Deborah Carr, James S House, Randolph Nesse, and Camille Wortman

Forewarning of Spouse's Death and Psychological Adjustment to Widowhood among Older Adults

Report No. 00-462

Research Report

PSC POPULATION STUDIES CENTER
AT THE INSTITUTE FOR SOCIAL RESEARCH
UNIVERSITY OF MICHIGAN

The Population Studies Center at the University of Michigan is one of the oldest population centers in the United States. Established in 1961 with a grant from the Ford Foundation, the Center has a rich history as the main workplace for an interdisciplinary community of scholars in the field of population studies. Today the Center is supported by a Population Research Center Core Grant from the National Institute of Child Health and Human Development (NICHD) as well as by the University of Michigan, the National Institute on Aging, the Hewlett Foundation, and the Mellon Foundation.

PSC Research Reports are prepublication working papers that report on current demographic research conducted by PSC associates and affiliates. The papers are written by the researcher(s) for timely dissemination of their findings and are often later submitted for publication in scholarly journals. The PSC Research Report Series was begun in 1981 and is organized chronologically. Copyrights are held by the authors. Readers may freely quote from, copy, and distribute this work as long as the copyright holder and PSC are properly acknowledged and the original work is not altered.

PSC Publications
http://www.psc.isr.umich.edu/pubs/

Population Studies Center, University of Michigan
PO Box 1248, Ann Arbor, MI 48106-1248 USA

Forewarning of Spouse's Death and Psychological Adjustment to Widowhood Among Older Adults

Deborah Carr
Assistant Professor of Sociology and Assistant Research Scientist, Population Studies Center and Survey Research Center, University of Michigan

James S. House
Professor of Sociology, and Director, Survey Research Center, University of Michigan

Randolph Nesse
Professor of Psychiatry and Faculty Associate, Survey Research Center, University of Michigan

Camille Wortman
Professor of Psychology, State University of New York at Stony Brook

Acknowledgements: This research was supported by Grants R01-AG15948 and P01-AG05561 from the National Institute of Aging, and from the Nancy Pritzker Research Network. Address correspondence to Deborah Carr, Department of Sociology, University of Michigan, 500 S. State Street, Ann Arbor, MI 48109. E-mail: carrds@umich.edu.

ABSTRACT

Forewarning of Spouse's Death and Psychological Adjustment to Widowhood Among Older Adults

This study examined: (1) whether psychological adjustment to widowhood is affected by the amount of forewarning prior to spouse's death; (2) whether the effect of forewarning differs for men and women; and (3) the extent to which the effect of forewarning is mediated or suppressed by death context characteristics (i.e., pre-death care giving, nursing home usage, spouse age at death and couple communication about the impending death). Analyses are based on data from The Changing Lives of Older Couples (CLOC) study, a probability sample of 1,532 married individuals age 65 and older for whom baseline information was collected in 1987-88, with widows reinterviewed 6, 18, and 48 months after spousal loss.

Overall, the effects of death forewarning (and sudden death) were quite limited; forewarning did not significantly affect depression, anger, shock, or overall grief six or 18 months after the loss. Prolonged forewarning (i.e., more than six months warning) was associated with elevated levels of anxiety both six and 18 months after the death. Sudden death was a positive and significant predictor of intrusive thoughts at the six-month follow up only. Warning time had significantly different effects on men's and women's yearning. At both six and 18 months after the loss, sudden death was associated with slightly higher levels of yearning among women, but with significantly lower yearning among men. The findings call into question the widespread belief that grief is more severe if the death was sudden. Understanding how death forewarning affects diverse aspects of older widowed persons' well-being is critically important today, as chronic diseases account for the majority of older adults' deaths.

Dataset used: Changing Lives of Older Couples (CLOC) Study: United States, 1987-1994

Widowhood is characterized as among the most stressful of life events (Holmes & Rahe, 1967). The psychological consequences of widowhood vary widely, however, based on characteristics of the survivor (Matthews, 1991; Stroebe & Stroebe, 1983; Umberson, Wortman & Kessler, 1992), the deceased (Parkes, 1985; Reed, 1998), and the marital relationship (Carr et al., 2000). The context of the death - including whether the death was sudden or the endpoint of a long and lingering illness - is also an important influence on patterns of grief (Ball, 1977; Carey, 1979-80; Lundin, 1984; O'Bryant, 1990-1991; Rando 1986; Smith, 1978; Vachon et al., 1982). Numerous studies explore whether sudden or anticipated deaths are more distressing for bereaved spouses, but this research is inconclusive and does not specifically address the unique circumstances of the elderly bereaved. Understanding the linkage between death forewarning and older widowed persons' well-being is critically important today as chronic diseases, or ongoing conditions for which there is no cure, account for the majority of older adults' deaths (McLeroy & Crump, 1994; Olshansky & Ault, 1986). Furthermore, advances in medical technology which delay old-age mortality mean that interval between diagnosis and death is lengthening. It is thus critically important that scholars and practitioners understand how the "living-dying interval" affects survivors' adjustment (Pattison, 1977, 1978).

Theoretical Issues

The proposition that sudden deaths are more difficult for family members to cope with than anticipated deaths was first suggested in Lindemann's (1944) classic article "Symptomatology and Management of Acute Grief." Lindemann found that spouses of the men serving in World War II experienced grief-like symptoms (or "anticipatory grief") before their spouses actually died. Military wives tended to emotionally detach in anticipation of their spouses' deaths, and thus did not appear to be highly grief-stricken upon the actual death. In contrast, the relatives of the 500 persons killed suddenly in a nightclub fire suffered more severe symptoms of grief. Building upon this work, many grief scholars have concluded that individuals who anticipate their spouse's death will use the forewarning period to make peace with their partner, to disengage from the relationship, and to prepare psychologically and practically for the transition to widowhood. Although spouses may exhibit grief-like symptoms or "anticipatory grief" during the pre-death period, their adjustment following the death is believed to be better than those who experienced an unexpected and sudden loss (Gerber, 1974:27; Rando, 1986; Vachon et al.. 1982).

Empirical studies examining the effect of death forewarning on widowed persons' psychological adjustment to loss are inconclusive, however. A considerable body of research suggests that sudden death is associated with poorer psychological adjustment among spouses of the deceased (Ball, 1977; Carey, 1979-80; Farberow, Gallagher-Thompson, Gilewski and Thompson, 1992; Glick, Weiss & Parkes 1974; Hill, Thompson & Gallagher, 1988; Jacobs, Kasl & Ostfeld, 1986; Lundin, 1984; O'Bryant, 1990-1991; Smith, 1978; Vachon et al., 1982; Wells & Kendig, 1997; Willis et al., 1987; Zisook, Schuchter & Lyons 1987). A smaller group of studies find the reverse - that forewarning is linked to poorer physical and mental health among widowed persons. (Fengler & Goodrich, 1979, Gerber et al., 1975; Sanders, 1982-83; Schwab et al., 1975). Others, still, find no relationship between death forewarning and survivors' psychological adjustment (Bowling & Cartwright, 1982; Clayton et al., 1973; Hill et al. 1988; Maddison & Walker, 1967; McGloshen & O'Bryant, 1988; Roach & Kitson 1989; Sanders 1982).

We believe that there are four reasons for these inconclusive findings. First, few studies explicitly acknowledge that the age of the deceased may condition the effects of forewarning on widowed persons' well-being. For older adults, even "sudden" deaths may be anticipated and viewed as timely (Neugarten & Hagestad, 1976). Second, the larger context of the death is rarely considered (Sweeting & Gilhooly, 1990). Factors associated with forewarning, such as the stress of a spouse's

ongoing illness, the physical and emotional strain of caregiving, social isolation, and the depletion of economic resources may lead to poorer adjustment following the death, and thus may cancel out the gains presumably provided by the period of pre-death anticipation and preparation (Rando, 1986:7; Siegel & Weinstein, 1983). Third, a diverse set of outcome measures (e.g., depression, grief, and physical health) and inconsistent definitions of "sudden" versus "anticipated" death have been used in past studies, thus limiting the comparability of findings across studies. Finally, because most past research has relied on cross-sectional rather than longitudinal data, baseline demographic and socioeconomic characteristics which affect both death timing and psychological adjustment (e.g., age, sex, income, respondent's pre-widowhood psychological and physical health) may have been omitted. Consequently, past studies have not always acknowledged the possibility of a spurious relationship between death forewarning and psychological adjustment.

Death Forewarning among Older Adults

Surprisingly few studies examine the effects of sudden versus anticipated death on older widowed persons' well-being; rather, most focus on sudden deaths which are also premature or "off-time" deaths to the young. Lindemann (1944) focused on the wives of World War II soldiers and the family members of undergraduates who died in a fire. In the 1950s and 1960s, studies typically focused on the parents of young children suffering from terminal illnesses (Binger et al., 1969; Bozeman, Orbach & Sutherland, 1955; Chodoff, Friedman, & Hamburg, 1964; Natterson & Knudson, 1960; Richmond & Waisman, 1955). Studies of death forewarning and spousal loss have focused overwhelmingly on young and midlife widowed persons' adjustment (Ball, 1977; Glick, Weiss & Parkes, 1974; Lundin, 1984; Parkes & Weiss, 1983; Sanders, 1982-83; Vachon et al., 1976). Other studies have focused solely on sudden deaths occurring under particularly horrific circumstances such as murders (Rynearson, 1984) or suicides (Calhoun & Allen, 1991; Dunn & Morrish-Vidners, 1987; Reed, 1998; van der Wal, 1989-90). Thus, the effects of death forewarning may be confounded with type of death. Because deaths of young people and violent deaths are considered the most difficult to cope with (Archer, 1999; Parkes & Brown, 1972; Reed, 1998; Roach & Kitson, 1989; Smith, 1978; Vachon et al., 1976), it is not clear whether the deleterious effects are due to suddenness or life stage. Hence, sudden deaths to older adults which occur under fairly normal circumstances may not be as traumatic as past research suggests.

