Stress, Social Support, and Negative Interaction in Later Life

NEAL KRAUSE
GINA JAY
University of Michigan

The aim of this research is to examine the impact of stress on supportive social relationships in later life. Although a number of researchers propose that exposure to life stress increases the amount of assistance provided by significant others, findings from studies with older adults are equivocal. Three potential explanations for these contradictory findings are examined. The results, which are based on a nationwide survey of older people, reveal that the relationship between stress and social support is contingent upon the nature of the stressor as well as the source of support. It was further predicted that negative interaction would play an important role in this process, but consistent findings failed to emerge from the data. The theoretical implications of these findings are discussed.

The purpose of this article is to examine the relationship between stress and social support. Researchers have devised a number of conceptual models to describe the link between these constructs (see for example Dohrenwend and Dohrenwend 1981; Lin, Dean, and Ensel 1986;

AUTHORS' NOTE: The data used in this study were made available by the Inter-University Consortium for Political and Social Research. The data for the *Americans' Changing Lives Survey* were originally collected by James House and his associates at the University of Michigan Survey Research Center, with funding provided by the National Institute on Aging Grant P01-AG05561. Neither the original collectors of the data nor the Consortium bear any responsibility for the analyses or interpretations presented here. The analyses presented in this article were supported by a grant from the National Institute on Aging (AG-08491). Address all communications to Neal Krause, Department of Health Behavior and Health Education, School of Public Health, University of Michigan, 1420 Washington Heights, Ann Arbor, MI 48109-2029.

RESEARCH ON AGING, Vol. 13 No. 3, September 1991 333-363

Wheaton 1985). Proponents of one view, the resource mobilization perspective, maintain that there is a positive relationship between stress and social support, and that individuals seek assistance from significant others in an effort to cope effectively with the difficulties that confront them (Alloway and Bebbington 1987).

Despite the intuitive appeal of the resource mobilization perspective, findings from empirical studies of stress and social support among older adults are equivocal. Although some investigators find a positive relationship between life stress and the amount of support provided by social network members (e.g., Krause 1987), other researchers fail to observe significant effects (e.g., Dean, Kolody, Wood, and Ensel 1989). Moreover, some investigators even find a negative relationship between stress and social support, signifying that elderly people who are exposed to high levels of stress tend to receive less support than older adults who are confronted by fewer stressful events (e.g., Cutrona, Russell, and Rose 1986).

Research on the interface between stress and supportive social relations is important because a number of interventions have been developed that focus primarily on the provision of informal social support to elderly people who are exposed to specific stressful experiences, such as conjugal bereavement (see Gottlieb 1988 and Vaux 1988 for a review of these interventions). Although these programs have met with some success, further development of effective intervention strategies is dependent upon the growth of an explicit knowledge base that clearly delineates the nature of the relationship between stress and supportive social ties. A reconciliation of the contradictory findings described above represents a necessary first step in this endeavor.

The analyses presented below represent a preliminary attempt to address some of the shortcomings in the literature on the interface between stress and social support. The discussion that follows is divided into four sections. First, selected limitations in existing studies are examined in detail. Following this, a conceptual model is introduced that seeks to alleviate these shortcomings. Next, the measures and survey sample that are used to evaluate this model are described. Finally, the results of the model estimation are presented.

Limitations in Studies on Stress and Social Support

There are at least three reasons why studies on stressful life events and supportive network ties have produced contradictory findings. First, many investigators rely on global or aggregate measures of life stress. In addition, the majority of studies focus exclusively on the positive aspects of the support process without recognizing the negative attributes of encounters with significant others. Finally, many researchers use social support indices that fail to take the source of support into consideration.

THE USE OF AGGREGATE STRESS MEASURES

A number of studies that examine the relationship between stress and social support rely on global measures of life stress, which combine a diverse array of events into a single summary score. For example, researchers frequently create measures of undesirable life events which are derived by summing the number of times a respondent has been exposed to a host of negative stressors including recent deaths, illnesses, or financial problems. Researchers who test the resource mobilization perspective with this type of measure are assuming implicitly that all life events have the same effect on social support and that regardless of the nature of the stressor, older adults will always seek out and receive assistance from their social network members.

A recent study by Krause (forthcoming) suggests that not all stressors may promote greater help-seeking behavior and that elderly people who are confronted by certain types of stressors (e.g., financial strain and the fear of crime) may actually become more isolated from their significant others than older adults who are not exposed to these difficulties. There are at least three reasons why some stressors may result in less contact with others. First, research by Hobfoll (1985) and others suggests that individuals may decide not to seek out significant others during difficult times because of the stigmatizing or embarrassing nature of the stressor that confronts them. Moreover, George (1989) points out that some elderly people may elect not to approach

significant others for fear that they cannot reciprocate or repay the assistance they might receive. Finally, the literature suggests that significant others may withdraw their support when certain stressors, such as divorce, arise (Wilcox 1981). Presumably, network members are motivated to take this action because of disapproval or divided loyalties.

Although it is clear that some stressors may result in less contact with others, it is equally obvious that other events promote greater support utilization. For example, research by Ferraro, Mutran, and Barresi (1984) indicates that older adults who have been recently widowed experience a significant increase in social contact as well as social support.

The discussion provided above suggests that researchers must begin to pose more focused questions about the resource mobilization perspective. Instead of asking whether or not this viewpoint is correct, efforts should be directed toward the identification of those circumstances under which older adults marshal assistance from others as well as those instances in which support is neither offered nor sought out.

STRESS AND NEGATIVE INTERACTION

The discussion up to this point suggests that there are only two ways in which stress and social support are related: older adults either seek out and receive assistance from others or they withdraw or disengage from their social networks. However, a third scenario is possible. There is mounting evidence to suggest that while significant others may offer assistance during difficult times, they may also be critical or express disapproval of the way an older adult is reacting to an event. Moreover, social network members may be critical of the elderly person for allowing the event to arise in the first place (see Rook 1990 for a recent review of this research). Stated simply, significant others may be a source of negative interaction as well as a source of assistance during stressful times.

It is surprising to find that few studies involving older adults include measures of negative interaction as well as supportive behaviors in the same analyses. If researchers are to arrive at a better understanding of the social support process, then it is imperative that they adopt a more

comprehensive view that acknowledges the negative as well as the positive reactions that are made in response to requests for assistance.

