

# *Received Support, Anticipated Support, Social Class, and Mortality*

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The purpose of this study was to assess the relationships among received support, anticipated support, social class, and mortality. Anticipated support is defined as the belief that significant others will provide assistance in the future should the need arise. Data from a prospective nationwide survey of older adults indicate that greater received support is associated with an increased mortality risk. However, the findings further reveal that anticipated support is associated with lower mortality risk, but these beneficial effects are evident only in the upper social classes. Finally, the analyses suggest that there may be a reciprocal relationship between received support and anticipated support. However, the relationship between these dimensions of support varies by social class standing.

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*There is now fairly substantial literature on the relationship between social support and mortality in later life (e.g., Seeman et al. 1993). Taken as a whole, this research suggests that older adults who are embedded in active social networks tend to have a lower mortality risk than elderly people who do not maintain meaningful ties with others. Although this work provides valuable insight into the social support process, investigators have yet to take full advantage of recent findings in the wider support literature. Two issues are especially relevant for the purposes of this study. First, researchers are becoming increasingly*

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aware that there are both costs and benefits associated with receiving assistance from others (Kessler 1992). However, the downside of received support has not been fully explored in mortality studies. Second, as the literature has evolved, it is becoming increasingly evident that social support is a multidimensional construct that may be measured in a number of ways (Barrera 1986). Even so, researchers investigating mortality in later life have not thoroughly explored the potentially important influence of all social support dimensions. This is especially true with respect to anticipated support, which is defined as the belief that significant others stand ready to help in the future should the need arise (Wethington and Kessler 1986). The purpose of this study is to address these limitations by assessing the impact of received support and anticipated support on mortality in late life. In the process, an effort is made to embed this research in a broader social structural context by arguing that the potential benefits of anticipated support may be more evident in the upper social classes than in the lower social classes.

This article is divided into three main sections. The theoretical underpinnings of the study are developed first. Following this, the study sample and measures are presented. The data-analytic strategy is introduced at this juncture as well. Finally, results from a prospective nationwide survey are reviewed and discussed.

### *Theoretical Foundation*

Four theoretical issues are discussed in this section. First, the drawbacks associated with receiving support from others are highlighted. Second, the potential benefits of anticipated support are reviewed. Third, a rationale is presented for why elders in the upper classes are more likely than those in the lower classes to enjoy the benefits associated with anticipated support. Finally, the interface between received and anticipated support is examined.

#### *COSTS ASSOCIATED WITH RECEIVED SUPPORT*

So far, most studies on social support in late life have focused on the benefits associated with receiving assistance from others. How-

ever, as researchers began to probe more deeply into the social support process, it became evident that getting help from others may not always have the intended effect and that social support may exert a detrimental impact on health and well-being (e.g., Coyne, Wortman, and Lehman 1988; Krause, forthcoming; Krause, Liang, and Gu, forthcoming). To see why this may be the case, it is important to first consider how many older adults feel about getting help from others.

A number of investigators maintain that elderly people value independence highly and prefer to take care of things on their own rather than turn immediately to others for assistance (Lee 1985). This strong predilection for self-reliance and autonomy appears to be deeply ingrained in most Western societies including the United States and the United Kingdom (Wilson 1993). In fact, there is some evidence that this orientation is part of a larger historical trend toward an increasing preference for independence among successive cohorts of elders (Hareven 1994).

Given this preference for self-reliance, seeking out and receiving help from others may carry certain ego-relevant costs. In particular, some investigators propose that seeking help from others represents an implicit admission of the inability to care for oneself and that, as a result, it fosters a sense of vulnerability, weakness, and personal failure (Eckenrode and Wethington 1990; Gottlieb 1996; Kessler 1992). Consequently, elders who actually get help from others may have lower self-esteem and feel more dependent on their social network members than do older adults who are more self-reliant (Krause 1987; Krause, forthcoming). Although research on this issue has provided some provocative findings, psychological well-being serves as the outcome measure in the wide majority of studies. Much less is known about the potential negative effects of received support on mortality. Even so, a comparable relationship may exist because a number of studies indicated that low self-esteem and autonomy (as assessed by feelings of personal control) are associated with poor physical health and a greater mortality risk (see Rodin 1990). The first goal of the present study is to address this gap in the knowledge base by assessing whether older adults who receive more support from others have a greater mortality risk than do elders who do not receive as much help from their social network members.

*BENEFITS ASSOCIATED WITH ANTICIPATED SUPPORT*

Although receiving help from others may not always have the intended effects, it is likely that elders cannot function effectively without some sort of meaningful tie to others. The challenge facing investigators is to identify the precise facet of social relationships that promotes successful adaptation. Some insight may be found by turning to anticipated support. There are at least two reasons why anticipated support may benefit older adults. First, as Wethington and Kessler (1986) pointed out, it may be an especially effective resource during stressful times. According to these researchers, knowing that others are available if needed acts as a social safety net that promotes risk taking and encourages people to resolve problems on their own. Being able to work out problems without the direct intervention of others may be especially important because self-initiated action may enhance feelings of self-worth and personal control (Rodin 1990). The link with control is noteworthy because, as already noted, there is some evidence that greater feelings of personal control are associated with a lower mortality risk (Seeman and Lewis 1995).

The second benefit associated with anticipated support may be seen by viewing the exchange process from the perspective of the support provider. Several studies have indicated that significant others may feel burdened and put on when faced with repeated requests for assistance (Eckenrode and Wethington 1990). By encouraging people to take care of their own needs, anticipated support may reduce feelings of burden among support providers, thereby enhancing the quality of help when it is provided and optimizing overall social network functioning.

*SOCIAL CLASS VARIATIONS*

A good deal of the rationale developed so far is concerned with the interface between anticipated support and individual initiative or independent action. Stated simply, anticipated support may help older adults help themselves. The promotion of self-sufficiency usually is a desirable goal because, as already noted, it may promote feelings of

personal control, enhance an elder's sense of self-worth, and contribute to the smooth functioning of social networks. However, individuals must possess adequate personal resources to ensure that individually initiated actions are possible and ultimately successful.

Social class standing is a proxy measure that reflects access to a range of personal resources including income and education. As Thoits (1995) noted recently, financial resources are a potentially important, but frequently overlooked, stress buffer that people often rely on to deal with their problems. For example, money is an obvious prerequisite for obtaining the best medical care and legal assistance. In addition to income, educational attainment also may be a key factor for maximizing the benefits associated with anticipated support. Elders must possess certain cognitive abilities to develop and initiate plans for confronting and eradicating troublesome life events. Those with little schooling may be at a disadvantage in this respect because one of the primary goals of education is to develop the capacity for sound abstract reasoning and effective problem-solving skills.

The theoretical rationale devised up to this point suggests that the social support process may operate differently in the upper and lower social classes. Bolstered by the belief that others stand ready to help if need be, upper class elders are more likely to try to deal with their problems on their own. Because they possess adequate personal resources, these self-initiated efforts often meet with success. By contrast, lower class elders may lack the personal resources needed to implement individually initiated coping efforts. Because of this, they may be more inclined to turn immediately to others for help. However, the feelings of dependence, diminished self-worth, and lower personal control associated with immediate support mobilization may have detrimental effects on their health and ultimately may influence their odds of dying.

