placing an emphasis on people’s deficits and vulnerabilities, contemporary research on stress and coping has evolved to the point that increasing emphasis is being placed on individuals’ adaptive strengths and capacity for resilience and personal growth in the face of challenge (Holahan & Moos, 1994). Stress resistance research exemplifies a long-standing psychological interest in adaptive processes and positive mental health (see Antonovsky, 1979; Caplan, 1964; Jahoda, 1958). Social resources such as emotional support, guidance, and assistance from family members and friends are key to stress resistance (Cohen, 1992; Thoits, 1995). Moreover, a variety of personal resources that relate broadly to personal control are especially important stress-resistance resources (Lefcourt, 1992). A calm and easygoing disposition, in contrast to one characterized by impatience and irritability, may also provide resistance to stress (Rhodewalt, Hays, Chemers, & Wysocki, 1984).

For example, in a 1-year longitudinal study with a community sample of 500 individuals (Holahan & Moos, 1986) and in a series of 1-year (Holahan & Moos, 1987, 1990) and 4-year (Holahan & Moos, 1991) longitudinal studies with the present sample, we examined personal and social stress-resistance resources. Family support and personality strengths of self-confidence and an easygoing disposition predicted less depression over both 1- and 4-year periods, even when prior depression was controlled.

Despite the central role of psychosocial resources in contemporary theories of the stress and coping process, researchers know remarkably little about the nature, consequences, or determinants of resource change. The few studies that have examined change in psychosocial resources have typically relied on cross-sectional designs (e.g., Aldwin, Sutton, & Lachman, 1996; Freedy, Saladin, Kilpatrick, Resnick, & Saunders, 1994; Freedy, Shaw, Jarrell, & Masters, 1992; King, King, Fairbank, Keane, & Adams, 1998; Quittner, Glueckauf, & Jackson, 1990).

Resource Change and Psychological Adjustment

Hobfoll and his associates’ (see Hobfoll, Dunahoo, & Monnier, 1995; Hobfoll, Freedy, Green, & Solomon, 1996; Hobfoll & Vaux, 1993) conservation of resources theory provides an important
An additional line of inquiry has focused on predictors of loss in psychosocial resources. Consistent with conservation-of-resources theory (Hobfoll et al., 1995, 1996; Hobfoll & Vaux, 1993), emerging evidence suggests that exposure to life stressors may weaken social resources. In studying victims of floods in Kentucky, Kaniasty and his associates (Kaniasty & Norris, 1993; Kaniasty, Norris, & Murrell, 1990) found prospective evidence that victims had less support available after floods than they did before the floods. Both personal and community losses were related to declines in victims’ perceptions of kin and nonkin support up to 6 months after the disaster occurred.

Although the findings are complex, Park and Folkman (1997) found some support for a “wear-and-tear” hypothesis in examining caregiving support among HIV seropositive male caregivers of men with AIDS. More broadly, Moos, Penn, and Billings (1988) found that new stressful events were associated with a decline in social resources over an 18-month period. Moreover, recent evidence suggests that life stressors also may be associated with resource decline in the personal domain. Research with a national sample of Vietnam veterans (King et al., 1998) provided some cross-sectional evidence that postwar negative life events were related to lower levels of hardness.

Although previous research has focused on the link between negative events and resource loss, there is some evidence that positive events may be associated with resource gain (Mitchell & Moos, 1984). Moreover, Hobfoll et al. (1996) argued that positive events may balance the adverse effects of loss events. They reasoned that negative events have adverse effects “when losses outweigh gains” (p. 325). There is some evidence that is consistent with this view from both cross-sectional (Cohen & Hoberman, 1983) and longitudinal (Suh, Diener, & Fujita, 1996) research. Further, Mitchell and Moos (1984) found that negative events were associated with decreases in family support over a 1-year period only among individuals experiencing few positive events.

A Mediatinal Model

Some investigators have suggested that resource loss may function as a mediator between life change and a decline in psychological functioning. In a cross-sectional study with mothers of children with hearing impairments, Quittner et al. (1990) demonstrated that the link between maternal stressors and psychological distress was almost perfectly mediated by an inverse relationship between maternal stressors and both perceived and network support. In addition, King et al. (1998) found cross-sectional evidence among Vietnam veterans that the relationship between stressful life events and posttraumatic stress disorder was partially mediated by reductions in both hardness and social support.