For older adults (i.e., age 65 and older), even "sudden" deaths may be at least somewhat anticipated: "beyond a certain age, death is expected and viewed as timely" (Archer, 1999, p. 232). Given that predictable life events are presumed to be less stressful than unexpected life events (George, 1993; Pearlin, 1982; Pearlin & Lieberman, 1979; Thoits, 1983), sudden death may be no more difficult for the elderly survivor than deaths following a long period of illness (DeSpelder & Strickland, 1992; Hyman, 1983). Moreover, sudden spousal deaths are more likely to be anticipated by older women than older men. Because of men's mortality disadvantage, women age 65 and older outnumber older men by roughly 1.5 to 1 (U.S. Bureau of the Census, 1996). Nearly half of American women age 65 and older are widowed, compared to 14 percent of men. Noting the gender gap in mortality, Neugarten & Hagestad (1976) observed that women may go through a "rehearsal for widowhood" as they observe their peers experience the loss of spouse (Fooken 1985, p. 98). Consequently, sudden death may have a more deleterious effect on the well-being of men than women, as older women are more likely to expect and prepare for the death of their spouse - even if their spouse is in reasonably good health (Hill et al., 1988, p. 795).

Death Context and Forewarning

A second reason for the inconclusive findings of past studies is that empirical analyses have rarely controlled important contextual factors related to the death. This omission is critical, as the effects of death timing and other characteristics of the death may counteract one another. For instance, while prolonged forewarning periods are characterized as a time when spouses can prepare psychologically and practically for the loss (Kalish 1981; Rando 1986), the warning period may also be accompanied by difficult caregiving duties (Anashensel, Pearlin, Mullan, Zarit & Whitlach, 1995; George & Gwyther, 1986; Norris & Murrell, 1987; Wells & Kendig, 1997), emotional isolation from family members and friends (Kramer, 1996-97), and the neglect of one's own health (Fengler & Goodrich, 1979; Rosenblatt, 1983; Sanders, 1982-3; Siegel & Weinstein, 1983; Sweeting & Gilhooly, 1990). Stress related to the "extended death watch" period (Gerber et al., 1975) may be particularly difficult for older adults due to their age and accompanying health problems (Averill & Wisocki, 1981; Fengler & Goodrich, 1979; George & Gwyther, 1986).

Factors correlated with death forewarning also might be associated with better spousal adjustment (O'Bryant, 1990-91). Caregiving may increase closeness with an ill relative (Hinrichsen, Hernandez & Pollack, 1992; Vachon et al., 1982; Wilson, 1990), and may provide a sense of purpose to the caregiver (O'Bryant, Straw & Meddaugh, 1990; Wright, 1991). Moreover, older individuals suffering prolonged illnesses are more likely to reside in nursing homes (Foner, 1994), and thus their spouses may make a smoother transition to widowhood. The institutionalization process has been characterized as "quasi-widowhood," because spouses have considerably reduced daily contact and communication, may emotionally separate from one another, and are spared the daily stresses of direct caregiving (DeSpelder & Strickland, 1992; Rosenthal & Dawson, 1993). Thus, our analyses include three important indicators of death context which may mediate (or suppress) the effect of death timing on widowed persons' adjustment: age of spouse at death, whether the deceased was living in a nursing home prior to death, and whether the survivor provided care prior to their spouse's death.

Knowledge about the impending death also may affect the couple's interactions during the ill spouse's last days. Couples who anticipate a death may use the forewarning period to make practical plans for the survivor's economic and social adjustment, which may enable a smoother transition to widowhood (Rando, 1986). Moreover, couples who use the time between diagnosis and death to resolve emotional "unfinished business" (Blauner, 1966) may find their relationships strengthened in the final days. Bereaved persons who were by their ailing spouse's side at the moment they died have been found to cope better with the loss than those who did not reach such closure (Bennett & Vidal-Hall, 2000; Fiewiger & Smilowitz 1984-5; Hinds, 1985). Although theoretical writings and clinical research suggest that individuals who anticipate their spouse's death may use the pre-death period as a time to prepare emotionally for the loss, and to seek closure in their relationship, we know of no studies which empirically assess whether these behaviors mediate the relationship between death forewarning and psychological adjustment (Bennett & Vidal-Hall, 2000; Pattison, 1977;1978; Siegel & Weinstein, 1983). Thus, our analyses include indicators of whether the couple talked about how the survivor would cope with being alone, and whether the survivor was with their spouse at the moment they died.

Measuring Death Forewarning and Adaptation to Loss

The discrepant results in past studies may reflect differences in the conceptualization and measurement of both independent and dependent variables (Sweeting and Gilhooly 1990). The operationalization of sudden versus anticipated death varies across studies. Some researchers define sudden deaths as those where the deceased was dead on arrival at the hospital (Carey, 1979-80),

while others consider sudden deaths those where the survivor had less than two hours (Lundin, 1984), one week (Sanders, 1982-83) or two weeks (Bowling & Cartwright, 1982) warning. As noted earlier, other studies consider sudden deaths to be synonymous with violent deaths such as suicides, murders, or accidents (Calhoun & Allen, 1991; Dunn & Morrish-Vidners, 1987; Rynearson, 1984; van der Wal, 1989-90). Definitions of "prolonged" forewarning also vary, from one month (Bornstein et al., 1973; Clayton et al., 1973) or two months (Vachon et al., 1982; Gerber et al., 1975) up to six months or longer (Clayton et al., 1973).

The dependent variables used across studies also are diverse, ranging from self-report of medical symptoms (Gerber et al., 1975), to depressive symptomatology (Clayton et al., 1973) and social isolation (Parkes & Weiss, 1983). Although a handful of studies have focused on specific symptoms, such as anger, guilt, and rumination (Sanders, 1982-83; Glick et al. 1974), most focus on global indicators of mental health such as depression, or broad grief scales (Carey, 1979-80; Fulton & Fulton, 1972; Clayton et al., 1968). Consequently, findings purported to characterize the general link between forewarning and adjustment instead may be specific to particular outcomes.

We believe that psychological adjustment to loss encompasses a complex set of emotional, cognitive, and behavioral reactions. Thus, in this analysis we explore the effect of death forewarning and sudden death on five loss-related (i.e., shock, anger, yearning, intrusive thoughts, and overall grief) and two general (i.e., depression and anxiety) dimensions of psychological adjustment both six and 18 months after the death. Moreover, rather than operationalizing "sudden death" and "prolonged forewarning" *a priori*, we empirically evaluate diverse measures of each construct, in order to ascertain the specific nature of the relationship between death forewarning and adjustment of older adults. Drawing on past research and theory, we evaluate three possible relationships; sudden death effects only, linear effects of warning time, and curvilinear effects of warning time. Thus, our analyses will evaluate whether a particular parameterization of forewarning better predicts widowed persons' psychological adjustment.

Other Influences on Psychological Adjustment and Spousal Loss

Finally, our research acknowledges that pre-death characteristics might affect both the suddenness and context of spousal death, as well as adjustment to the loss. To address the possibility of a spurious relationship between forewarning and psychological adjustment, we control important baseline (i.e., pre-widowhood) characteristics. First, we control mental health prior to loss, to help distinguish one's affective state prior to the death and change in affective state that occurred following the death (Jacobs, 1993; Zisook & Schucter, 1991). Second, we control demographic characteristics (age and sex) and socioeconomic status (education, income, and home ownership) at baseline, as these characteristics have been linked both to death context (e.g., younger persons and women are more likely to have their spouses die suddenly) and later psychological adjustment. Finally, respondent's physical health at baseline is controlled; past research suggests that survivors of sudden deaths tend to have been healthier prior to the death due to the advanced age of spouses dying of long-term illnesses, and the fact that husbands with long-term illnesses tend to have somewhat unhealthy wives (Lopata, 1996, p. 74; Stroebe & Stroebe 1987, p. 206-8). Moreover, baseline health may influence both how one manages stressors related to the death timing and psychological adjustment following the death (George & Gwyther, 1984).

In sum, our research has three objectives: first, to identify the relationship between death forewarning (in various parameterizations) and widowed persons' psychological adjustment six and 18 months after the loss; second, to assess whether and how the relationship between death forewarning and widowed persons' well-being differs for men and women, since most of the potential sources of variability discussed above vary by gender; and third, to evaluate the extent to which the effect of death forewarning is mediated or suppressed by death context characteristics (i.e.,

pre-death care giving, nursing home usage, spouse age at death and couple communication prior to the death). Analyses are based on data from the Changing Lives of Older Couples (CLOC) survey, a prospective study of a sample of married individuals age 65 and older. The CLOC allows evaluation of the effects of many pre-death contextual factors that are potentially confounded with forewarning in prior research.

METHODS

Sample

The Changing Lives of Older Couples (CLOC) study is a prospective study of a two-stage area probability sample of 1,532 married individuals from the Detroit Standardized Metropolitan Statistical Area (SMSA). To be eligible for the study, respondents had to be English-speaking members of a married couple where the husband was age 65 or older. All sample members were non-institutionalized and were capable of participating in a two-hour long interview. Approximately 65% of those contacted for an interview participated, which is consistent with the response rate from other Detroit area studies in that period. Baseline face-to-face interviews were conducted from June 1987 through April 1988.

