Journal of Consulting and Clinical Psychology
1986, Vol. 54, No. 4, 424-431

0022-006X/86/$00.75

Social Support, Life Events, and Depressive Symptoms: A 1-Year Prospective Study

Scott M. Monroe
University of Pittsburgh

Evelyn J. Bromet
Western Psychiatric Institute and Clinic
University of Pittsburgh School of Medicine

Melanie M. Connell
Western Psychiatric Institute and Clinic
University of Pittsburgh School of Medicine

Stephen C. Steiner
University of Pittsburgh

Recent work on the social environment and psychological disorder has emphasized the multiple, bidirectional interactions between stressors, symptoms, and social support. However, even the few existing studies using prospective methods often have not adequately addressed important issues involving methodological and conceptual overlap of the parameters in the model. The current article presents one approach for isolating associations between life events, social support, and depressive symptoms. For a sample of married women who initially were relatively asymptomatic and reported nonconflicted marital relationships ($n = 473$), life events and social support were significant prospective predictors of depressive symptomatology (assessed 1 year later). In contrast, identical analyses performed on the full, unselected sample ($N = 709$) yielded discrepant, likely misleading, results. The theoretical relevance of these findings is discussed, along with the implications for the longitudinal study of dynamically interactive processes.

Although research on the mental health implications of social support has become a topic of active empirical inquiry over the past decade, conceptualizations of the processes involved have expanded rapidly from simple models, involving one or two variables, to highly complex and interactive multivariate representations (Depue, Monroe, & Shackman, 1979; Lazarus & Folkman, 1984; Mitchell & Trickett, 1980; Pearlin, Lieberman, Menaghan, & Mullan, 1981). As stated most recently by Lazarus and Folkman (1984), the transaction between the person and environment involves "a dynamic, mutually reciprocal bidirectional relationship" (p. 293). In addition, during this time the concept of social support itself has become more differentiated, encompassing several different avenues and qualities of hypothesized importance (Cohen & McKay, 1984). Such developments introduce important considerations for theory and method that are likely to be crucial in understanding the processes by which social support operates.

One fundamental consideration is the manner in which the "dynamic, reciprocal, bidirectional" relations between the person and environment (Lazarus & Folkman, 1984) are translated into tests of causal propositions. In studying psychopathologic disturbances, this becomes an especially delicate requirement, for the greater the degree of psychological impairment, the greater the likelihood of *reverse causation* input into the association between social support and disorder. For instance, psychological distress may influence the availability or reporting of support. And, although such alternative mechanisms of association may be of interest for certain purposes, they are less germane for developing models of etiology or prevention programs.

Accurate dating of symptom onset, support changes, and life event occurrences is therefore essential. Although this is conceivable in cross-sectional research, in practice it is not typical, for such information requires a considerable amount of detailed, time-consuming questioning (e.g., Brown & Harris, 1978). Consequently, it may not be feasible for large-scale, epidemiological investigations. Recent research has demonstrated that results based on cross-sectional designs insensitive to these concerns can be misleading when compared with results based on prospective designs, presumably due to the bidirectional effects involving symptomatic individuals (both for social support and life events research; Monroe, 1982b, 1983). Nonetheless, most studies of social support are cross-sectional in design, typically failing to clearly distinguish the timing of changes in the parameters under study.

Given the transactional nature of the stress process, it therefore appears imperative to use the dimension of time to understand the sequential patterning of interactions. Yet, even the few existing studies adopting prospective procedures commonly have not made full use of the advantages offered by such methods. For example, although some studies are longitudinal in the

This work was supported in part by a National Institute of Mental Health New Investigator Research Award (in Prevention) MH-39139 held by the first author, and by National Institute of Mental Health Grant MH-35425 awarded to the second author.

We wish to thank Ken Heller for many helpful comments on an earlier version of the present article, and Jean Schiller for her kind assistance with the data analyses.

Correspondence concerning this article should be addressed to Scott M. Monroe, Department of Psychology, 4015 O'Hara Street, University of Pittsburgh, Pittsburgh, Pennsylvania 15260.

sense that they incorporate at least two separate measurement occasions, the psychosocial predictors are tested in relation to disorder scores derived from the *same* measurement occasion (i.e., an essentially cross-sectional design; Holahan & Moos, 1981; Williams, Ware, & Donald, 1981). Other prospective studies fail to control for the consequences of initial distress. Neither of these approaches alone eliminates the primary criticisms of cross-sectional procedures, which are, most notably, (a) the tendency to explain away pathology via prior life stress or inadequate support (Brown & Harris, 1978), (b) the ambiguity of temporal ordering between symptom changes and psychosocial factors (Monroe, 1982b), and (c) the possibility that disorder occurring after the first measurement occasion brings about subsequent support deficits or events (Dohrenwend, 1974).