Kaniasty and Norris (Kaniasty & Norris, 1993; Norris & Kaniasty, 1996) have proposed a social support deterioration model, which posits that changes in social support mediate between natural disasters and psychological functioning. In research on victims of Hurricane Hugo and Hurricane Andrew, Norris and Kaniasty (1996) found cross-sectional evidence that disaster exposure was indirectly related to psychological distress through perceptions of less ongoing support. In a prospective study controlling for initial functioning, Kaniasty and Norris (1993) found that perceptions of reduced nonkin support among flood victims in Kentucky mediated between disaster distress and depressive symptomatology (see also Ensel & Lin, 1991).

The Present Study

The purpose of this study was to examine a broadened conceptualization of the stress and coping process that incorporated a more dynamic approach to understanding the role of psychosocial resources in a sample of 326 adults studied over a 10-year period. Although change in resources typically has been inferred on the basis of cross-sectional differences between individuals (e.g., Aldwin et al., 1996; Freedy et al., 1992, 1994; King et al., 1998; Norris & Kaniasty, 1996; Quittner et al., 1990), the paucity of longitudinal studies of within-individual change has made causal inferences tenuous. Further, the decade-long perspective provided a unique opportunity to study the nature, correlates, and consequences of dramatic loss and gain in psychosocial resources.

Specifically, the study examined (a) resource loss and resource gain as predictors of change in depressive symptoms, (b) the association between change in life events and resource change, and (c) an integrative model of resource change as a mediator between changes in life events and depressive symptoms. Following previous research with the present sample (Holahan & Moos, 1990, 1991) and with another community sample (Holahan & Moos, 1985, 1986), a latent construct for psychosocial resources was operationalized by family support, self-confidence, and an easygoing disposition.

On the basis of cross-sectional research on resource loss (Freedy et al., 1992, 1994), we hypothesized that resource loss across 10
years would predict an increase in depressive symptoms during the period. Moreover, consistent with 1-year longitudinal research on resource gain (Fondacaro & Moos, 1987; Holahan & Moos, 1990), we predicted that resource gain across 10 years would be related to a decrease in depressive symptoms during the period.

Applying prospective research on negative (Kaniasty & Norris, 1993; Kaniasty et al., 1990; Moos et al., 1988; Park & Folkman, 1997) and positive (Mitchell & Moos, 1984) life change and consistent with the view that negative events have adverse effects when losses exceed gains (Hobfoll et al., 1996), we predicted that an increase in excess negative events (i.e., negative events in excess of positive events) would be associated with resource loss, whereas a decrease in excess negative events would be associated with resource gain.

Consistent with earlier cross-sectional (King et al., 1998; Norris & Kaniasty, 1996; Quittner et al., 1990) and prospective (Kaniasty & Norris, 1993) research on resource loss, we hypothesized that change in resources would operate as a mediator between change in life events and change in depressive symptoms. This prediction is shown graphically in Figure 1 as a structural equation model that includes a measurement model for latent constructs representing depressive symptoms at Time 1 and Time 2, change in excess negative events, and change in psychosocial resources.

Method
Sample Selection and Characteristics
The sampling procedure involved a random selection of persons within selected census tracts in the San Francisco Bay area. Initial and follow-up inventories (10 years later) were mailed to each person who agreed to participate. Participants were initially contacted by telephone and were then systematically contacted by mail and by telephone. Of those contacted at baseline, 87% agreed to participate and 84% of these provided complete data. Of the 424 respondents who participated at Time 1, 330 individuals (83% of surviving respondents) completed the 10-year follow-up survey. Among these 330 respondents, 326 (174 women and 152 men) provided data on the variables that we examined and are included in the present study. At Time 1 the mean age of the respondents was 38 years. A total of 44% of the respondents were married, the ethnic distribution of the sample was primarily Caucasian (92%), and the mean annual individual income was $16,000.

Measures
In addition to sociodemographic data, the following measures were used: family support, personality characteristics, depressive symptoms, and life-change events. The measures were administered by mail in most cases. In a few instances (e.g., when there were language or reading difficulties), in-person or telephone interviews were conducted. All of the measures are similar to other commonly used indexes, have strong psychometric properties, and have good reliability and convergent and predictive validity. Detailed descriptive and psychometric information on the measures is available in the following sources: the Health and Daily Living Form (Moos, Cronkite, & Finney, 1992), which includes the personality characteristics, depressive symptoms, and life-change events measures, and the Family Environment Scale (FES; Moos & Moos, 1994), which includes the family support measure.