#### *RECEIVED SUPPORT AND ANTICIPATED SUPPORT*

The theoretical rationale provided up to this point creates the impression that getting support is bad and that merely believing it will be available in the future is good. However, this does not do justice to

the complex process under study because received and anticipated support may be related in ways that have not been discussed up to this point. The goal of this section is to argue that there may be a reciprocal relationship between these social support dimensions. Stated in more technical terms, the first is evident in the cross-sectional relationship between these constructs, whereas the second has to do with lagged effects. This reciprocal link is captured in the following propositions. First, an elder's sense of anticipated support at any one point in time may be influenced by the amount of help that others provide. Second, older adults with a strong sense of anticipated support are more likely to subsequently mobilize support networks in the future than are elders who do not believe others are willing to help out.

There is considerable debate in the literature about how anticipated support beliefs arise. Some investigators have argued that anticipated support reflects little more than an underlying personality trait (e.g., Sarason, Sarason, and Pierce 1994). Others have suggested that perceptions of support availability in the future are shaped, at least in part, by the amount of assistance that has actually been received in the past (e.g., Wethington and Kessler 1986). According to this view, actually getting help from others conveys a sense of continuity and commitment in social relations that forms the bedrock of expectations for support in the future. Consequently, it is predicted that elders who have received more support in the past will expect to receive more support in the future should the need arise. Because received support can only be measured after it has been provided, the hypothesized relationship between received support and anticipated support should be evident in data that have been gathered at the same point in time.

The hypothesized relationship between received support and anticipated support expands our understanding of the social support process by suggesting that being helped by others in the past may have both positive and negative effects. On the one hand, received support may have a detrimental direct effect on mortality because it discourages self-initiated action and promotes dependence on others. Nevertheless, received support may exert a beneficial indirect effect on mortality by enhancing the belief that social network members stand ready to help if needed. By assessing both the direct and indirect effects in the analyses presented subsequently, a preliminary step is taken to-

ward disentangling the concomitant features of received support in later life.

Although received support may play an important role in shaping anticipated support, anticipated support also may determine whether support networks are mobilized at a later point in time. The hypothesized lagged effect rests on the general observation that elders are likely to seek out the assistance of others only if they believe that social network members subsequently will comply with their requests. However, there may be more to it than this. Consistent with the theoretical overview already presented, research reviewed by Eckenrode and Wethington (1990) suggests that instead of turning immediately to social network members for help, people often try to resolve their difficulties on their own. After this, they may ask for assistance, but only if their own personal resources prove to be ineffective. However, because access to personal resources is determined by social class, the impact of anticipated support on received support over time may vary by social class standing. When faced with adversity, the relationship between anticipated support and received support will be relatively weak in the upper classes because elders who are more well-to-do will have the resources needed to deal with difficulties on their own. By contrast, the relationship between anticipated support and received support will be stronger in the lower classes because elders are less likely to possess the personal resources needed to resolve their problems. Supplemental prospective data described later facilitate the testing of this potentially important relationship.

Taken as a whole, the theoretical rationale devised heretofore leads to the following study hypotheses:

1. Greater received support will be associated with an increased mortality risk.
2. The impact of anticipated support on mortality will vary by social class; while lowering the odds of dying in the upper classes, anticipated support will increase the mortality risk of lower class elders.
3. Actually receiving help from others in the past increases the belief that social network members will help out in the future.
4. High anticipated support is associated with low support mobilization at a later point in time, but only among upper class elders.

## *Methods*

### *SAMPLE*

The data for this study come from the Health and Lifestyle Survey (Cox, Huppert, and Whichelow 1993). This complex survey included a two-wave panel design and an extended mortality follow-up of 11 years. The two-wave panel design called for face-to-face interviews in 1984-1985 and 1991-1992. Due to the manner in which the data were collected, different components of this database are used to evaluate the hypotheses in this study.

Stressful life events play a key role in the theoretical preceding rationale. Under ideal circumstances, Wave 1 data on anticipated support and Wave 1 data on stress would be used to predict mortality status during the 11-year mortality follow-up period. However, measures of stress were not obtained until the second wave of interviews. By this time, a number of study participants already had died ( $n = 650$ ). Consequently, two separate sets of analyses are performed. The first set is based on the Wave 1 survey and the 11-year mortality follow-up data. These analyses, which test the first three hypotheses listed in the preceding section, focus primarily on the relationships among anticipated support, received support, social class, and mortality. The second set of analyses are supplemental and use the Wave 1 and Wave 2 panel data (including the Wave 2 measures of stress) to test the fourth hypothesis. The components of the database that are used in each set of analyses are described in the following subsections.

#### *Mortality Analysis Data*

The population for the Health and Lifestyle Survey was defined as all individuals age 18 years or older who reside in private dwellings in England, Wales, and Scotland. A complex five-step process was used to field the sample. First, England, Wales, and Scotland were divided into parliamentary electoral constituencies, and each constituency was assigned to one of three groups based on population size. Next, 198 constituencies were selected with probability proportionate to size. Following this, two wards were chosen at random within each of the selected constituencies, again with probability proportionate to



size. Addresses were then selected at random within each ward. Finally, one eligible individual was randomly selected from each household.

A total of 9,003 people age 18 years or older were interviewed successfully in 1984-1985, representing 73.5% of all persons selected to participate in the study. The analyses performed throughout the present study are based on those respondents age 60 years or older at the time of the baseline interview ( $n = 2,349$ ).

Following the face-to-face interviews in 1984-1985, arrangements were made with the National Health Service in the Office of Population Census and Surveys to notify the research team of all deaths in the sample and to provide copies of death certificates. Although mortality data still are being collected, the analyses provided here are based on deaths occurring through November 1995. Cox and his associates (1993) did an excellent job of tracking the study participants during this lengthy follow-up period. In particular, they were able to verify the mortality status of 96.6% ( $n = 2,269$ ) of those individuals who were age 60 years or over at the first interview.

After using listwise deletion of cases to deal with item nonresponse, complete data were available for the mortality analyses on 2,209 older adults. The average age of the men and women in this sample was 69.4 years ( $SD = 7.1$ ) at the baseline survey. Approximately 43% of the study participants were men, 62% were married at the baseline interview, and most (98%) were White. Finally, based on information contained in death certificates, it was determined that 865 people had died during the 11-year follow-up period.

#### *Data for the Supplemental Analyses*

Successful follow-up interviews were conducted in 1991 and 1992 with 1,155 (49.2%) of the 2,349 baseline study participants. The follow-up response initially may appear to be low. However, as already noted, a fairly large number of study participants died during the seven-year between-round interval ( $n = 650$ , 27.7%). In addition to these individuals, 174 (7.4%) Wave 1 participants could not be located at Wave 2, 55 (2.3%) were located but contact could not be made at Wave 2, 242 (10.3%) refused to participate in the Wave 2 interviews, and 73 (3.1%) said they were too ill to take part in the follow-up survey.

After using listwise deletion of missing values to handle item nonresponse, complete panel data were available for 1,094 respondents. The average age of the respondents in this group at the baseline survey was 67.7 years ( $SD = 6.2$ ). Approximately 43% of the study participants were men, 67% reported they were married at the baseline interview, and the wide majority at the follow-up (98%) were White.

