Social Support Predictors of Health Outcomes

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Introduction

A variety of factors influence why some older adults maintain superior health status, while others have significant health problems for years. One frequently mentioned predictor variable is social support. Indeed, research has shown that social isolation places an individual at greater risk for mortality (House, Landis, & Umberson, 1988).

Given the role social isolation may play in health outcomes, what constitutes social support? House and Kahn (1985) have proposed that social support describes both the structural (homogeneity, size, density) and functional (giving or receiving of emotional, reciprocal, resource, or negative support) aspects of human social relationships.

The major objective of this study was to examine a variety of structural and functional aspects of social support measured in 1986 as they relate to mortality in 1992.

Methods

Subjects

Participants were part of the Adult Development and

Enrichment Project (ADEPT) a short-term longitudinal study (1986 to 1993) of intellectual functioning in old age. In 1986, 428 subjects were assessed. Of the 428 participants, 168 (39.3%) were married, 226 (52.8%) were widowed, and 34 (7.9%) were single. The mean age in 1986 was 69.2 years (SD=5.88, range 59-87 years). Mean educational level was 11.56 (SD=2.74, range 3-20 years).

Measures

Subjects received an extensive battery of measures in 1986 which included mental ability measures, social support, locus of control, morale and depression questionnaires. The health status of individuals was reassessed in 1993. The focus of this study is on measures of social support obtained in 1986.

Social Support. The social support measure, adapted from Kahn and Antonucci (1980), asked participants to place the names or initials of their network members into three circles. The first, or inner circle, indicated those people they felt were most important. Subjects were limited to three names in the inner circle, but unlimited names could be placed in the 2nd and 3rd circles. Several measures of structural and functional support were obtained (see Table 1). To assess structural characteristics, participants were asked to provide information (background and relationship as well as frequency and circumstances of contact) concerning the first two people in the inner circle. These individuals are listed as Person 1 (P1) and Person 2 (P2) in all tables. Network size is defined as the

total number of names in all three circles combined, while Circle size is the number of names in each of the three circles.

Four scales related to functional support were obtained for each of the two key people named in circle 1: 1) emotional support such as receipt of love and empathy; 2) resource support like receipt of money and information; 3) reciprocity of support or the degree to which an individual reciprocates the support that is given to them; and 4) negative support such as criticism by others. One additional item was included to assess amount of satisfaction with the support network. All scale items were presented in a 7-point Likert format ranging from 1=extremely likely to 7=extremely unlikely. Each support scale was analyzed individually. Further, a global support measure was created by combining the emotional and resource scales.

Personal data. Demographic information was obtained with a personal data measure which included items relating to income, educational level, age, marital status, self-rated health and life satisfaction. Educational level was coded as the number of years of education completed. The variable representing marital status was coded 1=married, 2=widowed, 3=single. And for participant's gender, 1=male and 2=female.

Assessment of health outcomes. Participants were recontacted in 1992 to assess current health status. 364 participants were classified as "alive" (85%), while 64 participants (15%) were classified as "dead" based on reports

from next-of-kin or through the records of the Social Security Administration.

Analyses

A hierarchical proportional hazard regression model was examined with the dichotomous health outcome **ALIVE VS. DEAD** as the dependent variable. Number of days surviving was determined by subtracting date of entry into the ADEPT project from date of death. For individuals who were still alive in 1993, a censored date of "death" was determined by subtracting date of entry into the ADEPT project from December 31, 1992.

The regression models followed a three-step procedure. The first step was run with the structural social support variables shown in Table 1. At step two, significant predictors from step 1 were retained and the functional support variables shown in Table 1 were added. At step 3, significant predictors from steps 1 and 2 were retained, and health variables (self-ratings of vision, health, and hearing in 1986) were entered. In a fourth step demographic variables (gender, age, education, and marital status) were entered. However, no significant demographic predictors emerged.

Results

Of the structural support variables (step 1), the gender and age of the primary support person and the number of people in the third circle directly predicted mortality as shown in Table 2. The risk of dying is greater for those with a female primary

support person, a support person who was younger, and for those with smaller networks.

All structural variables remained significant upon entering the functional support variables. Of the functional variables, only reciprocal support was significant. The risk of mortality was greater for those individuals providing less reciprocal support than for those individuals actively reciprocating support (see Table 3).

When health ratings are entered, the structural variable of the number of people in the network (Circle 3) loses it's significance. The structural variables of gender and age of the primary support person remains significant as does the functional variable representing reciprocal support. At step 3, only the participant's self-rated health status in 1986 entered the model. Individuals with poorer perceived health were at a greater risk of mortality than individuals in better health (see Table 4).

