

Negative Interaction in Late Life: Issues in the Stability and Generalizability of Conflict Across Relationships

Neal Krause¹ and Karen S. Rook²

¹Department of Health Behavior and Health Education, School of Public Health and Institute of Gerontology, University of Michigan, Ann Arbor.

²Program in Social Ecology, University of California, Irvine.

This study used an inductive approach to probe more deeply into the nature of negative interaction in late life. The data come from a nationwide longitudinal survey of older adults ($N = 515$). We began with two empirical observations and derived theoretical propositions from them that have not been explored extensively in mainstream gerontological research on negative interaction. First, the findings reveal that unpleasant interaction is quite stable over a 6-year period. This suggests that interpersonal difficulties are chronic stressors that may arise because at least some older people are involved in conflicted relationships that are difficult to terminate. The second empirical finding reveals that older adults who encounter interpersonal problems in one social relationship (e.g., with children) tend to encounter them in others as well (e.g., with friends). This suggests that some older people may play a role in creating the negative interactions they encounter.

A growing number of studies have indicated that negative interaction erodes health and feelings of well-being in late life (Finch, Okun, Barrera, Zautra, & Reich, 1989; Okun & Keith, 1998; Pagel, Erdly, & Becker, 1987; Rook, 1984). *Negative interaction* refers to unpleasant social encounters that are characterized by criticism, rejection, competition, the violation of privacy, and the lack of reciprocity (Krause & Jay, 1991; Rook, 1984). Ineffective helping and excessive helping are subsumed under the broad rubric of this construct as well (Coyne, Wortman, & Lehman, 1988).

Research tends to show that unpleasant encounters with social network members exert a more substantial impact on health-related outcomes than does beneficial social interaction (Okun & Keith, 1998; but see Finch, Okun, & Ruehlman, 1999). Given these findings, a special emphasis should be placed on exploring the causes as well as the consequences of negative interaction in late life. Although investigating the health-related impact of unpleasant social interaction is important, we believe that greater attention should be devoted to deriving theoretical explanations for why or how the noxious effects of negative social encounters arise. Unfortunately, there has been relatively little effort in this direction in the mainstream gerontology literature. Instead, most research in this area has focused on younger adults (e.g., Lakey, Tardiff, & Drew, 1994).

The purpose of this study was to present two ways of explaining why some older adults are more likely than others to report negative social encounters. In the process, we provide preliminary tests of these specifications.

The discussion that follows is divided into three main sections. We begin by developing the theoretical underpinnings of the study. We then introduce the sample and survey measures. Finally, we present and discuss results obtained from a recent nationwide survey of older people.

THEORETICAL UNDERPINNINGS

Researchers have historically followed one of two well-known approaches to construct psychosocial theories. Adherents of the first approach begin with broad theoretical principles

about human behavior and deduce specific hypotheses from them. This approach is exemplified in the literature on negative interaction by Lakey and his colleagues (Lakey et al., 1994). They explained the deleterious effects of negative interaction by turning to long-standing social psychological principles about the genesis of self-esteem. Consistent with the classic insights of Cooley (1902) and others, these investigators maintained that unpleasant interaction (especially criticism) represents a form of negative feedback about the self that is internalized by a focal person. According to this perspective, these negative evaluations subsequently erode feelings of self-worth and ultimately promote psychological distress.

In contrast to the deductive approach to theory construction, another strategy involves the use of specific empirical observations to derive more general theoretical propositions. In this approach, empirical observation precedes the development of theoretical explanations. The work of Nezlek (1993) illustrates this inductive approach to theory construction in the social support literature. He began by estimating the stability of positive social interaction in same-sex and opposite-sex dyads. Then, on the basis of this empirical data, Nezlek (1993) derived a theoretical explanation of the stability of positive interaction that focuses on the relative influence of social norms and individual differences.

We follow the inductive approach to devising theoretical explanations of negative interaction in late life. We began with two empirical findings that have received limited attention in studies of older adults and extracted more general principles from them to show why some older people are likely to experience negative interaction. The first involves the stability of negative interaction over time, whereas the second is concerned with the correlation among measures designed to assess negative interaction in specific social relationships (e.g., negative interaction with a spouse and negative interaction with children).

Stability of Negative Interaction

Several investigators have reported remarkably high correlations between identical measures of interpersonal difficulty

over time. These stability estimates are noteworthy because they suggest that negative interaction may be a relatively persistent and ongoing problem. Evidence of this may be found, for example, in Wheaton's (1990) study of stress and well-being. Over a 2-year period, he found correlations above .70 for identical measures of marital problems and parental problems, respectively. Moreover, his work revealed a correlation of .99 between identical measures of premarital relationship problems during the same time period. Similarly, Pagel and colleagues (1987) indicated that the stability (as assessed by the correlation coefficient) of negative interaction over a 12-month period was .68.

Although the findings from these studies are intriguing, the theoretical implications of this work have not been fully explored. In particular, these correlations have been presented to provide information on the stability of negative interaction measures, but the substantive implications of these findings have not been closely examined. The long-term nature of some kinds of negative social exchanges has received some attention in the literature on family (e.g., Billings & Moos, 1982; D. H. Olson, Lavee, & McCubbin, 1988) and marital interaction (e.g., Gottman, 1994), but this issue is not addressed often in the broader gerontological literature on the health-related effects of negative interaction.

In addition to these theoretical issues, this work typically suffers from methodological problems as well. More specifically, most studies have not focused on representative samples of older people. For example, Wheaton's (1990) study focused on individuals from all age groups, and the study by Pagel and colleagues (1987) was concerned solely with caregivers. As a result, it is hard to tell whether these findings can be generalized to the typical older person. The estimates of stability in the literature have, as well, typically been derived from bivariate correlation coefficients. Researchers have known for some time that bivariate correlations underestimate the stability of constructs because these statistics are subject to attenuation due to measurement error (Bollen, 1989).

The first goal of the present study, accordingly, was to evaluate the stability of identical measures of negative interaction over time using data provided by a nationally representative sample of older people. In the process, we used latent variable modeling procedures to address the limitations arising from the use of bivariate correlation coefficients (Bollen, 1989). Finally, and most important, we sought to develop a theoretical rationale for evaluating the stability of negative interaction over time.