As the data on reinterview rates reveal, a large number of study participants were lost to follow-up ( $n = 1,194$ ). The loss of participants through time may bias study findings if sample attrition occurs nonrandomly. Although it is difficult to determine the extent of the problem precisely, some preliminary insight may be obtained by seeing whether select data gathered at the baseline are related significantly to participation rates in the follow-up survey (see Norris 1985 for a discussion of this approach). The following procedures were used to implement this strategy. First, a binary outcome measure was computed by assigning a score of 1 to all subjects who participated in the Wave 2 survey and a score of 0 to those who were lost to follow-up. Then, using logistic regression, this binary measure was regressed on the following Wave 1 indicators: age, sex, marital status (married vs. others), race (White vs. others), social class, frequency of contact with kin, frequency of contact with friends, anticipated support, and amount of emotional support received from others. (A detailed description of these measures is provided later in this article.) The data reveal that those who were lost to follow-up were older than and had more frequent contact with relatives and friends than did those who took part in both waves of interviews. However, significant findings failed to emerge with respect to sex, marital status, race, social class, anticipated support, or emotional support.

Although the findings from the logistic regression analysis are helpful for identifying where nonrandom attrition has taken place, it is important to get a sense of the magnitude of the relationships discussed heretofore. This is an important consideration because small (but statistically significant) differences are likely to emerge when samples are large. Although there are several ways in which to address this problem, the logistic regression program used here provides a useful approach. Once the main logistic regression analysis is performed, the software program uses the results to predict subject participation status in the Wave 2 survey. These predictions are then

compared with the actual follow-up status of the subjects, and the proportion of successful predictions is calculated. These additional analyses reveal that the logistic regression equation classified (i.e., predicted) only 60.4% of the cases correctly. Because 50% of the cases could be classified successfully on the basis of chance alone, it would appear as though the overall predictive power of the logistic regression equation is not substantial.

Taken together, the preliminary analysis described here suggests that there are nonrandom patterns of attrition in the panel survey data used in this study. Although the extent of the problem does not appear to be great, it is important to identify one caveat with this approach. The procedure described here looks at the relationship between data gathered at the Wave 1 survey and participation in the study at Wave 2. However, it is not possible to tell whether changes took place after Wave 1 (but before Wave 2) that further contributed to the differences between those who remained in the study and those who were lost to follow-up. Consequently, the potential bias created by nonrandom sample attrition through time should be kept in mind as the findings from this study are reviewed.

### MEASURES

The appendix contains a list of the variables that were used in the analyses to be discussed. The procedures used to code these indicators are reported in the footnotes of the appendix. The measures used in the mortality analysis are presented in Panel A, whereas the indicators used in the supplemental analyses involving stress are listed in Panel B.

*Mortality status.* The relationship between anticipated support and mortality status is assessed with a Cox proportional hazard rate model. Consequently, survival time (i.e., the length of time until death) serves as the dependent variable. Survival time was computed by subtracting age at the baseline interview from the age reported on the death certificate. The resulting survival time data were coded in years and tenths of a year by Cox and his associates (1993) (e.g., 10.2 years). It should be emphasized that the analyses focus on deaths from all causes instead of mortality associated with a specific disease or event.

*Anticipated support.* As shown in the appendix, anticipated support is assessed with two indicators. A high score on these measures denotes

greater anticipated support. Preliminary analyses revealed that the correlation between the two indicators is .637 ( $p < .001$ ).

*Received emotional support.* As shown in the appendix, a brief measure of emotional support received from others also was contained in the Wave 1 and Wave 2 surveys. A high score on this composite reflects more emotional support. The internal consistency reliability estimate for this measure is .806 at Wave 1 and .791 at Wave 2.

Emotional support is not the only type of assistance received by older adults. Informal networks may provide tangible and informational support as well. Unfortunately, only emotional support measures were contained in the survey. Even so, research reviewed by House and Kahn (1985) suggests that different types of received support are correlated highly and that emotional support may form the core of this conceptual domain (see also Hobfoll and Vaux 1993).

*Social class.* Social class standing is assessed with the registrar general's Classification of Occupations. According to Argyle (1994), this is the most widely used measure of social class standing in the United Kingdom. This classification scheme divides socioeconomic groups into six ordinal occupation categories: (1) professional (e.g., physician, judge), (2) employers/managers (e.g., proprietor), (3) other nonmanual (e.g., sales representative), (4) skilled manual (e.g., bus driver), (5) semiskilled manual (e.g., street vendor), and (6) unskilled manual (e.g., kitchen hand). Married women were classified by the occupations of their husbands, widowed women were classified by their ex-husbands' occupations, and single or divorced women were classified by their own occupations. Following procedures used in the United Kingdom, this six-category schema is reverse-coded so that a high score denotes lower social class standing (Argyle 1994).

*Health status.* The relationships among anticipated support, social class, and mortality were evaluated after controls were included for a range of potential confounding measures. The first was physical health status. As shown in the appendix, this construct is measured with two variables. The first asks respondents to rate their overall health as either excellent, good, fair, or poor. A high score denotes a more negative rating. The second variable measures functional limitations associated with illness. This variable was constructed from a series of questions. First, study participants were asked whether they had a

long-standing illness, disability, or infirmity. A follow-up question determined whether this health problem limited their activities in any way. If the study participants indicated that their health limited their activities, then they subsequently were asked the series of questions listed in the appendix. A high score on these indicators denotes greater functional disability.

*Health behavior.* Health practices and behaviors can exert a substantial influence on life expectancy (Gochman 1988). Consequently, the effects of four types of health behavior were controlled statistically in the mortality analyses to be presented: cigarette smoking, alcohol consumption, physical activity, and diet.

Cigarette smoking was measured with two binary indicators. The first assesses whether or not a respondent smoked cigarettes regularly at the time of the baseline interview. The second reflects whether he or she smoked cigarettes in the past but quit before the baseline survey. Although more detailed information was gathered on the use of tobacco, preliminary analyses (not shown here) revealed that these straightforward questions performed as well as more complex measures.

Detailed data were collected on alcohol use. As shown in the appendix, the measure derived from this information reflects the total units of alcohol consumed in the week prior to the baseline interview. A unit of alcohol is defined as one-half pint of beer, one drink of liquor, or one glass of wine. Recent evidence suggests that drinking small amounts of alcohol daily may serve a health-protective function (e.g., Scherr et al. 1992). Nevertheless, preliminary analyses (not shown here) failed to uncover a similar effect. Consequently, the data on alcohol consumption are coded in a continuous format.

Returning to the appendix, two measures were used to assess physical activity. The first consists of a single item that asked study participants whether they are more active, as active, or less active physically than men or women of their own age. The second reflects the amount of time spent walking when not on the job. This measure is important because research indicates that walking is an important form of exercise across the life course (e.g., Ross and Wu 1995).

Finally, six measures assessing dietary practices were included in the hazard rate model. These indicators assess how often a respondent eats prepared meats (e.g., sausages), red meat, fresh fruits, and salads.

In addition, data were gathered on whether study participants take vitamins and how often they eat between meals. The measure assessing the consumption of salads was created by summing two items that gauge how often salads are eaten in the winter and summer months. The correlation between these two indicators is .559 ( $p < .05$ ). The measure dealing with fresh fruit was developed in the same way. The correlation between the two items making up this brief composite is .837 ( $p < .05$ ).