CONSIDERING THE SOURCE OF SUPPORT

The majority of studies on the interface between stress and supportive social relations tend to rely on aggregate measures that assess the amount of assistance provided by all social network members in general. As Abbey, Abramis, and Caplan (1985) point out, this measurement strategy requires a respondent to think about how much assistance is provided by each network member and then perform some sort of mental arithmetic to arrive at an overall or global estimate of support. There are at least two drawbacks in this approach. First, it is not clear exactly how respondents arrive at this overall assessment nor is it likely that each study participant derives an estimate in exactly the same manner. In addition, this measurement strategy assumes that support from different sources (e.g., spouse, neighbor) may be summarized in an additive manner and that a unit of assistance is the same regardless of the provider.

A number of studies conducted in the general population suggest that global measures of social support may be inadequate. For example, research by LaRocco, House, and French (1980) indicates that assistance provided by coworkers is more helpful for confronting problems in the workplace than support that is given by a spouse. Similarly, studies reviewed by Wortman and Dunkel-Schetter (1987) reveal that cancer patients are more likely to perceive advice as being beneficial if it comes from a physician rather than from a family member.

Taken as a whole, the literature suggests that the relationship between stress and social support may be far more complex than many researchers realize. In particular, the interface between these constructs may depend upon the nature of the stressor under consideration, the potentially negative as well as positive responses of significant others, and the specific sources of support that are available. A rigorous evaluation of these issues requires that measures of these constructs be incorporated into the same conceptual framework so that the relative contribution of each factor can be assessed simultaneously. A

preliminary model that was developed with this purpose in mind is presented in the following section.

A Conceptual Model of Life Stress and Social Support

Figure 1 contains a conceptual model that was designed to assess the relationships among selected stressors, social support, and negative interaction. A few technical features of this conceptual scheme will be reviewed briefly before the theoretical rationale is presented.

The notation used in Figure 1 is consistent with the notation devised by Jöreskog and Sörbom (1988). More specifically, the y_i are observable endogenous indicators while the η_i stand for the latent or unobserved constructs they are thought to represent. The ε_i denote the effects of random measurement error in the y_i and the ζ_i represent structural disturbance terms that stand for the effects of variables that are not contained explicitly in the model.

In order to simplify the presentation of this conceptual scheme, the effects of three exogenous demographic control variables (age, sex, education) are not shown in Figure 1. It should be emphasized, however, that the impact of these indicators was assessed when the model was estimated.

Two types of stressors are included in the conceptual model: financial strain and recent deaths. Moreover, three dimensions of support serve as endogenous or dependent variables: social contact, received emotional support, and negative interaction. In essence, these dimensions can be used to capture different ways in which stress may erode supportive social relationships in later life. More specifically, stress may result in less support because older adults or their significant others may withdraw (or at least temporarily disengage) from a given relationship. Although withdrawal is not measured explicitly in Figure 1, this effect should be manifest in terms of decreased contact with significant others. Alternatively, contact with others may not diminish during difficult times. Instead, social network members may merely cease providing emotional support. This may be especially likely to occur in those relationships where it is difficult to avoid making contact (e.g., marital relations). Finally, as discussed above, while social network members may provide assistance during difficult

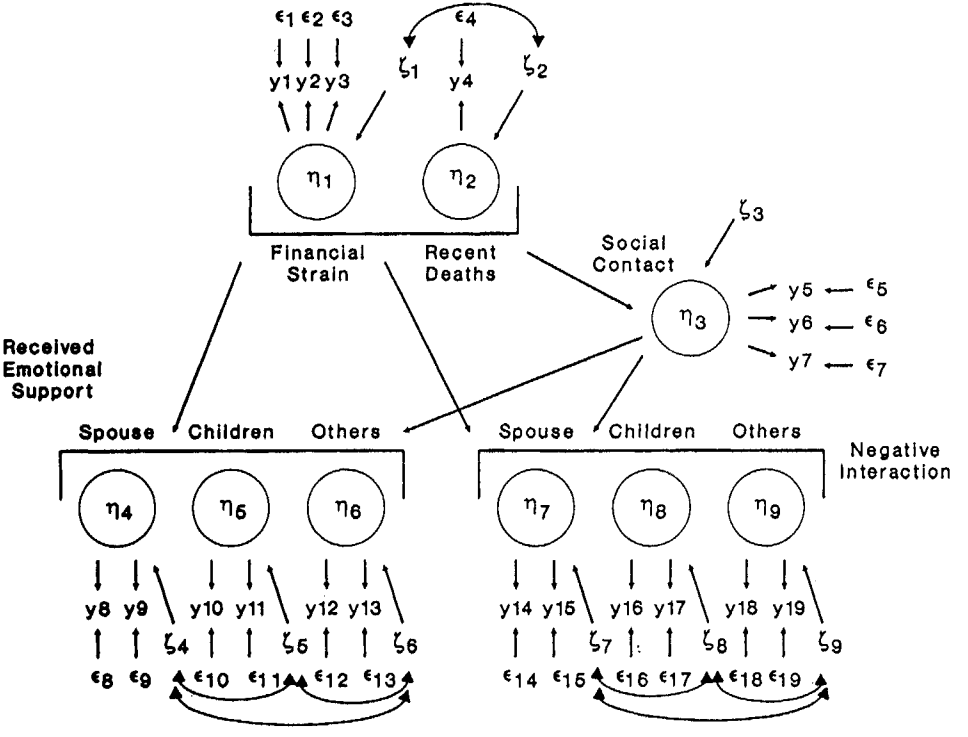

Figure 1: A Model of Stress, Social Support, and Negative Interaction

times, they may also become critical or judgmental. A measure of negative interaction was included in Figure 1 in order to assess this possibility.

The source of support is taken into consideration when assessments are made of emotional support and negative interaction (but not social contact). More specifically, the model depicted in Figure 1 examines the amount of emotional support and negative interaction arising from three separate sources: the spouse, children, and others (i.e., other relatives and friends).

In order to present the hypothesized relationships among these constructs in a more coherent manner, it is necessary to first briefly describe how the analyses that use these measures will be performed. It is evident that not every older adult is married nor do all elderly people have children. Consequently, each study participant did not answer all of the items that are used to measure all of the emotional support and negative interaction constructs shown in Figure 1. In effect, this reflects the fact that social networks in later life are made up of different configurations of people.