We suspect that the high stability of negative interaction reflects the possibility that at least some older adults become involved in unhealthy or conflicted relationships that are difficult to terminate. Carstensen's (1992) theory of socioemotional selectivity provides one explanation for how this may happen. She argued that as people age, they tend to extricate themselves from peripheral social relationships, resulting in networks consisting of a smaller number of core ties that presumably provide greater rewards. It is important to note that these core network members are more likely to be kin than friends. Although this may reflect the fact that family members often provide valued support and companionship, the preponderance of family members in the networks of older adults may also be due to the fact that ties with kin are difficult to

sever. Family ties are involuntary and based on a sense of obligation (Litwak, 1981). In contrast, friendship ties can be dissolved with greater ease because they are entered into voluntarily. Because family relationships cannot be terminated easily, conflict arising within them may be fairly stable over relatively long periods of time. This does not mean that family ties are always conflict ridden or otherwise nonrewarding; instead, it merely suggests one reason why negative interactions experienced by older adults may tend to be persistent and ongoing (i.e., chronic).

Morgan (1989) provided empirical support for the notion that family members are more likely than friends to be a source of negative interaction in late life. His qualitative study of elderly widows revealed that, compared with interaction with friends, social interaction with family members is more likely to be described in negative terms. Other research has documented the existence of family conflict in late life as well (Clarke, Preston, Raskin, & Bengston 1999; Fingerman, 2001; Johnson & Catalano, 1983), and the clinical literature on family therapy has offered suggestions for dealing with such conflict (Hargrave & Anderson, 1992). It is especially important to point out that some of this work emphasizes the chronic and pernicious nature of family conflict in late life. For example, Hargrave and Anderson (1992) noted in this regard that "years of unresolved family conflict . . . are present in force with an aging family in therapy" (p. 43).

The persistent nature of negative interaction with some social network members suggests that it may be useful to think of unpleasant social encounters as a form of chronic strain (Gottlieb, 1997). In fact, Pearlin (1989) proposed this explicitly. On the basis of his research in the life stress field, he argued that "interpersonal conflicts . . . are the type of chronic strain reported most often" (p. 245). Viewing negative interaction in this way creates research opportunities that have not been fully explored in the gerontological literature. For example, research by Brown and Harris (1978) has suggested that long-term interpersonal difficulties may affect health and well-being by promoting a sense of hopelessness. Similarly, chronic life strain has been found to make older adults more fatalistic and less certain of their ability to control their lives (Krause, 1987), thereby increasing their susceptibility to emotional and physical health problems (Rodin, 1986; Rowe & Kahn, 1998). Finally, as Gottlieb (1997) pointed out, prolonged periods of watchfulness, vigilance, and hyperarousal caused by ongoing problems may erode the physical and psychological resources necessary to maintain good health. We are unaware of any studies assessing the relationship between unpleasant social interaction and the loss of hope, control, and hyperarousal. Nevertheless, exploring these linkages may represent a useful point of departure for explaining how the noxious effects of ongoing negative interaction arise.

Negative Interaction Across Social Relationships

Most research on negative interaction in the mainstream gerontological literature has focused on measures that assess conflict in social networks taken as a whole. In contrast, less work has been done on negative interaction in specific social relationships. This is unfortunate because descriptive data from one study provide the basis for deriving some interesting theoretical explanations for the genesis of negative interaction

in late life. More specifically, Okun and Keith (1998) reported fairly substantial intercorrelations among the following relationship-specific measures of negative interaction: negative interaction with a spouse and negative interaction with children ($r = .40$), negative interaction with children and negative interaction with other relatives and friends ($r = .29$), and negative interaction with a spouse and negative interaction with other relatives and friends ($r = .38$). However, as noted earlier, bivariate correlation coefficients are likely to be attenuated by the effects of measurement error. More important, Okun and Keith did not consider the theoretical implications of their results. As the discussion provided below reveals, we suspect that considering the meaning of such substantive associations can yield valuable insights into the nature and functioning of negative interaction that have not been explored extensively in the gerontological literature.

In reading research in the field, one gets the impression that negative interaction is always initiated by others—it is something that other people do to older adults. In contrast, there is relatively little discussion of the possibility that some of the responsibility for unpleasant interaction may reside with the older person. One exception to this may be found in research by Vinokur and Vinokur-Kaplan (1990). These investigators asked older married persons about the negative behaviors their spouses exhibited toward them as well as the negative behaviors they exhibited toward their spouses. The findings revealed that instead of regarding themselves as the target of negative interaction, both husbands and wives reported they were more likely to instigate unpleasant encounters with their partner.

There are three closely related reasons why older adults may initiate unpleasant social interaction. The first has to do with depression, the second involves personality traits, and the third is concerned with social skills.

A number of studies have revealed that depressed individuals appraise social interaction more negatively than nondepressed persons (Gotlib & Meltzer, 1987; Pietromonaco, Rook, & Lewis, 1992). This is important because emotional problems, such as depression, may provoke negative responses from significant others (Coyne, 1976; Murphy, 1985). This problem is captured succinctly in Coyne's interpersonal theory of depression. He posited that family members and friends of depressed individuals initially respond with concern and support. However, significant others may eventually become frustrated and fatigued as the depression persists, leading them to withdraw from or become critical of the depressed person. The fact that much, but not all, depression is recurring could help explain why older adults may report encountering negative interaction across a number of different social relationships. It is important to point out, however, that much of the research on depression and negative interaction has focused exclusively on younger people.

Personality traits may also contribute to the interpersonal problems that some older adults encounter. More specifically, the personality trait of agreeableness is associated with less social conflict (Finch & Graziano, 2001), and neuroticism has been linked to more interpersonal problems (Gunther, Cohen, & Armeli, 1999). However, research that has sought to investigate the role of individual differences in interpersonal stress has also largely been based on younger adults.

Finally, to keep a relationship functioning smoothly, both parties must possess reasonable social skills. Included among

these social skills are empathy, the ability to take the role of the other, and problem-solving skills. Variability in social skills has been documented in studies of older adults (Hansson & Carpenter, 1990; Hogg & Heller, 1990), and social skills have, in turn, been linked to the quality of social relationships in late life (Hansson & Carpenter, 1990). Viewed broadly, this research has suggested by extension that limited social skills may play a role in promoting negative social exchanges that occur across multiple relationships (Davila, Hammen, Burge, Daley, & Paley, 1996).

