

**FOSTERING SOCIAL TIES THROUGH A
VOLUNTEER ROLE: IMPLICATIONS FOR
OLDER-ADULTS' PSYCHOLOGICAL HEALTH***

KAREN S. ROOK

DARA H. SORKIN

University of California, Irvine

ABSTRACT

This study examined the effects on older adults' psychological health of participation in a volunteer role that afforded opportunities to form friendships with age peers and to express nurturance toward another person. Access to these important social provisions was expected, in turn, to contribute to greater self-esteem, less loneliness, and less depression. The study hypotheses were tested by comparing older adults who served as foster grandparents to a developmentally disabled child ($N = 52$) with older adults in two comparison groups ($Ns = 69, 59$). Three assessments were conducted over a two-year period. The analyses revealed that the foster grandparents exhibited a significant increase in the number of new ties formed, but participation in the Foster Grandparent Program was not associated with the expected gains in emotional health. Explanations for the limited findings and implications for future research are discussed.

Evidence amassed from several different traditions of research has demonstrated persuasively that social relationships function as a source of important provisions that enhance health and well-being (e.g., House, Landis & Umberson, 1988; Seeman, 1996). These provisions are most often conceptualized in terms of

*This research was supported by a grant from the National Institute on Aging, AG03975.

various forms of support and companionship that people receive from others (Barrera, 1986; Cohen & Wills, 1985). Access to emotional support, instrumental support, and companionship has been linked to a wide variety of health outcomes in diverse age groups, including older adults (Everard, Lach, Fisher, & Baum, 2000; Seeman et al., 1995; Uchino, Cacioppo, & Kiecolt-Glaser, 1996). Moreover, although much of this work has been cross-sectional in nature, an emerging body of longitudinal work has yielded evidence that the support and companionship available through one's informal social ties are associated prospectively with important health outcomes, including mortality (House, Robbins, & Metzner, 1982; Krause, 1997).

An exclusive emphasis on the aid and affection received from others, however, overlooks another important element of many social relationships—the opportunity to provide aid and affection to others. Giving support to others has been identified as an aspect of involvement in informal social relationships that confers health-related benefits in its own right (Krause, Herzog, & Baker, 1992). An early proponent of this view was Weiss (1973, 1974), who argued that the opportunity to express nurturance toward another person is a core provision of social relationships. Without opportunities to express nurturance, in his view, people will experience psychological distress, most often in the form of diminished feelings of self-worth (Weiss, 1974). Consistent with this, the feelings of independence and self-worth that arise from being able to reciprocate support to members of one's social network has been found to be associated with enhanced well-being in the elderly (e.g., Krause et al., 1992; Roberto, 1989).

Obviously, unique life circumstances may impose upper limits on, or even reverse, these associations. Having to provide inordinate amounts of support to others may compromise rather than enhance health (Schulz & Beach, 1999). Similarly, receiving excessive support from others may contribute to feelings of dependence or indebtedness, thereby detracting from well-being (Barrera, 2000; Newsom, 1999). More typically, though, receiving and providing aid and affection constitute basic functions of informal social bonds that serve to enhance psychological health.

For many older adults, these dual “receiving and giving” functions are readily available in their close relationships with other people (Antonucci, Fuhrer, & Jackson, 1990; Rook, 1987). For others, however, opportunities to express one or both functions may be missing. Widowhood, retirement, and other social role losses that affect the elderly may limit opportunities for maintaining and developing close relationships that involve reciprocal exchanges of support (Crohan & Antonucci, 1989). Given this, it is important to learn how opportunities can be created that both facilitate the formation of supportive social bonds and allow for the expression of nurturance. The goal of the current study was to investigate the effect of participating in a volunteer program that afforded both kinds of opportunities on older adults' psychological health. The theoretical underpinnings of the study are developed below.

Facilitating the Formation of Supportive Social Bonds in Later Life

The burgeoning literature on the health-related benefits of receiving social support and companionship has offered relatively few guidelines about programs or interventions that might be effective in fostering the formation of supportive social bonds (Cohen, Gottlieb, & Underwood, 2000; Rook & Dooley, 1985). Theory-driven interventions to facilitate the formation of social ties in later life have been quite scarce. Most of the interventions conducted thus far have focused on mobilizing social support programs for people experiencing stressful life changes, such as those who are coping with a life-threatening illness (Helgeson & Cohen, 1996) or caring for a disabled family member (Kennet, Burgio, & Schulz, 2000).

A notable exception in this regard is an influential study by Heller, Thompson, Trueba, Hogg, and Vlachos-Weber (1991). These researchers sought to foster the formation of supportive peer ties among lonely older women living in a rural area. They drew upon the available theoretical and empirical literature to identify several intervention objectives that, if realized, were expected to affect the elderly participants' psychological well-being in the following ways: 1) to help participants form a close tie with another person (confidant) (Crohan & Antonucci, 1989); 2) to increase their receipt of emotional support (given the distinctive importance of emotional support) (Seeman et al., 1995); 3) to encourage reciprocal exchanges of support (thereby allowing participants to draw benefits from both providing as well as receiving support) (Roberto, 1989; Rook, 1987); and 4) to facilitate the formation of indigenous peer networks that could become self-sustaining after the termination of the intervention (Rook & Dooley, 1985).

The rural location of the study influenced the mode of delivery of the intervention. Given the logistical difficulties of arranging in-person contacts among the geographically dispersed participants, the researchers sought to foster social ties that could be maintained through regular telephone contact. The older women were helped to become comfortable with such telephone contact through an initial 10-week period in which they had weekly telephone conversations with trained staff members. After this period, the women were randomly assigned to: 1) continue with regular staff contacts; 2) initiate or receive weekly telephone calls with a fellow study participant; or 3) become no-contact controls. An additional control group completed the study assessments only and did not participate in any staff or peer telephone contacts. Detailed measures of women's social network membership and psychological well-being were obtained at baseline and at several follow-up assessments.

Thus, the intervention was carefully conceived on the basis of existing theory and research, painstakingly implemented, and rigorously evaluated. Despite this, the intervention proved to have little impact on the elderly participants' social ties or emotional health. Relatively few of the women formed enduring ties with

their telephone partners, and those who did exhibited few significant psychological benefits. Additionally, the significant psychological benefits that were observed generally did not persist over time.

Numerous ideas have been offered about why this intervention yielded null results (see commentaries in the *American Journal of Community Psychology*, 19, 1991). One set of ideas, derived from the social psychological literature on friendship formation, suggests that friendships develop most easily when people engage in regular contact structured around shared activities and meaningful social roles (Heller et al., 1991; Rook, 1991). Consistent with this, Blieszner (1989) found that friendships in later life tend to be initiated through casual interactions between people who have similar interests or who are engaged in collaborative activities. Volunteer work, adult education classes, and other activities help to structure participants' interactions, thereby reducing ambiguity and social anxiety (Jerome, 1981). Such shared activities and roles not only permit people to avoid the inhibiting self-consciousness and awkward expectations that often accompany interactions explicitly directed toward friendship formation, they allow people to make discrete assessments of each other's potential as friends and also provide the "grist" for their interactions: topics to discuss, experiences to compare, and so forth (Rook, 1991). Thus, programs that take an indirect approach to fostering friendships by providing comfortable, natural bases for social engagement are likely to be more successful than programs that directly and explicitly emphasize friendship formation as their objective (Pilisuk & Minkler, 1980; Rook, 1984).