Spousal loss was monitored using monthly death record tapes provided by the State of Michigan and by reading the daily obituaries in Detroit-area newspapers. The National Death Index (NDI) and direct ascertainment of death certificates were used to confirm deaths and obtain causes of death. Of the 319 respondents who lost a spouse during the study, 86% (n=276) participated in at least one of the three follow-up interviews which were conducted six months (Wave 1), 18 months (Wave 2) and 48 months (Wave 3) after the spouse's death. The primary reasons for non-response were refusals to participate (38 percent of nonparticipants) and ill health or death at follow-up (42 percent). Our analyses are based on the 210 widowed persons (59 men and 151 women) interviewed at the six-month follow up, or roughly 66 percent of the 319 respondents who lost a spouse, as well as the 155 widowed persons (110 women and 45 men) who were also interviewed at the 18-month follow up.

The issue of selective attrition deserves a brief mention. Although the sample size declines by roughly 20 percent between waves 1 and 2 (from 210 to 155), we do not believe that this attrition biases our results. In order to ascertain whether the 20 percent of CLOC participants who dropped out between Waves 1 and 2 differs significantly from those who remain in the sample, logistic regression models were estimated to predict sample attrition. Sudden death, months forewarning, baseline demographic, physical and mental health, and Wave 1 levels of grief were evaluated as predictors. Only one variable was a significant predictor of sample attrition: age. Each additional year of age increased the risk of attrition by 7 percent, although this effect was only marginally significant ($p \leq .10$). Thus, straightforward OLS regression models, rather than two-stage selection models are used to predict Wave 2 outcomes.

Measures

Dependent Variables. Two general (i.e., depression and anxiety) and five loss-related (i.e., shock, anger, yearning, intrusive thoughts, and overall grief) dimensions of psychological adjustment at the 6-month and 18-month follow-ups are considered. *Depression* ($\alpha = .83$) is assessed with a subset of nine negative items from the 20-item Center for Epidemiologic Studies depression (CES-D) scale (Radloff, 1977). Respondents are asked to indicate how often they experienced each symptom in the week prior to interview. Response categories are: hardly ever, some of the time, or most of the time. The nine symptoms are: (1) I felt depressed; (2) I felt that everything I did was an effort; (3) My

sleep was restless; (4) I felt lonely; (5) People were unfriendly; (6) I did not feel like eating. My appetite was poor; (7) I felt sad; (8) I felt that people disliked me; and (9) I could not "get going."

Anxiety (α=.86) is assessed with 10 items from the Symptom Checklist 90 Revised (Derogatis & Cleary, 1977). Respondents are asked to indicate how often they have experienced each of ten symptoms in the week prior to interview. Symptoms include being bothered by: (1) nervousness or shakiness; (2) trembling; (3) feeling suddenly scared for no reason; (4) feeling fearful; (5) heart pounding or racing; (6) feeling tense and keyed up; (7) spells of terror and panic; (8) feeling so restless you couldn't sit still; (9) feeling that something bad is going to happen to you; and (10) thoughts and images of a frightening nature. Response categories are: not at all, a little bit, moderately, quite a bit, and extremely.

Psychological reactions specific to the loss, as well as an overarching grief scale, are also considered. The four aspects of grief considered here are shock, anger, yearning, and intrusive thoughts. *Shock* (α=.77) is evaluated with three questions: In the last month, (1) have you felt as though you were in a state of shock; (2) have you felt as though you couldn't believe what was happening; and (3) have you felt emotionally numb. *Anger* (α=.68) is assessed with three questions: In the past month, (1) have you felt resentful or bitter about your spouse's death; (2) have you felt that the death of your spouse was unfair; and (3) have you felt anger toward God? *Yearning* (α=.75) is assessed with four questions: In the last month, (1) have you found yourself longing to have your spouse with you; (2) have you had painful waves of missing your spouse; (3) have you experienced feelings of intense pain or grief over the loss of your spouse; and (4) have you experienced feelings of grief, loneliness, or missing your spouse. *Intrusive thoughts* (α=.66) is based on three questions: In the past month, (1) have you had difficulty falling asleep because thoughts about your spouse kept coming into your mind; (2) have you tried to block out memories or thoughts of your spouse; and (3) have you been unable to get thoughts about your spouse out of your mind? *Grief (*α=.85) is the average of the four subscale scores.

Response categories for all grief scale items are: no, never; yes, but rarely; yes, sometimes; and yes, often. Items were drawn from widely used grief scales including the Bereavement Index (Jacobs, Kasl & Ostfeld, 1986), Present Feelings About Loss (Singh & Raphael, 1981), and Texas Revised Inventory of Grief (Zisook, Devaul & Click, 1982). Each of the dependent variables is standardized for ease of interpretation and comparison across indicators.

Independent variables. The central independent variable in the analysis is *warning time prior to death*, evaluated retrospectively at the Wave 1 interview with the question: "How long before your spouse's death did you realize that s/he was going to die?" Respondents could report the duration in hours, days, weeks, months, years or "no warning/minutes." The number of months warning times is used as the independent variable. Months are top-coded at 24, as more than 90 percent of widowed persons said that they had less than two years warning. The variable was top-coded because outliers ranged as high as 36 years warning. *Sudden death* is a dummy variable set equal to one for respondents who indicated that they had "no warning/minutes" prior to their spouse's death (33 percent of sample). We do not separately consider the effects of violent sudden deaths (e.g., suicide or murder), as fewer than two percent died in this manner.

Death Context. Both the psychological consequences of loss and warning time may be associated with other conditions of the death, thus three additional characteristics of the spouse's death are controlled: *spouse's age at death* (in years), and dichotomous variables indicating whether the respondent *was providing care to his/her spouse in the six months prior to the death*, and *whether the spouse was residing in a nursing home prior to death.*

Communication about death was evaluated at Wave 1 with the question: "Did you and [your

spouse] talk about how you would deal with being on your own once she or he was gone?" The variable is set equal to "1" for those who responded yes. *Closure* is evaluated with the question: "Were you there with your [husband/wife] at the moment when [she/he] died?"

Confounding Factors. Depression and *anxiety* at baseline are measured exactly the same way as the follow up measures (Derogatis & Cleary, 1977; Radloff, 1977). Respondent's *physical health* at baseline is assessed with the question: "How would you rate your health at the present time? Would you say it is excellent, very good, good, fair or poor?" Responses of "fair" and "poor" are coded 1, all others are coded as 0.

Demographic Variables. Control variables include *age*; *sex (*1=female); *home ownership at baseline* (1=owns home), *total household income at baseline* (natural log of income), and *education* (a continuous measure ranging from 3 to 17 or more years of completed schooling). The total household income variable was originally measured by having respondents indicate which of ten income categories most accurately characterized their economic status. A continuous measure of income was derived by taking the midpoint of each of the ten income categories, with Pareto estimation of the mean for the top income category. The natural log of income is used because the respondents' income distribution was skewed toward the lower income categories.

Finally, the analyses control for the duration (in months) between the Baseline and Wave 1 interviews. Although all Wave 1 interviews were conducted six months following spousal death, the duration between the Baseline and Wave 1 interviews ranges from nine to 76 months due to variation in the timing of spouse's death. Thus, baseline assessments are more temporally distant for those who lost their spouses at later dates.

RESULTS

Sample Characteristics

Descriptive statistics and t-tests comparing means for men and women are presented in Table 1. Men and women do not differ from one another in terms of anxiety, yearning or intrusive thoughts six or 18 months following their loss. Death forewarning does not differ significantly by gender; roughly one-third of widowed persons experienced no forewarning of their spouse's death, while another one-third reported more than six months forewarning. The warning times ranged from "no time" to 35 years. The average warning time was five to six months.

Men and women do differ in terms of the context surrounding their spouse's death. Husbands were significantly older than wives at death (ages 77 versus 73). Men are significantly more likely than women to report that their spouse was residing in a nursing home prior to death (14 versus 2 percent) and that they were with their spouse at the exact moment they died (54 versus 40 percent). One-fifth of women and 12 percent of men report that they had discussed with their spouse how they would cope with being on their own. Similar proportions of men and women (44 and 50 percent, respectively) reported providing care to their spouse in the months prior to their death. Few demographic characteristics differ by gender; men in the CLOC are significantly older than the women, and are also slightly more likely to own their own homes. At baseline, women have significantly higher levels of anxiety than men.

To provide a fuller portrait of the CLOC participants and their spouses, several characteristics which are not used in the multivariate analyses (and thus not presented in Table 1) deserve mention. The leading causes of death among the CLOC spouses are cancer (51 percent) and heart disease (34 percent). A significantly larger portion of husbands than wives died of heart disease (49 versus 28 percent). Men and women are equally likely to report that their spouse was in a great deal of pain

prior to death (37 versus 35 percent, respectively). Although similar proportions of men and women provided care to their spouse during the six months prior to the spouse's death, women provided more hours care per week, and are more likely to report that caregiving duties are stressful and prevent them from meeting other obligations.

Intercorrelations are displayed in Table 2. Death context and death timing are associated in expected ways. Caring for one's spouse, having placed one's spouse in a nursing home, and having discussed how one would cope after death are positively correlated with prolonged forewarning and negatively correlated with sudden death.