Most important, however, are the overlooked conceptual issues that are reflected in these method concerns. Virtually all studies implicitly assume an *acute onset* model, wherein individuals who are initially asymptomatic become symptomatic (presumably as a function of stress and/or support deficits). However, existing studies include a substantial proportion of individuals who are symptomatic *initially,* many of whom may be significantly impaired.[1] Socioenvironmental factors may be related to symptom fluctuations for such individuals too, yet are more appropriately portrayed by models for the maintenance and/or remission of disorder. Modeling stress and support consequences for symptomatic individuals is a more demanding task in certain respects, for the investigator must be attentive not only to the high potential for spurious associations (i.e., distress bringing about psychosocial changes), but also to the course and timing of varied outcomes (i.e., the time periods over which individuals remain symptomatic, become worse, or remit). In summary, given (a) the possibility that social support and life events have different consequences for symptomatic and asymptomatic individuals, and (b) the methodological likelihood of reverse causation associations (e.g., disorder brings about support deficits) for individuals who are already distressed, it would appear most prudent to proceed by studying these relations separately (Depue & Monroe, 1986; Monroe, 1982b, 1983).

A second basic consideration pertains to the refinement of support concepts for providing an optimal basis for studying the consequences of support. Although a wide range of supportive relationships has been posited to be important for psychological well-being, there is no evidence to suggest that heterogeneous sources of support are necessarily interchangeable or accomplish similar functions (Cohen & McKay, 1984; Weiss, 1970). To remedy in part this source of variability, research may focus on one specific support resource, thus equating the individuals in the sample with the resource's availability. For instance, the literature suggests that the marital relationship is the single most important source of support (Brown & Harris, 1978); with this in mind, the sample could be selected to include only married individuals (or individuals in stable relationships).

Adopting such a strategy has interesting implications for further refining the study to investigate specific social support effects. This derives from the overlap between measures of marital support and marital conflict; although obviously related, these constructs reflect different aspects of the marital functioning. Most important, there is the risk of confounding the moderator variable (support) with the stressor (conflict) (Heller, 1979). Indeed, many life event items are probably reflections of an underlying conflicted relationship (e.g., arguments with spouse, sexual difficulties, etc.; Holmes & Rahe, 1967). Consequently, main effects ostensibly attributed to support may be a reflection of active conflict, or interaction effects between support and life events may be spurious because of the confounding between support, conflict, and life events (Thoits, 1982). Stated slightly differently, a preferable approach to studying the mechanisms by which social support operates would be with a "clean" sample, uncontaminated by processes that are likely to confound or mask the effects of primary interest.

Although implementing these sample selection procedures appears useful, other consequences of such an approach must be kept in mind. Statistical associations between the variables will be attenuated because of the restriction in range, and there may be a bias toward psychological health because of the selection of individuals with relatively few initial symptoms (Blaney, 1985). Both of these consequences work *against* the major study hypotheses, thereby making tests of associations more conservative. In contrast, by not selecting such a restricted sample of participants, the characteristics of the sample make it likely that confounding associations would spuriously account for the hypothesized effects (i.e., both distress and conflict bring about changes in support). Thus, the approach we advocate provides a useful complement to the prevailing research strategies.

In keeping with the guidelines noted above, the present study is focused on the prospective prediction of depressive symptomatology as a function of both life events and social support. To provide the appropriate basis for testing causal implications, the sample was restricted to initially nondepressed, married women reporting nonconflicted marital relationships. For descriptive purposes, results obtained from traditional procedures (i.e., not controlling for such influences either statistically or by design) also are presented. The study provides for an unique test of the hypothesis that life events and social support predict depressive symptomatology over a 1-year time period (a) independently, or (b) interactively (i.e., support buffers the individual from the adverse consequences of life stress; Cohen & McKay, 1984).

Method

Subjects

The sample consisted of 709 married women living in three semirural regions of Pennsylvania. They were a part of a multicohort, longitudinal study of the mental health effects of the accident at Three Mile Island in March 1979 (Bromet, Parkinson, Schulberg, Dunn, & Gondek, 1982); the present data represent the core information from female re-

[1] Recent reviews bearing on this topic strongly suggest that the majority of individuals reporting heightened levels of psychological symptoms at any one point in time typically exhibit a more enduring, chronic picture of disturbance, and therefore are likely not informative for acute onset conceptualizations (Depue & Monroe, 1986; Watson & Clark, 1984).

spondents. In the fall of 1981 and 1982, when the data for the current analyses were collected, no differences in mental health were found among the three regions. Therefore, the data were combined for the groups.