Although these conditions have been hypothesized to provide an optimal foundation for friendship formation, they have rarely been investigated empirically. The current study investigated the effects of involvement in a program that brought older adults into daily contact with age peers who were involved in similar activities—helping to care for a developmentally-disabled child through participation in a local chapter of the nationwide Foster Grandparent Program. We anticipated that such regular contact, organized around shared activities, would facilitate the acquaintanceship process. Moreover, the program involved frequent contact extended over a sufficiently long period of time to allow such relationships to emerge gradually and in the relatively natural and familiar context of shared activities. For these reasons, we expected involvement in this program to contribute to the formation of new friendships among participants and, in turn, to greater emotional well-being.

Facilitating Opportunities to Provide Care to Others

Another key feature of the Foster Grandparent Program that we expected to contribute to the older adults' psychological health was the fact that the work involved providing care to another person, in this case a developmentally-disabled child with significant needs. Although some older adults may have adequate

opportunities to express nurturance in their existing social relationships, others do not. Certain kinds of volunteer work can provide such opportunities.

Research on older adults' motivations for volunteer work indicates that the desire to feel useful or to fulfill altruistic strivings is often cited as a primary reason for volunteering (Morrow-Howell & Mui, 1989; Okun, Barr, & Herzog, 1998). Consistent with this, participation in volunteer roles has been shown to be a significant predictor of older adults' feelings of usefulness and self-respect (Cutler, 1982; Hunter & Linn, 1981; Rietschlin, 1998). Volunteering has also been described as satisfying communication needs, helping to combat loneliness, and providing a source of social status (Kuehne & Sears, 1993; Midlarsky & Kahana, 1994). Volunteers, relative to nonvolunteers, report greater satisfaction with their lives, a stronger will to live, and fewer symptoms of psychological distress (Hunter & Linn, 1981; Wheeler, Gorey, & Greenblatt, 1998). The elderly volunteers in the current research were each involved in providing aid and affection to a child with special needs, and we hypothesized that this outlet for the regular expression of nurturance would contribute to their self-esteem and emotional well-being.

The Current Study

In sum, the current study investigated the effects of involvement in a social role that was conceptualized as contributing to older adults' psychological well-being through two different pathways: first, by creating conditions hypothesized to be conducive to friendship formation, the participants' activities were expected to facilitate the formation of new social ties and thereby enhance their psychological health; and second, by providing a context in which participants regularly helped to nurture and care for a developmentally-disabled child, the program was expected to bolster feelings of self-worth. Investigating the hypothesized benefits of this program was appealing for pragmatic as well as theoretical reasons. Volunteer programs similar to the one we studied exist in many communities. If such programs were found to be beneficial and their underlying mechanisms were understood, they could represent cost-effective alternatives to expensive and typically time-limited interventions aimed at the same objectives.

METHOD

Study Design

The study involved comparison of three groups of older adults: 1) participants in the nationwide Foster Grandparent Program (FGP); 2) participants in an alternative group program for older adults (AGP); and 3) a community sample of older adults (CS). The first two groups consisted of individuals who had expressed an interest in participating in the FGP, with actual participation determined by random assignment. Inclusion of the second group (AGP) controlled for

participation in a non-volunteer program that offered access to age peers. Inclusion of the third group (CS) controlled for volunteerism (individual differences associated with the willingness to perform volunteer work).

Extensive assessments of study participants' psychosocial and psychobiological functioning (e.g., information processing, memory, cardiopulmonary functioning, perceptual-motor skills, sleep patterns) were conducted at baseline (T1) and then annually for a two-year period (T2, T3). The current study, however, focused exclusively on participants' emotional well-being and specific social network characteristics.¹

Participants

Sample Recruitment

The study recruitment strategies were designed to recruit a total of 75 older adults to each of the three groups (FGP, AGP, CS) by enrolling 25 participants per group per year over a three-year period. The target figure of 25 individuals per year per group was based on the maximum number of openings for volunteers expected to become available annually ($N = 20-25$) as the existing foster grandparents vacated their positions through naturally occurring program attrition. (It would have been unethical to displace the existing foster grandparents from their roles for the sake of the study, and it would have been prohibitively expensive to establish an entirely new foster grandparent program.) Analyses revealed no significant effects of enrollment cohort (year of enrollment). Therefore, the analyses to be reported are based on data that collapse across enrollment cohorts.

The FGP and AGP participants were recruited from the pool of older adults who attended regional centers that provide subsidized lunches and limited activity programming for lower-income older adults on a daily basis. Standardized oral and slide presentations about the FGP were made at centers within a 15-mile radius of the project site, and prospective volunteers were recruited at the end of each presentation.

Participants in the CS group were recruited through mailings and follow-up telephone calls to older adults chosen randomly from an age- and economically-stratified sampling frame for the local region that was purchased from a commercial vendor. The mailings invited prospective participants to take part in a longitudinal study of aging. Eligibility screening was conducted by telephone to ensure that the CS participants were comparable in age and socioeconomic status to the FGP and AGP participants.

¹ Findings from the same longitudinal study have been reported in earlier papers, but these findings have dealt with the differential associations between psychological well-being and positive and negative social exchanges (using diary data) (Rook, 2001), and with the effects of social control as an element of participants' social network transactions (Rook & Ituarte, 1999; Rook, Thuras, & Lewis, 1990).

Eligibility Criteria

Following federal guidelines for participating in the FGP, all study participants were required to be 60 or older and have an income that did not exceed the poverty level by 20%. In addition, participants in the FGP group had to pass annual health examinations to rule out contraindicated health conditions.

Random Assignment

Those individuals who volunteered to become foster grandparents were randomly assigned either to the FGP or AGP groups. Those assigned to the FGP condition were assigned a primary “client” (a developmentally-disabled child in residence at the state hospital) and, after receiving a standard orientation and training, were given duties typical of a foster grandparent (e.g., spending time with their client, taking their client on excursions available on the hospital grounds, transporting the client to on-site clinics and doctors’ appointments). The foster grandparents worked four hours per day for five mornings each week, and received a modest stipend for their work (set by federal policy to correspond roughly to minimum wage). In addition, the foster grandparents ate lunch (provided by the program) together at the end of each workday.

Those older adults assigned to the AGP group continued their participation in the meals and activity programming at the regional nutrition centers. They received a monthly stipend of \$50, to both provide a symbolic control for the effects of the monetary compensation received by the foster grandparents, and to compensate them for the time spent in the annual assessments. They understood that they were important participants in the research study but that they were not on a waiting list for eventual inclusion in the Foster Grandparent Program. Participants in the CS group received \$50 annually, plus travel expenses, to compensate them for the time and costs associated with the annual assessments.