Family support. An index of the quality of family relationships was derived from the FES (Moos & Moos, 1994). The FES evaluates the social climate of all types of families on 10 subscales. Following previous research (Holahan & Moos, 1987, 1990, 1991), family support was measured by the family relationships index, that is, the three subscales that compose the relationship domain of the FES. These subscales are (a) cohesion, the extent to which family members are helpful and supportive of each other; (b) expressiveness, the extent to which family members are encouraged to act openly and express their feelings directly; and (c) conflict, the extent to which the expression of anger and conflict-laden

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1 Details on the sample selection procedure are presented in Holahan and Moos (1987).
interactions are characteristic of the family (reverse scored). Each of these subscales consists of 9 true-false items. The subscale scores are the sums of items marked in the designated direction; the overall family support measure has high internal consistency (Cronbach's $\alpha = .89$) and good construct validity (Holahan & Moos, 1983).

**Personality characteristics.** The personality characteristics measure assesses a person's self-labels of a general and enduring nature on two dimensions: self-confidence and an easygoing disposition. Respondents rate the self-descriptive accuracy of a series of adjectives on 5-point scales from not at all accurately (0) to quite accurately (4). The self-confidence dimension consists of six adjectives: confident, ambitious, energetic, outgoing, successful, and aggressive (Cronbach's $\alpha = .79$). The easygoing dimension consists of three adjectives: easygoing, calm, and happy (Cronbach's $\alpha = .64$). The score for each dimension is the total of the ratings of the adjectives that constitute it. The self-confidence and easygoing dimensions were modestly correlated in the present sample ($r = .33$) and in an earlier sample of 267 men ($r = .36$) and 267 women ($r = .32$). The personality characteristics measure is adapted from earlier work by Gough and Heilbrun (1965) and is related to psychological functioning in expected ways (Holahan & Moos, 1987, 1990, 1991).

**Depressive symptoms.** Depressive symptoms were tapped by an index of 18 symptoms experienced during the previous month, which was derived from the Research Diagnostic Criteria (Spitzer, Endicott, & Robins, 1978). For each item, respondents indicated how often they experienced the symptoms during the past month, from never (0) to often (4). Following Billings, Cronkite, and Moos (1983) and Holahan and Moos (1991; Holahan et al., 1997), the depression measure in this study was divided into two subscales: (a) depressed mood and ideation and (b) depressive features. Depressed mood and ideation is the sum of 7 items that tap mood-related symptoms (e.g., feeling guilty or worthless, feeling inadequate, and brooding about unpleasant things; Cronbach's $\alpha = .90$). Depressive features is the sum of 11 items that tap behavioral manifestations of depression (e.g., weight loss, tired, jumpy, and crying; Cronbach's $\alpha = .80$).

**Life-change events.** The survey ascertained the number of relatively serious negative life events (from 0 to 15) that the respondent had experienced during the previous 12 months (e.g., problem with supervisors at work, unemployed for a month or more, and income decreased substantially). The survey also ascertained the number of positive life events (from 0 to 8) that the respondent had experienced during the previous 12 months (e.g., marriage and promotion at work). Based on the conceptualization that negative events have adverse effects (Cohen et al., 1983; Suh et al., 1996; Hobfoll et al., 1994) and are associated with resource loss (Mitchell & Moos, 1984) when losses exceed gains, we created a measure of excess negative events at each assessment. Excess negative events was operationalized as negative events minus positive events and reflects the number of negative events in excess of positive events. The excess negative events measure had an approximately normal distribution, with a median of zero and a range of $-4$ to 9 at both assessments.

### Results

**Comparisons of Resource Loss and Resource Gain Groups**

**Formation of comparison groups.** A measure of overall resource change was created in the following way. First, consistent with earlier research (see Holahan & Moos, 1985, 1986, 1990, 1991), a composite measure of mean resources at baseline and at the 10-year follow-up was created from the average measures of family support, self-confidence, and easygoingness (standardized scores). Next, the measure of average resources at baseline was subtracted from the measure of average resources at follow-up to obtain a measure reflecting change in overall resources. We used these differences scores between baseline and follow-up to define groups of individuals who increased or decreased by at least one-half standard deviation ($SD = .761$) in overall resources, because this provided a conceptually clear procedure for operationalizing broad categories of change. In addition, these average difference scores provided a good representation of the difference scores on each of the individual components.