Different network configurations provide different opportunities for the receipt of support as well as the experience of negative interaction. Moreover, the nature and meaning of the assistance that is provided by one source may vary depending upon the number of potential help-providers as well as the relationship between the provider and recipient. This means, for example, that an older man may be less likely to seek out emotional support from other sources if he is currently married and his spouse is able to provide assistance.

Differences in network configurations are taken into account in the present study by partitioning the sample into subgroups reflecting selected types of social networks. More specifically, there are a sufficient number of cases available in the data to examine three social network configurations: networks comprised of a spouse, children, and others; networks that consist of only children and others; and social networks where neither a spouse or child is present and only other relatives and friends are available. By performing subgroup analyses in this manner, this study tests the hypothesis that the impact of stress on social support and negative interaction also depends upon social network configurations.

There is one drawback that arises from performing these subgroup analyses. This data analytic strategy requires that a potentially bewildering array of hypotheses be developed within each social network type to explain the linkages among the two types of stress, received emotional support, and negative interaction. Fortunately, research by Cantor (1979) and others provides a theoretical framework that simplifies this task substantially.

According to Cantor's (1979) hierarchical compensatory model, older adults have a clear preference of helping sources when they need assistance. More specifically, this conceptual scheme suggests that regardless of the type of assistance that is needed, the spouse is the preferred helping source. If a spouse is not available, then elderly people prefer to turn to their children. Finally, if neither a spouse nor a child is present, then older adults elect to go to other relatives and friends for aid (see Hoyt and Babchuck 1988, for empirical confirmation of this hierarchy).

The extent to which this compensatory model of support is applicable in various stressful situations is not yet known. One objective of the present study is to determine whether this conceptual framework can provide additional insight into the relationships among the constructs depicted in Figure 1.

In the discussion that follows, a series of hypotheses are proposed that further delineate the nature of the relationship between stress and supportive social relationships. The following sections begin with an examination of the impact of financial strain and recent deaths on social contact. Next, the interface between these stressors, social contact, and emotional support will be reviewed. Finally, the hypotheses linking financial strain, recent deaths, social contact, and negative interaction will be presented.

FINANCIAL STRAIN AND SOCIAL CONTACT

It is hypothesized in this study that as the level of financial strain increases, older adults will report having less contact with their significant others. Empirical support for this relationship may be found in two studies that have been conducted with elderly people (Arling 1987; Krause forthcoming). There are at least two reasons why

financial problems may lead to less contact with others. First, as noted earlier, there is some evidence that financial difficulties are especially likely to be a source of stigma and embarrassment for members of the current cohort of older adults (Lee 1985; Peters, Hoyt, Babchuck, Kaiser, and Ijima 1987). In addition, research by Krause (forthcoming) suggests that elderly people who experience financial strain are more likely to be distrustful of others, and that older adults who are distrustful of others are more likely to be isolated from their social network members. Presumably, the link between financial strain and distrust may be attributed to social structural factors whereby elderly people in the lower social classes (i.e., those persons with greater financial difficulty) are especially likely to be taken advantage of by informal as well as formal social contacts (see Mirowsky and Ross 1989 for a more detailed discussion of stress and distrust).

RECENT DEATHS AND SOCIAL CONTACT

In order to bolster the argument for the disaggregation of global stress measures, it is important to demonstrate empirically that some stressors tend to erode social contact while other stressors promote greater support utilization. A measure of recent deaths was included in the conceptual model for this purpose. In contrast to financial difficulties, it is proposed that recent deaths will result in greater contact with significant others in all three social network types. This hypothesis is based on the research by Ferraro et al. (1984) that was discussed earlier. These researchers suggest that increased contact on the part of recent widows constitutes a type of coping strategy whereby efforts are made to restore a sense of equilibrium in their social networks.

FINANCIAL STRAIN AND EMOTIONAL SUPPORT

The measure of financial strain that is used in this study is thought to assess fiscal difficulties that are relatively persistent and ongoing. A number of researchers suggest that significant others may come to view their relationships with older adults as being too one-sided when financial difficulties persist for a fairly long period of time and continual assistance must be provided (e.g., Vachon and Stylianos

1988). These perceptions can in turn serve to weaken social ties and result in decreased emotional support.

If there is a hierarchy of preferred help sources and these help-providers begin to feel overburdened, it follows that the potential loss of emotional support may also be arrayed in an identical hierarchical manner. More specifically, it is predicted that older adults who are experiencing financial difficulty will receive less emotional support from their spouse than elderly people who are not confronted by financial problems. If a spouse is not present in the social network, then elderly people will report receiving diminished support from their children. Finally, when neither a spouse nor a child is available, older people who are facing ongoing financial difficulties will report receiving less emotional support from their other relatives and friends. In effect these hypotheses serve to expand the scope of Cantor's (1979) model by suggesting that there may be a hierarchical loss of emotional support which parallels the hierarchy of instrumental assistance that is provided in response to financial strain.

RECENT DEATHS AND EMOTIONAL SUPPORT

The literature reviewed earlier suggests that older adults who have lost a significant other through death should receive more emotional support than elderly people who are not bereaved. Based on the hierarchical compensatory model, it is predicted that older adults who are bereaved will report receiving increased emotional support from their spouse when their social networks contain a spouse, children, and others. In networks comprised of children and others only, recent deaths should be related to increased emotional support from children. When neither a spouse nor a child is present, recent deaths will result in increased emotional support from others.

SOCIAL CONTACT AND EMOTIONAL SUPPORT

In order to receive assistance from others, it is obvious that older adults must first make contact with their social network members. Based on findings from a number of studies with other adults, it is predicted that as social contact increases, elderly people will report

receiving more emotional support from their children as well as from other relatives and friends (see for example Krause, Liang, and Keith 1990; Seeman and Berkman 1988).

STRESS, SOCIAL CONTACT, AND NEGATIVE INTERACTION

Although researchers suspect that the frequency of problematic interaction may vary across specific relationships, it is not clear which types of relationships are most likely to be involved. Rook (1990) suggests that negative interaction is most likely to involve kin, while Wortman and Dunkel-Schetter (1987) propose that problematic exchanges are most likely to arise in relationships that respondents feel are the closest and most important. Clearly, kinship ties do not necessarily represent the closest or the most important relationships.