Sample Characteristics

Recruitment difficulties and funding cutbacks experienced over the course of the study made it difficult to reach the targeted figure of 75 participants per group, yielding a sample of 180 elderly individuals who met the eligibility criteria. The resulting group sizes were: FGP ($N=52$), AGP ($N=69$), CS ($N=59$). Participants’ demographic characteristics and health status at baseline (T1) are summarized in Table 1. Participants ranged in age from 60 to 92 years, with a mean age of 70.52 years. The majority of participants (65.6%) were women, and most (90%) were Caucasian. Nearly two-thirds (63.9%) were widowed, divorced, or single, and 68.9% had annual incomes of \$15,000 or less. Most participants (85%) reported that they enjoyed good or excellent health. Analyses that address the initial equivalence of the three participant groups are reported later.

Table 1. Sample Characteristics at T1

Variable	Category	Full sample (<i>N</i> = 180)	FGP (<i>N</i> = 52)	AGP (<i>N</i> = 69)	CS (<i>N</i> = 59)
Age	—	70.52 (6.89)	69.63 (6.71)	68.91 (6.30)	73.17 (7.03)
Sex	Male	34.4%	32.7%	30.4%	40.7%
	Female	65.6	67.3	69.6	59.3
Education	—	3.94 (1.51)	3.75 (1.55)	4.33 (1.32)	3.64 (1.61)
Marital status	Never married	2.8%	3.8%	1.4%	3.4%
	Widowed	44.4	48.1	39.1	47.5
	Divorced/separated	16.7	15.4	21.7	11.9
	Married	36.1	32.7	37.7	37.3
Ethnicity	White	90.0%	76.9%	95.7%	94.9%
	Non-white	10.0	23.1	4.3	5.1
Income	\$<5,000	6.8%	5.8%	6.1%	8.5%
	\$5,000-7,500	14.1	19.2	9.1	15.3
	\$7,500-10,000	19.8	34.6	10.6	16.9
	\$10,000-15,000	28.2	30.8	31.8	22.0
	\$>15,000	31.1	9.6	42.4	37.3
Number of chronic health problems	—	2.26 (1.56)	2.62 (1.66)	1.78 (1.24)	2.49 (1.71)

Note: For the categorical variables, entries shown are percentages. For the continuous variables, entries shown are means and, in parentheses, standard deviations. FGP = Foster Grandparent Program; AGP = Alternative Group Program; CS = Community Sample. Education is coded 1 "Grade school or less," 2 "Some high school," 3 "High school degree," 4 "Some college," 5 "College degree," 6 "Some post-graduate training," and 7 "Post-graduate degree."

Study Attrition

We anticipated an annual attrition rate of 20% based on previous longitudinal studies with older adults, and also on the average annual attrition rate in the particular Foster Grandparent Program studied. The actual rate of attrition was higher, however: 28.3% (*N* = 51) from T1 to T2, and 23.3% (*N* = 30) from T2 to T3. In addition, the rates of attrition differed across the study groups, with higher

rates in the FGP group (50.0% from T1 to T2, $N = 26$; 23.1% from T2 to T3, $N = 6$) and the CS group (35.6% from T1 to T2, $N = 21$; 28.9% from T2 to T3, $N = 11$) relative to the AGP group (5.8% from T1 to T2, $N = 4$; 20.06% from T2 to T3, $N = 13$).

The reasons for attrition over the three-year study included death (8.4%, $N = 7$), health problems or illness (36.1%, $N = 30$), and nonhealth-related factors (55.4%, $N = 46$). The latter category included residential relocation, time constraints (expressed by participants who felt they were too busy to continue their participation in the study), and difficulty in meeting the demands of some of the psychobiological assessment protocols (e.g., having to spend time in a sleep laboratory or to undergo electrophysiological testing). In addition, some of the participants who were accepted into the Foster Grandparent Program found the volunteer role (which involved helping to provide care for a developmentally-disabled child or adolescent) to be more demanding than they had anticipated, based on exit interviews with those who left the program. Chi-square analyses indicated that the specific reasons for attrition did not differ across the three groups. Analyses of the differences between participants who did versus those who did not complete the study are reported later.

Measures

In-person interviews lasting approximately 90 minutes were conducted annually by trained interviewers in an interview room at the project site. The interviewers were blind to the study hypotheses and to participants' assignment to groups. The interviews included extensive questions about participants' background characteristics, social networks, activity patterns, and emotional well-being.

Emotional Health

Three dimensions of psychological health were assessed: self-esteem, loneliness, and depression. *Self-esteem* was assessed with the 10-item Rosenberg Self-Esteem Scale (Rosenberg, 1965), which has been widely used in studies of the elderly and was found to be highly reliable in this sample ($\alpha = .80$). *Loneliness* was assessed with 10 items drawn from the 20-item UCLA Loneliness Scale (Russell, Peplau, & Cutrona, 1980). Abbreviated and full-length versions of this scale have been used frequently to assess loneliness in varying age groups, including the elderly. The 10-item scale had adequate reliability in the current sample ($\alpha = .80$). *Depression* was assessed with the 20-item Center for Epidemiological Studies–Depression Scale (CES-D) (Radloff, 1977), which has been validated against clinical measures (Himmelfarb & Murrell, 1983) and has been used extensively in community surveys, including surveys of older adults (Pachana, Gallagher-Thompson, & Thompson, 1994). The CES-D had good internal consistency in this sample ($\alpha = .87$). Ratings for these three

measures of emotional health were made on a 4-point scale (0 = "Never," 3 = "Most of the time"). The mean levels for self-esteem, loneliness, and depression at T1 were 34.54, 14.85 (equivalent to 29.70 on the 20-item UCLA Loneliness scale), and 11.04, respectively. These values are comparable to those reported in other studies of community-residing older adults (e.g., Gatz & Hurwicz, 1990; Himmelfarb & Murrell, 1983; Russell, 1996; Schultz & Moore, 1984).

Social Ties

Participants' social ties were assessed using name-eliciting questions adapted from the work of Fischer and his colleagues (Fischer, 1982; McCallister & Fischer, 1978). This method has been used in a number of studies of older adults (e.g., Finch, Okun, Barrera, Zautra, & Reich, 1989; Rook, 1994). A series of questions asked participants who, if anyone, performed particular functions in their lives such as providing social support or companionship. Questions asked about negative as well as positive exchanges with others. In response to each question, participants provided the first names of any individuals who performed the specified function. After the complete set of name-eliciting questions had been presented, the interviewer compiled a list of the unique names that had been generated and elicited additional information about each person named, including the role relationship (responses were coded as: spouse, child, other relative, in-law, friend, neighbor, co-worker, supervisor/staff member, acquaintance, foster grandchild, romantic partner, and other) and the duration of the relationship (number of years). In addition, for all non-kin network members, we also inquired how the relationship had originated. Specifically, for each non-kin tie we asked the participants how they had met the individual named. Participants' responses were coded as: friend of friend, neighbor, Foster Grandparent Program, alternative group program (county transportation, lunch, and counseling program), work (for participants with full- or part-time jobs), childhood/school/college, and other.

Participants also were shown a list of the people they had mentioned in response to the name-eliciting questions, and were asked whether anyone important to them was missing. Few additional names were generated this way ($Mdn = 2.00$); those mentioned were typically grandchildren, nieces, or nephews. Thus, the set of name-eliciting questions appeared to succeed in capturing participants' most important social ties.