The measure of overall resource change was not significantly ($\alpha = .05$) associated with age or gender. A resource loss group was defined as individuals who lost at least one-half standard deviation in overall resources across the 10 years ($n = 86; 26\%$). A resource gain group was defined as individuals who gained at least one-half standard deviation in overall resources across the 10 years ($n = 90; 28\%$).

We conducted preliminary analyses to assure that this operationalization of resource change groups did not simply reflect regression to the mean. Separate 1-way (resource loss group vs. resource gain group) analyses of variance (ANOVAs) were conducted for both the initial and follow-up assessments, with the three resource components (family support, self-confidence, and easygoingness) as dependent variables. At baseline, the resource loss group was significantly ($p < .01$) higher than the resource gain group on all three resource components. At follow-up, the resource gain group was significantly ($p < .01$) higher than the resource loss group on all three resource components. Thus, the two groups reversed their relative standing on all three resource components across the two assessments, rather than simply reflecting a convergence toward the Time 2 sample means.

**Depressive symptoms.** To examine the relationship between resource change and depressive symptoms, we compared the three resource change groups on depressive symptoms. We conducted a 3 (resource change group) $\times$ 2 (time) multivariate analysis of variance (MANOVA). Dependent variables were depressed mood and depressive features. Planned contrasts were used to examine the interaction between (a) the resource loss and the stable resources groups and time and (b) the resource gain and the stable resources groups and time.

In the MANOVAs, the interaction between the resource loss and the stable resources groups and time was significant, $F(2, 322) = 6.70, p < .01$. In addition, the interaction between the resource gain and the stable resources groups and time was significant, $F(2, 322) = 9.13, p < .01$. These contrasts demonstrate that the change in the dependent variables was significantly different for the resource loss and resource gain groups, examined separately, compared with the stable group.

We conducted corresponding $3 \times 2$ univariate ANOVAs to

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2 The average resource measure was computed when at least two resource components were available. Two preliminary analyses were conducted to assure that this operationalization produced a valid picture of the behavior of the three underlying component resources. First, we examined the zero-order correlations between the three separate resource components and the average resource measure. The mean correlation was .75 at baseline and .71 at follow-up, and the correlations were very similar for the separate resource components. In addition, we examined the pattern of intercorrelations among the two personality measures and the other variables separately for individuals who had versus those who did not have a family support score at both assessments. The two personality measures were very similar to one another and to all other study variables at both assessments for both groups of respondents.
examine whether these effects held for both of the depressive symptoms measures. The interaction between the resource loss and the stable resources groups and time was significant for both depressed mood, \( F(1, 323) = 12.81, p < .01 \), and depressive features, \( F(1, 323) = 8.84, p < .01 \). In addition, the interaction between the resource gain and the stable resources groups and time was significant for both depressed mood, \( F(1, 323) = 17.72, p < .01 \), and depressive features, \( F(1, 323) = 11.43, p < .01 \). Group differences were in the expected direction for both depressed mood and depressive features in both sets of analyses. Table 1 shows group sizes, means, and standard deviations on depressive symptoms at baseline and follow-up for the three resource change groups.3

To provide a fuller understanding of these interactions, we conducted repeated measures MANOVAs separately for each of the resource change groups. In these analyses, time of measurement was the independent variable, and depressed mood and depressive features were the dependent variables. As expected, the MANOVAs were significant for the resource loss group, \( F(2, 84) = 5.90, p < .01 \), and the resource gain group, \( F(2, 88) = 20.91, p < .01 \), but not for the stable resources group, \( F(2, 148) = 0.45, \text{ns} \).

For significant MANOVAs, we conducted corresponding repeated measures univariate ANOVAs to examine whether these effects held for both of the depressive symptoms measures. For the resource loss group, the ANOVAs were significant for both depressed mood, \( F(1, 85) = 10.32, p < .01 \), and depressive features, \( F(1, 85) = 10.20, p < .01 \). For the resource gain group, the ANOVAs also were significant for both depressed mood, \( F(1, 89) = 41.34, p < .01 \), and depressive features, \( F(1, 89) = 18.12, p < .01 \). These analyses demonstrate that the means shown in Table 1 reflect a significant increase in depressive symptoms for the resource loss group and a significant decrease in depressive symptoms for the resource gain group.