The following steps would provide a preliminary test of the notion that older adults may play a role in promoting negative interaction. First, negative interaction would have to be assessed within specific social relationships (e.g., a spouse and a child). Then, the relationship-specific measures would be correlated. If individual differences contribute to negative interaction, then older people who have interpersonal problems in one relationship should encounter them in others as well. This strategy is followed in the analyses presented below.

METHODS

Sample

The data for this study came from a recent nationwide survey of older adults. Altogether, three waves of data have been collected. When the Wave 1 data were gathered, the study population was defined as all household residents who were non-institutionalized, English speaking, 65 years of age or older, and retired (i.e., not working for pay). Geographically, the study population was restricted to all eligible persons residing in the coterminous United States (i.e., residents in Alaska and Hawaii were excluded).

The sampling frame consisted of all eligible persons contained in the Health Care Financing Administration (HCFA) Medicare Beneficiary Eligibility List. This list contains the name, address, sex, and race of virtually every older person in the United States. It should be emphasized that older people are included in this list even if they are not receiving Social Security benefits. Even so, two groups of older adults are not included in this database: those who do not have a Social Security number (this may be due to factors such as illegal immigration) and those who are at least 100 years of age (HCFA does not release the names of these individuals).

A three-step process was used to draw the sample. First, 5% of the names in the master file maintained by HCFA were selected with a simple random sampling procedure. Next, 110 counties across the coterminous United States were identified as primary sampling units (PSUs). These PSUs were selected with probability proportionate to the number of persons who were retired and at least 65 years of age. Following this, eligible persons were selected at random from each PSU. Approximately 10 individuals were selected from each PSU, but some counties (e.g., Dade County, Florida) were oversampled because they contained a disproportionately large number of older adults.

Face-to-face interviewing for the Wave 1 survey took place during 1992–1993. The data were collected by Louis Harris and Associates. A total of 1,103 interviews were completed successfully. The response rate for the Wave 1 survey was 69%.

Table 1. Study Measures

1. Global negative interaction (Waves 1 and 3) ^a
How often have you felt that others have made too many demands on you?
How often have you felt that those around you tried to pry into your personal affairs?
How often have you felt that others took advantage of you?
2. Negative interaction with children (Wave 2) ^b
Your children are critical and disapproving.
Your children expect too much of you.
3. Negative interaction with other relatives (Wave 2) ^b
Your other relatives are critical and disapproving.
How often do your other relatives expect too much from you.
4. Negative interaction with friends (Wave 2) ^b
Your friends are critical and disapproving.
Your friends expect too much of you.
5. Negative interaction with a spouse (Wave 2) ^c
My (husband/wife) insists on having (his/her) own way.
My marriage doesn't give me enough opportunity to become the sort of person I would like to be.
My spouse doesn't treat me as well as I deserve to be treated.
6. Depressed affect (Wave 1) ^d
I felt depressed.
I had crying spells.
I felt sad.

^aThese items were coded in the following manner: very often (4), fairly often (3), once in a while (2), and never (1).

^bThese items were coded in the following manner: always (4), often (3), sometimes (2), and never (1).

^cThese items were coded in the following manner: agree strongly (4), agree somewhat (3), disagree somewhat (2), and disagree strongly (1).

^dThese items were coded in the following manner: most or all of the time (4), occasionally or a moderate amount of the time (3), some or a little of the time (2), and rarely or none of the time (1).

During 1996–1997, a second wave of data was gathered from the older people who participated in the Wave 1 survey. A total of 605 older adults were reinterviewed successfully. Excluding those who had either died or moved to a nursing home, the reinterview rate for the Wave 2 survey was 77%.

Finally, a third wave of interviews were conducted during 1998–1999. The disposition of the sample at Wave 3 is as follows: reinterviewed successfully, $n = 530$; deceased, $n = 249$; moved to a nursing home, $n = 31$; refused to be reinterviewed, $n = 89$; could not be located, $n = 85$; and too ill to participate, $n = 119$. Excluding those who had either died or moved to a nursing home, the reinterview rate at Wave 3 was 64% of those participating at Wave 1.

After using listwise deletion of missing values to deal with item nonresponse, the number of cases used in the analyses presented below ranged from 262 to 515. On the basis of the subset of 515 respondents, preliminary analyses revealed that the average age of the participants in this study at Wave 1 was 72.06 years ($SD = 5.47$ years). Approximately 40% were men. These older adults indicated at Wave 1 that they had successfully completed an average 11.40 years of schooling ($SD = 3.38$ years). Approximately 62% of these study participants were married at Wave 1. Finally, 91% of the respondents were White. These descriptive statistics, as well as the findings presented later, were based on weighted data.

Measures

Table 1 contains the measures that were used in this study. In addition, the procedures used to code these indicators are provided in the footnotes of the table. The correlations, means, and standard deviations of the study measures are contained in the Appendix.

Global negative interaction.—*Global negative interaction* is defined in this study as unpleasant social encounters that arise within a social network taken as a whole. In other words, this construct does not reflect negative interaction within the context of specific relationships. Consistent with the theoretical rationale provided earlier, these global measures are used to evaluate the stability of unpleasant social contacts over time. Measures from the first and third waves of interviews of this study were selected for this purpose because they provided the longest between-round interval (6 years). Focusing on the longest available time period is important because the longer relationship problems remain in force, the more likely it is that they reflect the inability of older people to extricate themselves from problematic social ties.

As shown in Table 1, the global measures used in this study assess how often older persons feel that others make too many demands on them, try to pry into their affairs, and try to take advantage of them. A high score denotes greater negative interaction. It should be emphasized that identical measures were obtained in the Wave 1 and Wave 3 interviews. Scores on these negative interaction measures ranged from 3 to 12.

Negative interaction with children, other relatives, and friends.—We also examined measures of unpleasant interaction with children, other relatives (i.e., spouse, children, and grandchildren are excluded), and friends in this study. As shown in Table 1, the same questions were asked about negative interaction within each of these relationships. This means, for example, that the older adults in our study were asked how often their children were critical or disapproving of them and how often their children expected too much of them. The same questions were then repeated for other relatives and friends. These indicators came from the Wave 2 survey because they were not administered during the Wave 1 interviews. A high score on these measures stands for greater negative interaction. Scores on the role-specific measures of negative interaction ranged from 2 to 8.