Perhaps one way to resolve this dilemma is to examine why older adults continue to maintain relationships that are negative or problematic. As Rook (1984) proposes, one useful explanation might be that relationships in which negative exchanges take place might also be those ties that provide substantial assistance during stressful times. To the extent that this is true and Cantor's (1979) hierarchical compensatory model is valid, then negative interaction should be most likely to arise in relationships involving spouses, followed by children, and then others in that order.

The observations of Wortman and Dunkel-Shetter (1987) are helpful for developing a hypothesis about the relationship between social contact and negative interaction. It seems reasonable to assume that older adults will generally maintain the greatest amount of contact with their closest social ties. If negative interaction is most likely to arise in close relationships, then problematic exchanges should increase as the amount of social contact increases.

As discussed earlier, some investigators suspect that when certain stressors arise, significant others may blame older adults for allowing the event to arise. Although this issue has not been examined extensively in the gerontological literature, it appears as though the stressors contained in Figure 1 vary in the extent to which older adults may be blamed for their occurrence. More specifically, it appears as though personal responsibility may be greater for financial problems than for recent deaths. Consequently, it is hypothesized in Figure 1 that finan-

cial strain will result in negative interaction whereas recent deaths will not foster problematic exchanges.

Methods

SAMPLE

The data for this study are taken from the Americans' Changing Lives Survey that was conducted by the University of Michigan's Survey Research Center. This multistage stratified probability sample was gathered during 1986. A total of 3,617 respondents residing in the continental United States were interviewed successfully, including an oversample of Blacks (N = 1,174) and persons 60 years of age and older (N = 1,669). The overall response rate for this survey was 67%. The interviews lasted an average of 86 minutes.

The analyses presented below are based on the responses of those study participants who were at least 60 years of age at the time of the interview. The response rate for study participants in this age group was 65.8% Complete data are available for 1,563 of the original 1,669 respondents in this age range (94%). As discussed above, the sample was partitioned into subgroups that reflect different social network configurations. These social networks are differentiated by the presence (or absence) of a spouse and children. Given the available study measures, four different network configurations are possible. These network types as well as the number of respondents in each configuration are as follows: networks containing a spouse, children, and others (N = 747); social networks comprised of children and others, but not a spouse (N = 592); networks made up of others only (N = 161); and social networks that consist of a spouse and others, but no children (N = 63). Due to sample size limitations, analyses are not performed with the last social network configuration (spouse and others only).

The average age of the participants in networks consisting of a spouse, children, and others is 67.91 years (SD = 6.28 years). Approximately 57% of the respondents in this type of network are women. Finally, the average number of years of completed schooling for members of this subgroup is 11.09 years (SD = 5.70 years).

In contrast, members of networks that consist only of children and others tend to be older ($\bar{X}$ = 71.61 years; SD = 7.85 years). Moreover, this type of social network tends to include a higher proportion of women (79%) than the configuration described previously. Finally, the average educational level is slightly lower in this subgroup ($\bar{X}$ = 10.10 years; SD = 7.33 years).

Respondents in networks consisting of others only are older on the average than members of the other network types ($\bar{X}$ = 72.65 years; SD = 7.51 years). Approximately 71% of the older adults in this subgroup are women. The average number of years of completed education is 11.64 (SD = 12.56 years).

MEASURES

Table 1 contains a listing of the survey items that are used to assess the latent constructs depicted in Figure 1. The analyses presented below were performed with the LISREL 7 statistical software program (Jöreskog and Sörbom, 1988). The standardized factor loadings as well as the measurement error estimates that were derived with this program are presented next to each item. These estimates are useful because they provide some preliminary information on the psychometric properties of these indicators.

Although there are no firmly established guidelines in the literature, researchers generally agree that items with factor loadings in excess of .400 have acceptable psychometric properties (see, for example, Liang 1986). The data in Table 1 reveal that the factor loadings range from .354 to .855. Only one indicator in each subgroup fails to reach the minimum recommended value. In each instance, this indicator is the third social contact measure, which assesses participation in voluntary organizations. The reason for this finding is not clear. Perhaps at least part of the explanation involves the fact that this item measures contact in formal organizations while the remaining indicators assess informal social contact. Nevertheless, when the factor loadings in Table 1 are taken as a whole, the data suggest that the measures used in this study have acceptable psychometric properties.

The measures used in this study will not be discussed in detail because they are listed in Table 1. However, it may be helpful to briefly review how these indicators are coded. More specifically, a high score

TABLE 1
Study Measures

Item Descriptions	*Spouse, Children, and Others*		*Children and Others*		*Others Only*	
	Factor Loadings[a]	*Error Terms*[b]	*Factor Loadings*	*Error Terms*	*Factor Loadings*	*Error Terms*
η_1 Financial strain						
y_1 Satisfaction with finances[c]	.662	.562	.728	.469	.673	.547
y_2 Difficulty paying bills[d]	.827	.317	.855	.270	.855	.269
y_3 No money left over at end of month[e]	.680	.537	.758	.425	.769	.409
η_2 Recent deaths						
y_4 Number of deaths in past year	1.000	.000	1.000	.000	1.000	.000
η_3 Social contact[f]						
y_5 Talk on the phone with others	.663	.560	.513	.736	.418	.825
y_6 Visit in homes of others	.450	.798	.639	.592	.743	.449
y_7 Attend meetings of groups, clubs, etc.	.354	.875	.369	.864	.371	.862
η_4 Emotional support, spouse[g]						
y_8 Makes R feel loved	.730	.467	na	na	na	na
y_9 Listens to R talk about problems	.696	.515	na	na	na	na
η_5 Emotional support, children[g]						
y_{10} Makes R feel loved	.716	.487	.707	.501	na	na
y_{11} Listens to R talk about problems	.750	.437	.729	.469	na	na
η_6 Emotional support, others[g]						
y_{12} Makes R feel loved	.671	.549	.772	.403	.793	.371
y_{13} Listens to R talk about problems	.711	.495	.704	.504	.804	.354
η_7 Negative interaction, spouse[g]						
y_{14} Makes too many demands on R	.662	.562	na	na	na	na
y_{15} Is critical of R	.690	.524	na	na	na	na
η_8 Negative interaction, children[g]						
y_{16} Makes too many demands on R	.589	.654	.567	.678	na	na
y_{17} Is critical of R	.538	.711	.542	.706	na	na
η_9 Negative interaction, others[g]						
y_{18} Makes too many demands on R	.642	.588	.625	.609	.614	.623
y_{19} Is critical of R	.510	.740	.659	.566	.556	.691

a. Standardized factor loading; the first item in each construct was constrained to 1.0 in the metric solution.