We derived from this information a measure of the *number of new relationships*, if any, formed in the past year. Any relationships with a reported duration of one year or less at T1 were classified as new prior to T1. Those with a reported duration of one year or less at T2 were classified as new for the T1-T2 time period, and those with a reported duration of two years or less were classified as new for the T1-T3 time period. We believe that this procedure is less susceptible to social desirability bias than simply asking participants whether they had formed new relationships. This measure allowed us to evaluate whether participants in

the FGP condition were more likely than participants in the other groups to forge new social ties over the course of the study. The availability of a measure of new relationships formed prior to the start of the study also allowed us to determine whether the rate of new relationship formation was greater after the study began (as a result of participation in the Foster Grandparent Program, for example) or merely reflected a continuation of relationship-seeking processes initiated before the study began.

The information we obtained from all participants about the nature of the role relationship with their social network members, how they had met non-kin social network members, and the kinds of positive and negative exchanges in which each network member was engaged allowed us to gain a more complete understanding of the kinds of new social relationships that might have formed as a result of participation in the Foster Grandparent Program. Specifically, we used this information in the analyses reported below to determine whether the new relationships reported by the foster grandparents included people whom they regarded as friends, people who functioned as a source of positive exchanges (vs. negative exchanges), and people whom they had met through the Foster Grandparent Program.

Finally, because this study focused on support provision as well as support receipt, we also examined the extent to which participants felt that others counted on them for support. One of the name-eliciting questions asked participants whether anyone depended on them on a regular basis for care, help, or social contact and, if so, who depended on them. From their responses, we derived a count of the *number of people who depended on the participant*. We anticipated that this number would increase for FGP participants, relative to the other participants, because of their involvement in providing care on daily basis to a developmentally-disabled child.

Background Characteristics

In addition to assessing standard demographic characteristics such as age, sex, marital status, income, and ethnicity, we also assessed chronic health problems that participants might have experienced by asking whether they had been diagnosed with any of 10 chronic conditions (e.g., high blood pressure, diabetes, arthritis, 0 = "health problem not reported," 1 = "health problem reported"). A measure of the *number of chronic health problems* was derived from their responses.

RESULTS

Initial Equivalence and Attrition

The first set of analyses examined the initial equivalence (at T1) of the three groups of participants and the factors associated with attrition from the study. The

analyses examined participants' background characteristics and T1 scores on the primary outcome measures. For the continuous variables, 3×2 analyses of variance (ANOVA) were conducted in which the two independent variables were condition (FGP, AGP, or CS) and attrition status (did vs. did not complete the study), and the dependent variables were participants' background characteristics (age, number of chronic health conditions, and education), emotional health (self-esteem, loneliness, and depression), and characteristics of their social ties (number of new relationships formed in the year prior to the baseline assessment; number of network members who depended on the participant at baseline). A main effect of condition would indicate that the groups of participants were not equivalent at baseline; a main effect of attrition status would indicate that participants who completed the study differed from those who did not, and a significant interaction would indicate that the effects of attrition differed across conditions (Jurs & Glass, 1971). For categorical variables, the initial equivalence of participants in the conditions and the effects of attrition were examined with chi-square analyses.

The ANOVAs revealed no significant interaction effects, but several main effects of condition and of attrition status did emerge. Significant univariate F s are reported below. For significant effects of condition, post-hoc contrast analyses were conducted to clarify the group differences.

Initial Equivalence

These analyses indicated that some baseline (T1) differences existed among the three groups, despite random assignment to two of the groups (FGP, AGP) and efforts to recruit a socioeconomically matched group of older adults for the third group (CS). Participants in the CS group were older than were participants in the FGP and AGP groups, $F(2, 174) = 8.24, p < .001, \eta^2 = .09$ (see Table 1 for M s). Participants in the AGP group had fewer chronic health problems than did participants in the FGP and CS groups, $F(2, 174) = 3.86, p < .02, \eta^2 = .04$ (see Table 1). Participants in the three groups did not differ with respect to sex or marital status (married vs. not married), but the FGP group included more non-white participants than did the other two groups, $\chi^2(2) = 13.91, p < .001$; (see Table 1). Additionally, income (dichotomized for the chi-square analysis, $< \$10,000$ vs. $\geq \$10,000$) varied across the conditions, with more participants in the FGP and CS conditions falling into the lower income group (58.8% and 40.7, respectively) than in the AGP condition (25.8%), $\chi^2(2) = 13.07, p < .001$.

With respect to their baseline emotional health, participants in the FGP group had higher depression scores than did participants in the AGP and CS groups (M s = 12.23, 8.28, and 7.92, respectively, $F(2, 179) = 4.96, p < .01, \eta^2 = .05$, but no differences were observed for self-esteem or loneliness. The analysis of baseline social network characteristics indicated that the three groups of participants did not differ significantly with respect to the number of new relationships

they had formed in the previous year or the number of people who depended on the participants for support.

Because some baseline group differences emerged, the analyses that examined the effects of participation in the FGP included controls for participants' age, number of chronic health conditions, ethnicity, income (0 = "<\$10,000," 1 = "≥\$10,000"), and depression. The implications of these baseline differences will be considered more fully later.

Attrition

The ANOVAs and chi-square analyses revealed several significant differences between participants who did versus did not complete the study. Of this generally low-income group of participants, those with lower incomes (<\$10,000) were less likely to complete the study than were participants with higher incomes (≥\$10,000) (39.4% vs. 64.8%, respectively, $\chi^2(2) = 10.96, p < .001$). Participants who did not complete the study also had less education than did those who completed the study, $M_s = 4.36$ vs. 3.45 , $F(1, 174) = 12.18, p < .001, \eta^2 = .07$. No significant differences were observed for age, sex, marital status (married vs. not married), ethnicity, number of chronic health problems, depression, self-esteem, loneliness, the number of new relationships formed prior to the baseline assessment, or the number of people who depended on the participant at baseline.

The differences that emerged are consistent with prior research on the characteristics of older adults who drop out of longitudinal studies (e.g., Cooney, Schaie, & Willis, 1988). They suggest that the findings of the current study may not generalize to older adults with very low incomes or limited education.²

Effects of Participation in the Foster Grandparent Program

Emotional Health

A primary hypothesis of the study was that older adults in the FGP condition, relative to those in the other two conditions, would show greater improvements in emotional health from baseline (T1) to the follow-up assessments conducted one and two years later (T2, T3). The participants included in the T1-T2 analyses were those who completed the assessments at both T1 and T2, and the participants included in the T1-T3 analyses were those who completed the assessments at all time periods. To examine the hypothesized changes from T1 to T2, univariate analyses of covariance were conducted in which each of the T2 emotional health

² Parallel initial equivalence and attrition analyses examined the baseline (T1) characteristics of those who completed the first follow-up assessment (T2), rather than participants who completed both follow-up assessments (T2 and T3). These analyses revealed virtually identical results to those reported here. A summary of these analyses is available upon request from the first author.

measures (self-esteem, loneliness, and depression) was treated as the dependent measure, condition (FGP, AGP, CS) was treated as the independent variable, and the T1 emotional health measure was included as a covariate, as were T2 age, number of chronic health conditions, ethnicity, income, and depression. Parallel analyses examined changes between T1 and T3, with the T3 emotional health measure treated as the dependent variable, condition as the independent variable, and the T1 emotional health measure and T3 age, chronic health problems, ethnicity, income, and depression included as covariates. The latter analyses allowed us to evaluate whether any gains observed between T1 and T2 persisted to T3, and also allowed us to detect any gains that might have required longer than one year to emerge (i.e., evident by T3 but not by T2).