**Excess negative events.** Next, we examined the relationship between life change and resource change. In casewise analyses, change in excess negative events (i.e., negative events in excess of positive events) was crossed with resource change group status. A change in excess negative events was operationalized as an increase or decrease of one or more events (approximately one-half standard deviation) or two or more events (approximately one standard deviation) between baseline and follow-up (see Table 2).

There was a significant difference between the resource loss and resource gain groups in the distribution of individuals who increased versus those who decreased by one or more excess negative events from baseline to follow-up, \( \chi^2(1, N = 140) = 7.42, p < .01 \). There was also a significant group difference in the distribution of individuals who increased versus those who decreased by two or more events from baseline to follow-up, \( \chi^2(1, N = 71) = 6.20, p < .05 \). Consistent with our prediction, individuals in the resource loss group were more likely to have increased in excess negative events (65% in both analyses). Correspondingly, individuals in the resource gain group were more likely to have decreased in excess negative events (58% and 65%, respectively).4

### Integrative Structural Equation Models

**Formulation of the hypothesized LISREL model.** We tested the hypothesized mediational model in a structural equation model using LISREL analyses (Jöreskog & Sörbom, 1993). The model included four latent variables. We measured an exogenous variable for Time 1 depressive symptoms with two indicators: depressed

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3 Because the comparison groups were not equivalent on baseline depressive symptoms, the MANOVA and follow-up ANOVAs were repeated, controlling for initial depressive symptoms. Consistent with the fact that baseline differences on depressive symptoms were in the opposite direction of group differences at follow-up, the MANOVA and ANOVA results remained significant at the .01 level, with \( F \) values stronger than in the previous analyses.

4 Additional casewise analyses were conducted to assure that the composite excess negative event measure reflected group differences across the 10-year period in changes on both the negative and positive event component scores. When we examined increases in events, we found that individuals in the resource loss group were more likely to have increased in negative events, whereas individuals in the resource gain group were more likely to have increased in positive events, \( \chi^2(1, N = 62) = 14.79, p < .01 \). When we examined decreases in events, we found that individuals in the resource loss group were more likely to have decreased in positive events, whereas individuals in the resource gain group were more likely to have decreased in negative events, \( \chi^2(1, N = 82) = 4.77, p < .05 \).
mood and depressive features. We included Time 1 depressive symptoms in the model to control for the stable component in depressive symptoms in predicting outcome depressive symptoms, as well as in predicting changes in both life events and psychosocial resources (see Tesser & Beach, 1998). We also measured Time 2 depressive symptoms with the same indicators and included the construct in the model as an endogenous outcome variable.

We included two additional endogenous variables in the model between initial and subsequent depressive symptoms: change in excess negative events and change in psychosocial resources. Following Valentiner, Holahan, and Moos (1994), both of these endogenous variables were indexed using residualized change scores. We measured change in excess negative events with one indicator. We measured change in psychosocial resources with three indicators (family support, self-confidence, and easygoingness) and included the construct in the model as a mediator between change in excess negative events and depressive symptoms at follow-up. For each measure of psychosocial resources, follow-up resources were regressed on initial resources in simple regressions. Similarly, for the measure of excess negative events, follow-up excess negative events were regressed on initial excess negative events in a simple regression. We used the resulting residuals in the analyses.

To provide a metric for the latent constructs and to identify the measurement model, we set the first indicator loading for each latent construct to 1.0 in the unstandardized solution for each model. We included several standard assumptions related to time-lagged measures in the models (see Holahan & Moos, 1991; Holahan, Moos, Holahan, & Brennan, 1997). We assumed that the construct loadings in the measurement model were identical for the measures of depressed mood and for the measures of depressive features across the two measurement times. In addition, we assumed that the unique variances for both the two measures of depressed mood and the two measures of depressive features would be correlated across measurement times.

We used variance-covariance matrices in the LISREL analyses. Because the standard errors and chi-square goodness-of-fit indexes supplied by LISREL may be less reliable with pairwise deletion of missing values, we used listwise deletion of missing values for all LISREL analyses (N = 195). All missing data involved individuals who did not reside in a family (and thus did not complete the family support measure) at either assessment. Zero-order correlations for the variables in the model are presented in Table 3. The pattern of intercorrelations among the variables in the model was generally comparable for women and men.