(Continued)

TABLE 1 Continued

b. Measurement error terms are from the standardized solution.
c. This item was scored in the following manner (coding in parentheses): not at all satisfied (5); not very satisfied (4); somewhat satisfied (3); very satisfied (2); completely satisfied (1).
d. This item was scored in the following manner: extremely difficult (5); very difficult (4); somewhat difficult (3); slightly difficult (2); not at all difficult (1).
e. This item was scored in the following manner: not enough money (3); just enough money (2); some money left over (1).
f. These items were scored in the following manner: more than once a day (6); once a day (5); 2 or 3 times a week (4); about once a week (3); less than once a week (2); never (1).
g. These items were scored in the following manner: a great deal (5); quite a bit (4); some (3); a little (2); not at all (1).

denotes greater financial strain, more deaths among network members, greater social contact, more emotional support, and a greater amount of negative interaction (see the discussion section for a review of the controversy surrounding the assessment of emotional support). Finally, age and education (not shown in Table 1) are coded continuously in years while sex is scored in a binary format (1 = men; 2 = women).

DATA ANALYSIS ISSUES

Two important data analytic issues will be examined briefly in this section before the results from this study are presented. The first issue involves the influence of sample size while the second issue has to do with weighting survey data when subgroups in a population have been oversampled.

Sample size considerations are an important factor in the development of latent variable models. However, the key issue in this regard is not the sample size per se, but rather the ratio of the number of cases to the number of free parameters that are to be estimated. When this ratio is low, it becomes more difficult to detect significant relationships even though they may be present in the data (i.e., the statistical power of the hypothesis tests is low). Although there are no definitive guidelines, researchers generally recommend that this ratio fall between 5:1 and 10:1 (Bentler and Chou 1988). As reported earlier, the sample size for the network consisting only of other relatives and friends is fairly small ($N = 161$). The ratio of cases to free parameters in this group is 3.6:1. Consequently, the analyses involving this

subgroup must be viewed with caution. The analyses were conducted in spite of this limitation because people without a spouse or children represent an interesting and unique subset of older adults. Moreover, since the data for this study are from a large nationwide survey, there are relatively few opportunities to study elderly people with this type of social network configuration.

When the sample for this study was described, it was pointed out that Blacks had been deliberately oversampled. There has been a great deal of debate in the literature on whether it is necessary to use sample weighting procedures to correct for this sampling decision or whether the resulting parameter estimates are accurate in an unweighted form (see Groves 1989 and Hoem 1989 for opposing views on this issue). No attempt will be made to resolve this debate in the present study. Instead, the conceptual model was estimated with weighted as well as unweighted data for two of the three network configurations. Since no major differences emerged from the preliminary analyses with the remaining subgroups, the findings presented below are based on unweighted data.

Results

GOODNESS-OF-FIT INFORMATION

Before examining the substantive findings from this study it is important to first get a sense of how well the conceptual model fits the data in each of the three subgroups. Estimates derived from select goodness-of-fit indices are presented in the footnotes of Tables 2 through 4. This information is reviewed briefly below.

Networks containing a spouse, children, and others. Taken as a whole, the information provided in the first footnote in Table 2 suggests that the fit of the model to the data is adequate in this subgroup. For example, the Adjusted Goodness-of-Fit Index (AGFI) estimate is .927 (see Jöreskog and Sörbom 1988 for a detailed discussion of this index). While a minimum cutpoint score has not been established for this measure, experience suggests that values in excess of .900 are generally acceptable. Similarly, the estimate computed

TABLE 2
Stress and Social Support:
Networks Consisting of a Spouse, Children, and Others (N = 747)

	Independent Variables					
	Age	*Education*	*Sex*	*Financial Strain*	*Recent Deaths*	*Social Contact*
Dependent variables						
Financial strain	−.047	−.215*	.005			
	(−.005)	(−.027)	(.008)			
Recent deaths	.048	−.031	.014			
	(.003)	(−.002)	(.012)			
Social contact	−.029	.150*	.315*	−.211*	.048	
	(−.004)	(.023)	(.563)	(−.261)	(.103)	
Emotional support, spouse	−.009	.009	−.231*	−.215*	.015	.000[a]
	(−.001)	(.001)	(−.283)	(−.183)	(.021)	(.000)
Emotional support, children	.108*	.016	.051	−.082	−.017	.169*
	(.008)	(.001)	(.050)	(−.057)	(−.020)	(.093)
Emotional support, others	−.012	−.044	.047	−.084	.099*	.342*
	(−.001)	(−.004)	(.054)	(−.068)	(.138)	(.224)
Negative interactions, spouse	−.074	.019	−.062	.097	−.042	.000[a]
	(−.008)	(.002)	(−.089)	(.097)	(−.071)	(.000)
Negative interaction, children	−.180*	.004	−.060	.110	−.062	−.039
	(−.015)	(.001)	(−.064)	(.082)	(−.079)	(−.023)
Negative interaction, others	−.045	−.004	−.041	.046	.035	.053
	(−.003)	(−.001)	(−.040)	(.031)	(.041)	(.029)

NOTE: The fit of the model to the data is: X^2 = 372.26 (df = 150); GFI = .956; AGFI = .927; Bentler - Bonnett Δ = .877; Bollen nonnormed Δ = .923. For each dependent variable, the top line shows standardized regression coefficients, while the bottom line, in parentheses, shows the metric (unstandardized) regression coefficients.
a. This coefficient was constrained to 0.
*p < .05.

with Bollen's (1989) nonnormed fit index (.923) appears to be reasonably close to the ideal value of 1.0. Although the Bentler and Bonett (1980) normed fit index estimate of .877 falls just short of the recommended minimum value of .900, this difference does not appear to be substantial, especially when this coefficient is viewed in conjunction with the remaining goodness-of-fit measures.