Consistent with the theoretical rationale presented earlier, a series of t tests (not shown in Table 1) revealed that negative interaction is more likely to be encountered with family than with friends. More specifically, these preliminary data suggested that unpleasant social interaction is more likely to arise with children and other family members than with friends ($ps < .001$ and $.005$, respectively).

Negative interaction with a spouse.—We also included three indicators in this study to assess interpersonal conflict with a spouse. These measures were taken from the work of Pearlin and Schooler (1978). A high score on these items indicates greater marital conflict. Scores on the measure of negative interaction with a spouse ranged from 3 to 15.

Depressive symptoms.—According to the theoretical rationale developed earlier, negative interaction will tend to be more chronic or persistent among older adults with elevated levels of depressive symptoms. A brief measure of depressive symptoms was included in the present study to provide a preliminary test of this perspective. Three indicators assessing depressed affect were taken from the Center for Epidemiologic Studies–Depression scale (Radloff, 1977; see Table 1). A high score on these indicators denotes more depression.

RESULTS

The findings from this study are presented in four main sections. We begin by examining the potential impact of sample attrition on the study results. Following this, the analyses involving the stability of negative interaction are presented. We then examine the correlations among the relationship-specific measures of unpleasant social contact with children, other relatives, and friends. Finally, we present the analyses involving negative interaction with a spouse.

Effects of Sample Attrition

As noted earlier, a number of respondents did not participate in all three waves of interviews. The loss of respondents over time may bias study findings if those who remain in the study differ significantly from those who are lost to follow-up. Although it is difficult to determine the extent of this problem precisely, some preliminary insight may be obtained by using data from earlier waves of interviews to see if those who were lost to follow-up differed significantly from those who participated in the Wave 3 interviews (see Norris, 1985, for a detailed discussion of this approach).

We performed three sets of analyses to examine the potential effects of sample attrition. The first set was designed to assess the effects of sample attrition on the analyses involving the stability of global negative interaction over time. These analyses involved data from the Wave 1 and Wave 3 surveys. The following procedures were used to implement this strategy. First, a binary outcome measure was computed by assigning a score of 1 to all participants who were lost to follow-up and a score of 0 to all who took part in the Wave 3 survey. Then, using logistic regression, this binary outcome was regressed on the following measures from the Wave 1 interviews: age, sex, education, marital status (1 = married at Wave 1; 0 = otherwise), race (1 = White; 0 = all other races), and the Wave 1 measure of global negative interaction. If any of the Wave 1 measures were related significantly to the binary outcome variable, then it would be reasonable to conclude that sample attrition did not occur in a random manner.

Findings from the logistic regression analysis revealed that respondents who were lost to follow-up were more likely to be older, male, less educated, and non-White. This pattern of participant attrition has been observed in other longitudinal surveys (Groves, 1989). However, the Wave 1 measure of global negative interaction was not significantly related to attrition status at Wave 3.

As reported earlier, the relationship-specific measures of negative interaction were administered for the first time at Wave 2. Therefore, the findings involving these indicators may

be biased if older adults with more relationship-specific problems dropped out of the study by Wave 3. To explore this possibility, the second set of sample attrition analyses were performed with the same binary outcome measure that was used previously (1 = lost to follow-up at Wave 3; 0 = otherwise). But in this case, the binary dependent variable was regressed on the following Wave 2 study measures: age, sex, education, marital status (1 = married at Wave 2; 0 = otherwise), race, global negative interaction, negative interaction with children, negative interaction with other relatives, and negative interaction with friends.

The results from the second set of sample attrition analyses indicated that people who dropped out of the study between Waves 2 and 3 were more likely to be older and were more likely to report higher levels of negative interaction with their children. However, negative interaction with other relatives and interpersonal conflict with friends were not related to sample attrition over time, nor were any of the other demographic variables.

As discussed above, measures of negative interaction with a spouse at Wave 2 were also examined in this study. However, preliminary data analyses revealed that only 50% of the respondents were married at Wave 2. Including negative interaction with a spouse along with the other role-specific measures of negative interaction reduced the sample size from 515 to 262. Therefore, the attrition analyses involving role-specific measures of negative interaction were conducted a third time, focusing on the subgroup of study participants who were married at Wave 2. The following Wave 2 independent variables were included in this final pass through the data: age, sex, education, race, global negative interaction, negative interaction with family, negative interaction with other relatives, negative interaction with friends, and negative interaction with one's spouse. The findings revealed that those who were lost to follow-up between Waves 2 and 3 were more likely to be older and were more likely to report having negative interaction with their children. In contrast, neither negative interaction with a spouse nor any of the other remaining independent variables were related to sample attrition over time.

Viewed broadly, the results from the three sets of sample attrition analyses revealed that the loss of respondents over time did not occur randomly. The potential effects of this non-random attrition should be kept in mind as the substantive findings from the study are reviewed.

Stability of Negative Interaction

We assessed the stability of global negative interaction scores over time within a latent variable modeling framework (see Bollen, 1989). In particular, we estimated a simple model that contained only two latent constructs: negative interaction at Wave 1 and negative interaction at Wave 3. This model was estimated with the LISREL software program (Version 8.30; Jöreskog, Sörbom, du Toit, & du Toit, 1999). The model is depicted graphically in Figure 1.

The results from these analyses are presented in four sections. Assessing the stability of a construct over time requires that a series of nested models be estimated. First, we review the findings from these nested models. Second, we evaluate the psychometric properties of the negative interac-

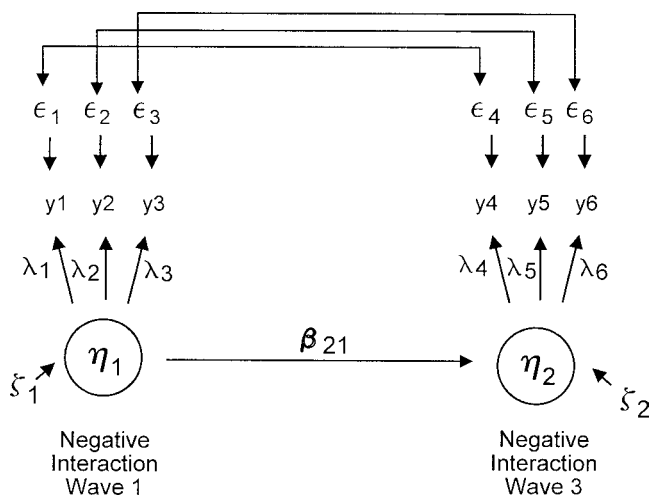


Figure 1. Assessing the stability of global negative interaction over time.

tion measures. Third, we review data on the stability of global negative interaction scores over time. Finally, we examine the relationship between depressive symptoms and negative interaction.