Influence of Death Forewarning on Mental Health

The first two objectives of the multivariate analysis are: (1) to specify the relationship between death forewarning and widowed persons' psychological adjustment six and 18 months after their loss; and (2) to assess whether these patterns differ by gender. To address the first objective, we regressed each of four different measures of forewarning on two general (i.e., depression and anxiety), and five loss-related (yearning, shock, anger, intrusive thoughts, and a composite grief measure) indicators of psychological adjustment at both six and 18 months after the death. The four models evaluated were: (1) *sudden death effects only*, measured with a dichotomous indicator of sudden death; (2) *linear effects of warning time*, measured with a continuous indicator of months warning time (from 1 to 24 months) and a dichotomous indicator of sudden death; (3) *curvilinear effects of warning time*, measured with a continuous indicator of months warning time, months warning time squared, and a dichotomous indicator of sudden death; and (4) *effects of sudden and very prolonged warning time*, measured with dichotomous indicators representing sudden death, and warning time of more than six months. (In preliminary analyses, more fine-grained cutpoints were evaluated: no warning time, less than 1 month warning, 1-6 months warning, 6-12 months warning, more than 12 months warning. However, the model including just two indicators for no warning versus more than six months warning best fit the data). To achieve the second objective, all models were estimated including interaction terms of sex by death forewarning. All models controlled demographic characteristics and respondent's baseline physical and mental health (Complete models are not shown but are available from the author). Models with significant effects of forewarning are presented in Tables 3 through 5.

Three main findings emerged from the regression results. First, the effect of death forewarning on survivors' well-being is far weaker than past research suggests. Considering only those models which parameterized forewarning with two dummy variables, we tested 14 models (i.e., seven dependent variables each at two follow-ups) with two forewarning indicators in each model. Of these, only two models produced significant effects - each including one of the forewarning dummy variables. These effects are probably greater than expected by chance, but indicate very limited effects of forewarning on reactions to widowhood among older adults.

Second, when death forewarning does significantly affect widowed persons' psychological adjustment, its effect differs across outcomes. Death forewarning - regardless of how operationalized - is unrelated to four (i.e., depression, overall grief, shock, and anger) out of the seven possible outcomes at both the six- and 18-month follow up. Even when potential suppressor variables were added to the regression equation (i.e., death context and communication), warning time is not a significant predictor of any of the four outcomes. Sudden death significantly increases levels of intrusive thoughts six months after the loss, although the effect is no longer significant at the 18-month follow up (Table 3). Prolonged forewarning (i.e., more than six months forewarning) is associated with elevated anxiety both six and 18 months after the loss.

Third, gender differences in the effect of forewarning are significant for just one of the seven outcomes: yearning. At both the six and 18 month follow-ups, sudden death (compared to anticipated

death) is associated with slightly higher yearning scores among women and considerably lower yearning scores among men at both interviews (Table 5).

Death Context and Communication as Mediators of Death Forewarning Effects

To more fully understand the linkages between death forewarning and anxiety, yearning, and intrusive thoughts, baseline models (Model 1) were expanded to include two sets of possible mediator (or suppressor) variables: death context (Model 2) and communication variables (Model 3). Tables 3 through 5 display regression results for intrusive thoughts (Table 3), anxiety (Table 4), and yearning (Table 5). Models are estimated separately for the six- and 18-month outcomes.

Intrusive Thoughts

Sudden death is associated with elevated levels of intrusive thoughts six months after the loss. However, the effect of sudden death on intrusive thoughts increases when death context and communication indicators are controlled. When only demographic and baseline health characteristics are controlled (Model 1), sudden death is associated with a .316 standard deviation increase in intrusive thoughts ($p \leq .05$). When death context variables are adjusted, the effect of sudden death increases by nearly 25 percent, to .39 standard deviations. Few of the death context variables have direct effects on intrusive thoughts, although having been with one's spouse at the moment of death protects against high levels of intrusive thoughts (b=-.389, $p \leq .001$).

Intrusive thoughts at the 6-month follow-up are not related to any of the baseline demographic or social class variables. Of baseline variables, only anxiety is positively and significantly related to intru-sive thoughts; those with higher levels of anxiety prior to their spouse's death have elevated levels of intrusive thoughts six months after the death. In general, death forewarning, context, and demographic factors are relatively weak predictors of intrusive thoughts; the final model explains only 6 percent of the variance in wave 1 intrusive thoughts. By wave 2, intrusive thoughts are no longer significantly linked to sudden death, although other death context variables are significantly associated with intrusive thoughts 18 months after the loss. Those who discussed death with their spouse and whose spouse resided in a nursing home have significantly lower levels of intrusive thoughts.

Anxiety

Having more than six months forewarning - is a positive and significant predictor of anxiety levels both six and 18 months after the death. However, the effect of sudden death on anxiety is not significantly different from the effect of having less than six months warning. The effect of prolonged forewarning also is not mediated by death context or communication variables; rather, this effect also is suppressed by these factors. By and large, the linkages between death forewarning, death context, and demographic factors on anxiety are the same at both the six and 18 months follow-ups, and the amount of variance explained is the same at both time points.

The baseline model (Model 1) reveals that prolonged forewarning is associated with a .37 standard deviation increase in anxiety levels at Wave 1, and this effect increases by 27 percent when death context variables are considered. The baseline model predicting Wave 2 anxiety shows a positive (though not statistically significant) effect of prolonged death on anxiety. However, when death context factors are considered, the effect of prolonged death increases by 32 percent and is significant at the $p \leq .05$ level. Individuals whose spouses resided in a nursing home prior to death had significantly higher anxiety levels at both waves. Communication about the death and being with one's spouse at death are unrelated to anxiety levels both six and 18 months after the death.

Yearning

Sudden deaths are associated with reduced yearning among men and somewhat elevated yearning among women at both the six- and 18-month interviews. Gender interaction terms for Model 1 (effects of forewarning, net of demographic and health characteristics) and Model 3 (full model, including indicators of death context and communication) are plotted in Figure 1 (for wave 1 yearning levels), and Figure 2 (for wave 2 yearning levels).

When only demographic and health variables are controlled (Model 1), sudden death is associated with a .67 standard deviation reduction in men's yearning levels and a .102 standard deviation increase in women's yearning levels at the six-month follow-up (compared to those whose spouses died after a warning period). Interestingly, the effect of sudden death on men's yearning is mediated by death context and communication characteristics, yet the effect of sudden death on women's yearning is suppressed by these factors. When death context factors are controlled, the effect of sudden death on men's yearning declines while its effect on women's yearning increases slightly. Of the three death context variables, only one is (marginally) significant: having provided care for one's spouse prior to death is associated with an increase (b=.27) in yearning six months after the loss. Caregiving is widely believed to be a more stressful (and unanticipated) role for men than women, and thus may partially account for the slightly better adjustment of men whose wives die suddenly.

By the 18 month follow-up, the general patterns documented at wave 1 persist although effects tend to be weaker. At wave 2, men whose wives died suddenly continue to have yearning scores roughly one-half standard deviations lower than men whose wives died after a warning period. Women whose spouses died suddenly have yearning levels which are roughly .2 standard deviations higher than women whose spouses died after a forewarning period. The gender difference in the effect of forewarning continues to be significant at the $p \leq .05$ level.

DISCUSSION

Abundant research has tried to determine whether sudden or anticipated deaths are more distressing to the bereaved. Although findings are inconsistent across studies, the majority of such work concludes that sudden deaths are more difficult for the survivor than anticipated deaths (Ball, 1977; Carey, 1979-80; Glick, Weiss & Parkes, 1987; Hill, Thompson & Gallagher, 1988; Jacobs, Kasl & Ostfeld, 1986; Lundin, 1984; O'Bryant, 1990-1991; Smith, 1978; Vachon et al., 1982; Wells & Kendig, 1997; Willis et al., 1987; Zisook, Schuchter & Lyons, 1987). In the case of widowhood, forewarning of a spouse's death has been thought to provide the survivor with time to resolve conflicts and "unfinished business" with their partner, to support and assist their ailing partner during their final days, to make sense of the dying process, to prepare practically and psychologically for the transition to widowhood, and to say "goodbye" (Blauner, 1966; Rando, 1986).

Our study of grief among the elderly widowed has shown that the protective effects of death forewarning on survivors' mental health - found in earlier research - may be overstated. Our findings also suggest that researchers should no longer ask the question: "*does* death forewarning affect psychological adjustment among widowed persons?" Rather, the more appropriate question is "*which dimensions* of psychological adjustment are affected by death forewarning"?

First, our analyses revealed that death forewarning is not a significant predictor of broad mental health outcomes such as depression and overall grief, either six or 18 months following the loss. These findings are consistent with work of O'Bryant (1990-91) and others (e.g. Ball, 1977; Bornstein et al., 1973; Bowling & Cartwright, 1982) who find that broad measures of negative affect

such as depression are unrelated to death forewarning. It is not surprising that forewarning does not have a significant effect on these broad scales. As noted earlier, depression and grief comprise distinctive emotional, cognitive, physiological and behavioral symptoms, and these distinct symptoms may respond in very different ways to death forewarning. For instance, our subscale analyses revealed that sudden death is associated with elevated intrusive thoughts, yet reduced anxiety. Consequently, these competing effects may cancel out one another when an aggregate scale such as grief is considered as a dependent variable.

Our analyses also show that death forewarning is not a significant predictor of the specific outcomes of shock and anger. Because shock and anger are believed to be more immediate reactions to loss (Glick et al., 1974; Parkes, 1970; Zisook et. al., 1987), measurements obtained six months after the death may be too late to evidence effects. It is also possible that death forewarning is unrelated to shock and anger in an older population. As noted earlier, members of the CLOC sample may not be shocked by even a sudden death, given that death is a normative and anticipated transition among older adults (Neugarten & Hagestad, 1976).