The sample was drawn from newspaper listings of birth announcements appearing between January 1, 1978, and March 15, 1979 (because state law prohibits access to vital statistics records). This method was used to assemble a sample of mothers who were relatively homogeneous with respect to their stage in the life cycle. A total of 791 women were interviewed in 1981, with a refusal rate of approximately 20% of the women initially contacted; 742, or 94%, were reinterviewed 1 year later. Of the 742 women, 709 (96%) were married at both interviews; they are the focus of the present analysis. For the analyses using only the initially nondepressed and nonconflicted women ($n = 473$), the sample was restricted to women scoring within approximately the lower two thirds on the depression and conflict measures. The sample was predominately white, blue collar, high school educated, and had two to three children (for further details, see Bromet et al., 1982).

Materials

The major variables for study included (a) life events, (b) marital support, (c) marital conflict, and (d) depressive symptoms.

Life events. The life events measure included major experiences representative of those in widely used life event assessment instruments (e.g., Dohrenwend, Krasnoff, Askenasy, & Dohrenwend, 1978; Holmes & Rahe, 1967). Thirty-one items, and two additional spaces for events not covered by the inventory, were included; participants were required to rate each event experienced in the past 12 months on a scale from 1 to 4 (1 = *Hasn't happened in the past year;* 2 = *Happened but was not upsetting;* 3 = *Happened and was upsetting;* 4 = *Happened and was very upsetting*). Summary scores for the present analyses were based upon two indices: (a) the total frequency of items endorsed *3* or *4* (all upsetting events), or (b) the total frequency of items endorsed *4* (all very upsetting events). Such methods of quantifying events are consistent with the majority of studies that have found the frequencies of undesirable life events to be useful predictors of psychological symptoms (McFarlane, Norman, Streiner, & Roy, 1983; Monroe, 1982b).[2]

Social support. The support measure was derived from the work of Pearlin and Schooler (1978) and Spanier (1976). Six items assessed the extent to which affection is displayed, the couple laughs together, and the subject feels satisfied about the time spent with her husband. The scale possesses good internal consistency reliability (Cronbach's alpha = .79), and 1-year test–retest stability, $r(707) = .67$. Given that the study was designed to include only married women, and the central importance of the marital relationship in this context, ratings of satisfaction were assumed to provide a useful index of the supportive qualities of the relationship.

Marital conflict. Items for this subscale were also derived from the work of Pearlin and Schooler (1978) and Spanier (1976). The scale contains 5 items dealing with the frequency of thinking about marital problems, discussing divorce or separation, seeking professional intervention for the marriage, and leaving home because of a fight. This scale also displayed good internal consistency reliability (Cronbach's alpha = .75), and 1-year test–retest stability, $r(706) = .71$.

Depressive symptoms. Depressive symptoms were assessed with the Hopkins Symptom Checklist-90 depression subscale (see Derogatis, 1977). This instrument has acceptable psychometric characteristics and is a commonly used research measure.

Design and Analyses

The analyses focus on the prospective associations between upsetting life events and marital support with depressive symptoms assessed one year later. Hierarchical regression equations were run (a) for all married women ($N = 709$), and (b) for relatively asymptomatic women at the first assessment with nonconflicted marital relationships ($n = 473$). Separate analyses were run within each series to compare results when levels of initial symptoms and marital conflict were or were not controlled statistically (i.e., entered first into the equation). For all analyses, social support was considered to have temporal precedence over life events.[3] Finally, to address the buffering hypothesis of life stress research, the interaction term between events and support was entered last into the regression equation (Cohen & Cohen, 1983).

Results

Results are reported below separately for (a) all married women, and (b) the subgroup of initially low conflict, low depression women. The means and standard deviations for the major study variables are presented in Table 1.

The zero-order correlation matrix for the major study variables is presented in Table 2. Generally, intercorrelations were higher for the full sample (portrayed above the diagonal in Table 2) compared to the nondepressed, nonconflicted subsample (portrayed below the diagonal in Table 2). Although some attenuation in the magnitude of the correlations for the subsample would be expected due to the statistical consequences of a restricted range, the size of the reduction is compatible with the existence of extensive interrelations—including confounding contributions—between events, support, and psychological symptoms. For example, the correlation between initial depression and marital support is, for the full sample, $r(707) = -.37$, $p < .001$, and for the subsample, $r(471) = -.03$, *ns;* the correlations between support and the three life event totals for the full sample are all significant, $p < .01$, whereas for the selected sample they are all nonsignificant.