Nested model testing.—When longitudinal data are analyzed, a series of additional concerns must be addressed that are not encountered in cross-sectional studies. Two of these issues are addressed below. The first involves factorial invariance over time; the second concerns autocorrelated measurement error. These tests are listed in the footnotes to Table 2.

We assess the stability of negative interaction over a 6-year period. It is possible that during this time the nature or meaning of the negative interaction items may change because study participants come to view these questions in a different light. This complicates the interpretation of the stability estimate because the same phenomenon is not being evaluated in each wave of interviews. Consequently, researchers must address this problem of factorial invariance over time (see Bollen, 1989, for a more detailed discussion of this issue).

Fortunately, the extent of this problem can be evaluated empirically by focusing on the elements of the measurement model (i.e., the factor loadings and measurement error terms). The coefficients in the measurement model are estimated from a covariance or correlation matrix. If respondents answer the negative interaction items in the same way at both points in time, then the correlations among the items should be the same at both waves of interviews. To the extent that this is true, the factor loadings and measurement error terms derived from these coefficients should also be the same (i.e., invariant) over time.

Tests for factorial invariance are performed by estimating three models sequentially. First, a model is estimated in which all parameters in the measurement model are allowed to vary freely over time (this is Model 1 in Table 2). This provides a baseline that can be used to evaluate the utility of the remaining models. In Model 2, the factor loadings associated with the negative interaction items are constrained to be equivalent over time. If this equality constraint does not change the fit of the model to the data significantly, it is left in force

Table 2. Goodness-of-Fit Measures for Hierarchical Tests

Model	χ^2	df	χ^2 Change	Bentler NFI	Bollen IFI	Tucker-Lewis
1 ^a	93.276	8	—	.943	.948	.901
2 ^b	95.582	10	2.306	.941	.947	.921
3 ^c	99.038	13	3.456	.939	.947	.939
4 ^d	19.960	10	79.078***	.988	.994	.991

Note: NFI = normed fit index (Bentler & Bonett, 1980); IFI = incremental fit index (Bollen, 1989); Tucker-Lewis = Tucker-Lewis coefficient (Tucker & Lewis, 1973).

^aBaseline model—no equivalence constraints imposed over time.

^bFactor loadings constrained to be equivalent over time.

^cMeasurement error terms constrained to be equivalent over time.

^dTests for autocorrelated measurement error.

*** $p < .001$.

when the third model is evaluated. In the third model (Model 3), the measurement error terms associated with the negative interaction items are constrained to be equal over time. If both the factor loadings and measurement error terms are invariant, one can conclude that the indicators are measuring the same phenomena and that the negative interaction items mean the same thing to respondents at both waves of interviews.

Goodness-of-fit data from the tests of the nested models are shown in Table 2. As the data in this table reveal, the fit of the baseline model to the data was good. For example, the Bentler-Bonett normed fit index (NFI; Bentler & Bonett, 1980) estimate of .943 exceeds the recommended cutpoint of .900 (see Model 1). But more important, as the data in this table indicate, constraining the factor loadings to be equivalent over time did not change the fit of the model to the data significantly (see Model 2). Evidence of this may be found by examining the change in chi-square goodness-of-fit values from Model 1 to Model 2, $\Delta\chi^2(2) = 2.306, ns$. We therefore concluded that the factor loadings were invariant over time and left this equality constraint in place when estimating Model 3.

The test of Model 3 suggests that the measurement error terms were also invariant over time. In particular, the change in fit from Model 2 to Model 3 is not statistically significant, $\Delta\chi^2(3) = 3.456, ns$. Taken together, the analyses presented up to this point indicated that the meaning of the negative interaction items had not changed significantly over time and the elements of the measurement model were invariant. This allowed us to place greater confidence in the substantive estimates provided below.

Returning to Table 2, a final model was estimated to test for the presence of autocorrelated error over time (Model 4). As Bollen (1989) pointed out, measurement error terms are typically assumed to capture the effects of random measurement error. However, it is likely that systematic measurement error is present as well, reflecting either the influence of methodological factors or the impact of unmeasured substantive constructs on the observed study measures. If the observed indicators are affected by systematic error, then the measurement error terms associated with the same item over time will be correlated. Tests for this autocorrelated error are important because, as Kenny and Campbell (1989) pointed out, ignoring this issue results in a “serious overestimation of the standardized stability” (p. 454). Model 4 was estimated to help us avoid this problem. Here, the measurement error terms for identical negative interaction items over time were allowed

to correlate freely. As shown in Table 2, this improved the fit of the model to the data substantially, $\Delta\chi^2(3) = 79.078, p < .001$.

On the basis of the series of nested analyses presented in Table 2, the final model (Model 4) provided the best fit of the model to the data and was, therefore, used to determine the stability of negative interaction over time. The fit of this final model to the data was good. The Bentler-Bonett NFI value of .988 is quite close to the target value of 1.0 (Bentler & Bonett, 1980). Similarly, the Tucker-Lewis coefficient (.991; Tucker & Lewis, 1973), as well as Bollen's (1989) incremental fit index value (.994), are close to the recommended cutpoint value of 1.0 as well.

Psychometric properties of observed indicators.—The factor loadings and measurement error terms associated with the negative interaction measures are presented in Table 3. These data are important because they provide preliminary information about the psychometric properties of observed indicators. Although there are no firm guidelines in the literature, experience suggests that factor loadings in excess of .400 tend to have reasonably good reliability and validity. As the data in Table 3 reveal, the standardized factor loadings range from .742 to .879. These estimates indicate that the measures used in this phase of our study are adequate.

Although the factor loadings and measurement error terms associated with each observed indicator provide useful information about the reliability of each item, it would be helpful to know something about the reliability of the composite measures of negative interaction as well. Fortunately, it is possible to derive these estimates with a formula provided by Rock, Werts, Linn, and Jöreskog (1977). Applying this formula to the data provided in Table 3 indicated that the reliability of the negative interaction composite at Wave 1 (.855) and Wave 3 (.852) was good.