Second, sudden deaths are associated with elevated levels of intrusive thoughts. Survivors whose spouses died suddenly had elevated levels of intrusive thoughts six months after the loss, although the effect faded by the eighteen-month follow up. These findings are consistent with recent research examining symptoms of post-traumatic stress disorder (PTSD) among the bereaved. (Intrusive thoughts are believed to be similar conceptually to post-traumatic stress disorder, where unprovoked painful thoughts about the deceased plague the survivor of a sudden or shocking loss (Archer, 1999, p. 133)). Recent studies have revealed that individuals who lost family members to violent deaths (accident, suicide or homicide) were much more likely to meet the criteria for PTSD than those whose relatives died of other conditions (Zisook, Chenstova-Dutton, & Shuchter, 1998; Kaltman & Bonnano, 1999). Likewise, family members of murder victims report higher levels of intrusive thoughts than relatives of persons who died naturally (Rynearson & McCreery, 1993). Our analysis shows further that the effect of sudden death on intrusive thoughts is no longer significant by the 18-month follow up, a finding which is consistent with the view of Parkes and colleagues (1972, 1985) and others that intrusive thoughts will fade over time, as the widowed person becomes enmeshed in other activities and relationships.

Third, prolonged forewarning is linked to elevated of anxiety. Deaths which occurred after a fairly long period of anticipation (i.e., more than six months) are linked to higher levels of men's and women's anxiety both six and 18 months following the death. The harmful effects of advanced forewarning are suppressed by death context and communication characteristics, thus past studies which omitted controls for death context characteristics may have underestimated the effect of advanced forewarning on elderly survivors' anxiety. Yet this finding also means that the harmful effects of advanced forewarning cannot be explained away by caregiving, couple communication, spouse's age at death, or whether one's spouse resided in a nursing home prior to death. Grief scholars thus face the task of identifying why and how prolonged forewarning periods lead to elevated anxiety among older adults.

Sociological research on chronic stressors may provide a starting point for this inquiry. Chronic stressors, such as caregiving or watching a spouse suffer from a debilitating illness, are believed to be more difficult for psychological adjustment than stressors of shorter duration (Avison & Turner, 1988; Also see Pearlin & Skaff, 1995 for a review). Moreover, the psychological effects of a chronic stressor may be compounded when experienced in conjunction with concurrent or successive stressors (Holmes & Rahe, 1967; Johnson & Catalano, 1983). Spouses who spend periods of six months or longer anticipating their spouse's death are presumably at a greater risk of experiencing concurrent stressors (such as caregiving and economic stress) than those whose anticipation periods are confined to a shorter time frame. By incorporating indicators of other pre-

widowhood stressors into future analyses, the pathways linking prolonged forewarning and survivors' elevated anxiety levels may become more apparent.

Fourth, the relationship between sudden death and yearning differs starkly for men and women. Sudden death predicts a slight increase in women's yearning, a finding which is generally consistent with past clinical research revealing that sudden death is linked to poor adjustment to loss (Lindemann, 1944; Rando, 1986). It is not surprising that past research is more applicable in characterizing the experiences of women rather than men, given that the overwhelming majority of studies examining the psychological consequences of late life widowhood focus on samples of women only (e.g. Lopata, 1973; O'Bryant, 1990-91).

However, it is surprising that sudden death is more distressing to women than men. We had expected the reverse: because women are more likely than men to be widowed, they may have "rehearsed" and mentally prepared for the transition (Neugarten & Hagestad, 1976). The harmful effects of death forewarning on men's yearning may reflect gender differences in how individuals respond to their partner's end of life experiences. For instance, the caregiving duties that often accompany death forewarning may prove more difficult for men, given that men of the CLOC cohort have less experience with performing the role of caregiver over the life course (see Hatch 2000 for a review). Consistent with this interpretation, our empirical analyses reveal that the effect of sudden death on men's yearning attenuates somewhat when caregiving is controlled.

Past research also suggests that for men, the forewarning period may be associated with increased closeness to the spouse and increased isolation from others. During this time, men may become even closer to and more emotionally bonded to their spouse, at the expense of relationships with others. Moreover, given gender differences in mortality, men may have few same-sex peers who are also awaiting an ill wife's death. In contrast, during the period prior to spousal death, women may rely on their social networks and their female friends' direct experience with spousal illness to help them through the difficult period (Fooken, 1985, p. 98).

Why do the effects of forewarning differ by sex for yearning only? This pattern may reflect the fact that yearning is the only subdimension of grief which is explicitly relational and thus may reflect gender differences in how spousal relationships unfold during the pre-death period. Intrusive thoughts, in contrast, reflect the cognitive process of "stimulus-independent thoughts"(Archer, 1999, p. 65), and anxiety reflects worries about coping with daily experiences.

In sum, our findings suggest that among older couples, sudden spousal death does not have deleterious effects on mental health, except for increasing intrusive thoughts during the first six months after widowhood. Prolonged periods of anticipating a spouse's death are also not generally deleterious, but do seem to increase anxiety for both men and women, and yearning among men only. These gender-specific effects appear to be due to the different experiences of men and women in caring for and relating to a dying spouse. Future research is needed to more adequately understand the limited but real effects found here, and to explore the degree to which other characteristics of the deceased, the surviving spouse, the marital relationship, and the social context condition the ways in which older adults respond to widowhood and its forewarning.

REFERENCES

Anashensel, C.S., Pearlin, L.I., Mullan, J.T., Zarit, S. & Whitlach, C. (1995). *Profiles in care giving: the unexpected career*. New York: Academic Press.

Archer, J. (1999). *The nature of grief: the evolution and psychology of reactions to loss.* London: Routledge Press.

Averill, J.R., & Wisocki, P.A. (1981).Some observations on behavioral approaches to the treatment of grief among the elderly. Pp. X-x in *Behavioral Therapy in Terminal Care*, edited by H.J. Sobel. Cambridge: Ballinger Publishing.

Avison, W.R. & Turner, R.J. (1988). Stressful life events and depressive symptoms: Disaggregating the effects of acute stressors and chronic strains. *Journal of Health and Social Behavior, 29,* 253-64.

Ball, J.F. (1977). Widows' grief: the impact of age and mode of death. *Omega: The Journal of Death and Bereavement*, *7*, 307-33.

Bennett, K.M., & Vidal-Hall, S. (2000). Narratives of death: a qualitative study of widowhood in later life. *Ageing and Society*, *20,* 413-28.

Binger, C.M., Ablin, A.R., Feurstein, M.D., Kushner, J.H., Zoger, S. & Middelsen, C. (1969). Childhood leukemia: emotional impact on patient and family. *New England Journal of Medicine, 280,* 414-18.

Blanchard, C.G.,. Blanchard, E.B. & Becker, J.N. (1976). The young widow: depressive symptomatology throughout the grief process. *Psychiatry*, *39,* 394-99.

Blauner, R (1966). Death and social structure. *Psychiatry, 25*, 378-399.

Bornstein, P.E., Clayton, P.J., Halikas, J.A., Marucie, W.L. & Robins, E. (1973). The depression of widowhood after thirteen months. *British Journal of Psychiatry, 122,* 561-66.

Bowling, A., & Cartwright, A. (1982). *Life after death: a study of the elderly widowed*. London: Tavistock.

Bozeman, M.F., Orbach, C.E., & Sutherland, A.M. (1955). Psychological impact of cancer and its treatment: adaptation of mothers to threatened loss of their children through leukemia. *Cancer, 8*, 1-9.

Calhoun, L.G. & Allen, B.G. (1991). Social reactions to the survivor of a suicide in the family: a review of the literature. *Omega: Journal of Death and Dying*, *20,* 265-72.

Carey, R.G. (1979-80). Weathering widowhood: problems and adjustment of the widowed during the first year. *Omega, 10,* 163-174.

Carr, D., House, J.S., Kessler, R.C., Nesse, R.M., Sonnega, J. & Wortman, C. (2000). Marital quality and psychological adjustment to widowhood among older adults: a longitudinal analysis. *Journal of Gerontology: Social Sciences 55B, 4,* S197-207.

Chodoff, P., Friedman, S.B., & Hamburg, D.A. (1964). Stress, defenses and coping behavior: observations in parents of children with malignant disease. *American Journal of Psychiatry, 120,* 743-9.

Clayton, P., Desmarais, L. & Winokur, G. (1968). A study of normal bereavement. *American Journal of Psychiatry, 125,* 168.

Clayton, P.L., Halikas, J.A., Maurice, W.L. & Robins, E. (1973). Anticipatory grief and widowhood. *British Journal of Psychiatry, 122,* 47-51.

Deimling, G.T., Bass, D.M., Townsend, A.T., & Noelker, L.S. (1989). Care-related stress: a comparison of spouse and adult child caregivers in shared and separate households. *Journal of Aging and Health, 1*, 67-82.

Derogatis, L.R. & Cleary, P.A. (1977). Confirmation of the dimensional structure of the SCL-90: a study in construct validation. *Journal of Clinical Psychology, 33,* 981-989.

DeSpelder, L.A. & Strickland, A.L. (1992). *The last dance: encountering death and dying, 3d ed.* Mountain View, CA: Mayfield.

Dunn, R.G. & Morrish-Vidners, D. (1987). The psychological and social experience of suicide survivors. *Omega: Journal of Death and Dying*, *18,* 175-215

Farebrow, N.L., Gallagher-Thompson, D., Gilewski, M. & Thompson, L. (1992). Changes in grief and mental health of bereaved spouses of older suicides. *Journal of Gerontology, 47*, 357-66.