To further substantiate that the findings are not statistical artifact, correlations for the women within the excluded subgroup (women with high initial depression and/or conflict; $n = 236$) are informative. Note, however, that the women in this group are likely to be relatively heterogeneous with respect to disorder (e.g., some women may be acutely distressed, others may be recovering, whereas others may have chronic disturbances); once again, it should be emphasized that social support and life events likely have different consequences depending on the course of the disturbance (Monroe, 1982b). Hence, overall cor-

[2] To test the adequacy of this assumption, parallel analyses were run with an index representing all events experienced in the previous year (i.e., the total frequency of items endorsed *2, 3,* and *4*). The results were very similar to those for the upsetting events alone. However, the zero-order correlation of events that were either desirable or neutral (i.e., those receiving a rating of *2—Happened but was not upsetting*) with depressive symptoms was nonsignificant and negative, $r(707) = -.03$, $p > .20$. Consequently, it was concluded that all events were predictive primarily because of the high correlation with upsetting events, $r(707) = .74$, $p < .001$, and that the desirable or neutral events did not contribute significantly to the predictive picture.

[3] A second series of equations was run to test the consequences of this assumption by reversing the entry order of support and events. Because of the small degree of predictive shared variance between these variables, support consistently remained a significant predictor ($p < .001$). Therefore, reversing the order of entry does not alter the basic findings.

Table 1
Means and Standard Deviations for Major Study Variables: Full Sample and Two Subsamples

Variable	$N = 709$		$n = 473$[a]		$n = 236$[b]	
	M	*SD*	*M*	*SD*	*M*	*SD*
Life events						
Total	2.98	2.30	2.72	2.11	3.51	2.56
Upsetting	1.46	1.54	1.17	1.29	2.03	1.82
Very upsetting	0.67	1.01	0.50	0.82	1.01	1.24
Depressive symptoms						
Initial assessment[c]	0.51	0.52	0.28	0.21	0.98	0.64
Follow-up[c]	0.46	0.46	0.31	0.30	0.75	0.56
Marital variables						
Conflict	8.43	2.90	7.15	1.62	10.98	3.20
Support	24.43	3.84	25.49	3.05	22.31	4.35

Note. All *t* test comparisons between the two subsamples are statistically significant, $ps < .001$.
[a] Initially nondepressed, nonconflicted group. [b] High initial symptoms and/or conflict group. [c] Mean item score (i.e., the total score divided by the number of items).

relations for this subgroup also may be misleading, and further partitioning of the group into more homogeneous groups therefore may be useful. These correlations are presented in Table 3. Thus, for all 236 women, the correlation between initial depression and support is $r(234) = -.25$, $p < .001$; for a smaller subgroup of 65 women who reported heightened depressive symptoms at both assessments (one index of possible chronicity) the same correlation is $r(63) = -.47$, $p < .001$. Interestingly, the correlations between support and the three life event totals for the 236 women are all nonsignificant, whereas for the "chronic" group of 65 they are all significant (ranging from correlations of .30 to .37, $ps < .01$).

All of these points suggest that by restricting the sample to initially asymptomatic women in relatively nonconflicted marriages, potential confounds between support and symptoms (Monroe, 1983), support and events (Thoits, 1982), and acute and chronic disturbances (Depue & Monroe, 1986) are to a large degree avoided. Although some diminution in associations results from dividing the sample and the consequent restriction in range, findings from the smaller subgroups strongly suggest that the results are not primarily due to statistical artifact.

Next, the results for the regression analyses are presented. A summary of the findings for separate-group forms of analysis are presented in Table 4 for all upsetting events.

All Married Women

When all upsetting events (i.e., those rated by the individual as *3* or *4*) and marital support were entered into the equation first, both were highly significant predictors of symptomatic functioning one year later: for support, $F(1, 707) = 77.66$, $p < .001$; for upsetting events, $F(1, 706) = 19.38$, $p < .001$. For very upsetting events (i.e., those rated by the subject as *4*) only, the results were similar: for support, $F(1, 707) = 77.66$, $p < .001$; for very upsetting events, $F(1, 706) = 16.63$, $p < .001$. For both sets of equations, the interaction term for the respective event category and support was not significant, $p > .30$. Overall, support accounted for approximately 10% of the variance in subse-

Table 2
Intercorrelations Between Major Study Variables: Full Sample and Selected Subsample

Subsample	Full sample						
	1	2	3	4	5	6	7
1. All events		.74**	.54**	.19**	−.09**	.14**	.11**
2. Upsetting events	.66**		.74**	.25**	−.15**	.27**	.20**
3. Very upsetting events	.47**	.70**		.20**	−.13**	.25**	.18**
4. Marital conflict	.08*	.08*	.04		−.48**	.38**	.36**
5. Marital support	.00	−.02	−.05	−.26**		−.37**	−.31**
6. Initial depression	.08*	.16**	.12**	.19**	−.03		.59**
7. Follow-up depression	.11**	.14**	.14**	.12**	−.19**	.29**	

Note. Correlations on the top half of the matrix are for the full sample ($N = 709$), on the bottom half for the nonconflicted, nondepressed subsample ($n = 473$).
* $p < .05$. ** $p < .01$.