*Social contact.* A number of studies have suggested that people who have more frequent contact with significant others have a lower mortality risk (e.g., Shye et al. 1995). Consequently, it is important to demonstrate that received support and anticipated support have an effect on mortality above and beyond social contact. As shown in the appendix, two measures of social contact were included in the model for this purpose. The first evaluates contact with family members, whereas the second focuses on contact with friends. These measures are coded so that a high score denotes more frequent contact. The internal consistency reliability estimate of contact with friends was .610, whereas the corresponding estimate of contact with kin was .534. Although these estimates are low, it is important to keep in mind that internal consistency reliability estimates are quite sensitive to the number of items in a scale (Cortina 1993).

*Demographic control variables.* The mortality analysis and the supplemental analysis with stress were performed after the effects of age, sex, and marital status were controlled statistically. Age is coded in a continuous format, whereas sex (1 = males, 0 = females) and marital status (1 = married, 0 = otherwise) at the Wave 1 interview are coded in a binary format.

*Stressful life events.* The Wave 2 survey included a brief checklist of stressful life events. Of the stressors contained in this list, 10 are used in the supplemental analyses to be presented (see Panel B in the appendix). The summary score derived with these indicators represents the simple unweighted count of the number of life events encountered in the year prior to the Wave 2 interview. Preliminary analyses revealed that the summary stress measure ranged from 0 to 5 events with a mean of 0.966 stressors ( $SD = 1.054$ ).

*DATA ANALYSIS ISSUES*

The data analysis strategy developed for this study is presented in the following four subsections. In essence, one subsection is devoted to describing how each of the four study hypotheses will be evaluated. It should be emphasized at the outset that the first three hypotheses are tested by using stepwise procedures to develop a hazard model.

*Received Support and Mortality*

The first hypothesis states that more received support will be associated with an increased mortality risk. This hypothesis is tested with a hazard rate model that includes the control measures discussed previously and received emotional support.

*Anticipated Support, Social Class, and Mortality*

The second hypothesis states that the relationship between anticipated support and mortality depends on social class standing. Stated more technically, this specification calls for a statistical interaction effect between anticipated support and social class on mortality risk. The test for this interaction was performed by adding a multiplicative term to the hazard rate just discussed. The addition of the cross-product term results in an equation that takes the following form:

$$h_{ij}(t|X) = h_{0ij}(t)\exp(B_1ES + B_2AS + B_3SC + B_4(AS \times SC) + \sum B_i C_i). \quad (1)$$

In this equation,  $h_{0ij}(t)$  is the baseline hazard function, *ES* stands for received emotional support, *AS* represents anticipated support, *SC* denotes social class standing,  $(AS \times SC)$  is the multiplicative term designed to capture the hypothesized interaction effect, and the  $C_i$  are the control variables already identified. Finally, the  $B_i$  are parameter estimates representing the effects of the covariates. It should be emphasized that all variables in Equation 1 (except the mortality outcome) are deviation scored (i.e., centered on their means).

The model depicted in Equation 1 is estimated in three steps. First, as discussed previously, the first hypothesis is tested by entering

emotional support (*ES*) and the control variables in the first step. Anticipated support (*AS*) is entered in the second step. Finally, the multiplicative term ( $AS \times SC$ ) is entered in the third step. If the multiplicative term is related significantly to the risk of dying, then it is important to make sure that the interaction effect is in the hypothesized direction. Although there are a number of ways in which to illustrate interaction effects, a simple but intuitively pleasing approach involves calculating an odds ratio at each of the six social class levels. Following this, confidence intervals can be computed to assess the efficiency of these estimates (Hosmer and Lemeshow 1989). The odds ratios are computed with the following formula:

$$e^{(B_2 + B_4 SC)} \quad (2)$$

In this equation, values for  $B_2$  and  $B_4$  are derived by estimating Equation 1. A value denoting a particular social class (*SC*) is then plugged into the formula, and the equation is solved.

#### *Received Support and Anticipated Support*

The third hypothesis states that even though received support may increase the odds of dying, it nevertheless exerts a beneficial indirect effect on mortality through anticipated support. Stated more technically, this means that the interaction between anticipated support and social class mediates the impact of received emotional support on mortality (Baron and Kenny 1986). Unfortunately, it is not possible to use the procedures devised by Baron and Kenny (1986) for testing mediating effects because the mediating variable consists of a multiplicative term. This problem may be highlighted by examining the first of three equations involved in the Baron and Kenny procedure. More specifically, the first equation calls for regressing the interaction of anticipated support and social class on received emotional support. However, meaningful results cannot be obtained when a multiplicative term serves as the dependent variable.

Even so, it is possible to use the stepwise model depicted in Equation 1 to get a preliminary sense of the relationship between



received and anticipated support. As already noted, estimates derived in the first step should indicate that more received support is associated with increased odds of dying. However, preliminary evidence of mediating effects would be established if this relationship either is reduced or disappears entirely when the interaction between anticipated support and social class is entered into the hazard model in the third step.

*Anticipated Support, Stress, and Received Support*

The final hypothesis has to do with the lagged relationships among anticipated support, stress, and received support. A different model and different estimation procedures are used to test this hypothesis. Viewed at the broadest level, this model evaluates the notion that the amount of assistance actually received by older adults is determined, in part, by the amount of support they anticipate receiving. However, there are two important qualifications. First, the impact of anticipated support on received support depends on the amount of stress that is present; when elders do not encounter a major life event, there is no need for help. However, when a stressor emerges, the relationship between anticipated support and received support should become stronger. Second, the relationships among anticipated support, stress, and received support should vary by social class. Because upper class elders possess adequate personal resources, they should be able to handle problems on their own. Consequently, the relationship between anticipated support and stress on received support should be weaker in the upper classes. By contrast, the impact of anticipated support and stress on received support should be stronger in the lower classes because lower class elders have less access to the resources needed for self-initiated action and must, therefore, turn to others for help more quickly.

Stated in technical terms, the theoretical rationale described here calls for a complex three-way interaction among anticipated support, stress, and social class on received support. A subgroup analysis is performed to simplify this complex interaction. In particular, the impact of anticipated support and stress on received support is evaluated separately in two groups consisting of upper and lower class

elders, respectively. The following ordinary least squares multiple regression equation is used for this purpose:

$$ES_{T_2} = B_1ES_{T_1} + B_2AS_{T_1} + B_3SE_{T_2} + B_4(AS_{T_1} \times SE_{T_2}) + \Sigma B_iC_i \quad (3)$$

In this equation,  $ES_{T_2}$  and  $ES_{T_1}$  represent received emotional support at Wave 1 and Wave 2, respectively. This means that the analyses focus on *changes* in emotional support through time. Returning to Equation 3,  $AS_{T_1}$  denotes anticipated support at the baseline interview, and  $SE_{T_2}$  stands for stressful life events that have arisen in the year prior to the Wave 2 survey. Finally, the  $C_i$  are control variables, and the  $B_i$  are regression coefficients.

Equation 3 is estimated in a hierarchical fashion where the additive effects of anticipated support ( $AS_{T_1}$ ) are entered into the equation at the first step, followed by the multiplicative term ( $AS_{T_1} \times SE_{T_2}$ ) in the second step. If the multiplicative term is statistically significant, then the following formula provided by Aiken and West (1991) will be used to see whether the impact of anticipated support on changes in received support becomes progressively larger as exposure to stress increases:

$$ES_{T_2} = B_2AS_{T_1} + B_4(SE_{T_2}). \quad (4)$$

In this equation,  $B_2$  and  $B_4$  are taken from the findings derived by estimating Equation 3. A value representing exposure to stress ( $SE_{T_2}$ ) is then entered into the formula, and the equation is solved. In the analysis to be presented, an estimate representing the impact of anticipated support on changes in received support is computed at each level of stress exposure (i.e., at stress values ranging from 0 to 5). Following this, additional formulas provided by Aiken and West (1991) (not shown here) are used to compute  $t$  tests and standardized regression coefficients for each estimate.