Networks consisting of children and others. The data presented in the bottom of Table 3 suggest that the model provides a better fit to the data in the second subgroup. In particular, the AGFI estimate (.945) as well as the estimate provided by Bollen's (1989) nonnormed fit index (.962) are within the acceptable range. Similarly, the value

TABLE 3
Stress and Social Support:
Networks Consisting of Children and Others (N = 592)

	Independent Variables					
	Age	*Education*	*Sex*	*Financial Strain*	*Recent Deaths*	*Social Contact*
Dependent variables						
Financial strain	−.307*	−.161*	.072			
	(−.034)	(−.019)	(.154)			
Recent deaths	−.001	−.046	−.014			
	(−.001)	(−.003)	(−.015)			
Social contact	−.110	.035	.248*	−.294*	.129*	
	(−.011)	(.004)	(.464)	(−.259)	(.217)	
Emotional support, children	.061	−.073	.180*	−.197*	.089	.300*
	(.005)	(−.006)	(.266)	(−.137)	(.119)	(.237)
Emotional support, others	−.010	−.038	.071	−.092	.007	.373*
	(−.001)	(−.004)	(.128)	(−.077)	(.011)	(.355)
Negative interaction, children	−.154*	−.007	−.018	.131	.017	−.086
	(−.011)	(−.001)	(−.025)	(.085)	(.021)	(−.064)
Negative interaction, others	−.142	.002	−.068	.138*	−.036	.193*
	(−.010)	(.001)	(−.090)	(.086)	(−.044)	(.137)

NOTE: The fit of the model to the data is X^2 = 167.56 (df = 95); GFI = .970; AGFI = .945; Bentler - Bonett Δ = .916; Bollen nonnormed Δ .962. For each dependent variable, the top line shows standardized regression coefficients, while the bottom line, in parentheses, shows metric (unstandardized) regression coefficients.
*p < .05.

derived from Bentler and Bonett's (1980) normed fit index (.916) also exceeds the recommended minimum value for this measure.

Networks consisting of others only. The data in Table 4 reveal that the fit of the model to the data in the third subgroup is not good. Neither the AGFI (.866) nor Bentler and Bonett's (1980) normed fit index (.815) reach acceptable levels. However, a somewhat different reading is provided by Bollen's (1989) nonnormed fit index. This measure is especially useful in the present situation because unlike the other indices, it makes an adjustment for the sample size as well as the degrees of freedom in the model. In contrast to the estimates derived from the other indices, the estimate provided by Bollen's nonnormed fit index (.922) appears to be closer to its recommended ideal value (1.0). Nevertheless, in view of the overall mixed findings, it is best to conclude that the model provides only a marginal fit to the data in this subgroup.

TABLE 4
Stress and Social Support: Networks Consisting of Others Only (N = 161)

	Independent Variables					
	Age	*Education*	*Sex*	*Financial Strain*	*Recent Deaths*	*Social Contact*
Dependent variables						
Financial strain	–.096	.079	–.022			
	(–.011)	(.005)	(–.040)			
Recent deaths	–.002	–.081	.052			
	(–.001)	(–.003)	(.051)			
Social contact	–.048	–.021	.166	–.102	.025	
	(–.004)	(–.001)	(.251)	(–.085)	(.039)	
Emotional Support, others	–.115	–.127	.227**	–.188*	.175*	.402*
	(–.014)	(–.009)	(.462)	(–.212)	(.364)	(.541)
Negative interaction, others	–.352**	.065	.038	.177	–.116	.296
	(–.031)	(.003)	(.056)	(.142)	(–.172)	(.284)

NOTE: The fit of the model to the data is: X^2 = 86.11 (df = 54); GFI = .931; AGFI = .866; Bentler - Bonett Δ = .815; Bollen nonnormed Δ = .922. For each dependent variable, the top line shows standardized regression coefficients, while the bottom line, in parentheses, shows metric (unstandardized) regression coefficients.
*p < .05; ** p < .01.

SUBSTANTIVE FINDINGS

The model presented in Figure 1 is quite complex. As a result, the substantive findings are presented in three sections. First, the impact of stress on social contact will be reviewed. Next, the relationships between stress, social contact, and emotional support will be examined. Finally, the effects of stress and social contact on negative interaction will be presented.

Stress and social contact. Earlier, it was hypothesized that financial strain would be associated with diminished social contact, whereas recent deaths would result in more frequent contact with significant others. The data in Tables 2 through 4 provide partial support for these hypotheses.

As predicted, the data in Table 2 suggest that greater financial difficulty is associated with less social contact in networks comprised of a spouse, children, and others (beta = –.211; p < .05). Similarly, financial problems are related to diminished social contact in networks consisting of children and others only (beta = –.294; p < .05; see Table 3). However, financial strain does not appear to be significantly

related to social contact in networks that contain only other relatives and friends (beta = –.102; not significant; see Table 4).

Although it is not clear why financial difficulties fail to influence social contact in networks consisting of others only, perhaps at least part of the reason can be found by taking social network size into consideration. There is some evidence that elderly people who do not have a spouse and children tend to have smaller social networks than other older adults (Antonucci and Akiyama 1987). In this instance, a fairly substantial proportion of the basic supportive functions may be provided by a relatively small number of people. Consequently, loss of contact with individuals in this group may be likely to result in the disruption of basic supportive activities. In comparison, older adults with larger networks may be better able to withstand a decline in social contact without experiencing a comparable loss of vital assistance. This may be especially true of elderly people who are married and living with their spouse.

Returning to Tables 2 through 4, the data reveal that recent deaths fail to have a consistent effect on the amount of contact made with significant others. In fact, a significant relationship between these constructs emerges in only one of the three social network configurations. More specifically, the data in Table 3 suggest that recent deaths are associated with increased social contact in networks comprised of children and others only (beta = .129; $p < .05$).

Further analyses (not shown here) were conducted in order to determine whether more consistent findings might emerge if the respondent's relationship to the deceased person is taken into consideration. For example, analyses were performed to determine whether the death of a spouse might have a greater impact on social contact than the death of a friend. No additional insights into the relationship between recent deaths and social contact were provided by these more focused analyses.