Table 3
Intercorrelations Between Major Study Variables: Excluded Subsample and "Chronic" Subsample

	Excluded subsample						
Chronic subsample	1	2	3	4	5	6	7
1. All events		.83**	.59**	.15**	−.07	.05	−.01
2. Upsetting events	.83**		.75**	.15**	−.09	.15*	.07
3. Very upsetting events	.57**	.74**		.09	−.02	.15**	.05
4. Marital conflict	.18	.21*	.07		−.38**	−.08	.11*
5. Marital support	−.01	−.17	−.04	−.54**		−.25**	−.16**
6. Initial depression	.19	.37**	.32**	.20	−.47**		.51**
7. Follow-up depression	.15	.24*	.10	.18	−.13	.24*	

Note. Correlations on the top half of the matrix are for the excluded subsample (n = 236), on the bottom half for the "chronic" (high depression at both assessments) subsample (n = 65). (See text for further details.)
* $p < .05$. ** $p < .01$.

quent symptoms, and events (both upsetting and very upsetting) accounted for about 2% of the variance.

Controlling for initial levels of depressive symptoms and marital conflict first in the regression equation completely alters the predictive equation, $F(2, 706) = 207.67$, $p < .001$.[4] For both sets of equations, events and support are no longer significant, although there is a trend for support to be related to subsequent depression, $F(1, 705) = 2.83$, $p < .10$. Although the interaction term for support with upsetting events was not significant, the interaction term for support with very upsetting events was a significant predictor of follow-up functioning, $F(1, 703) = 7.57$, $p < .01$. Further examination of the interaction (by graphing), however, revealed that it did not conform to the buffering hypothesis (i.e., support did not lessen the psychological consequences of experiencing an event) (Cohen & Cohen, 1983). Overall, initial levels of depression and conflict predicted 37% of the variance in follow-up depression, with the interaction term for support and very upsetting events contributing only an additional 1% of explanatory variance.

Women With Low Initial Depression and Conflict

Entering the event variables and support into the equation alone again produces significant results. For these analyses, support was highly related to follow-up symptoms, $F(1, 471) = 16.69$, $p < .001$, in both equations, as were upsetting events, $F(1, 470) = 8.54$, $p < .01$, and very upsetting events, $F(1, 470) = 8.77$, $p < .01$. None of the interaction terms for events and support was significant, $ps > .40$. The amount of explanatory variance attributable to follow-up depressive symptoms for support was 3%, and for each of the two event classes it was 2%.

Controlling statistically for initial symptoms and conflict in this instance does not alter the basic predictive picture, although it does tend to diminish slightly the predictive strength of the socioenvironmental variables. It could be argued that, compared to the tests on the full sample, this results from the restricted range imposed by the selection procedures (i.e., relative to the full sample, there is not sufficient variability in initial symptoms in the subsample). Although within the full sample, initial symptoms were more strongly correlated with follow-up symptoms (r = .59) than within the subsample (r = .29), in the latter group initial symptoms were still the strongest predictor of subsequent symptoms. Hence, these results may not be attributed to statistical artifact (i.e., restricted range), but instead represent a strong test of the contribution of these socioenvironmental factors.

More specifically, after controlling for initial depressive symptoms and conflict, $F(2, 470) = 22.35$, $p < .001$, marital support remains significant, $F(1, 469) = 13.98$, $p < .001$, as do all upsetting events, $F(1, 468) = 3.93$, $p < .05$, and very upsetting events, $F(1, 468) = 5.35$, $p < .03$. Again, none of the interaction terms was statistically significant. For this more restricted group, initial symptoms and conflict combined account for 9% of the variance in follow-up symptoms, support 3%, and each of the two classes of events 1%.[5]

Discussion

The present findings are among the first to document the long-term predictive utility of life events and marital support for depressive symptoms, using conservative methods. Although the lack of evidence from other prospective studies has been noted (see Tennant, 1983), prior work has not isolated the particular directions and sequences of relations between the variables under study. Thus, for relatively asymptomatic women with nonconflicted marriages at the beginning of the assessment period, marital support was significantly related to

[4] It is noteworthy that controlling for initial symptoms only with this group, support remains a significant predictor of follow-up symptoms, $F(1, 706) = 11.87$, $p < .001$. Only when prior conflict is controlled for statistically does the effect attributable to support drop below conventional significance levels, $F(1, 705) = 2.85$, $p < .10$.

[5] It could be argued that these relations may be secondary to other primary predictors, such as sociodemographic variables. Although the sample was relatively homogeneous along such lines, supplementary analyses were run controlling for major social background variables that were significant zero-order correlates of events and/or depressive symptoms (i.e., age, length of marriage, spouse's education, whether or not the spouse was gainfully employed, total family income, and subject's education). The basic findings for the support and event variables remained essentially unchanged.