Because Equation 3 is estimated separately in upper and lower class subgroups, it is important to describe how these subgroups are created. The social class measure consists of six ordinal categories. If the interaction specified in Equation 1 is significant, then anticipated support should lower the risk of mortality in the upper classes but increase the odds of dying among elders in the lower classes. By

looking at the impact of anticipated support at each social class level (Equation 2), it should be possible to locate the point where the odds of dying first begin to increase. This social class level is then used to partition the sample into high and low social class groups for the supplementary analyses.

## *Results*

The findings from this study are presented in four subsections. One section is devoted to describing the results derived from testing each hypothesis.

### *RECEIVED SUPPORT AND MORTALITY RISK*

The findings obtained from the hierarchical estimation of the hazard rate model (i.e., Equation 1) are presented in Table 1. The data in the first column represent the effect of received support and the control measures on the odds of dying. The discussion provided in this subsection begins with a brief overview of the impact of some control measures on mortality. Only select findings involving the control measures are reviewed because many of these relationships have been reported by other investigators (see Berkman 1995 for a review of this research). The intent is to provide a point of comparison for evaluating the relative contributions of received support, anticipated support, and social class.

Consistent with a number of other studies, the data in the far left column of Table 1 suggest that elderly people who do not rate their health favorably at the baseline interview have a 15% greater risk of dying during the follow-up period (odds ratio = 1.147) than do older adults who feel that their health is good (Idler 1993). Similarly, greater functional disability is associated with increased mortality risk (odds ratio = 1.058).

Returning to Table 1, the data further reveal that both exercise measures are related significantly to mortality. More specifically, each hour of walking per week is associated with approximately a 4% decrease in the odds of dying (odds ratio = 0.959). Even more substantial results are found with respect to overall activity levels. The

TABLE 1  
Anticipated Support, Social Class, and Mortality ( $N = 2,209$ )

	<i>Step 1</i>		<i>Step 2</i>		<i>Step 3</i>	
	b	e <sup>b</sup>	b	e <sup>b</sup>	b	e <sup>b</sup>
Covariates						
Contact with kin	-.045**	0.956	-.047*	0.954	-.048*	0.953
Contact with friends	-.025	0.975	-.024	0.976	-.023	0.977
Emotional support	.095***	1.100	.064	1.066	.061	1.063
Current smoker	.455***	1.576	.454***	1.575	.454***	1.575
Past smoker	.197*	1.218	.199*	1.220	.200*	1.221
Alcohol intake	-.005	0.996	-.005	0.995	-.004	0.996
General physical activity	-.324***	0.723	-.323***	0.724	-.320***	0.726
Hours walking	-.042*	0.959	-.042*	0.959	-.043*	0.958
Eat processed meat	.081	1.084	.081	1.084	.079	1.083
Eat red meat	.016	1.016	.016	1.016	.016	1.016
Eat fresh fruit	.020	1.020	.019	1.019	.019	1.020
Eat salads	-.032	0.968	-.032	0.969	-.035	0.966
Take vitamins	-.162	0.851	-.155	0.856	-.165	0.848
Eat snacks	.091	1.095	.092	1.096	.104*	1.110
Married	-.135	0.874	-.134	0.874	-.141	0.869
Age at baseline	.088***	1.092	.088***	1.091	.088***	1.092
Sex	.448***	1.565	.447***	1.564	.455***	1.576
Self-rated health	.137***	1.147	.142***	1.154	.144***	1.155
Functional disability	.055*	1.058	.057*	1.058	.056*	1.058
Social class	.035	1.037	.038	1.039	.049	1.042
Anticipated support	—	—	.075	1.078	.044	1.045
(Anticipated Support × Social Class)	—	—	—	—	.100***	1.105
-2 Log likelihood	12,351.542		12,350.138		12,341.296	

\* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .005$ .

substantial results are found with respect to overall activity levels. The data suggest that the mortality risk is approximately 28% lower for older adults who feel they are more physically active than their same-age peers (odds ratio = 0.723).

It comes as little surprise to find that some of the more substantial effects in Table 1 are associated with cigarette smoking. Older adults who are current smokers are about 1.6 times more likely to die than are elderly people who do not smoke (odds ratio = 1.576). Moreover, the mortality risk also is higher for elders who used to smoke but quit (odds ratio = 1.218).

Consistent with previous research, the data in Table 1 support the notion that increased contact with others is associated with the odds

TABLE 2  
Effects of Anticipated Support at Each Social Class Level

	<i>Social Class 1</i>	<i>Social Class 2</i>	<i>Social Class 3</i>	<i>Social Class 4</i>	<i>Social Class 5</i>	<i>Social Class 6</i>
Coefficient	-0.222	-0.121	-0.021	0.079	0.179	0.279
<i>p</i> value	.05	n.s.	n.s.	n.s.	.05	.05
Odds ratio	0.801	0.886	0.979	1.082	1.196	1.322
Upper confidence limit	0.996	1.048	1.114	1.206	1.328	1.471
Lower confidence limit	0.645	0.711	0.846	0.954	1.031	1.089

of dying (e.g., Shye et al. 1995). However, the results show that it may be useful to take the nature of the relationship with the significant other into consideration. More specifically, the data suggest that greater contact with kin (odds ratio = 0.956) lowers the mortality risk during the follow-up period but that contact with friends fails to exert a statistically significant effect.

Perhaps the most important finding in the first column of Table 1 has to do with the impact of received emotional support on mortality. The data suggest that, as hypothesized, greater received support is associated with increased odds of dying during the follow-up period (odds ratio = 1.100).<sup>1</sup>

#### ANTICIPATED SUPPORT, SOCIAL CLASS, AND MORTALITY

The findings presented in the second column of Table 1 suggest that, for the sample taken as a whole, anticipated support is not associated with an increased risk of dying over the 11-year follow-up period (odds ratio = 1.078, n.s.). Although this initially may create the impression that anticipated support does not influence the survival of older adults, the data presented in the third column suggest otherwise. In particular, the findings reveal that, as predicted, there is a statistically significant interaction effect between anticipated support and social class on mortality risk.

Although the data in Table 1 indicate that a statistically significant interaction is present, it is difficult to get an intuitively pleasing sense of the precise nature of this relationship. Fortunately, as discussed

previously, this may be clarified by estimating Equation 2. The findings from these additional computations are presented in Table 2.

Table 2 contains the odds ratios associated with the impact of anticipated support on mortality at each of the six social class levels. A 95% confidence interval also is provided for each estimate. In addition, Table 2 contains regression coefficients and significance tests for the impact of anticipated support at each social class level.

The data in Table 2 suggest that anticipated support reduces the risk of dying but that these beneficial effects are enjoyed only by the most well-to-do elders. More specifically, the findings indicate that anticipated support is associated with a decreased risk of mortality for older adults in the highest social class (Social Class 1, odds ratio = 0.801). Although anticipated support also is associated with a slightly lower risk of dying for older adults in the second highest social class (odds ratio = 0.886), the findings should be viewed with caution because the confidence interval includes a value of 1. The impact of anticipated support on mortality becomes progressively weaker in Social Class 3 (odds ratio = 0.979), but again the effects are not statistically significant.