The means and standard deviations of the emotional health variables for the three conditions at each assessment (T1, T2, T3) are shown in Table 2, upper panel. Contrary to expectation, no significant group differences emerged.³

Social Ties

Our next analysis examined whether participants in the three groups were differentially likely to form new social network ties during the course of the study. We first report findings for new relationships formed from T1 to T2 (those with a reported duration of one year or less at T2), and then report findings for new relationships formed from T1 to T3 (those with a reported duration of two years or less at T3).

An analysis of covariance revealed that participants in the FGP reported significantly more new relationships from T1 to T2 ($M = 2.26$) than did participants in the AGP ($M = .52$) or CS ($M = .44$), $F(2, 120) = 15.66, p < .001, \eta^2 = .22$ (see Table 2, lower panel).⁴ Moreover, participation in the FGP did appear to account for the significantly greater formation of new social ties, as indicated by participants' responses to questions about how they had met each of the people named in response to the name-eliciting questions. Of the new ties formed from T1 to T2 by FGP participants, 70.3% involved people affiliated with the FGP, and these included friends made through the program (40.0%), individuals who the participant identified as a co-worker but not as a friend (20.0%), the foster grandchild (20.0%), staff members and supervisors (15.6%), and romantic partners met through the program (4.4%). In the AGP and CS groups, the major categories of new ties formed from T1 to T2 involved friends, neighbors, in-laws, and other relatives (such as a grandchild born during this time period).

³ These T1-T2 and T1-T3 analyses of emotional health outcomes were repeated with all covariates except the relevant T1 emotional health measure removed. The findings were unchanged. A summary of the analyses with the covariates trimmed is available upon request from the first author.

⁴ The T1-T2 analyses of social network characteristics were repeated with all covariates except the relevant T1 variable removed. The findings were unchanged. A summary of the analyses with the covariates trimmed is available upon request.

Table 2. Group Differences in Emotional Health and Social Network Characteristics

Variable	FGP			AGP			CS		
	T1	T2	T3	T1	T2	T3	T1	T2	T3
Emotional Health									
Self-esteem									
<i>M</i>	34.54	35.83	35.22	36.33	36.35	36.53	36.42	36.16	36.59
(<i>SD</i>)	(4.37)	(3.08)	(4.32)	(3.11)	(3.34)	(3.23)	(4.34)	(4.60)	(3.92)
Loneliness									
<i>M</i>	16.08	15.08	14.39	13.86	13.34	13.70	15.33	14.66	14.19
(<i>SD</i>)	(4.46)	(4.24)	(3.27)	(3.81)	(3.51)	(3.85)	(5.67)	(5.12)	(3.86)
Depression									
<i>M</i>	11.04	9.39	9.94	7.77	7.95	6.98	7.03	8.46	7.70
(<i>SD</i>)	(7.90)	(6.97)	(5.57)	(5.98)	(5.68)	(6.94)	(6.73)	(9.26)	(5.48)
Social Network Characteristics									
Relationships formed									
<i>M</i>	0.65	2.26 _a	1.94 _c	0.66	0.52 _b	0.94 _d	0.35	0.44 _b	1.00 _d
(<i>SD</i>)	(1.20)	(2.00)	(1.92)	(1.10)	(0.88)	(1.48)	(0.92)	(0.56)	(1.39)
Number of people who depend on the participant									
<i>M</i>	0.85	0.96	1.00	1.06	0.97	1.18	1.08	1.26	1.48
(<i>SD</i>)	(0.88)	(1.10)	(0.94)	(1.02)	(0.92)	(1.22)	(0.97)	(1.29)	(1.45)

Note: FGP = Foster Grandparent Program; AGP = Alternative Group Program; CS = Community Sample. The T1 means and standard deviations, and the T1-T2 comparisons are based on all participants who completed the T1 and T2 assessments ($N = 128$); the T1-T3 comparisons included those who completed all three assessments ($N = 92$). The analyses of group differences included controls for the T1 dependent variable and (not shown) for current age, income, ethnicity, chronic health problems, and depression. Means with different subscripts differ significantly from each other (T1-T2 analysis, a vs. b; T1-T3 analyses, c vs. d). Original scores, rather than covariate-adjusted scores, are shown for ease of interpretation.

We also examined the supportive or nonsupportive nature of these new ties by classifying each new tie as a source of positive exchanges exclusively, a source of negative exchanges exclusively, or a source of both positive and negative exchanges (Finch et al., 1989; Rook 1984) based on participants' responses about the people with whom they experienced the positive and negative exchanges we assessed. The number of new network members who functioned as a source of both positive and negative exchanges was too small to analyze as a function of participants' group status. We conducted chi-square analyses to examine the percent of participants in each group who formed new social ties from T1 to T2 that were sources of either positive or negative exchanges exclusively. The overall rates of positive and negative interaction did not differ significantly across groups, but the FGP participants were more likely than other participants to have formed new positive ties as well as new negative ties from T1 to T2. The results indicated that 61.5% of the FGP participants formed one or more exclusively positive new social ties from T1 to T2, as compared with 23.4% of the AGP participants and 31.6% of the CS participants, $\chi^2(2) = 12.13, p < .01$. The FGP participants also were marginally more likely to form an exclusively negative social tie from T1 to T2, with 21.3% of them doing so as compared with 9.4% of AGP participants and 5.3% of CS participants, $\chi^2(2) = 5.35, p < .07$.

Because the FGP participants were somewhat more likely to have formed negative, as well as positive, social ties through their involvement in the FGP from T1 to T2, we conducted additional analyses to determine who in the program served as the primary source of negative exchanges. These analyses indicated that supervisors and staff members were engaged in the greatest number of negative exchanges ($M = .43, SD = .54$), followed by fellow FGP participants identified as friends ($M = .20, SD = .41$), and by those identified as co-workers ($M = .11, SD = .33$). The foster grandchildren were never named by the participants as a source of negative exchanges. Fellow FGP participants identified as friends also functioned as sources of positive exchanges in this setting ($M = 1.93, SD = 2.31$), as did those identified as co-workers ($M = 1.22, SD = .67$), and the foster grandchild ($M = 1.00, SD = 0$). Staff members and supervisors were the source of the fewest positive exchanges ($M = .71, SD = .95$).

Our next analyses examined changes in participants' social network characteristics over a two-year period, from T1 to T3. These analyses are based on those participants who remained in the study by T3. The FGP participants reported a significantly larger number of new social ties ($M = 2.11, SD = 1.88$) than did either AGP ($M = .94, SD = 1.50$) or CS participants ($M = 1.00, SD = 1.39$), $F(2, 90) = 3.05, p < .05, \eta^2 = .07$. These data suggest that the new social ties formed by the FGP participants in the first year of the study persisted into the second year.