Fengler, A.P. & Goodrich, R. (1979). Wives of elderly, disabled men: the hidden patients. *The Gerontologist*, *19, 2,* 175-83.

Fiewiger, M. & Smilowitz, M. (1984-85). Relational conclusion through interaction with the dying. *Omega, 15,* 161-72.

Fooken, I. (1985). Old and female: psycho social concomitants of the aging process in a group of older women. In J. Munniches, P. Mussen, E. Olbrich & P.G. Coleman. (Eds.), *Life span and change in a gerontological perspective* (pp. 7-101). Orlando, FL: Academic Press.

Foner, N. (1994*). The caregiving dilemma: work in an American nursing home*. Berkeley, CA: University of California Press.

Fulton, R. & Fulton, J. (1972). Anticipatory grief: a psycho social aspect of terminal care. In B. Schoenberg et al. (Eds.), *Psychosocial aspects of terminal care* (pp. X-x). , New York: Columbia University.

George, L., K. (1993). Sociological perspectives on life transitions. *Annual Review of Sociology, 19,* 353-73.

George, L. & Gwyther, L. (1984). The dynamics of caregiving burden: changes in caregiver well-being over time. *The Gerontologist, 26*, 253-9.

Gerber, I. (1974). Anticipatory bereavement. In B. Schoenberg, A.C. Carr, A.H. Kutscher, D. Peretz & I.K. Goldberg (Eds.) . *Anticipatory Grief* (pp. 26-31). New York: Columbia University Press.

Gerber, I., Rusalem, R., Hannon, N., Battin, D. & Arkin, A. (1975). Anticipatory grief and to aged widows and widowers. *Journal of Gerontology*, 30, 225-9.

Glick, I.O., Weiss, R. S., & Parkes, C.M. (1974). *The first year of bereavement*. New York: Wiley.

Hill, C.D., Thompson, L.W. & Gallagher, D. (1988). The role of anticipatory bereavement in older women's adjustment to widowhood. *The Gerontologist 28, 6,* 792-6.

Hinds, C. (1985). The needs of families who care for patients with cancer at home: are we meeting them? *Journal of Advanced Nursing, 10*, 575-81.

Hinrichsen, G.A., Hernandez, N.A., and Pollack, S. (1992). Difficulties and rewards in family care of the depressed older adult. *The Gerontologist, 32*, 486-92.

Holmes, J.H. & Rahe, R.H. 1967. The social readjustment scale. *Journal of Psychosomatic Research, 11, 213-28.*

Hyman, H.H. (1983). *Of time and widowhood: nationwide studies of enduring effects*. Durham, NC: Duke University Press.

Jacobs, S. (1993). *Pathologic grief: maladaptation to loss*. Washington, D.C.: American Psychiatric Press.

Jacobs, S., Kasl, S. & Ostfeld, A. (1986). The measurement of grief: bereaved versus non-bereaved. *The Hospice Journal, 2,* 21-36.

Johnson, C.L. & Catalano, D.J. (1983). A longitudinal study of family supports to impaired elderly. *The Gerontologist, 23*, 612-8.

Kalish, R.A. (1981). *Death, grief, and caring relationship*. Monterey, CA: Brooks/Cole.

Kaltman, S., & Bonanno, G. (1999). Trauma and bereavement: examining the role of sudden and violent deaths. Unpublished manuscript.

Kramer, D. (1996-97). How women relate to terminally ill husbands and their subsequent adjustment to bereavement. *Omega, 34,* 93-106.

Lindemann, E. (1944). Symptomatology and management of acute grief. *American Journal of Psychiatry*, *151*, 155-60.

Lopata, H.Z. (1973). *Widowhood in an American city*. Cambridge, MA: Schenkman.

Lopata, H.Z. (1996). *Current Widowhood: Myths and Realities*. Thousand Oaks, CA: Sage Publications.

Lundin, T. (1984). Long-term outcome of bereavement. *British Journal of Psychiatry*, *145,* 424-8.

Lundin, T. (1984). Morbidity following sudden and expected bereavement. *British Journal of Psychiatry, 144,* 84-88.

Maddison, D. & Walker, W. (1967). Factors affecting the outcome of conjugal bereavement. *British Journal of Psychiatry, 113,* 1057-67.

Matthews, A. M. (1991). *Widowhood in late life.* Toronto: Buttersworth.

McGloshen, T.H. & O'Bryant, S.L. (1988). The psychological well-being of older, recent widows. *Psychology of Women, 12*, 99-116.

McLeroy, K. & Crump, C. (1994). Health promotion and disease prevention: a historical perspective . *Generations, Spring,* 9-17.

Natterson, J.M., & Knudson, A.G. (1960). Observations concerning fear of death in fatally ill children and their mothers. *Psychosomatic Medicine, 22*, 456-65.

Neugarten, B. & G.O. Hagestad. (1976). "Age and the Life Course." In G. Binstock and E. Shanas (Eds). *Handbook of Aging and the Social Sciences* (pp. 35-55). New York: Van Nostrand Reinhold.

Norris, F.H. & Murrell, S.A. (1990). Social support, life events and stress as modifiers of adjustment to bereavement by older adults. *Psychology and Aging, 5,* 429-36.

O'Bryant, S.L. (1991). Forewarning of husband's death: does it make a difference? *Omega 22, 3,* 227-39.

O'Bryant, S.L., Straw, L.B., & Meggaugh, D.I. (1990). Contributions of the caregiving role to women's development. *Sex Roles, 23,* 645-58.

Olshansky, S. J. & Ault, A.B. (1986). The fourth stage of the epidemiologic transition: the age of delayed degenerative diseases. *The Millbank Memorial Fund Quarterly, 64,* 355-91.

Parkes, C. M. (1985). Bereavement. *British Journal of Psychiatry, 146,* 11-17.

Parkes, C.M. & R.S. Weiss. (1983). *Recovery from bereavement*. New York: Basic Books.

Pattison, E.M.(1977). *The experience of dying*. Englewood Cliffs, NJ: Prentice-Hall.

Pattison, E.M. 1978. The living-dying process. In C.A. Garfield (Ed.), *Psychosocial care of the dying patient,* (pp. 133-68). New York: McGraw-Hill.

Parkes, C.M. (1970). The first year of bereavement: a longitudinal study of the reaction of London widows to the death of their husbands. *Psychiatry, 33,* 444-467.

Parkes, C.M. & Brown, R. (1972). Health after bereavement: a controlled study of young Boston widows and widowers. *Psychosomatic Medicine, 34*, 449.

Pearlin, Leonard I. (1982). .The social contexts of stress. In L. Goldberger & S. Breznitz. (Eds.), *Handbook of Stress*, (pp. 367-79). New York: Free Press.

Pearlin, L.I, & Lieberman, M. (1979). Social sources of emotional distress. In R. Simmons. (Ed.), *research in community and mental health,* (pp. 217-48). Greenwich, CT: JAI Press.

Pearlin, L.I., & Skaff, M.M. (1995) Perspectives on the family and stress and late life. In J. Loranz (Ed.) Pp.323-340 in *Handbook of aging and mental health: an integrative approach*, (pp. 323-40). New York: Plenum Press.

Radloff, L. (1977). The CES-D scale: a self-report depression scale for research in the general population. *Applied Psychological Measurement, 1,* 381-401.

Rando, T.A. (1986). A comprehensive analysis of anticipatory grief: perspectives, processes, promises and problems. In T.A. Rando. (Ed.) *Loss and anticipatory grief*, (pp. 3-38). Lexington, MA: Lexington Books.

Reed, M.D. (1998). Predicting grief symptomatology among the suddenly bereaved. *Suicide & Life-Threatening Behavior, 28*, 285-301.

Richmond, J.B. & Waisman, H.A. (1955). Psychologic aspects of management of children with malignant diseases. *American Journal of Diseased Children, 89*, 42-47.

Roach, M.J. & Kitson, C. (1989). Impact of forewarning on adjustment to widowhood and divorce. In D.A. Lund (ed.)., Older Bereaved Spouses: Research with Practical Applications, (pp. 185-200). New York: Hemisphere Publishing.

Rosenblatt, P. (1983). Bitter, bitter tears: nineteenth century diarists and twentieth century grief theories. Minneapolis: University of Minnesota.

Rosenthal, C.J. & Dawson, P. (1993). Families and the Institutionalized Elderly." In G. Jones & B. Miesen (Eds.) *Caregiving and dementia: convergence of research models and empirical reflections.* London: Routledge.

Rynearson, E.K. (1984). Bereavement after homicide: A descriptive study. *American Journal of Psychiatry*, *141,* 1452-54.

Rynearson, E.K. & McCreery, J.M. (1993). Bereavement after homicide: a synergism of trauma and loss. *American Journal of Psychiatry, 150*, 258-261.

Sanders, C.M. (1982-83). Effects of sudden vs. chronic illness on bereavement outcome. *Omega: Journal of Death and Dying, 13*, 227-41.

Schwab, J.J., Chalmers, J.M.,. Conroy, S.J., Farris, P.N., & Markush, R.E. (1975). Studies in grief: a preliminary report. In B. Schoenberg, A.C. Carr, A.H. Kutscher, D. Peretz & I.K. Goldberg.(Eds.), *Anticipatory grief.* (pp. 78-87). New York: Columbia University Press.

Siegel, K., & Weinstein, L. (1983). Anticipatory grief reconsidered. *Journal of Psycho social Oncology,* 1, 61-73.

Singh, B., & Raphael, B. (1981). Postdisaster morbidity of the bereaved: a possible role for preventive psychiatry? *The Journal of Nervous and Mental Disease, 169,* 203-212.