Argyle (1994) suggested that people in Social Class 4 may constitute the upward boundary of the working class. Consistent with the main study hypothesis, the data in Table 2 reveal that it is at this juncture where anticipated support is first associated with an increase in mortality. More specifically, the data suggest that anticipated support is associated with an 8% increase in the risk of mortality for elders in Social Class 4 (odds ratio = 1.082). The detrimental effects associated with anticipated support become even more pronounced for elderly people in Social Class 5. Here anticipated support is associated with a 20% increase in the risk of dying (odds ratio = 1.196). However, the data in Table 2 suggest that the most vulnerable elders are those with the least resources (i.e., elders in Social Class 6). More specifically, the findings reveal that anticipated support is associated with a 32% greater risk of dying during the follow-up period (odds ratio = 1.322). Contrasting the mortality risk for elders in Social Class 6 with older adults in Social Class 1 provides a useful way in which to summarize the overall effect of anticipated support. This simple contrast reveals that there is a 52% increase in the odds of dying when

the least fortunate elders are compared to the most well-to-do older adults (i.e.,  $1.322 - 0.801 = 0.521$ ).<sup>2</sup>

#### *RECEIVED SUPPORT AND ANTICIPATED SUPPORT*

When the data-analytic strategy for this study was introduced, it was argued that the stepwise estimation of the hazard rate model (i.e., Equation 1) would provide a preliminary test of whether anticipated support mediates the effects of received support on mortality. The data in the first and third columns of Table 1 suggest that this may be the case. As noted earlier, the data in the first column indicate that more received support is associated with an increased mortality risk ( $p < .005$ ). However, once the interaction between anticipated support and social class is entered into the equation (see third column), the impact of received emotional support no longer is statistically significant. However, the interpretation of this mediating effect is not straightforward because the analyses presented earlier suggest that the effect of anticipated support on mortality depends on social class standing. Taking this into consideration leads to the following conclusions about the mediating effect: For those in the lower classes, anticipated support exacerbates the effects of received support on mortality. By contrast, anticipated support buffers or offsets the potentially noxious effects of received support on mortality for upper class elders.<sup>3</sup>

#### *ANTICIPATED SUPPORT, STRESS, AND RECEIVED SUPPORT*

Table 3 contains the results of the analyses that were designed to test the final study hypothesis. As reflected in Equation 3, these analyses examine the interfaces among anticipated support, stress, and changes in received emotional support through time. The two left-hand columns contain the results of the hierarchical regression analysis that were performed within the lower class subgroup, whereas the two right-hand columns contain the findings that were derived by estimating Equation 3 in the upper class subgroup. Based on the results presented in the previous subsection, lower and upper class subgroups were created by partitioning the sample at the level of Social Class 4. This cutpoint was selected for two reasons. First, as the data in the

TABLE 3  
Anticipated Support, Stress, and Changes in Received Emotional Support

	<i>Lower Social Classes (4-6)<sup>a</sup></i>		<i>Upper Social Classes (1-3)<sup>b</sup></i>	
	<i>Additive Effects</i>	<i>Interactive Effects</i>	<i>Additive Effects</i>	<i>Interactive Effects</i>
Age	.047 (.008)	.047 (.008)	-.192*** (-.031)	-.193*** (-.031)
Sex	-.077* (-.170)	-.080* (-.176)	-.058 (-.115)	-.049 (-.098)
Marital status	.123*** (.285)	.127*** (.293)	-.015 (-.031)	-.013 (-.027)
Social class	-.019 (-.032)	-.019 (-.032)	-.001 (-.001)	.011 (.016)
Emotional support (T1)	.241*** (.237)	.243*** (.239)	.276*** (.264)	.253*** (.242)
Anticipated support (T1)	.155*** (.236)	.148*** (.225)	-.031 (-.051)	-.037 (-.062)
Stress (T2)	-.034 (-.034)	-.033 (-.033)	-.095* (-.092)	-.070 (-.068)
(Anticipated Support × Stress)	—	.038 (.049)	—	.141*** (.174)
Multiple <i>R</i> <sup>2</sup>	.170	.170	.118	.136

NOTE: Values are standardized regression coefficients. Metric (unstandardized) regression coefficients are in parentheses. T1 = first interview; T2 = second interview.

a.  $n = 645$ .

b.  $n = 449$ .

\* $p < .05$ , \*\*\* $p < .005$ .

previous subsection reveal, anticipated support first becomes associated with an increase in mortality at this level. Second, as mentioned earlier, Argyle (1994) argues that Social Class 4 denotes the upper boundary of the working class and may, therefore, represent a shift in the life circumstances of elders in the United Kingdom.

Consistent with the fourth hypothesis, the data in the far right column of Table 3 reveal that a statistically significant interaction effect is present between anticipated support and stress on changes in received support for upper class elders ( $b = .174$ ,  $p < .05$ ; unstandardized estimates are discussed here because standardized estimates are not meaningful in this context). However, it is important to evaluate whether the data conform to the basic tenets of this study hypothesis. Table 4 contains the results of the hand calculations that were performed to further clarify the nature of this relationship. As noted



TABLE 4  
Effects of Anticipated Support (T1) on Changes in Emotional Support at  
Each Level of Stress (upper classes only,  $n = 449$ )

	<i>Emotional Support (T2)</i>
0 stressors	-.037 (-.062)
1 stressor	-.033 (-.055)
2 stressors	.071 (.119)
3 stressors	.174* (.293)
4 stressors	.278* (.467)
5 stressors	.381** (.641)

NOTE: Values are standardized regression coefficients. Metric (unstandardized) regression coefficients are in parentheses. T1 = first interview; T2 = second interview.  
\* $p < .05$ , \*\* $p < .01$ .

earlier, these coefficients represent the impact of anticipated support on changes in received support across the entire range of follow-up stress scores (0-5).

The data in Table 4 suggest that when upper class elders are not exposed to stress (i.e., when stress scores are 0), anticipated support is not related to changes in received emotional support through time (beta =  $-.037$ , n.s.). This makes sense because there is no need to enlist the aid of others in the absence of stress. However, it is at higher levels of stress where support for the fourth hypothesis becomes more evident. In particular, the data in Table 4 further reveal that support still is not activated when upper class elders encounter relatively low levels of stress. More specifically, the findings suggest that anticipated support is not significantly related to changes in received support when either one life event (beta =  $-.033$ , n.s.) or two stressors (beta =  $.071$ , n.s.) arise. Taken together, the results presented up to this point lend some credence to the notion that upper class elders attempt to first resolve problems on their own before turning to others for help. However, as exposure to stress increases, individual resources may be taxed and assistance from others may become essential. Consistent with this view, the data in Table 4 reveal that when upper class elders

encounter three stressful events, anticipated support is associated with a significant increase in emotional support through time ( $\beta = .174, p < .05$ ). As exposure to stress increases beyond this point, the data in Table 4 reveal an even greater proclivity of upper class elders to mobilize assistance from their social networks. In particular, when four life events arise, the impact of anticipated support on changes in received assistance increases by nearly 60% ( $\beta = .278, p < .05$ ). Finally, when more well-to-do elders encounter five stressful life events, anticipated support at the baseline is associated with a substantial increase in received emotional support at the follow-up interviews ( $\beta = .381, p < .05$ ).