In the next analysis, we examined the extent to which participants felt that others counted on them for support. We anticipated that this number would increase for FGP participants, relative to the other participants, because of their involvement with the foster grandchildren. The results indicated, however, that

there were no group differences in the number of people named by the study participants as depending on them at T2 or T3, relative to the number named as depending on them at T1 (see Table 2, lower panel).

Finally, because participants' emotional health did not vary significantly across groups over time, we could not examine whether the formation of new, positive social ties mediated the effects of participation in the Foster Grandparent Program. Therefore, mediational analyses were not undertaken.

DISCUSSION

The goal of this study was to investigate the effects on older adults' psychological health of participating in a volunteer role that provided opportunities to form ties with age peers and to express nurturance toward another person, in this case a developmentally-disabled child. These interpersonal benefits, in turn, were expected to reduce feelings of loneliness and depression and to boost participants' self-esteem.

The results of the study, however, did not bear out these expectations entirely. Participation in the Foster Grandparent Program did appear to facilitate the formation of peer ties, by providing opportunities for regular social contact structured around shared activities and meaningful social roles. The formation of these new ties was not associated, however, with the expected gains in emotional health.

Explanations and Implications

A key question raised by these results is why the anticipated gains in emotional health did not occur. We consider substantive and methodological explanations in this section, and we suggest implications for future research.

Substantive Considerations

The foster grandparents were immersed in a fairly complex social system that exposed them to the possibility of negative, as well as positive, interactions with others. As indicated by our results, the foster grandparents were more likely than other study participants to form an exclusively negative social tie, as well as one or more exclusively positive new social ties. Many of these new negative ties were with supervisors and staff members. The detrimental impact of these negative interactions may have served to cancel the beneficial impact of the positive interactions. This interpretation received only limited support, however, in post-hoc analyses that examined the number of new positive and new negative social ties formed as predictors of emotional health (at T2 or T3), while controlling for T1 emotional health, new positive and negative social ties formed prior to T1, and the covariates included in the core hypothesis tests (age, number of chronic health conditions, ethnicity, income, and depression). These analyses indicated

that neither new positive nor new negative social ties formed during the course of the study predicted emotional health at the T2 or T3 follow-up assessments.⁵

We also had anticipated that the opportunity to provide care to a child with special needs would contribute to the foster grandparent's self-esteem and emotional well-being. Although many of the foster grandparents listed their foster grandchild as a new social tie, they did not tend to regard the foster grandchild as someone who counted on them, as there were no significant differences in the number of people who the participants named as regularly depending on them for support and companionship.

We also considered whether participation in the Foster Grandparent Program might have caused participants to reduce their contact with pre-existing friends, thereby canceling possible benefits of the program. We examined changes in both the number of friends named by participants at each time period and in the frequency of contact with these friends. These analyses revealed that decreases in either the number of, or frequency of contact with, friends were relatively rare. More importantly, such decreases were not more common among the foster grandparents than among participants in the two comparison groups. Thus, we do not believe that participation in the Foster Grandparent Program caused participants to restrict their contacts with pre-existing friends.

The Foster Grandparent Program involved a substantial commitment of time each week (20 hours) and interaction not only with age peers and a vulnerable child, but also with supervisors and other staff members. Volunteer work that requires a significant commitment of time and that involves interactions with supervisors may take on some of the qualities of a work role, thereby detracting from the potential benefits of the volunteer role. Assessment of participants' expectations and reactions to the volunteer work would be valuable in future studies to evaluate how often such shifts occur in volunteers' perceptions of their work.

In a related vein, some research suggests that the benefits of volunteering in later life decline, and may even reverse, as the time commitment exceeds certain optimal thresholds. Volunteering was associated with a reduced risk of mortality in a study by Musick, Herzog, and House (1999), but this link was only found for those individuals who reported having volunteered fewer than 40 hours in the past year; individuals who volunteered for more than 40 hours did not exhibit a reduced risk of mortality. Van Willigen (2000) found, in an analysis of the same data set, that volunteering more than 140 hours per year (or 2.7 hours per week) was related to poorer perceived health among older adults. The elderly volunteers in the current study committed 20 hours per week to the volunteer role and also assumed challenging responsibilities. Mastery of this demanding role could have contributed to beneficial effects on self-esteem for some participants, but the

⁵ A summary of these post-hoc analyses is available upon request.

intensity of the volunteer work may have caused other participants to derive limited benefits from their involvement.

The mode of recruitment into the Foster Grandparent Program, necessitated by the experimental design of the study, also may have changed the experience of being a foster grandparent in subtle but important ways that offer lessons for future research. A common mode of recruitment into the Foster Grandparent Program, and into many other volunteer programs, is by word of mouth. In fact, a majority of volunteers report becoming involved at the request of another person such as a friend or acquaintance (Morrow-Howell & Mui, 1989). People who enjoy a volunteer program tell others about it, and may try to enlist friends to join them. During the course of this study, some of the elderly individuals who were randomly assigned to the Foster Grandparent Program asked to have a friend or neighbor admitted into the study. Similarly, some of the older adults who were already in the Foster Grandparent Program sought to nominate friends or neighbors for inclusion in the project (and, specifically, into the FGP group). Such requests could not be honored without compromising the study design, which meant that the participants in our Foster Grandparent Program, unlike those in other programs, would not have the benefit of sharing their volunteer work with pre-existing friends. Future researchers may want to consider a study design that allows for dyadic recruitment (e.g., two friends entering the program together) because it mirrors a naturally-occurring mode of recruitment. Whether people recruited as part of a dyad would exhibit less attrition and greater benefits than those recruited individually is an interesting question that could have important implications for the operation and evaluation of volunteer programs.

Methodological Considerations

Methodological factors also may have contributed to the nonsignificant effects on emotional health. It is possible, for example, that the measures of emotional health used to evaluate the effects of volunteer participation (self-esteem, depression, and loneliness) were too global or insensitive to change (cf. Heller et al., 1991). To explore this possibility, we conducted post-hoc analyses of measures of daily positive and negative mood collected from daily diary assessments conducted annually (described more fully in Rook, 2001). These analyses revealed the same pattern of null results. Nonetheless, it remains possible that other measures, such as those that explicitly tap a sense of purpose or usefulness, might have revealed greater evidence of the hypothesized benefits of involvement as a foster grandparent.

It is also possible that participants in the AGP group, who had expressed an interest in the Foster Grandparent Program at the outset of the study but who were not assigned to the program, subsequently became involved in other forms of volunteer work, thereby diluting the hypothesized group differences. Analyses that examined changes over time in the total number of community and volunteer

organizations to which participants belonged revealed no significant group differences from T1 to T2 or T1 to T3. Similarly, it is possible that participants in the community sample were involved in organizations that provided some of the same benefits as the foster grandparent program. The three groups did not differ significantly at the start of the study in the number of organizational affiliations, but we lack information about the extent to which these affiliations involved frequent or meaningful interaction with other people.