Stability of negative interaction.—The data derived from estimating Model 4 indicate that negative interaction was fairly stable over the 6-year course of this study ($\beta = .569, p < .001, b = .562$; not shown in Table 3). Moreover, the findings further reveal that the Wave 1 measure of negative interaction explained 32% of the variance in unpleasant social encounters at Wave 3. Viewed in more substantive terms, these results indicate that older people who encountered interpersonal problems at Wave 1 were reasonably likely to report problems with significant others 6 years later at Wave 3. This is consistent with the notion that negative interaction tends to be a relatively continuous and ongoing problem in the lives of some older people.

Influence of depressive symptoms.—The nested models discussed above were reestimated after the Wave 1 measure of depressive symptoms was added to the model. As in the previous analyses, the findings suggest that the elements of the measurement model were invariant over time (a table containing these findings is available from Neal Krause). The fit of the final model to the data, $\chi^2(27) = 197.767, p < .001$, was acceptable. More specifically, the Bentler-Bonett NFI value of .933 is reasonably close to the ideal value of 1.0. In addition, the Tucker-Lewis coefficient (.918; Tucker & Lewis,

Table 3. Measurement Model Estimates—Global Negative Interaction

Construct/Item	Factor Loading	Measurement Error
1. Negative interaction (Wave 1)		
Too many demands	.814 ^a (1.000) ^c	.338 ^b (.340) ^d
Pry into affairs	.746 (0.920)	.444 (.450)
Took advantage	.879 (1.088)	.228 (.232)
2. Negative interaction (Wave 3)		
Too many demands	.811 (1.000)	.343 (.340) ^e
Pry into affairs	.742 (0.920) ^e	.449 (.450) ^e
Took advantage	.877 (1.088) ^e	.232 (.232) ^e
3. Correlated error over time		
Demands, Wave 1, and Demands, Wave 3	.016 ^f (0.016)	
Affairs, Wave 1, and Affairs, Wave 3	.117 (0.117)	
Advantage, Wave 1, and Advantage, Wave 3	.112 (0.112)	

^aStandardized factor loading.

^bStandardized measurement error term.

^cMetric (unstandardized) factor loading. All factor loadings were significant at the .001 level.

^dMetric (unstandardized) measurement error term. Unless noted otherwise, all measurement error terms were significant at the .001 level.

^eMetric Wave 3 parameter estimate constrained to equal metric Wave 1 estimate.

^fMeasurement error estimate not significant at the .05 level.

1973) as well as Bollen's (1989) incremental fit index (.941) were also close to the recommended cutpoint value of 1.0. Following the procedures outlined in the previous section, we estimated the reliability of the composite depressive symptom measure as .905.

The bivariate findings from the latent variable model revealed that depressive symptoms were correlated significantly with negative interaction at Wave 1 ($r = .313, p < .001$) and negative interaction at Wave 3 ($r = .263, p < .001$). Moreover, the multivariate results suggested that, controlling for negative interaction at Wave 1, the relationship between baseline depressive symptom scores and interpersonal conflict at Wave 3 was also statistically significant ($\beta = .094, p < .05$). This coefficient reveals that high levels of depressive symptoms at the Wave 1 interview were associated with an increase in negative interaction over time. Taken together, the results presented in this section are consistent with the notion that negative interaction tends to be more chronic or persistent among older adults who have elevated levels of depressive symptoms.

Negative Interaction With Children, Other Relatives, and Friends

Correlations among the following relationship-specific measures of negative interaction were also evaluated within a latent variable modeling framework: negative interaction with children, other relatives, and friends. More specifically, this model contained three latent constructs, one for each category

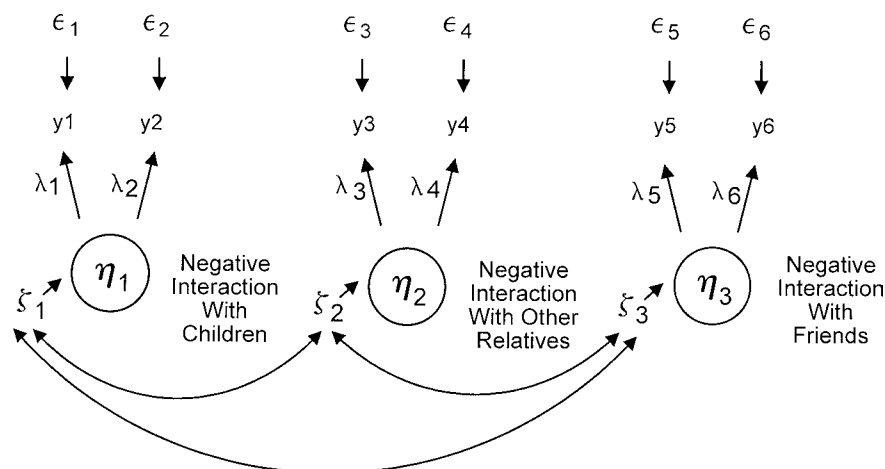


Figure 2. Assessing the cross-sectional associations between relationship-specific measures of negative interaction.

of social relationships. This model is depicted graphically in Figure 2. It should be emphasized that, unlike the analyses in the previous section, the model assessing the associations among the relationship-specific measures of negative interaction is performed with cross-sectional data.

The findings derived from estimating this model are presented below in three sections. First, the fit of the model to the data is examined. Following this, the psychometric properties of the measures are reviewed briefly. Finally, the correlations among the three role-specific measures of unpleasant social interaction are reported.

Fit of the model to the data.—When the model that was designed to estimate the relationships among the role-specific measures of negative interaction was first estimated, the fit to the data was not good, $\chi^2(6, N = 505) = 190.764, p < .001$. In particular, the Bentler-Bonett NFI value (.893; Bentler & Bonett, 1980), the Tucker-Lewis coefficient (.740; Tucker & Lewis, 1973), and Bollen's (1989) incremental fit index (.897) were all below the recommended cutpoint values for these indices. However, an examination of the standardized residuals indicated that the fit of the model to the data could be improved significantly if the measurement error term associated with the item dealing with excessive expectations by children and excessive expectations by other relatives was allowed to correlate freely. The correlation of this error term may reflect the presence of a methods factor arising from the fact that these indicators deal with the same facet of negative interaction. Estimating this coefficient explicitly makes it possible to statistically remove the effects of this potential methods factor from the resulting substantive findings.