Returning to Table 3, the findings reveal that the relationships among anticipated support, stress, and changes in emotional support are not the same for lower class elders. In particular, the data in the second column reveal that the interaction between anticipated support and stress is not statistically significant ( $b = .049, n.s.$ ). This suggests that as exposure to stress increases, lower class elders are not more likely to mobilize assistance from others. This initially would appear to suggest that older adults in the lower social classes do not get help from others when stressful events arise. However, additional findings in Table 3 suggest that this may not be the best conclusion.

The data in the first column of Table 3 contain the additive effects of anticipated support on changes in received emotional support through time for elders in the lower class subgroup. A careful review of these findings suggests that, regardless of the amount of stress that is present, anticipated support at the baseline interview is associated with an increase in emotional support through time for lower class elders ( $\beta = .155, p < .05$ ). Viewed broadly, the findings in Table 4 suggest that elders in both social class groups are able to mobilize support from others when they expect it to be provided. However, consistent with the fourth hypothesis, the manner in which this mobilization takes place appears to vary by social class. For upper class elders, mobilization of support is more selective and takes place only when stress reaches relatively high levels. By contrast, lower class elders tend to mobilize expected assistance regardless of the amount of stress they encounter.<sup>4</sup>

## *Discussion*

In their classic statement on the relative importance of supportive social ties, House, Landis, and Umberson (1988) maintained that the impact of social relationships on health may rival the risk associated with cigarette smoking. The findings from the present study suggest that this may be true. However, the nature of the relationship between social support and mortality is not what these investigators had in mind. Instead of reducing the risk of mortality for all elderly people, the data from the present study suggest that anticipated support may be associated with an increased mortality risk for older adults in the lower social classes. This is by no means the first time that social relationships have been shown to have a detrimental effect (Rook 1984). The fact that these findings were observed after the effects of social contact and received support were controlled statistically serves to underscore the importance of including subjective measures of supportive social relationships in research on mortality in later life.

The supplementary analyses involving stress and changes in received support are useful because they provide more insight into the functioning of social support systems in different social classes. In reviewing the social support literature, one sometimes is left with the impression that people in the lower classes are unable to get help from others (e.g., Belle 1982). However, the data presented here suggest that this may not be the case. Instead, social class differences may arise in the manner in which assistance is mobilized. Whereas older adults in the lower classes may immediately activate expected support regardless of the amount of stress that is present, it appears that upper class elders turn to others for assistance only when exposure to stress becomes fairly substantial. This pattern of findings provides indirect evidence that upper class elders have sufficient personal resources to deal with their problems, whereas older adults in the lower classes may not be as fortunate. These results also help clarify findings reported by other investigators. In one of the more comprehensive assessments of social class differences in social support, Krause and Borawski-Clark (1995) found that although there are no social class differences in the amount of assistance received from others, older adults in the lower social classes tend to be less satisfied with the help they get than do elderly people in the upper classes. Perhaps this reflects the burden

placed on lower class networks by immediate support activation and the ego-relevant costs associated with obtaining it.

Although the findings presented here may be thought provoking, considerably more work remains to be done. In particular, at least five limitations in this study should be addressed by those wishing to conduct additional work on social class differences in the effects of anticipated support. First, more comprehensive measures of received social support should be used. Second, there are better ways in which to assess stress. Third, the reciprocal relationship between received and anticipated support should be evaluated in a more empirically rigorous way. Fourth, the intervening mechanisms linking anticipated support and mortality should be evaluated empirically. Fifth, researchers should focus on both disease-specific and all-cause mortality.

The analyses in this study focus solely on one type of received support (i.e., emotional support). However, as noted earlier, social network members often provide tangible and informational support as well. Unfortunately, the database used in this study did not contain measures of these other types of received support. To arrive at a more complete understanding of social class differences in the social support process, it is important to assess whether tangible and informational support affect mortality in the same way as does emotional support.

The stress measure used in this study contains only 10 life events. There are at least two ways in which to improve this measurement strategy. First, it is evident that older adults may encounter far more than 10 stressful events. A more comprehensive battery of life event measures is needed to ensure that the findings reported here are valid. Second, as the stress literature has evolved, researchers discovered that there are different types of stressful experiences. This is reflected in the distinction between stressful events and chronic strains (Pearlin et al. 1981). Stressful life events are viewed as being time bound and of relatively short duration. By contrast, chronic strains are thought to be continuous and ongoing. More important, research indicates that chronic strains may exert a more noxious effect on health than do stressful events (Pearlin et al. 1981). Researchers wishing to work with the theoretical framework developed here would benefit by focusing on measures of chronic strain and stressful life events.

Two assumptions about the direction of causality were made in this study when the reciprocal relationship between received support and anticipated support was proposed. First, it was assumed that at any one point in time, received support affects anticipated support. However, this specification was based on theoretical considerations alone and was not subject to rigorous empirical evaluation. In particular, a more exacting test would require that the impact of received support on anticipated support be evaluated at the same time that the effect of anticipated support on received support is estimated. Unfortunately, this type of nonrecursive model is not identified (see Duncan 1975 for a discussion of this problem). Moreover, estimating both paths simultaneously is complicated by the fact that the interaction between anticipated support and social class standing also must be taken into consideration. The second causal assumption is embedded in the analyses that focus on the lagged effect of anticipated support received over time. Greater confidence in these findings would be obtained if the lagged effect of received support on changes in anticipated support over time also was assessed. Once again, the inclusion of an interaction term in the model presents a formidable challenge to performing these more rigorous tests. Even so, these causal assumptions should be kept in mind when reviewing the findings on the relationship between received support and anticipated support.

The biggest shortcoming in this study has to do with the fact that the intervening mechanisms invoked in the theoretical rationale were not evaluated empirically. Self-initiated coping responses and social network burden figure prominently in this respect. Unfortunately, neither of these constructs was evaluated empirically because neither was measured in this study. The same is true for feelings of personal control and self-esteem. Consequently, even though the data suggest that anticipated support may influence the odds of dying, the reasons for this relationship remain unclear. It is essential to include measures of the intervening constructs in future studies so that we can arrive at a better understanding of why anticipated support may benefit upper class, but not lower class, elders.

The analyses performed in this study deal with deaths from all causes. However, as Berkman (1995) argued, social support may exert greater effects on some fatal diseases than on others. For example,

anticipated support may be linked more closely with deaths caused by myocardial infarction than with deaths due to cancer. To the extent that this is true, the analyses presented here will underestimate the effects of anticipated support on mortality because the outcome measure fails to differentiate between deaths associated with heart disease and deaths due to other causes.

A decade ago, Lieberman (1986) observed that the study of social support had become overly "psychologized." A good deal of the research on social support initially was conducted by sociologists, who focused on the broad social structural context in which social relationships are embedded. However, through time, research on social support took on an increasingly psychological bent and drifted away from social structural considerations. Consistent with this shift, some researchers have come to view anticipated support as little more than a personality trait (e.g., Sarason et al. 1994). Although the intent of the present study is not to conclusively determine how perceptions of anticipated support arise, the findings clearly point to the risks associated with overlooking the broader social context in which these subjective evaluations emerge. Failure to take these contextual effects into account may substantially limit our understanding of the processes at work and make it more difficult to identify the most vulnerable elders.