The attrition rate from this study was higher than anticipated, and it left a relatively healthy, robust sample with which to test hypotheses about improvement over time. To the extent that the remaining participants were characterized by relatively high self-esteem and low depression and loneliness, it would have been difficult to show improvement over time. Attrition also limited the power of the analyses to detect effects. When the study was designed, the anticipated sample size was projected to have sufficient power to detect effects of medium size. The observed power was lower than this in most of our analyses, $M_{\text{power}} = .29$. Compounding this, the effect sizes were smaller than anticipated, $M\eta^2 = .04$. These problems are common, however, in intervention studies. Maddock and Rossi (2001) recently examined statistical power in 187 journal articles and found that intervention studies tend to have less power than do nonintervention studies. For example, average power was .17 for intervention studies versus .42 for nonintervention studies when small effects were reported. With respect to effect sizes, Wheeler et al. (1998) reported in a meta-analysis of studies examining the effects of volunteering for older adults that the average effect size was small to medium (mean r -indices = .186; corresponding to $\eta^2 = .035$) when controlling for the potentially confounding influence of health or socioeconomic status. Thus, although our average power and effect sizes are comparable to those reported in previous studies of this type, they make the interpretation of our nonsignificant findings inconclusive.

The substantial attrition in the study also precluded subgroup analyses to determine whether a particular subset of the elderly participants derived greater benefits from the volunteer role. Some researchers (e.g., Fengler, 1984) believe that volunteer participation contributes to health and well-being only when it serves to compensate for personal and social resources that may be missing in a person's life. The design of the study and the modest sample size did not allow us to test hypotheses about compensation for specific kinds of social deficits that participants may have experienced.

The fact that the rate of attrition was distinctively high in the FGP group during the first year of the study was also unexpected, but it appears that attrition from volunteer programs in general is higher in the first year than in subsequent years (Fischer & Schaffer, 1993). This attrition also pointed to another factor that may have worked against our finding more evidence of the hypothesized benefits of the volunteer role. At the time the study was conceived, many of the developmentally-disabled children residing in state facilities had a moderate level

of disability. By the time the study was funded and implemented, however, a change in state policies had led most of the higher-functioning children to be placed in community settings. Those who remained in the state facilities tended to be more severely impaired and older than had been typical earlier. Thus, although some of the foster grandparents in this study did work with higher-functioning infants and children, many worked with older children and adolescents whose level of functioning was quite limited and who often lacked communication skills. This meant that the foster grandparent role was considerably more emotionally and physically demanding than anticipated. Some of the older adults who volunteered for the Foster Grandparent Program in this study were simply unprepared for the rigors of the program. If older volunteers' work is particularly demanding in nature, it may be important for them to have access to social support in the volunteer setting (Morrow-Howell & Mui, 1989).

In a related vein, the severe level of disability among many of the foster grandchildren may have led some foster grandparents to feel that they were not making a meaningful contribution to the quality of life of their clients. We lack information about the foster grandparents' expectations of, and reactions to, their work. We can report anecdotally, however, that the nursing personnel and other hospital staff generally regarded the work of the foster grandparents as quite valuable both because it was perceived as improving the quality of the clients' lives, even if modestly, and because it helped to alleviate the day-to-day demands on the staff, allowing them to concentrate more on the patients' medical needs than their psychosocial needs. The foster grandparents were recognized for their work formally and informally throughout the year (e.g., annual appreciation ceremonies, birthday cards, etc.). Thus, we believe that the social environment in which the foster grandparents functioned underscored the value of their contributions, although we do not have information about the perceptions and reactions of individual participants in the program. In future studies, it would be valuable to examine how the expectations and reactions of the participants evolve over time.

ACKNOWLEDGMENTS

We wish to thank Martha Ryan Pedersen and Paul Thuras for their invaluable help in overseeing the data collection and data management, and a large group of undergraduate students who provided assistance with data collection and data coding.

REFERENCES

- Antonucci, T. C., Fuhrer, R., & Jackson, J. S. (1990). Social support and reciprocity: A cross-ethnic and cross-national perspective. *Journal of Social and Personal Relationships*, 7, 519-530.

Barrera, M. (1986). Distinctions between social support concepts, measures, and models. *American Journal of Community Psychology*, 14, 413-445.

Barrera, M., Jr. (2000). Social support research in community psychology. In J. Rappaport & E. Seidman (Eds.), *Handbook of community psychology* (pp. 215-245). New York: Kluwer Academic/Plenum Publishers.

Blieszner, R. (1989). Developmental processes of friendship. In R. G. Adams & R. Blieszner (Eds.), *Older adult friendship* (pp. 108-126). Newbury Park, CA: Sage.

Cohen, S., Gottlieb, B. H., & Underwood, L. G. (2000). Social relationships and health. In S. Cohen, L. G. Underwood, & B. H. Gottlieb (Eds.), *Social support measurement and intervention: A guide for health and social psychologists*. New York: Oxford University Press.

Cohen, S., & Wills, T. A. (1985). Stress, social support, and the buffering hypothesis. *Psychological Bulletin*, 98, 310-357.

Cooney, T. M., Schaie, K. W., & Willis, S. L. (1988). The relationship between prior functioning on cognitive and personality dimensions and subject attrition in longitudinal research. *Journal of Gerontology: Psychological Sciences*, 43, P12-P17.

Crohan, S. E., & Antonucci, T. C. (1989). Friends as a source of social support in old age. In R. G. Adams & R. Blieszner (Eds.), *Older adult friendship: Structure and process*. Newbury Park, CA: Sage.

Cutler, N. E. (1982). Voluntary association participation and life satisfaction: Replication, revision, and extension. *International Journal of Aging and Human Development*, 14, 127-137.

Everard, K. M., Lach, H. W., Fisher, E. B., & Baum, M. C. (2000). Relationship of activity and social support to the functional health of older adults. *Journal of Gerontology: Social Sciences*, 55, S208-S212.

Fengler, A. P. (1984). Life satisfaction of subpopulations of elderly: The comparative effects of volunteerism, employment, and meal site participation. *Research on Aging*, 6, 189-212.

Finch, J. F., Okun, M. A., Barrera, M., Jr., Zautra, A. J., & Reich, J. W. (1989). Positive and negative social ties among older adults: Measurement models and the prediction of psychological distress and well-being. *American Journal of Community Psychology*, 17, 585-605.

Fischer, C. S. (1982). *To dwell among friends: Personal networks in town and city*. Chicago: University of Chicago.

Fischer, L. R., & Schaffer, K. B. (1993). *Older volunteers: A guide to research and practice*. Newbury Park, CA: Sage.

Gatz, M., & Hurwicz, M. L. (1990). Are old people more depressed? Cross-sectional data on Center for Epidemiological Studies Depression Scale Factors. *Psychology and Aging*, 5, 284-290.

Helgeson, V., & Cohen, S. (1996). Social support and adjustment to cancer: Reconciling descriptive, correlational, and intervention research. *Health Psychology*, 15, 135-148.

Heller, K., Thompson, M. G., Trueba, P. E., Hogg, J. R., & Vlachos-Weber, I. (1991). Peer support telephone dyads for elderly women: Was this the wrong intervention? *American Journal of Community Psychology*, 19, 53-74.

Himmelfarb, S., & Murrell, S. A. (1983). Reliability and validity of five mental health scales in older persons. *Journal of Gerontology*, 38, 333-339.