**Preliminary test of direct model.** Following Baron and Kenny’s (1986) rationale for demonstrating mediation, we first tested a direct model to show that change in excess negative events was significantly related to Time 2 depressive symptoms when psychosocial resources were not included in the model. This direct model included three of the latent variables described above: an exogenous variable for Time 1 depressive symptoms, an endogenous variable for Time 2 depressive symptoms, and an endogenous variable for change in excess negative events.

The direct model provided a good fit to the data: overall $\chi^2(3, N = 195) = 4.06, p > .20$; goodness-of-fit index = .99; adjusted goodness-of-fit index = .96; normed fit index = .99; nonnormed fit index = .99. All parameter estimates in the measurement model were significant at the .01 level. In addition, the hypothesized parameter in the structural model describing a direct link between change in excess negative events and follow-up depressive symptoms was significant at the .01 level (β = .24). This preliminary model demonstrates that an increase in excess negative events was significantly related to more depressive symptoms at follow-up, controlling for initial depressive symptoms.

**Test of hypothesized model.** The results of the LISREL test of the hypothesized mediational model are presented graphically in Figure 2, which includes standardized estimates of parameters in the measurement and structural models. The δ and ε represent unique variance in the observed x and y variables, respectively. The unlabeled arrows pointing to the three endogenous latent variables show the residual (unaccounted-for) variance for each of these variables. The model provided a good fit to the data: overall $\chi^2(16, N = 195) = 25.62, p > .05$; goodness-of-fit index = .97; nonnormed fit index = .99; adjusted goodness-of-fit index = .98.

The parameter reflecting correlation between the unique variance for the measures of depressed mood across the two measurement times was not significant and was not retained in any of the analyses.

**Table 3**

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<th>Variable</th>
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<td>1. Time 1 depressed mood</td>
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<td>2. Time 1 depressive features</td>
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<td>3. Change in excess negative events</td>
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<td>4. Change in family support</td>
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<td>5. Change in self-confidence</td>
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<td>6. Change in easygoing disposition</td>
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<td>7. Time 2 depressed mood</td>
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<td>8. Time 2 depressive features</td>
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*Note. N = 195 (listwise deletion of missing data).  
* Negative events in excess of positive events.

5 Each of the resource variables at both assessments was significantly ($n = 195, \alpha = .05$) associated with overall depressive symptoms (total of depressed mood and depressive features) in the expected direction at the 10-year follow-up. Correlations between depressive symptoms at 10 years and family support, self-confidence, and easygoingness, respectively, were -.21, -.16, and -.15 at Time 1 and -.41, -.21, and -.30 at Time 2.

6 The parameter reflecting correlation between the unique variances for the measures of depressed mood across the two measurement times was not significant and was not retained in any of the analyses.
adjusted goodness-of-fit index = .92; normed fit index = .95; nonnormed fit index = .97.

All parameter estimates in the measurement model and all hypothesized parameter estimates in the structural model were significant at the .01 level. Change in excess negative events was inversely related to change in psychosocial resources; in turn, change in psychosocial resources was inversely associated with depressive symptoms at follow-up. These effects control for the influence of initial depressive symptoms on all three endogenous variables. Thus, as we predicted, an increase in excess negative events showed an indirect relationship to an increase in depressive symptoms at follow-up, mediated by a decline in psychosocial resources. Initial depressive symptoms were not significantly related to changes in either events or resources.

Tests of alternative models. To further examine the adequacy of the hypothesized model, we compared it to two alternative models. First, we compared the hypothesized model to a full model. The full model postulated that change in excess negative events was both directly and indirectly related to depressive symptoms at follow-up. This full model added a parameter to the hypothesized model reflecting a direct path between change in excess negative events and Time 2 depressive symptoms. Consistent with the proposed mediational model, inclusion of the parameter reflecting a direct path between change in excess negative events and follow-up depressive symptoms was not significant. However, consistent with the proposed mediational model, the predicted indirect path through change in psychosocial resources remained significant at the .01 level in the full model.