The final model indicates that the gender of the primary support person and participant's self-rated health in 1986 have the strongest effect on survival. Figure 1 shows the net effect of gender of the primary support person when other predictors (age of primary support person, circle size, reciprocal support, and perceived health) are taken into account. Figure 2 shows the net effect of participants self-rated health when other predictors (age and gender of primary support person, circle size, and reciprocal support) are taken into account.

Discussion

Our results indicate that both structural and functional support variables, in addition to perceived health status, are useful in predicting health outcomes. It appears that it is characteristics not only of the network but of the individual's role in the network that predicts mortality. Specific to this research, it is not just the age and gender of the primary support person that is crucial but also the level of reciprocity that is evidenced between the individual and his or her primary support that predicts mortality.

Previous research (Shanas, 1979; Peters et al., 1987) has shown that older adults follow a hierarchical pattern when approaching network members for support. Older adults turn first to spouses, then adult children (usually female). Given that the majority of our sample is widowed, the gender and age of the primary support person serves as an index variable. Meaning that it represents the participant's age and gender in addition to the primary support person's age and gender. About 60% of our sample listed a younger female relative as their primary support person. And, our results indicate that mortality risk is greater when a female is the primary support person. If previous research is correct, these older adults have experienced the death of a spouse and have substituted a second primary support person, usually the eldest daughter. The fact that mortality risk was lower when males acted as the primary support appears to support this theory because it indicates the individual is young enough

to still have a spouse alive and providing support. Those with a female support are usually older and therefore more likely to die.

The size of the third circle also proved to be a significant predictor. The procedure for listing network members makes this variable a proxy for network size. Participants who place individuals in the third circle are likely to have larger overall networks. The importance of this fact is underscored by Berkman and Syme (1979) who found that individuals with more social contacts had lower mortality rates.

The final significant predictors were the amount of reciprocal support the individual provides and self-rated health status in 1986. Reciprocal support may be important in this model because it also represents health status, with healthier individuals capable of providing more reciprocal support. It may be equivalent to a social quid pro quo, with individuals benefitting from not only the receipt of support, but their ability to repay that support.

This analysis supports research demonstrating a link between social support and mortality. These results suggest that the characteristics of the primary support person are critical. Individuals with younger, male support persons have a significantly lower mortality risk. Factors related to the individual's perceived health are crucial because perceived health may influence not only mortality, but also play a mediating role in the individual's support network.

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Table 1

VARIABLE NAME	VARIABLE MEANING
STRUCTURAL SUPPORT VARIABLES	
CIRCLE 1	Number in Circle 1
CIRCLE 2	Number in Circle 2
CIRCLE 3	Number in Circle 3
CIRCLE TOTAL	Total Network Size
PERSON 1 (P1) RELATION	Relationship of P1
PERSON 2 (P2) RELATION	Relationship of P2
P1 FREQUENCY	Frequency of Visiting P1
P2 FREQUENCY	Frequency of Visiting P2
P1 AGE	Age of P1
P2 AGE	Age of P2
P1 DURATION	Duration of Relationship with P1
P2 DURATION	Duration of Relationship with P2
P1 LIVE	Distance from P1
P2 LIVE	Distance from P2
P1 TIME	Time Spent with P1
P2 TIME	Time Spent with P2
P1 WHO	Who Else is There with P1
P2 WHO	Who Else is There with P2
P1 GENDER	Gender of P1
P2 GENDER	Gender of P2
FUNCTIONAL SUPPORT VARIABLES	
NEGATIVE	Negative Support at T1
EMOTIONAL	Emotional Support at T1
RESOURCE	Resource Support at T1
RECIPROCAL	Reciprocal Support at T1
SUPSAT T1	Satisfaction with Support at T1
HEALTH VARIABLES	
HEALTH	Self-Rated Health T1
VISION	Self-Rated Vision T1
HEARING	Self-Rated Hearing T1

Table 2
Odds Ratio From Hierarchical Proportional
Hazard Regression Model
Step 1 Structural Support

PREDICTOR	RISK RATIO	LOWER	UPPER
P1 Gender	2.101 ***	1.166	3.787
P1 Age	1.261 *	0.978	1.628
Circle 3	0.882 **	0.785	0.990

* < .10
** < .05
*** < .01

Table 3
Odds Ratio From Hierarchical Proportional
Hazard Regression Model
Step 2 Structural + Functional

PREDICTOR	RISK RATIO	LOWER	UPPER
P1 Gender	2.082 ***	1.159	3.741
P1 Age	1.273 *	0.984	1.647
Reciprocal	0.947 *	0.893	1.004
Circle 3	0.893 **	0.796	1.003

* < .10
** < .05
*** < .01

Table 4
Odds Ratio From Hierarchical Proportional
Hazard Regression Model
Step 3 Structural, Functional + Health