The latent variable model was reestimated after allowing the measurement error terms discussed above to correlate freely. This resulted in a substantial improvement in the fit of the model to the data, $\chi^2(5, N = 505) = 48.644, p < .001$; $\Delta\chi^2(1) = 142.12, p < .001$. More specifically, the Bentler-Bonett NFI (.973; Bentler & Bonett, 1980), the Tucker-Lewis coefficient (.926; Tucker & Lewis, 1973), and Bollen's (1989) incremental fit index (.976) all reached acceptable levels.

Psychometric properties of the observed indicators.—Table 4 contains the factor loadings and measurement error terms that were derived from estimating the model of role-specific negative interaction. The factor loadings ranged from .611 to .998, suggesting that the individual observed indicators had acceptable psychometric properties. This is further illustrated by the following reliability estimates for each two-item composite that were derived with the procedures provided by Rock and colleagues (1977): negative interaction with children, .749; unpleasant social encounters with other relatives, .893; and interpersonal problems with friends, .897.

Substantive findings.—Consistent with the data provided by Okun and Keith (1998), the findings from our study reveal that older adults who have problems with some relationships tend to also have problems with other relationships. More specifically, the following correlations were observed among the three latent variables representing role-specific negative interaction: negative interaction with children and negative interaction with other relatives, $r = .618 (p < .001)$; negative interaction with children and negative interaction with friends, $r = .539 (p < .001)$; and negative interaction with other relatives and negative interaction with friends, $r = .553 (p < .001)$.

Negative Interaction With a Spouse

The final model to be estimated in this study focused on the relationships among negative interaction with children, other relatives, friends, and one's spouse. Because half (i.e., 50%) of the participants were married when the marital strain measures were administered, this final model was restricted to a subset of participants in this study ($n = 262$). The fit of the model to the data, $\chi^2(18, N = 262) = 110.002, p < .001$, was mixed. More specifically, the Bentler-Bonett NFI (Bentler & Bonett, 1980) estimate of .926, as well as Bollen's (1989) incremental fit index value of .937, are close to the recommended cutpoint of 1.0 for these measures. But the value of the Tucker-Lewis coefficient (.873; Tucker & Lewis, 1973) was somewhat low.

The standardized factor loadings in the model ranged from .646 to .934 (a table containing the measurement model

estimates is available from Neal Krause). The factor loadings for the marital strain measure were as follows: .646, .749, and .892. On the basis of the formula provided by Rock and associates (1977), the reliability estimate for the composite marital negative interaction measure was .810.

The results provided by the model assessing negative interaction with a spouse are consistent with the substantive findings in the previous section. More specifically, the data revealed that older adults who are married and encounter negative interaction with their spouse also tend to have interpersonal problems with their children ($r = .363$, $p < .001$), other relatives ($r = .319$, $p < .001$), and friends ($r = .416$, $p < .001$).

DISCUSSION

The purpose of this study was to draw on two sets of empirical findings to generate broader propositions about the stability and extent of negative social interaction in late life. The first set of analyses focused on the stability of global negative interaction scores over a 6-year period. The results indicate that unpleasant social encounters are quite stable during this time, suggesting that it may be useful to think of them as a form of chronic strain. Although there are no firm guidelines in the literature for differentiating between acute and chronic stressors, it is useful to note that our stability estimate (.569) is remarkably close to the .590 stability estimate reported by Pearlin, Lieberman, Menaghan, and Mullan (1981) in their classic study of chronic economic strain. Viewing negative interaction as a phenomenon that, for some older adults, may be relatively continuous and ongoing points to a number of intriguing theoretical issues. In particular, these data reflect the possibility that some elderly people may become involved in problematic social relationships that are difficult to terminate.

The notion that negative interaction is a chronic problem may initially appear to be at odds with theoretical explanations that have been offered in the literature for the deleterious effects of unpleasant social encounters. More specifically, Rook and Pietromonaco (1987) proposed that negative interaction is a rare event that stands out in sharp contrast to the normal smooth functioning of social ties. As a result, when interpersonal problems arise, they violate expectations for pleasant (or at least neutral) interaction. Ultimately, this disconfirmation of previously held expectancies may create psychological distress (J. M. Olson, Roesse, & Zanna, 1996; Rook & Pietromonaco, 1987).

Our perspective may be reconciled with this earlier view if negative interaction is conceptualized as a process that unfolds over a relatively long period of time. Cast in this context, the earlier theoretical scheme may best explain initial reactions when interpersonal problems first arise or when they occur after long periods of dormancy. In contrast, our framework may be more useful for explaining the long-term consequences of interpersonal problems after they have been ongoing for some time.

Our longitudinal analyses included a preliminary effort to evaluate whether factors responsible for the ongoing nature of negative interaction could be identified. We focused specifically on depressive symptoms. The findings suggest that older adults who are depressed tend to encounter more negative interaction than older people who do not suffer from depressive

Table 4. Measurement Model Estimates for Role-Specific Negative Interaction

Construct/Item	Factor Loading	Measurement Error
1. Negative interaction—children		
Critical	.918 ^a (1.000) ^c	.157 ^b (.157) ^d
Expect too much	.611 (0.672)	.626 (.636)
2. Negative interaction—other relatives		
Critical	.998 (1.000)	.004 (.004) ^e
Expect too much	.789 (0.795)	.378 (.383)
3. Negative interaction—friends		
Critical	.976 (1.000)	.047 (.047) ^e
Expect too much	.822 (0.843)	.324 (.324)
4. Correlated error		
Expect too much (friends)	.258	
Expect too much (children)	(0.262)	

^aStandardized factor loading.

^bStandardized measurement error term.

^cMetric (unstandardized) factor loading. All factor loadings were significant at the .001 level.

^dMetric (unstandardized) measurement error term. Unless noted otherwise, all measurement error terms were significant at the .001 level.

^eMeasurement error term not significant at the .05 level.

symptoms. As this relationship was observed over a 6-year period, it provides some evidence that potentially persistent depressive tendencies may be associated with problematic social relationships in late life (Hammen, 2001).