Stress, social contact, and emotional support. While contact with others may decline during difficult financial times, the data in Tables 2 through 4 indicate that an even more important consequence may involve the loss of emotional support. Moreover, diminished emotional support in the face of chronic financial strain appears to parallel the hierarchical compensatory sequence proposed by Cantor (1979). In particular, financial problems are associated with reduced emo-

tional support from the spouse in networks consisting of a spouse, children, and others (beta = –.215; $p < .05$; see Table 2). When networks are comprised of children and others only, financial strain is related to decreased emotional support from the children (beta = –.197; $p < .05$; see Table 3). Finally, increased financial difficulty is related to decreased emotional support from other relatives and friends (beta = –.188; $p < .05$), but only when a spouse and children are not contained in the network (see Table 4).

In contrast to the findings involving financial strain, the data in Tables 2 through 4 reveal that while recent deaths are related to increased emotional support from others, the findings are not in agreement with the basic tenets of the hierarchical compensatory model. More specifically, the data in Table 2 suggest that recent deaths are related to a slight increase in emotional support from other relatives and friends in networks comprised of a spouse, children, and others (beta = .099; $p < .05$). Similarly, recent deaths are associated with increased emotional support from others in networks that consist of other relatives and friends only (beta = .175; $p < .05$; see Table 4). However, the data in Table 3 indicate that when networks contain children and others but no spouse, recent deaths do not exert a statistically significant effect on any of the emotional support measures.

Once again, further analyses (not shown here) were performed to see whether the relationship of the respondent to the deceased person might clarify the relationship between recent deaths and emotional support. Unfortunately, these additional analyses failed to provide a more theoretically meaningful pattern of findings.

One reason for these disappointing findings may involve the way that deaths and emotional support are measured. All deaths occurring during the year prior to the survey were included in the analyses, whereas the support measures focus on assistance that was available at the time of the interview. Consequently, it is not possible to assess the amount of support that was provided at the time the deaths took place. Clearly, timing is an important factor in the social support process which should be examined in future studies (see Jacobson, 1986, for a detailed discussion of this issue).

Returning to Tables 2 through 4, more consistent findings emerge when the impact of social contact on emotional support is taken into consideration. More specifically, the findings suggest that when net-

works are comprised of a spouse, children, and others, increased social contact is related to greater emotional support from children (beta = .169; $p < .05$) as well as greater emotional support from others (beta = .342; $p < .05$; see Table 2). When networks consist of others and others only, greater contact leads to increased emotional support from children (beta = .300; p .001; see Table 3) and more emotional support from other relatives and friends (beta = .373; $p < .05$). Finally, when social networks do not contain a spouse and children, the data suggest that more social contact results in the provision of more emotional support by other relatives and friends (beta = .402; $p < .05$).

Stress, social contact, and negative interaction. Earlier it was predicted that financial strain would be associated with increased negative interaction and that the pattern of these findings would coincide with the hierarchical compensatory sequence developed by Cantor (1979). Conversely, it was further proposed that recent deaths would not exert a significant impact on problematic exchanges with significant others. The data provide only limited support for these hypotheses.

The results in Tables 2 through 4 reveal that financial strain is related to negative interaction in only one of the three social network configurations. More specifically, the findings in Table 3 suggest that as financial strain increases, elderly people in networks consisting of children and others report having more negative interaction with other relatives and friends (beta = .138; $p < .05$). However, this finding is not consistent with the extension of the hierarchical compensatory model that was proposed in this study.

Returning to Tables 2 through 4, the data reveal that, as predicted, recent deaths are not related to negative interaction with others. More specifically, the findings suggest that death fails to exert a significant impact on any measures of negative interaction in any of the social network configurations.

Earlier, it was proposed that greater social contact would be related to increased negative interaction. The data in Tables 2 through 4 provide only limited support for this hypothesis. In particular, the data indicate that increased social contact is associated with more problematic exchanges with other relatives and friends in networks that consist of children and others only (beta = .193; $p < .05$; see Table 3). Similarly, the relationship between social contact and negative interaction is in

the predicted direction in networks containing others only (beta = .296), but this relationship is not statistically significant (see Table 4). As discussed earlier, this nonsignificant finding may be a function of low statistical power in this network subgroup. Finally, the data in Table 2 suggest that social contact is not related to problematic exchanges in networks containing a spouse, children, and others.

Taken together, the findings in this section do not provide strong support for the notion that stress promotes negative interaction. It would be premature, however, to dismiss this hypothesis and to discourage further research in this area. There are at least three reasons why significant findings may have failed to emerge in this study. The first reason has to do with the fact that a full range of stressful events was not examined in this study. It is possible that negative interaction may be associated with stressors that are not contained in the model depicted in Figure 1. In addition, it is possible that financial strain is related to other types of negative interaction that are not measured explicitly in the model. Finally, a significant relationship between stress and negative interaction may emerge if temporal issues in the stress process are taken into consideration. This means that significant others may be critical when a stressor first arises but subsequently offer support once they have expressed their opinion. Unfortunately, it is not possible to examine this temporal dimension with the measures that are available in this study.

Discussion

As the literature on stressful life events has evolved, researchers have devised increasingly complex models of the stress process (see George [1989] for a review of this research). Models that merely examined the direct impact of stress on well-being slowly gave way to more elaborate conceptual schemes in which the impact of life stress is mediated or buffered by a number of resources, including social support. The purpose of the present study was to further illuminate the intricacies of the stress process by probing more deeply into the relationship between stressful life events and supportive social relations.

The findings from this study suggest that there may be a number of important contingencies in what initially appears to be a relatively

straightforward relationship. In particular, the data indicate that the impact of stress on social support depends in part upon the specific stressor that is under consideration. While there is some evidence that recent deaths tend to foster greater support from significant others, there are even stronger indications that financial strain has the opposite effect and that older adults who are confronted by financial difficulty may actually receive less assistance from their social network members.

The data in the present study further reveal that it may be important to take the source of support into consideration. More specifically, the findings suggest that financial difficulty tends to erode emotional support from specific network members and that the pattern of loss involves the network members identified in Cantor's (1979) hierarchical compensatory model. It should be emphasized, however, that support for the compensatory model was found with respect to financial strain, but not recent deaths. Taken together, these findings suggest that Cantor's (1979) model may not be applicable to all types of stressful experiences. Further research on the identification of those circumstances in which the compensatory model does and does not apply may provide valuable insights into the stress process in later life.