- House, J. S., Landis, K. R., & Umberson, D. (1988). Social relationships and health. *Science*, 241, 540-545.
- House, J. S., Robbins, C., & Metzner, H. L. (1982). The association of social relationships and activities with mortality: Prospective evidence from the Tecumseh Community Health Study. *American Journal of Epidemiology*, 116, 123-140.
- Hunter, K. I., & Linn, M. Q. (1981). Psychosocial difference between the elderly volunteers and non-volunteers. *International Journal of Aging and Human Development*, 12, 205-213.
- Jerome, D. (1981). The significance of friendship for women in later life. *Ageing and Society*, 1, 175-197.
- Jurs, S. G., & Glass, G. V. (1971). The effect of mortality on the internal and external validity of the randomized comparative experiment. *Journal of Experimental Education*, 40, 62-66.
- Kennet, J., Burgio, L., & Schulz, R. (2000). Interventions for in-home caregivers: A review of research 1990 to present. In R. Schulz (Ed.), *Handbook on dementia caregiving: Evidence-based interventions for family caregivers* (pp. 61-125). New York: Springer.
- Krause, N. (1997). Received support, anticipated support, social class, and mortality. *Research on Aging*, 19, 387-422.
- Krause, N., Herzog, A. R., & Baker, E. (1992). Providing support to others and well-being in later life. *Journal of Gerontology: Psychological Sciences*, 47, P300-P311.
- Kuehne, V. S., & Sears, H. A. (1993). Beyond the call of duty: Older volunteers committed to children and families. *Journal of Applied Gerontology*, 12, 425-438.
- Maddock, J. E., & Rossi, J. S. (2001). Statistical power in three health-psychology related journals. *Health Psychology*, 20, 76-78.
- McCallister, L., & Fischer, C. S. (1978). A procedure for surveying personal networks. *Sociological Methods and Research*, 7, 131-148.
- Midlarsky, E., & Kahana, E. (1994). *Altruism in late life*. Thousand Oaks, CA: Sage.
- Morrow-Howell, N., & Mui, A. (1989). Elderly volunteers: Reasons for initiating and terminating service. *Journal of Gerontological Social Work*, 13, 21-34.
- Musick, M. A., Herzog, A. R., & House, J. S. (1999). Volunteering and mortality among older adults: Findings from a national sample. *Journal of Gerontology: Social Sciences*, 54, S173-S180.
- Newsom, J. T. (1999). Another side to caregiving: Negative reactions to being helped. *Current Directions in Psychological Science*, 6, 183-187.
- Okun, M. A., Barr, A., & Herzog, A. R. (1998). Motivation to volunteer by older adults: A test of competing measurement models. *Psychology and Aging*, 13, 608-621.
- Pachana, N. A., Gallagher-Thompson, D., & Thompson, L. W. (1994). Assessment of depression. In M. P. Lawton & J. Teresi (Eds.), *Annual Review of Gerontology and Geriatrics* (Vol. 14, pp. 234-256). New York: Springer.
- Pilisuk, M., & Minkler, M. (1980). Supportive networks: Life ties for the elderly. *Journal of Social Issues*, 36, 95-116.
- Radloff, L. S. (1977). The CES-D scale: A self-report depression scale for research in the general population. *Applied Psychology and Measurement*, 1, 385.
- Rietschlin, J. (1998). Voluntary association membership and psychological distress. *Journal of Health and Social Behavior*, 39, 348-355.

- Roberto, K. (1989). Exchange and equity in friendships. In R. G. Adams & R. Blieszner (Eds.), *Older adult friendship: Structure and process*. Newbury Park, CA: Sage.
- Rook, K. S. (1984). The negative side of social interaction. *Journal of Personality and Social Psychology*, 46, 1097-1108.
- Rook, K. S. (1987). Reciprocity of social exchange and social satisfaction among older women. *Journal of Personality and Social Psychology*, 52, 145-154.
- Rook, K. S. (1991). Facilitating friendship formation in late life: Puzzles and challenges. *American Journal of Community Psychology*, 19, 103-110.
- Rook, K. S. (2001). Emotional health and positive versus negative social exchanges: A daily diary analysis. *Applied Developmental Science*, 5, 87-97.
- Rook, K. S., & Dooley, D. (1985). Applying social support research: Theoretical problems and future directions. *Journal of Social Issues*, 41, 5-28.
- Rook, K. S., & Ituarte, P. H. G. (1999). Social control, social support, and companionship in older adults' family relationships and friendships. *Personal Relationships*, 6, 199-211.
- Rook, K. S., Thuras, R. D., & Lewis, M. (1990). Social control, health-risk-taking, and psychological distress. *Psychology and Aging*, 5, 327-334.
- Rosenberg, M. (1965). *Society and the adolescent self-image*. Princeton, NJ: Princeton University Press.
- Russell, D. W. (1996). UCLA Loneliness Scale (Version 3): Reliability, validity, and factor structure. *Journal of Personality Assessment*, 66, 20-40.
- Russell, D. W., Peplau, L. A., & Cutrona, C. (1980). The revised UCLA Loneliness Scale: Concurrent and discriminant validity. *Journal of Personality and Social Psychology*, 39, 472-480.
- Schulz, R., & Beach, S. R. (1999). Caregiving as a risk factor for mortality: The caregiving health effects study. *Journal of the American Medical Association*, 282, 2215-2219.
- Schultz, N. R., & Moore, D. (1984). Loneliness: Correlates, attributions, and coping among older adults. *Personality and Social Psychology Bulletin*, 10, 67-77.
- Seeman, T. E. (1996). Social ties and health: The benefits of social integration. *Annals of Epidemiology*, 6, 442-451.
- Seeman, T. E., Berkman, L. F., Charpentier, P. A., Blazer, D. G., Albert, M. S., & Tinetti, M. E. (1995). Behavioral and psychosocial predictors of physical performance: MacArthur studies of successful aging. *Journal of Gerontology: Medical Sciences*, 50, M177-M183.
- Uchino B. N., Cacioppo, J. T., & Kiecolt-Glaser J. K. (1996). The relationship between social support and physiological processes: A review with emphasis on underlying mechanisms and implications for health. *Psychological Bulletin*, 119, 488-531.
- Van Willigen, M. (2000). Differential benefits of volunteering across the life course. *Journal of Gerontology: Social Sciences*, 55B, S308-S318.
- Weiss R. S. (Ed.) (1973). *Loneliness: The experience of emotional and social isolation*. Cambridge, MA: MIT Press.
- Weiss, R. S. (1974). The provisions of social relationships. In Z. Rubin (Ed.), *Doing unto others: Joining molding, conforming, helping, loving* (pp. 17-26). Englewood Cliffs, NJ: Prentice-Hall.

Wheeler, J. A., Gorey, K. M., & Greenblatt, B. (1998). The beneficial effects of volunteering for older volunteers and the people they serve: A meta-analysis. *International Journal of Aging and Human Development*, 47, 69-79.

Direct reprint requests to:

Karen S. Rook
Department of Psychology and Social Behavior
3340 Social Ecology II
University of California
Irvine, CA 92697-7085
e-mail: ksrook@uci.edu