Smith, W.J. (1978). The etiology of depression in a sample of elderly widows. *Journal of Geriatric Psychiatry, 11,* 81-3.

Stroebe, M.S. & Stroebe, W. (1983). Who suffers more? Sex differences in health risks of the widowed. *Psychological Bulletin, 93*, 279-301.

Stroebe, W. & Stroebe, M.S. (1987). *Bereavement and health: the psychological and physical consequences of partner loss.* New York: Cambridge University Press.

Sweeting, H. N., & Gilhooly, M.L.M. (1990). Anticipatory grief: a review. *Social Science and Medicine, 30,* 1073-80.

Stone, R., Cafferata, G. & Sangl, J. (1987). Caregivers of the frail elderly: a national profile. *The Gerontologist, 27,* 616-26.

Thoits, P.A. (1983). Dimensions of life events that influence psychological distress: An evaluation and synthesis of the literature. In H.B. Kaplan (Ed.), *Psychsocial stress: trends in theory and research,* (Pp. 33-103). New York: Academic Press.

Umberson, D., Wortman, C. & Kessler, R.C. (1992). Widowhood and depression: explaining long-term gender differences in vulnerability. *Journal of Health and Social Behavior 33*, 10-24.

U.S. Bureau of the Census. (1996). *Statistical abstract of the United States: 1996* (116th ed.). Washington, D.C.: U.S. Government Printing Office.

Vachon, M.L., Formo, S.A., Freedman, K., Lyall, A., Rogers, J. & Freeman, S.J. (1976). Stress reactions to bereavement. *Essence: Issues in the Study of Aging, Dying and Death*, *1,* 23-33.

Vachon, M.L., Rogers, J., Lyall, W.A., Lances, W.J., Sheldon, A.R., & Freeman, S.J. (1982). Predictors and correlates of adaptation to conjugal bereavement. *American Journal of Psychiatry, 139,* 998-1002.

Van der Wal, J. (1989-90). The aftermath of suicide: a review of empirical evidence. *Omega: Journal of Death and Dying, 20,* 149-71.

Wells, Y. D. & Kendig, H.L. (1997). Health and well-being of spouse caregivers and the widowed. *The Gerontologist, 37, 5,* 666-74.

Willis, L., Thomas, P, Garry, P.J., & Goodwin, J. (1987). A prospective study of response to stressful life events in initially healthy elders. *Journal of Gerontology, 42, 6,* 627-30.

Wilson, V. (1990). The consequences of elderly wives caring for disabled husbands: Implications for practice. *Social Work, 35,* 417-21.

Wright, L.K. (1991). The impact of Alzheimer's disease on the marital relationship. *The Gerontologist, 31,* 224-37.

Zisook, S., Chentsova, Y. & Schucter, S.R. (1998). Post-traumatic stress disorder following bereavement. *Annals of Clinical Psychiatry, 10,* 157-63.

Zisook, S., DeVaul, R. & Click, N. (1982). Measuring symptoms of grief and bereavement. *American Journal of Psychiatry, 139*, 1590-1593.

Zisook, S. & S.R. Shuchter. (1991). Early Psychological Reaction to the Stress of Widowhood. *Psychiatry, 54,* 320-332.

Zisook, S., Schucter, S.R. & Lyons, L.E. (1987). Adjustment to widowhood. In S. Zisook (Ed.). *Biopsychosocial aspects of bereavement.* Washington, DC: American Psychiatric Press.

Table 1. Means and Standard Deviations for Widowed Persons, by Sex
Changing Lives of Older Couples **Study, 1987-1993**

	Women (N=151)		Men (N=59) (c)		
	M or %	SD	M or %	SD	
Dependent Variables					
Anxiety, 6 month followup (standardized)	0.055	1.009	0.031	1.03	
Yearning, 6 month followup (standardized)	-.066	1.01	0.171	0.955	
Intrusive thoughts, 6 month followup (standardized)	0.034	0.999	-.087	1.01	
Anxiety, 18 month followup (standardized)	-.001	0.872	-.303	0.496	
Yearning, 18 month followup (standardized)	-.066	1.06	0.149	0.839	
Intrusive thoughts, 18 month followup (standardized)	0.005	0.981	-.033	0.992	
Independent Variables					
Warning Time					
No warning time	0.373	0.485	0.319	0.47	
More than 6 months warning	0.287	0.454	0.288	0.457	
Warning time, months	5.09	8.00	5.95	9.3	
Death Context					
Spouse's age at death	77.1	6.42	72.56	7.3	**
Spouse lived in nursing home prior to death	0.015	0.123	0.138	0.347	**
R provided care to spouse during last 6 months of life	0.502	0.502	0.436	0.5	
Communication about Death					
Spouse and R discussed how R would cope being on own	0.196	0.398	0.116	0.323	
R was with spouse when s/he died	0.397	0.491	0.536	0.503	+
Demographic Characteristics					
Age, baseline	69.43	6.99	73.46	5.92	***
Years of education	11.33	2.69	11.11	3.44	
Own home, at baseline	0.898	0.304	0.966	0.182	+
Income, at baseline	20,480	16,308	22,511	16745	
Natural log of income	1.29	0.523	1.37	0.522	
Months between BL and W1 interviews	36.55	18.15	35.83	19.21	
Baseline well-being					
Depression, at baseline (standardized)	0.128	1.05	-.089	0.736	
Anxiety, at baseline (standardized)	0.152	1.09	-.205	0.715	*
Poor or fair health, at baseline	0.299	0.459	0.409	0.497	

NOTES: (a) t-tests were used to assess significant differences between means.
(b) + $p < .10$; '* $p < .05$; ** $p < .01$; *** $p < .001$.
(c) Ns are weighted Ns.

Table 2. Zero-Order Correlations, *Changing Lives of Older Couples Study* 1987-1993 (N=210)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
(1) Yearning, Wave 2	1.00										
(2) Anxiety, Wave 2	0.08	1.00									
(3) Intrusive Thoughts, Wave 2	.39**	.25**	1.00								
(4) Yearning, Wave 1	.59**	.17*	.17*	1.00							
(5) Anxiety, Wave 1	0.06	.53**	.23**	.24**	1.00						
(6) Intrusive Thoughts, Wave 1	.40**	.26**	.61**	.42**	.28**	1.00					
(7) Female	-.07	.16*	-.09	-.11	0.01	0.05	1.00				
(8) Age	0.06	-.28**	0.02	0.08	-.09	0.01	-.26**	1.00			
(9) Education	-.17*	0.06	-.17*	0.022	0.09	-.05	0.03	-.17*	1.00		
(10) Income (nautral log)	-.13	0.02	-.26**	0.13	-.06	-.07	-.06	-.12	.35**	1.00	
(11) Owns home	0.05	-.02	-.10	.15*	0.11	0.01	-.11	0.11	0.04	0.04	1.00
(12) CES-D, baseline	0.03	0.11	0.07	0.08	.23**	0.12	0.11	-.09	-.03	-.06	0.02
(13) Anxiety, baseline	0.03	.22**	0.11	0.13	.19**	.18**	.16*	-.05	0.01	-.01	0.05
(14) Self-rated health, baseline	-.01	0.15	-.04	0.03	.22**	0.04	-.11	0.07	-.10	-.27**	-.02
(15) No warning of death	0.03	-.15	.19*	-.06	-.09	.15*	0.05	0.05	0.03	-.11	0.02
(16) > 6 mos. Warning	-.10	.19*	-.15	0.02	.21**	-.05	-.01	-.04	0.01	0.05	0.04
(17) Warning, in months	-.07	0.08	-.09	0.01	0.12	0.04	-.03	0.04	0.05	0.08	-.01
(18) Provided care to spouse	0.08	0.13	0.02	0.09	0.03	0.05	0.06	-.16	-.13	-.01	-.17*
(19) Spouse age at death	-.04	-.03	-.04	0.03	0.01	0.09	.29**	.54**	-.13	-.14*	-.09
(20) Spouse in nursing home	-.13	-.12	-.21*	0.02	-.05	-.10	-.25**	0.10	0.13	0.13	0.07
(21) R and Sp discussed death	0.07	0.1	-.15	0.04	0.01	0.02	0.09	-.09	-.02	-.02	0.06
(22) R with spouse when died	0.039	0.10	-.06	-.02	-.02	-.18**	-.13	-.15*	0.027	-.02	0.04

	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)
(12) CES-D, baseline	1.00										
(13) Anxiety, baseline	.50**	1.00									
(14) Self-rated health, baseline	0.014	-.08	1.00								
(15) No warning of death	-.03	-.01	-.09	1.00							
(16) > 6 mos. Warning	.18**	0.06	0.08	-.47**	1.00						
(17) Warning, in months	0.09	-.02	0.04	0	.73**	1.00					
(18) Provided care to spouse	0.07	0.09	-.12	-.39**	.26**	0.05	1.00				
(19) Spouse age at death	-.07	-.01	0.09	0.04	0.02	0.05	-.06	1.00			
(20) Spouse in nursing home	.21**	0.06	0.1	-.15*	.31**	.25**	-.08	-.06	1.00		
(21) R and Sp discussed death	0.03	0.07	0.01	-.19**	.29**	.31**	.19**	-.03	-.03	1.00	
(22) R with spouse when died	0.12	0.09	-.02	-.11	0.07	-.01	0.11	.19**	.14*	0.08	1.00

Note: Asterisks signify the p value for the significance level of a t test (two-tailed). * $p < .05$; ** $p < .01$; *** $p < .001$.