The findings in this study are clearly tentative, and there are a number of limitations in the analyses presented above. Five of these shortcomings are examined briefly below: the data are cross-sectional; it was not possible to fully differentiate support provided by kin from assistance given by nonfamily members; only a limited number of stressors are examined in the conceptual model; only one type of assistance (emotional support) is assessed in this study; and there is some controversy over the nature of the phenomenon that is assessed by the emotional social support measures that are used in the model.

The temporal ordering among the constructs depicted in Figure 1 is based on theoretical considerations alone. For example, it is assumed in Figure 1 that changes in financial problems precede changes in emotional support. However, it is also possible that the initial lack of emotional support tends to exacerbate feelings of financial strain. Longitudinal data are clearly needed so that this as well as other causal assumptions can be subjected to rigorous empirical evaluation.

There is a growing body of research that suggests that there may be important differences in the amount and type of assistance that is provided by kin and nonfamily members. For example, research by

Krause et al. (1990) indicates that greater contact with kin (but not with friends) results in increased emotional support. Unfortunately, it was not possible to differentiate fully between support from family members and support from nonfamily members because of the way that the data were gathered for the present study. As discussed above, the third emotional support index combines data from other relatives and friends into the same measure. Future studies should gather data on support provided by other relatives and friends with separate measures.

Only two kinds of stressors are examined in the present study: financial strain and recent deaths. Although the analyses involving these stressors have provided some potentially useful insights into the stress process, further research is needed to examine a much wider range of stressful experiences. Within this context, it may be helpful to examine the difference between acute stressors and stressors that are persistent and ongoing in a more systematic fashion. For example, acute illness episodes may elicit increased emotional support whereas ongoing chronic illnesses may wear down the willingness and tax the ability of the social network members to provide this type of assistance. Stated simply, the duration and life course of a stressor may be an important determinant of the type and amount of assistance that is received by older adults during difficult times.

As noted earlier, only one type of assistance is examined in this study—emotional support. However, research indicates that social network members provide support in a variety of ways, including informational assistance and tangible aid. It may be useful to examine the impact of stress on multiple types of support. Such analyses may reveal, for example, that when financial difficulties arise, social network members tend to withdraw emotional support even though they continue to provide tangible assistance.

The model that is tested in this study specifies that stress may either increase or decrease the emotional support provided to older adults. Initially, it may appear as though a full assessment of this perspective requires that a researcher use an objective measure of emotional support that has actually been provided (i.e., a measure of enacted support). However, truly objective measures of enacted emotional support are difficult to devise, because it is hard to assess the amount of support that has been received independently of the subjective

perceptions of the respondent. In fact, Barrera (1986) notes that measures of enacted support may best be described as assessing "perceived-received" assistance.

Since the measures used in this study are determined at least in part by the subjective evaluations of the respondent, it is important to evaluate whether these perceptions are related to the actual amount of assistance that has been provided. To the extent that they are not, the model developed for this study will not have been tested fully. There are two ways to examine this issue. The first is to review the findings from those studies that have attempted to empirically evaluate the link between enacted and perceived support. The second way involves providing a clear theoretical rationale for why enacted and perceived support may be related.

Unfortunately, the literature on the empirical relationship between enacted and perceived support is equivocal. While some investigators fail to find a significant relationship between these constructs (see Barrera [1986] for a review of these studies), other researchers report that enacted and perceived support are highly correlated (e.g., Vinokur, Schul, and Caplan 1987; Vaux and Wood 1987; Krause et al. 1990).

Confusion over the determinants of perceived support is also evident in the theoretical discussions of how subjective evaluations of support arise. Essentially, there are two broad approaches to this issue. One group of researchers maintains that perceptions of support are determined largely by personality characteristics (e.g., Henderson, Byrne, and Duncan-Jones 1981). Although this issue has not been resolved fully, there is at least some evidence that the impact of enacted support on perceptions of support is stronger than the impact of certain personality traits (e.g., Vinokur et al. 1987; But see Sarason, Shearin, Pierce, and Sarason 1987).

Instead of merely reflecting personality traits, there is some evidence that perceived-received support measures may capture important elements of the social context in which the exchange of supportive behaviors takes place. Several key elements are identified in a recent article by Eckenrode and Wethington (1990). These researchers argue that timing is an important element of the social support process and that delays in a supporter's response may decrease the effectiveness of assistance when it is eventually provided. Eckenrode and Wethington further maintain that the most effectively functioning

support network may provide assistance automatically without either party being fully aware that a supportive transaction has taken place. As a consequence, specific supportive behaviors may not be recalled accurately. In contrast, perceived-received support measures may be more likely than indices of enacted support to assess the processes identified by Eckenrode and Wethington.

A final contextual factor that may be captured by measures of perceived-received support is identified by Wethington and Kessler (1986). These researchers point out that perceptions of support may reflect the receipt of actual supportive behaviors as well as offers of support that have been turned down by the respondent. Within the context of the present study, this means that a friend may have offered to come over to listen to a respondent talk about his/her problems, but the respondent felt that it was not necessary to do so. The offer (as opposed to the actual provision of support) may nevertheless constitute a form of resource mobilization that subsequently bolsters perceptions of emotional support.

Unfortunately, the data necessary to identify the determinants of perceived-received support are not available in this study. Consequently, the controversy surrounding the use of these measures must be kept in mind as the empirical results presented above are reviewed.

The findings from this study reveal that the process of soliciting and receiving assistance from others is by no means simple. At times, the task of modeling the interface between stress and social support seems overwhelming. Even so, the estimation of more elaborate conceptual models is necessary for the development of a knowledge base that not only captures the complexity of social behavior in later life, but that also provides the explicit guidance necessary for the development of effective intervention strategies.

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Neal Krause is an Associate Professor in the School of Public Health and an Associate Research Scientist in the Institute of Gerontology at the University of Michigan. He is currently working on two projects that have been funded by NIA which examine the interface between stress and social support in later life.

Gina Jay is a Postdoctoral Fellow in the Public Health and Aging Postdoctoral Program at the University of Michigan's School of Public Health. She is presently working on projects relating to survey methodology as well as the relationships among stress, social support, and health behavior.