Because change in excess negative events occurred simultaneously with change in psychosocial resources in the hypothesized model, the direction of relationship between these constructs might plausibly have gone from resources to events. Thus, we also tested an alternative reversed mediation model in which change in psychosocial resources was indirectly related to depressive symptoms at follow-up through change in excess negative events. Consistent with the hypothesized model, initial depressive symptoms were included in the reversed mediation model to control for the stable component in depressive symptoms. The alternative model reversed the order of the excess negative events and resources constructs from the hypothesized model but maintained the same number of degrees of freedom. In contrast to the good overall fit of the hypothesized model, the alternative mediational model showed a poor fit to the data, $\chi^2(16, N = 195) = 51.64, p < .001$.

Discussion

These findings support all of the hypotheses. Both resource loss and resource gain across 10 years were significantly related to change in depressive symptoms. In addition, change in the preponderance of negative over positive events across 10 years was inversely associated with a change in resources during the period.
Finally, in an integrative 10-year structural equation model, the association between change in life events and depressive symptoms at follow-up was completely mediated through resource change.

Adaptive Importance of Resource Change

Consistent with cross-sectional research on resource loss (Freedy et al., 1992, 1994), we found that resource loss across 10 years was significantly associated with an increase in depressive symptoms during the period. More generally, these findings lend support to Hobfoll’s (Hobfoll & Vaux, 1993; Hobfoll et al., 1995, 1996) conservation-of-resources model, which emphasizes the central role of resource loss in the stress and coping process. Moreover, in accord with 1-year longitudinal research on resource gain (Fondacaro & Moos, 1987; Holahan & Moos, 1990), resource gain across 10 years was significantly associated with a decrease in depressive symptoms during the period. These findings demonstrate that resource gain is as strongly linked to adaptive functioning as resource loss is to maladaptive functioning.

The observation of Hobfoll et al. (1996) that “resource gain means little in terms of improved survival” (pp. 325–326) may hold only when resource gain is relatively small. By using a long-term perspective, we were able to index substantial loss and substantial gain in resources. Alternatively, consistent with conservation-of-resource theory (Hobfoll et al., 1995, 1996; Hobfoll & Vaux, 1993), resource gain may be of greater adaptive importance when it follows resource loss. In this respect, at baseline, the resource gain group was significantly lower than the resource loss group on all three resources (family support, self-confidence, and easygoingness).

Life Change and Resource Change

Applying prospective research on negative (Kaniasty & Norris, 1993; Kaniasty et al., 1990; Moos et al., 1988; Park & Folkman, 1997) and positive (Mitchell & Moos, 1984) life change and consistent with the view that negative events have adverse effects when losses exceed gains (Hobfoll et al., 1996), we found that change in the preponderance of negative over positive events across 10 years was related to resource change during the period. An increase in number of negative events in excess of positive events was associated with resource loss, whereas a decrease in number of negative events in excess of positive events was associated with resource gain.

In part, the link between life change and resource change may be tangible—stressful life events often entail real reductions in resources (Norris & Kaniasty, 1996). Hobfoll et al. (1996) noted, “Negative change means loss, such as when respondents report poorer health, loss of income, reduced health status, or loss of loved ones” (p. 325). Similarly, Mitchell and Moos (1984) pointed out that positive events, such as a job promotion, may directly influence social resources by providing access to new networks of support.

However, the event-resource link may also have a cognitive component. Perceived support appears to be especially vulnerable to deterioration after crises (see also Lepore, Evans, & Schneider, 1991; Norris & Kaniasty, 1996). For example, in studying flood victims, Kaniasty et al. (1990) found that preflood expectations of level of support were three times higher than the level of support individuals actually received. Cognitive mediation seems particularly relevant to resource change in the personal domain. Increases in adversity—especially the joint impact of increasing negative events and decreasing positive events—may undercut perceived self-efficacy (see Bandura, 1982) and positive illusions involving personal control, optimism, and self-esteem (see Taylor & Brown, 1994). Conversely, decreases in adversity may foster self-efficacy and enhance these positive illusions.

Resource Loss as a Mediator

The present results also are consistent with and extend cross-sectional (King et al., 1998; Norris & Kaniasty, 1996; Quittner et al., 1990) and prospective (Kaniasty & Norris, 1993) research conceptualizing resource loss as a mechanism through which negative life events relate to functioning. In an integrative structural equation model, the association of change in the balance of negative and positive events with depressive symptoms at follow-up was completely mediated through resource change. These findings are consistent with deterioration of support (Kaniasty & Norris, 1993; Norris & Kaniasty, 1996) and wear-and-tear (Park & Folkman, 1997) models.