The second set of analyses in this study focused on the correlation among three measures of role-specific negative interaction. These cross-sectional data revealed that older people who have problems in one social relationship (e.g., with their children) tend to encounter interpersonal difficulties in other relationships as well (e.g., with friends). We use these simple empirical findings to suggest that negative interactions may originate, in part, with the focal older person rather than with his or her significant others. It is important in evaluating this finding to note that significant correlations existed between negative interaction both inside and outside the older person's family. Thus, the cross-sectional relationship generality of negative interaction cannot be attributed solely to the older person's immersion in a set of conflictual family ties. This cross-sectional perspective, which is not often discussed in gerontological research on negative interaction, introduces a number of issues that should be examined in the future. For example, we need to know whether the presence of problems across different social relationships arises from the personal characteristics of some older adults, such as limited social skills (Hansson & Carpenter, 1990), or whether other factors play an important causal role (e.g., personality traits).

Although it is tempting to attribute responsibility for negative interaction across social relationships solely to a focal older person, alternative explanations must also be taken into account. The findings we have observed may be explained,

for example, by the sociological notion of stress contagion (Wilkins, 1974). According to this view, people tend to have social networks that are homogeneous, especially with respect to socioeconomic status (SES; i.e., most members come from the same SES level [see Lin, 1982]). As a result, social stressors that confront a lower SES older person are likely to be shared by their significant others as well. Economic stress provides a good example. If an older adult experiences financial problems, it is likely his or her social network members may be grappling with economic difficulties of their own. If the focal elder turns to them for help, interpersonal conflict may arise because significant others must share scarce resources needed to resolve their own problems (Belle, 1990). It is possible, of course, that shared stressors may contribute to tensions among network members even when economic scarcities do not exist. For example, divorce, job changes, and disabling health problems often have effects that ripple throughout a social network, disrupting established patterns of interaction and kindling disagreements and disappointments (Rook, Dooley, & Catalano, 1991). Simply put, this alternative perspective suggests that instead of reflecting poor social skills or other personal characteristics, the consistency of negative interaction across different social relationships may be due to the fallout from shared social stress.

Although the empirical work we provide does not allow us to differentiate between these alternative explanations, we believe the inductive strategy we followed is useful. Because relatively little is known about the origins of negative interaction in late life, a number of explanations are possible. Our goal was to use basic descriptive data to help narrow the range of options by pointing to a few basic issues that should be taken into consideration. In particular, negative interaction appears to be fairly chronic and often occurs in more than one relationship. Even though these results may be explained in several ways, delimiting the search by focusing on issues of chronicity and prevalence provides a potentially useful first step toward crafting more refined theoretical frameworks.

Several limitations of our study should be noted because they bear on our ability to evaluate alternative explanations for the findings. First, our data did not allow us to conduct formal tests of the theoretical perspectives we developed. More specifically, we argued that interaction is stable over time because it is hard for older people to extricate themselves from conflicted relationships, especially those involving family members. We did not provide data, however, that bear directly on this point. Similarly, we suggested that the existence of conflict in multiple relationships may be due, in part, to the personal characteristics of some older adults, but we lacked measures of these factors (e.g., social skills, personality). These, and other potential theoretical explanations, need to be examined in future research.

Second, our role-specific measures of negative interaction are concerned with interpersonal problems arising with children, other relatives, a spouse, and friends, respectively. However, these measures are imprecise because, with the exception of marital conflict, they refer to categories of social ties that may include more than one individual. So, for example, an older person may have three children but encounter interpersonal problems with only one of them. Greater insight into the nature of role-specific relationships requires the use of data on specific dyadic ties.

A third limitation of the study involves nonrandom attrition of participants over the 6-year study period. Those who were lost to follow-up differed in some respects from those who remained in the study. It is important to keep the potential effects of this nonrandom loss of participants in mind as the findings from this study are reviewed.

Finally, we interpreted the relationship between depressive symptoms at Wave 1 and global negative interaction at Wave 3 as indicating that depression may have contributed to subsequent negative interaction. It is plausible, however, that older adults who encounter negative interaction with significant others are more likely to become depressed (see, e.g., Lakey et al., 1994). As Kessler and Greenberg (1981) demonstrated, complex three-wave latent variable models are needed to disentangle the temporal ordering among these constructs. Unfortunately, it was not possible to perform these analyses with the data used in this study because the time intervals between waves of data collection must be identical for the three-wave model to be identified (Kessler & Greenberg, 1981); our follow-up interviews were not equally spaced over time. Conducting such analyses should be an important priority in the future.

Although there are limitations to our study, the findings and the theoretical framework on which they are based may be useful for developing support-based interventions for older people. A number of interventions have been devised to improve the health and well-being of older adults by bolstering their social support systems (Greene & Monahan, 1989; Toseland, Rossiter, & Labrecque, 1989). This work typically focuses on promoting positive social ties while overlooking problematic relationships. This approach should be modified by taking conflicted relationships into account because negative interaction appears to play a larger role in shaping health and well-being than positive interaction (Rook, 1984). Consistent with this view, there is some evidence that interventions may fail if they ignore problematic social ties (Heller, Thompson, Trueba, Hogg, & Vlachos-Weber, 1991). To address this issue, interventions must be based on well-articulated theoretical frameworks that specify how unpleasant social encounters may arise. We hope the research presented in this study, and the theoretical statements derived from it, take a modest first step toward addressing this gap in the knowledge base.

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Address correspondence 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. E-mail: nkrause@umich.edu

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Appendix

Bivariate Correlations, Means, and Standard Deviations for the Study Measures

Study Measure	1	2	3	4	5	6	7
1. Negative interaction, Wave 1	—						
2. Negative interaction, Wave 2	.47***	—					
3. Depressive symptoms, Wave 1	.23***	.14**	—				
4. Negative interaction with friends, Wave 2	.36***	.30***	.10*	—			
5. Negative interaction with other relative, Wave 2	.17***	.25***	.11**	.29***	—		
6. Negative interaction with children, Wave 2	.30***	.27***	.13**	.30***	.41***	—	
7. Negative interaction with a spouse, Wave 2	.13*	.26***	.11	.17**	.28***	.25***	—
<i>M</i>	4.34	4.21	4.00	2.19	2.30	2.45	5.08
<i>SD</i>	1.90	1.82	1.65	.65	.81	.93	2.01

Note: The number of cases used to compute the correlations varied from 297 to 585.

* $p < .05$; ** $p < .01$; *** $p < .001$.