## APPENDIX

### Study Measures

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#### Panel A: Variables in Mortality Analysis

1. Survival Time
  - A. Age at death/age at baseline interview (coded in years and tenths of a year)
2. Anticipated Support<sup>a</sup>
  - A. There are members of my family/friends who would see that I am taken care of if I needed to be.
  - B. There are members of my family/friends who can be relied on no matter what happens.
3. Social Class
  - A. Registrar general's Classification of Occupations

4. Health Status
  - A. Would you say that for someone of your age, your own health in general is excellent, good, fair, or poor?<sup>b</sup>
  - B. For those with a long-standing illness, disability, or infirmity<sup>c</sup>
    - (1) How does it affect you? Do you have to take special care some of the time?
    - (2) Are you limited in the amount of work or the kind of work you can do, or in your social life?
    - (3) Are you unable to work (or do housework)?
    - (4) Can you climb stairs?
    - (5) Can you walk around outside without help or aids?
    - (6) Can you walk around the house (flat) without help or aids?
    - (7) Do you have to have help with things such as dressing or feeding?
5. Cigarette Smoking<sup>c</sup>
  - A. Now do you regularly smoke cigarettes; that is, do you regularly smoke at least one cigarette a day?
  - B. (if *no*) Have you ever smoked at least one cigarette a day for as long as six months?
6. Alcohol Consumption
  - A. Number of units of alcohol consumed in the past week
7. Physical Activity
  - A. In general, compared to men/women of your own age, are you physically more active, less active, or about average?<sup>d</sup>
  - B. Walking<sup>e</sup>
    - (1) On weekdays (working days) when not at work, how much time on average per day do you spend walking to work, shopping, walking a dog, for pleasure, and so on?
    - (2) On weekends (rest days), how much time on average per day do you spend walking?
8. Diet
  - A. How often do you eat sausages, tinned meats, pate, meat pies, pasties, and so on?<sup>f</sup>
  - B. How often do you eat beef, lamb, pork, ham, or bacon?<sup>f</sup>
  - C. How often do you eat fresh fruit
    - (1) in summer?<sup>f</sup>
    - (2) in winter?<sup>f</sup>
  - D. How often do you eat salads or raw vegetables
    - (1) in summer?<sup>f</sup>
    - (2) in winter?<sup>f</sup>
  - E. At the moment, do you take any tonics, vitamin pills, or anything similar?<sup>c</sup>

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*(continued)*

## APPENDIX Continued

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- F. How many times a day do you have a snack or something to eat between meals or before going to bed?<sup>g</sup>
9. Social Contact<sup>h</sup>
- A. Contact with family members
- (1) In the past two weeks, how many times have you gone out to visit family?
  - (2) In the past two weeks, how many times have you had family to visit you?
  - (3) In the past two weeks, how many times have you had contact with family by phone or letter?
- B. Contact with friends
- (1) In the past two weeks, how many times have you gone out to visit friends?
  - (2) In the past two weeks, how many times have you had friends to visit you?
  - (3) In the past two weeks, how many times have you had contact by phone or letter with friends?
10. Received Emotional Support<sup>i</sup>
- A. There are members of my family/friends who make me feel loved.
  - B. There are members of my family/friends who do things to make me happy.
  - C. There are members of my family/friends who give me support and encouragement.

### Panel B: Variables in Supplementary Analyses With Stress

1. Received Emotional Support (see above)
2. Anticipated Support (see above)
3. Social Class (see above)
4. Stressful Life Events (number of events listed below that were encountered in the year before the Wave 2 survey)
  - A. Have you been assaulted or robbed in the past year?
  - B. Have you had any major financial problems in the past year?
  - C. Have you had serious problems with officials or with the law in the past year?
  - D. Have you had any major worries with your housing in the past year?
  - E. Has there been a death of any close family member in the past year?
  - F. Has a close friend or other person who was important to you died in the past year?
  - G. Have you lost a job or thought you would soon lose your job in the past year?



- H. Have you developed or found out you had a serious illness or handicap, or has an existing condition got worse in the past year?
- I. Have you had a serious accident or injury, had an operation, or spent a period in the hospital in the past year?
- J. Have you had a painful or upsetting treatment of a condition in the past year?

- 
- a. These items are scored in the following manner (coding in parentheses): not true (1), partly true (2), certainly true (3).
- b. This item is scored in the following manner: excellent (1), good (2), fair (3), poor (4).
- c. These items are scored in the following manner: yes (1), no (0).
- d. This item is scored in the following manner: more active (3), about average (2), less active (1).
- e. These items are scored in hours and fraction of an hour spent walking.
- f. These items are scored in the following manner: less than once a week (1), once or twice a week (2), most (three to six) days (3), once a day (4), more than once a day (5).
- g. This item is scored in the following manner: never (0), once or twice (1), three or four times (2), more than four times (3).
- h. These items are scored in the following manner: not at all (0), once or twice (1), three to six times (2), more than six times (3).
- i. These items are scored in the following manner: certainly true (3), partly true (2), not true (1).

## NOTES

1. The findings in the second column of Table 1 suggest that social class standing fails to exert a significant additive effect on mortality (odds ratio = 1.039). This initially would appear to contradict a number of studies that show that the odds of dying over a given time period are greater for individuals in the lower classes (Reid 1989). There is, however, a relatively straightforward explanation for this finding. Preliminary analyses (not shown here) reveal that at the bivariate level, social class is related to an increased risk of dying (odds ratio = 1.106,  $p < .05$ ). However, once the effects of health and health behavior are taken into consideration, the impact of social class no longer is statistically significant. Stated simply, this suggests that at least part of the impact of social class on mortality may operate indirectly through health and health behavior (House, Kessler, and Herzog 1990).

2. It may seem as though anticipated support and social class standing would be highly correlated because those who are more well-to-do may be more likely to feel that others will help in the future should the need arise. However, a high correlation between these measures may create data-analytic problems because it may be difficult to distinguish between the impact of social class on anticipated support and the interaction between social class and anticipated support on mortality (Thoits 1983). Preliminary data analysis reveals that older adults in the upper classes are more likely than elders in the lower classes to believe that others stand ready to help in the future if the need should arise ( $r = -.055$ ,  $p < .001$ ). However, the magnitude of this effect is quite small. In fact, there is less than 1% shared variance between these measures. Consequently, it does not appear as though tests for the interaction between these measures would be influenced unduly by the correlation between them.

3. Another way in which to get a preliminary sense of whether anticipated support mediates the effects of received support on mortality is to simply look at the bivariate correlation between

the two measures. The data suggest that the two dimensions of social support are related significantly ( $r = .698, p < .005$ ). However, the subsequent interaction between anticipated support and social class on mortality must again be kept in mind when this correlation is interpreted.

4. One might argue that lower class elders are more likely to mobilize their support systems than are older adults in the upper classes because they are exposed to more stressful events. There are two ways in which to address this issue. First, even though there may be mean differences in exposure to stress, it does not necessarily follow that the impact of stress on support mobilization also will vary by social class (Kessler 1979). Second, an analysis of covariance was performed to see whether there is a significant difference in stress means across the six social class groups. Age, sex, and marital status served as covariates. These analyses reveal no statistically significant differences in mean stress levels across the six social classes. (A table containing the results of these analyses is available from the author on request.)

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