Table 4
Summary of Findings From Major Regression Analyses Predicting Follow-Up Depressive Symptoms

Condition	Full sample ($N = 709$)			Selected subsample ($n = 473$)		
	R^2 change	F change	Cum R^2	R^2 change	F change	Cum R^2
Initial symptoms and conflict not controlled for:						
Support	.10	77.66**	.10	.03	16.69**	.03
Events	.02	19.38**	.12	.02	8.54**	.05
Support × Events	.00	0.40	.12	.00	0.53	.05
Initial symptoms and conflict controlled for:						
Prior symptoms/conflict	.37	207.67**	.37	.09	22.35**	.09
Support	.00	2.83	.37	.03	13.98**	.11
Events	.00	0.33	.37	.01	3.93	.12
Support × Events	.00	1.71	.37	.00	0.74	.12

Note. Events are all upsetting events (see text for details).
* $p < .05$. ** $p < .01$.

subsequent depressive symptoms (the higher the support satisfaction, the lower the 1-year symptom score). Additionally, for these same women, an increased incidence of life events was related to an increased likelihood of subsequent distress.

Interestingly, of all the interaction terms tested, only one was significant, yet it was not in the hypothesized direction. Also, this association was found only for the procedures in which initial symptoms and conflict were controlled for statistically, and not for the analyses restricted to the subsample of nonconflicted and nondistressed women. Given the need to distinguish between models of disorder onset versus maintenance and/or remission, statistically controlling for initial symptoms (and conflict) alone represents an inadequate procedure (for the relations may be qualitatively different and nonlinear). Overall, therefore, it appears that for predicting depression over a 1-year period, marital support was not a buffer of life event stress in the present sample. Such results are congruent with the existing reports documenting the direct effects attributable to social support (Aneshensel & Stone, 1983; Cohen & McKay, 1984).

These findings are consonant with previous work illustrating the complexities associated with inferring causal relations from such dynamically interactive processes. They are therefore an extension of previous efforts to define the characteristics of the sample and procedures used for isolating and studying causal relations (Monroe, 1982b, 1983). The problems inherent in prevailing sample selection procedures in life stress research are documented herein again, using a different sample, measures, and a longitudinal time frame. Thus, effects attributable to life stressors can be extensively overestimated, even in prospective studies, when the confounding influences associated with initial symptomatic status are not taken into account. Conversely, the predictive significance may be obscured if the procedures designed to control for such biases are not combined with procedures designed to select the most appropriate sample for study.

It is most likely that this complicated set of circumstances results from the bidirectional interactions that cloud the causal picture. Life events appear to be differentially related to follow-up symptoms in relation to initial symptom status (Monroe, 1982b); effects for asymptomatic individuals are distorted by the inclusion of the full range of initial subjects. Therefore, two separate research questions are involved, but traditionally have been treated as one: (a) Do psychosocial factors predict subsequent psychological functioning for individuals initially free of disturbance? and (b) Do psychosocial factors predict symptom changes in individuals with pre-existing distress (Monroe, Bellack, Hersen, & Himmelhoch, 1983)? By combining these separate questions, thus mixing distressed with nondistressed individuals at the start, neither question can be addressed adequately.

Although our primary focus has been on clarifying the acute onset question in the present study, our intention is not to minimize the role that psychosocial factors may play for symptomatic individuals. Social support and life stressor may be significant influences for such individuals, predicting, for example, exacerbation or duration of symptoms. To investigate such specific issues, however, considerable additional information is required that was unavailable with our data set (e.g., frequent longitudinal measures of symptom fluctuations, life events, and social support; see Depue & Monroe, 1986; Monroe, 1982b).

By selecting only married women, variability attributable to discrepancies in the availability of this structural support was eliminated, thereby providing for a more precise testing of particular support effects. Once again, unless initial symptom levels are controlled for, the effects of support may be overestimated. Furthermore, even after controlling for initial symptoms within the full sample, marital support remained a significant predictor of subsequent depression until prior conflict was statistically controlled as well (see Footnote 4); once this was done, the support effects (for the full sample) were no longer statistically significant. Only when the subsample was selected specifically to avoid confounding support with conflict was the importance of support and events for subsequent functioning apparent. This suggests that prior research reporting main effects for social support may be due in part not to support per se, but to the shared variance between support deficits and the stressor of marital conflict. This illustrates further the necessity of isolating over time the specific sequences, and ulti-

mately the mechanisms, of hypothesized relations in order to understand support processes.

The measure used to index support in the present study was based on items that reflect marital satisfaction. Therefore, it did not assess aspects of specific supportive qualities or transactions, but instead measured the perceived adequacy of a primary supportive relationship. Other investigators have implied that such measures of support may primarily reflect aspects of personality (Henderson, Byrne, & Duncan-Jones, 1981); given, however, the control in the present design over other correlates that might be expected to accompany such personality involvement (i.e., controlling for depressive symptoms and conflict), this interpretation is rendered less likely. Yet, it would be useful for future work to measure (a) specific aspects of supportive transactions, and (b) other complementary areas and features of support (e.g., availability of support in, as opposed to satisfaction with, the marital relationship; subjective and objective qualities of other supportive relationships).