Table 3. OLS Regression Predicting Effects of Forewarning, Death Context, and Communication about Death on Intrusive Thoughts
***Changing Lives of Older Couples* Study, 1987-1993**

	Intrusive Thoughts, Six months			Intrusive Thoughts, 18 months		
	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3
Warning time indicators						
No warning time	.316*	.390*	.377*	.285+	0.242	0.186
prior to death	(.145)	(.160)	(.160)	(.161)	(.179)	(.179)
Demographic Characteristics						
Sex (1=female)	0.057	-.103	-.163	-.349+	-.452+	-.464*
	(.162)	(.201)	(.200)	(.183)	(.232)	(.231)
Age	0.002	-.005	-.009	-.003	0.005	0.002
	(.011)	(.015)	(.015)	(.012)	(.017)	(.017)
Years of education	-.016	-.006	-.005	-.013	0.003	0.002
	(.025)	(.026)	(.026)	(.031)	(.032)	(.031)
Own home, BL	0.034	0.139	0.158	-.327	-.284	-.255
	(.251)	(.256)	(.253)	(.304)	(.306)	(.302)
Income (natural log), BL	-.043	-.009	-.041	-.505**	-.471**	-.501**
	(.147)	(.148)	(.146)	(.166)	(.165)	(.164)
Baseline well-being						
Depression, BL	0.037	0.064	0.075	0.076	0.132	0.127
	(.083)	(.085)	(.084)	(.095)	(.097)	(.096)
Anxiety, BL	.162*	.155*	.164*	0.085	0.092	0.117
	(.081)	(.080)	(.079)	(.097)	(.096)	(.095)
Fair or poor health	0.109	0.145	0.123	-.295+	-.223	-.233
at baseline	(.157)	(.161)	(.159)	(.180)	(.185)	(.183)
Death Context						
Spouse's age at death		0.015	0.013		-.006	-.006
		(.015)	(.015)		(.018)	(.018)
Spouse resided in nursing		-.437	-.320		-.870*	-.834*
home prior to death		(.356)	(.355)		(.359)	(.358)
Provided care to spouse in the		0.228	0.251		0.047	0.091
six months prior to death		(.158)	(.159)		(.176)	(.175)
Communication about death						
R and spouse discussed how			0.08			-.419*
R will cope with death			(.185)			(.207)
R was with spouse			-.389**			-.148
when s/he died			(.143)			(.159)
Adjusted R-squared	0.02	0.031	0.057	0.095	0.117	0.137
Constant	-.199	-1.09	-.501	1.36	-1.09	1.49
	(.919)	(1.02)	(1.03)	(1.03)	(1.02)	(1.16)
N	210	210	210	155	155	155

Notes: + $p \leq .10$; * $p \leq .05$; ** $p \leq .01$; *** $p \leq .001$.
Number of months between baseline and wave 1 interview controlled in all models.

Table 4. OLS Regression Predicting Effects of Forewarning, Death Context, and Communication about Death on Anxiety
***Changing Lives of Older Couples* Study, 1987-1993**

	Anxiety, Six months			Anxiety, 18 months		
	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3
Warning time indicators						
No warning time	0.003	-.002	-.010	-.107	-.116	-.110
prior to death	(.155)	(.163)	(.163)	(.139)	(.146)	(.147)
Six or more months	.372*	.473**	.522**	0.241	.318*	.336*
warning time	(.165)	(.171)	(.177)	(.152)	(.159)	(.162)
Demographic Characteristics						
Sex (1=female)	-.040	-.243	-.230	0.151	-.058	-.032
	(.152)	(.189)	(.190)	(.141)	(.176)	(.177)
Age	-.012	-.018	-.019	-.029***	-.036**	-.036**
	(.009)	(.014)	(.014)	(.009)	(.012)	(.012)
Years of education	0.038	.048*	.048*	0.004	0.014	0.015
	(.024)	(.024)	(.024)	(.024)	(.024)	(.024)
Own home, BL	.384+	.417+	.443+	-.005	0.052	0.034
	(.237)	(.241)	(.242)	(.217)	(.223)	(.223)
Income (natural log), BL	-.127	-.086	-.092	0.037	0.063	0.066
	(.139)	(.138)	(.138)	(.124)	(.124)	(.124)
Baseline well-being						
Depression, BL	0.092	.138+	.133+	-.083	-.05	-.046
	(.079)	(.081)	(.081)	(.071)	(.072)	(.072)
Anxiety, BL	.144+	.146*	.152*	.192**	.200**	.193**
	(.076)	(.075)	(.076)	(.071)	(.069)	(.070)
Fair or poor health	.435**	.445**	.448**	.351**	.350*	.351*
at baseline	(.148)	(.150)	(.151)	(.133)	(.137)	(.137)
Death Context						
Spouse's age at death		0.013	0.013		0.014	0.015
		(.014)	(.014)		(.013)	(.013)
Spouse resided in nursing		-.912**	-.941**		-.680*	-.733*
home prior to death		(.346)	(.350)		(.290)	(.293)
Provided care to spouse in the		-.013	0.004		-.006	-.024
six months prior to death		(.151)	(.152)		(.131)	(.133)
Communication About Death						
R and spouse discussed how			-.219			-.046
R will cope with death			(.181)			(.159)
R was with spouse			-.021			0.166
when s/he died			(.136)			(.121)
Adjusted R-squared	0.129	0.150	0.148	0.137	0.156	0.156
Constant	-.243	-.695	-.599	1.61	1.09	0.897
	(.868)	(.954)	(.980)	(.749)	(.845)	(.859)
N	210	210	210	155	155	155

Notes: + $p \leq .10$; * $p \leq .05$; ** $p \leq .01$; *** $p \leq .001$.

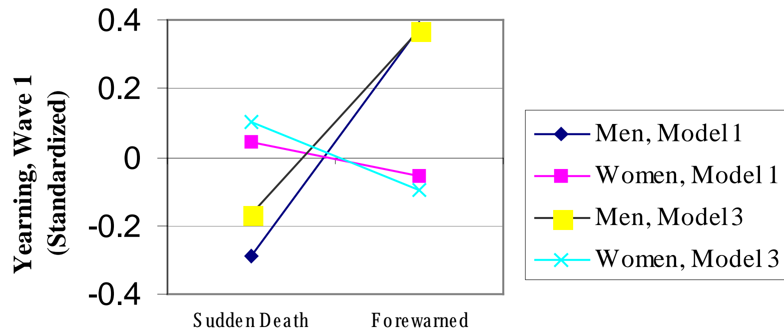
Number of months between baseline and wave 1 interview controlled in all models.

Table 5. OLS Regression Predicting Effects of Forewarning, Death Context, and Communication about Death on Yearning
***Changing Lives of Older Couples* Study, 1987-1993**

	Yearning, Six months			Yearning, 18 months		
	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3
Warning time indicators						
No warning time	-.668*	-.559*	-.538+	-.524+	-.653+	-.645+
prior to death	(.274)	(.293)	(.297)	(.322)	(.353)	(.359)
No warning time *	.770*	.758*	.733*	.695+	.884*	.898*
sex	(.318)	(.323)	(.327)	(.377)	(.387)	(.393)
Demographic Characteristics						
Sex (1=female)	-.437*	-.463*	-.468*	-.396+	-.396	-.391
	(.190)	(.227)	(.229)	(.237)	(.282)	(.283)
Age	0.012	0.014	0.014	0.006	0.029	.031+
	(.010)	(.014)	(.014)	(.012)	(.018)	(.018)
Years of education	-.009	0.001	0.001	-.046	-.031	-.031
	(.025)	(.025)	(.025)	(.033)	(.033)	(.033)
Own home, BL	.447+	.527*	.527*	0.294	0.295	0.284
	(.243)	(.249)	(.251)	(.317)	(.319)	(.321)
Income (natural log), BL	.243+	.268+	.263+	-.214	-.185	-.174
	(.143)	(.144)	(.145)	(.174)	(.173)	(.174)
Baseline well-being						
Depression, BL	0.039	0.046	0.048	0.062	0.107	0.109
	(.080)	(.083)	(.083)	(.099)	(.101)	(.102)
Anxiety, BL	0.107	0.099	0.101	0.008	0.003	-.007
	(.079)	(.078)	(.079)	(.101)	(.010)	(.101)
Fair or poor health	0.079	0.135	0.131	-.201	-.087	-.084
at baseline	(.152)	(.156)	(.156)	(.188)	(.193)	(.194)
Death Context						
Spouse's age at death		0.001	0.001		-.026	-.026
		(.014)	(.014)		(.019)	(.019)
Spouse resided in nursing		-.209	-.180		-.727+	-.752*
home prior to death		(.351)	(.356)		(.385)	(.391)
Provided care to spouse in the		.273+	.276+		0.14	0.121
six months prior to death		(.155)	(.157)		(.185)	(.188)
Communication about Death						
R and spouse discussed how			0.048			0.133
R will cope with death			(.182)			(.220)
R was with spouse			-.076			0.087
when s/he died			(.143)			(.169)
Adjusted R-squared	0.082	0.086	0.078	0.016	0.041	0.032
Constant	-1.49	-2.13	-2.04	0.099	0.175	-.008
	(.898)	(1.00)	(1.03)	(1.09)	(1.22)	(1.25)
N	210	210	210	155	155	155

Notes: + $p \leq .10$; * $p \leq .05$; ** $p \leq .01$; *** $p \leq .001$.
Number of months between baseline and wave 1 interview controlled in all models.

Figure 1. Yearning (Wave 1) by Gender and Death Forewarning



(Note: Model 3 controls demographic and health characteristics;

Figure 2. Yearning (Wave 2) by Gender and Death Forewarning