A key issue for future research involves differentiating when stressors erode and when they mobilize resources (see Ensel & Lin, 1991). Resource deterioration may most likely be associated with chronic stressors, whereas resource mobilization may most likely be associated with acute stressors (see Quittner et al., 1990). It should be noted, however, that major negative life events often initiate persisting secondary stressors (Norris & Kaniasty, 1996; Pearlin, 1989; Wheaton, 1994), such as family and financial stressors (Norris & Uhl, 1993). In addition, Lepore et al. (1991) speculated that deterioration of support may be more likely with stressors that involve stigmatizing conditions, such as AIDS, or that limit individuals’ time to maintain social bonds, such as multiple role demands.

Characteristics of the recipients of support, such as emotional distress, also may influence resource deterioration. In studying breast cancer patients, Bolger and his associates (Bolger, Foster, Vinokur, & Ng, 1996) found that patients’ physical impairment was associated with mobilization of support from significant others. In contrast, patients’ emotional distress was associated with the erosion of support, possibly because significant others viewed emotional reactions as more under patients’ control.

Conclusions

The present findings are congruent with recent calls for a more dynamic conceptualization of the stress and coping process (see Aneshensel, 1996; Gore & Eckenrode, 1994) and one that more closely mirrors the ebb and flow of human experience. Resource development, resource maintenance, and coping with resource loss are normative adaptive challenges in young, middle, and later adulthood, respectively. Our findings suggest that change in resources is common. More than half of community-resident adults changed substantially—for better or for worse—in psychosocial resources across the 10-year period. This is not to say that personal and social resources are unstable (see Costa & McCrae, 1997; Sarason, Sarason, & Shearin, 1986), but rather that their stability is
only moderate. Moreover, researchers are progressively extending the predictive time frame in this research area, and as the predictive lag increases, psychosocial resources are likely to become less stable.

Some limitations in the interpretation of these results should be noted. Common method variance across measures could have contributed to the linkages found. Individuals with depression may have a general negative bias in their perceptions of themselves, other persons, and events in their lives. This concern is diminished by the use of prospective analyses that controlled for initial depressive symptoms. Moreover, initial depressive symptoms were not significantly related to changes in either events or resources in the hypothesized model. Nevertheless, future research is needed to extend these findings to include behavioral indexes of functioning, such as participation in social activities and work performance.

In addition, the 10-year time lag makes it difficult to draw inferences about the sequence of changes in events and psychosocial resources. The alternative model in which change in resources was conceptualized as associated with depressive symptoms through change in events showed poor model fit across the 10-year period. However, more detailed analyses of events and resources assessed more frequently could afford a more precise picture of ongoing links between events and resources (see Eckerdre & Bolger, 1998).

A more dynamic understanding of psychosocial resources is directly applicable to intervention efforts targeting psychosocial resources (Holahan, Moos, & Bonin, 1999). Knowledge about the mechanisms of resource change is essential to social interventions aimed at promoting new resources and preventing the erosion of existing resources among both normal and psychologically vulnerable groups (Norris & Kaniasty, 1996; Pearlman & Mullan, 1992). In fact, an increase in resources in the context of traumatic events may be a central ingredient in crisis growth (see Holahan & Moos, 1996).

More broadly, our findings along with work on support deterioration (Kaniasty & Norris, 1993; Norris & Kaniasty, 1996) and wear-and-tear (Park & Folkman, 1997) models suggest a need to reframe the traditional stress and coping framework. Although psychosocial resources are central to the stress and coping process (see Cohen & Edwards, 1989; Coyne & Downey, 1991), the very resources that buffer stressors are themselves susceptible to erosion from stressors. As Baumeister and his colleagues (Baumeister, Bratslavsky, Muraven, & Tice, 1998) observed in research on ego depletion: “Coping with trauma may be difficult precisely because the self’s volitional resources were depleted by the trauma but are needed for recovery” (p. 1263).

References


Hobfoll, S. E., Freedy, J. R., Green, B. L., & Solomon, S. D. (1996). Coping in reaction to extreme stress: The roles of resource loss and...
resource availability. In M. Zeidner & N. Endler (Eds.), *Handbook of coping: Research, theory, and application* (pp. 322–349). New York: Wiley.


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