Other limitations of the present work are noteworthy. For example, measures of support or events during the intervening year, rather than from the previous year, might provide more relevant estimates of their consequences. In fact, the available evidence suggests that life events produce their maximal effects within a few weeks to 6 months of their occurrence (Andrews, 1981; Brown & Harris, 1978; Tennant, Bebbington, & Hurry, 1981). Thus, the optimal temporal lag between stressor and psychological disorder may be shorter than the time period used in the present study. Although these points indeed may be true, our results also reveal the existence of an enduring vulnerability in the present sample resulting from (a) an increased event exposure, and (b) a relative lack of perceived marital support. The situation is probably not an either/or case; rather, for example, recent events, superimposed on more temporally distal adverse stressors, may be relevant for subsequent disruption of adaptive functioning.

Finally, other approaches may be useful for addressing these concerns. For instance, causal modeling techniques provide an excellent adjunct for studying such complex, interactive processes (see Aneshensel & Stone, 1983). However, it is unlikely that alone, these procedures—albeit sophisticated and powerful—will substitute for the issues we have raised concerning the conceptualization of disorder and research design. More detailed and reliable event assessment procedures would also be useful additions to such work (Brown & Harris, 1978; Monroe, 1982a). Ultimately, a combination of these approaches will be necessary. Only through such work can the interactions over time between these complexes of variables be more precisely detailed, leading the way for the discovery of mediating mechanisms and, ultimately, effective prevention procedures.

References

Andrews, G. (1981). A prospective study of life events and psychological symptoms. *Psychological Medicine, 11,* 795–801.

Aneshensel, C. S., & Stone, J. D. (1983). Stress and depression: A test of the buffering model of social support. *Archives of General Psychiatry, 39,* 1392–1396.

Blaney, P. H. (1985). Stress and depression in adults: A critical review. In T. Field, P. McCabe, & N. Schneiderman (Eds.), *Stress and coping.* New York: Erlbaum.

Bromet, E. J., Parkinson, D. K., Schulberg, H. C., Dunn, L. O., & Gondek, P. C. (1982). Mental health of residents near the TMI reactor: A comparative study of selected groups. *Journal of Preventative Psychiatry, 1,* 225–275.

Brown, G. W., & Harris, T. (1978). *Social origins of depression.* New York: The Free Press.

Cohen, J., & Cohen, P. (1983). *Applied multiple regression/correlation analysis for the behavioral sciences* (2nd ed.). Hillsdale, NJ: Erlbaum.

Cohen, S., & McKay, G. (1984). Social support, stress and the buffering hypothesis: A theoretical analysis. In A. Baum, J. E. Singer, & S. E. Taylor (Eds.), *Handbook of psychology and health* (Vol. 4, pp. 253–267). Hillsdale, NJ: Erlbaum.

Depue, R. A., & Monroe, S. M. (1986). Conceptualization and measurement of human disorder in life stress research: The problem of chronic disturbance. *Psychological Bulletin, 99,* 36–51.

Depue, R. A., Monroe, S. M., & Shackman, S. L. (1979). The psychobiology of human disease: Implications for conceptualizing the depressive disorders. In R. A. Depue (Ed.), *The psychobiology of the depressive disorders: Implications for the effects of stress* (pp. 3–20). New York: Academic Press.

Derogatis, L. R. (1977). *The SCL-90 Manual I: Scoring administration and procedures for the SCL-90.* Baltimore, MD: Johns Hopkins University School of Medicine Clinical Psychometrics Unit.

Dohrenwend, B. P. (1974). Problems in defining and sampling the relevant population of stressful life events. In B. S. Dohrenwend and B. P. Dohrenwend (Eds.), *Stressful life events: Their nature and effects* (pp. 275–310). New York: Academic Press.

Dohrenwend, B. S., Krasnoff, L., Askenasy, A. R., & Dohrenwend, B. P. (1978). Exemplification of a method for scaling life events: The PERI life events scale. *Journal of Health and Social Behavior, 19,* 205–229.

Heller, K. (1979). The effects of social support: Prevention and treatment implications. In A. P. Goldstein & F. H. Kanfer (Eds.), *Maximizing treatment gains: Transfer-enhancement in psychotherapy* (pp. 353–382). New York: Academic Press.

Henderson, S., Byrne, D. G., & Duncan-Jones, P. (1981). *Neurosis and the social environment.* New York: Academic Press.

Holahan, C. J., & Moos, R. H. (1981). Social support and psychological distress: A longitudinal analysis. *Journal of Abnormal Psychology, 90,* 365–370.