PREDICTOR	RISK RATIO	LOWER	UPPER
P1 Gender	2.146 ***	1.193	3.858
Health	1.442 ***	1.101	1.890
P1 Age	1.285 **	0.994	1.660
Reciprocal	0.946 *	0.891	1.005
Circle 3	0.912	0.812	1.024

* < .10
** < .05
*** < .01

FIGURE 1: ALIVE VS. DEAD
SURVIVAL CURVE FOR GENDER OF PRIMARY SUPPORT PERSON AT T1
FEMALE SUPPORT PERSON (SOLID LINE), MALE SUPPORT PERSON (– – –)

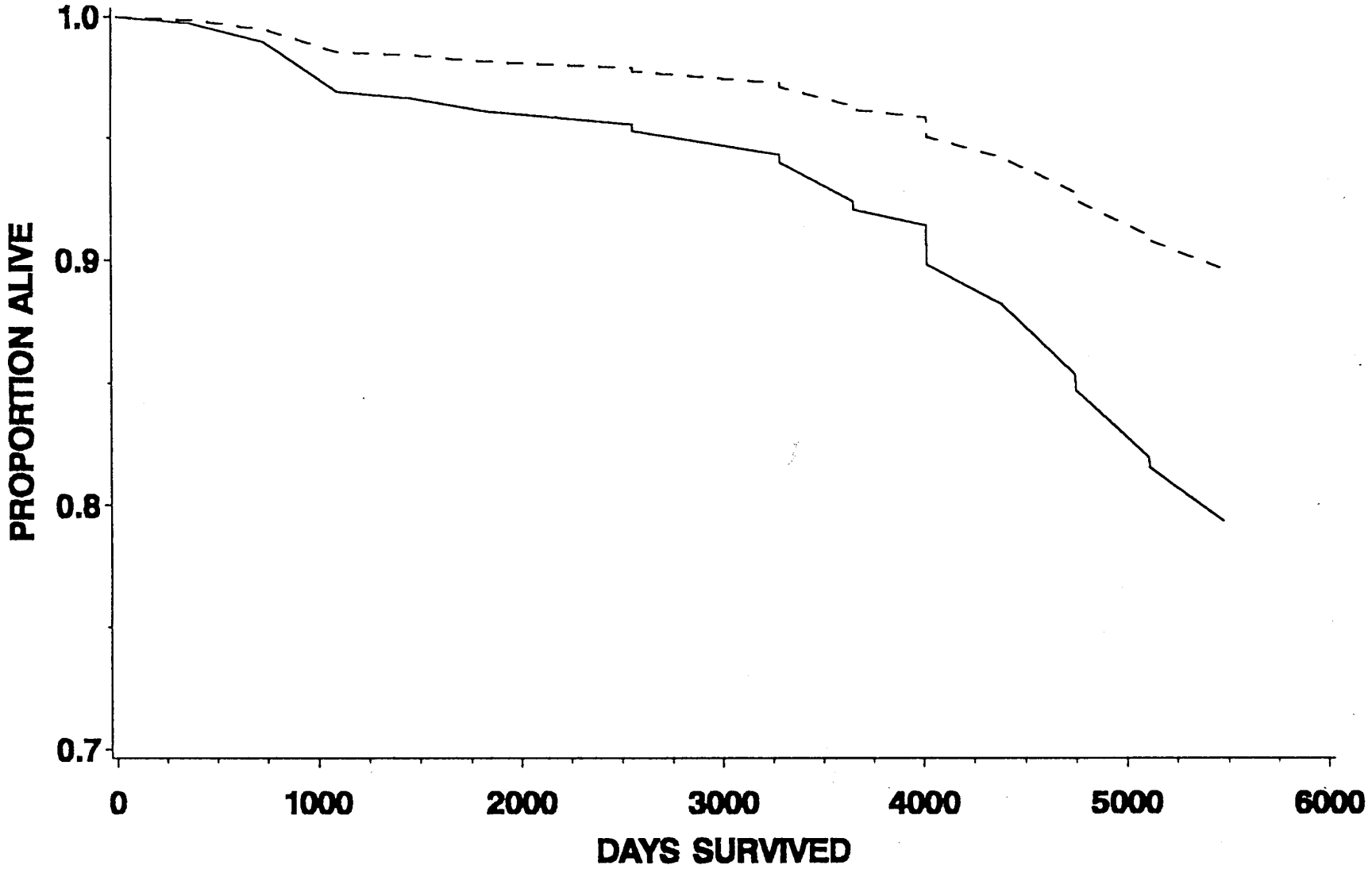

FIGURE 2: ALIVE VS. DEAD
SURVIVAL CURVE FOR SELF–RATED HEALTH AT T1
CURVES FOR MEAN VALUE (SOLID LINE), 1 STDV ABOVE (....),
AND 1 STDV BELOW (– – –) THE MEAN