Holmes, T. H., & Rahe, R. H. (1967). The social readjustment rating scale. *Journal of Psychosomatic Research, 11,* 213–218.

Lazarus, R. S., & Folkman, S. (1984). *Stress, appraisal, and coping.* New York: Springer Publishing.

McFarlane, A. H., Norman, G. R., Streiner, D. L., & Roy, R. G. (1983). The process of social stress: Stable, reciprocal, and mediating relationships. *Journal of Health and Social Behavior, 24,* 160–173.

Mitchell, R. E., & Trickett, E. J. (1980). Social networks as mediators of social support: An analysis of the effects and determinants of social networks. *Community Mental Health Journal, 16,* 27–45.

Monroe, S. M. (1982a). Assessment of life events: Retrospective versus concurrent strategies. *Archives of General Psychiatry, 39,* 606–610.

Monroe, S. M. (1982b). Life events and disorder: Event-symptom associations and the course of disorder. *Journal of Abnormal Psychology, 91,* 14–24.

Monroe, S. M. (1983). Social support and disorder: Toward an untangling of cause and effect. *American Journal of Community Psychology, 11,* 81–97.

Monroe, S. M., Bellack, A. S., Hersen, M., & Himmelhoch, J. M. (1983). Life events, symptom course, and treatment outcome in uni-

polar depressed women. *Journal of Consulting and Clinical Psychology, 51,* 604–615.

Pearlin, L. T., Lieberman, M. A., Menaghan, E. G., & Mullan, J. T. (1981). The stress process. *Journal of Health and Social Behavior, 22,* 337–356.

Pearlin, L. I., & Schooler, C. (1978). The structure of coping. *Journal of Health and Social Behavior, 19,* 2–21.

Spanier, G. B. (1976). Measuring dyadic adjustment: New scales for assessing the quality of marriage and similar dyads. *Journal of Marriage and the Family, 38,* 15–28.

Tennant, C. (1983). Life events and psychological morbidity: The evidence from prospective studies. *Psychological Medicine, 13,* 483–486.

Tennant, C., Bebbington, P., & Hurry, J. (1981). The short-term outcome of neurotic disorders in the community: The relation of remission to clinical factors and to "neutralizing" life events. *British Journal of Psychiatry, 139,* 213–220.

Thoits, P. A. (1982). Conceptual, methodological, and theoretical problems in studying social support as a buffer against life stress. *Journal of Health and Social Behavior, 23,* 145–159.

Watson, D., & Clark, L. A. (1984). Negative affectivity: The disposition to experience aversive emotional states. *Psychological Bulletin, 96,* 465–490.

Weiss, R. (1970). The fund of sociability. *Transaction, 7,* 36–43.

Williams, A. W., Ware, J. E., & Donald, C. A. (1981). A model of mental health, life events, and social supports applicable to general populations. *Journal of Health and Social Behavior, 22,* 324–336.

Received February 25, 1985
Revision received June 24, 1985 ■

Psychological Documents to Resume Operation

On June 16, 1986, the on-demand publication system *Psychological Documents*, published by the American Psychological Association from 1971 through 1985, was sold to Select Press. Select Press will begin publishing new volumes this year and, as of June 16, 1986, began fulfilling orders for documents accepted into the system while it was published by APA.

Peer-reviewed documents were published by APA under the experimental system (formerly Journal Supplement Abstract Service) for 15 years. A catalog containing synopses of each document accepted into the system was published on a subscription basis. Those wishing to have a copy of the full-text of a document could order a copy in either microfiche or paper.

During periodic evaluation of the service, however, APA found that as a result of low volume, the difficulties of providing service within existing systems, the expenses related to fulfilling orders, and the cost of maintaining an editorial office, it was extremely difficult for APA to maintain service that was both timely and economical. After an extensive review of the history of the system and intensive evaluation of the expenses related to it, the APA Council of Representatives voted in 1985 to discontinue publication of *Psychological Documents* with publication of the December 1985 catalog. APA was to continue to fulfill orders for individual copies of documents until December 1986, assuming that no alternative publisher could be found. Possible alternative publishers included APA divisions, individuals, and commercial publishers. In mid-1985, Select Press approached APA and negotiations were begun.

Select Press will continue to operate the system as a peer-reviewed "journal" or document service. It will continue to feature specialized documents suitable for individual circulation such as technical reports, annotated and technical bibliographies, original data sets, test instruments, test manuals, and papers that would ordinarily be too long to be considered for regular journals. Select Press expects to expand the system to cover a broader range of documents including interdisciplinary content and possibly brief, early announcements of new findings. Select Press also publishes the interdisciplinary *Journal of Social Behavior and Personality*. Further information about *Psychological Documents* may be obtained from Select Press at P.O. Box 9838, San Rafael, CA 94912.