

# Psychological Adjustment to Sudden and Anticipated Spousal Loss Among Older Widowed Persons

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**Objectives.** This study examined if older adults' psychological adjustment to widowhood varies based on whether the death was sudden or anticipated and if these effects are mediated by death context characteristics (e.g., predeath caregiving, nursing home use, spouse's age at death, and couple's communication about the death).

**Methods.** The effects of forewarning on multiple indicators of mental health and grief were examined in a sample of 210 widowed persons who participated in the Changing Lives of Older Couples (CLOC) study. The CLOC is a probability sample of 1,532 married individuals aged 65 and older for whom baseline information was collected in 1987–88, with widowed persons reinterviewed 6, 18, and 48 months after spousal loss.

**Results.** Forewarning did not affect depression, anger, shock, or overall grief 6 or 18 months after the loss. Prolonged forewarning was associated with elevated anxiety both 6 and 18 months after the death. Sudden spousal death elevated survivors' intrusive thoughts at the 6-month follow-up only. Sudden death was associated with slightly higher levels of yearning among women but significantly lower yearning among men both 6 and 18 months after the loss.

**Discussion.** The findings call into question the widespread belief that grief is more severe if death is sudden and suggest a more complex relationship between bereavement and circumstances of spousal death.

WIDOWHOOD is 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 loss—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; Carnelley, Wortman, & Kessler, 1999; Lundin, 1984; O'Bryant, 1990–91; Rando, 1986; Smith, 1978; Vachon et al., 1982). Numerous studies have explored 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 elderly bereaved persons. Understanding the linkage between death forewarning and older widowed persons' well-being is critically important today because chronic illnesses, 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 that delay late-life mortality mean that the interval between diagnosis and death is lengthening. It is thus critically important that scholars and practitioners understand how this "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." Spouses of the men serving in World War II experienced grief-like symptoms (or *anticipatory grief*) before their spouses actually died, but they managed to emotionally disengage 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 young adults killed suddenly in a nightclub fire suffered severe grief symptoms (Lindemann, 1944). Building upon this work, many grief scholars have concluded that individuals who anticipate their spouse's death will use the forewarning period to prepare psychologically and practically for the transition to widowhood. Although spouses may exhibit grief-like symptoms during the pre-death period, their postloss adjustment is believed to be better than those who experienced a sudden loss (Gerber, 1974, p. 27; Rando, 1986; Vachon et al., 1982).

Empirical studies examining the effect of death forewarning on widowed persons' psychological adjustment are inconclusive, however. Many studies have suggested that sudden spousal death is associated with poorer psychological adjustment among widowed persons (Ball, 1977; Carey, 1979–80; Farberow, Gallagher-Thompson, Gilewski, & Thompson, 1992; Glick, Weiss, & Parkes, 1974; Hill, Thompson, & Gallagher, 1988; Jacobs, Kasl, & Ostfeld, 1986; Lundin, 1984; O'Bryant, 1990–91; Smith, 1978; Vachon et al., 1982; Wells & Kendig, 1997; Willis, Thomas, Garry, & Goodwin, 1987; Zisook, Schuchter, & Lyons, 1987). A smaller group of studies has found the reverse—that forewarning is linked to poorer adjustment among widowed

persons (Fengler & Goodrich, 1979; Gerber, Rusalem, Hannon, Battin, & Arkin, 1975; Sanders, 1982–83; Schwab, Chalmers, Conroy, Farris, & Markush, 1975). A third group of studies has found no relationship between death forewarning and survivors' psychological adjustment (Bowling & Cartwright, 1982; Clayton, Halikas, Maurice, & Robins, 1973; Hill et al., 1988; Maddison & Walker, 1967; McGloshen & O'Bryant, 1988; Roach & Kitson, 1989; Sanders, 1982–83).

We believe that there are four reasons for these inconclusive findings. First, few studies have explicitly acknowledged that the age of the deceased may condition the effects of forewarning on widowed persons' well-being. Second, the larger context of the death has rarely been considered (Sweeting & Gilhooly, 1990); stressors associated with death forewarning, such as the strain of caregiving, may cancel out the gains presumably provided by the period of pre-death anticipation (Rando, 1986; Siegel & Weinstein, 1983). Third, a diverse set of outcome measures and inconsistent definitions of sudden versus anticipated death have been used, thus limiting the comparability of findings across studies. Finally, most past research has relied on cross-sectional rather than longitudinal data; thus, baseline demographic and socioeconomic characteristics that may affect both death timing and psychological adjustment have been neglected.

#### *Death Forewarning Among Older Adults*

Surprisingly few studies have examined the effects of sudden versus anticipated death on older widowed persons' well-being. Rather, most research has focused on premature or "off-time" widowhood among young and midlife adults (Ball, 1977; Glick et al., 1974; Lindemann, 1944; 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 (Ryneerson, 1984) or suicides (Calhoun & Allen, 1991; Dunn & Morrish-Vidners, 1987; Reed, 1998; van der Wal, 1989–90). Because deaths of young persons 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 of such losses are due to suddenness, life stage, or a combination thereof (i.e., sudden and premature death).

For older adults (i.e., aged 65 and older), even "sudden" deaths may be anticipated and viewed as timely (Neugarten & Hagestad, 1976). Given that predictable life transitions are presumed to be less stressful than unexpected ones (George, 1993; Pearlin, 1982; Pearlin & Lieberman, 1979; Thoits, 1983), a sudden spousal death may be no more difficult for the elderly survivor than death 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 aged 65 and older outnumber their male peers by roughly 1.5 to 1 (U.S. Bureau of the Census, 1996). Nearly half of American women aged 65 and older are widowed, compared with 14% of men. Noting the gender gap in mortality, Neugarten and Hagestad (1976) observed that women may go through a rehearsal for wid-

owhood as they observe their peers experience the loss of spouse (Fooker, 1985). Consequently, sudden death may have a more deleterious effect on the well-being of men than women, because older women are more likely to anticipate the death of their spouse (Hill et al., 1988).

#### *Death Context and Forewarning*

A second reason for the inconclusiveness of past studies is that empirical analyses have rarely controlled important contextual factors related to the death, which may counteract or suppress the effects of death timing. For instance, although prolonged forewarning periods may allow spouses to 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 their own health (Fengler & Goodrich, 1979; Rosenblatt, 1983; Sanders, 1982–83; 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 because of their age and accompanying health problems (Averill & Wisocki, 1981; Fengler & Goodrich, 1979; George & Gwyther, 1986).

Contextual factors associated 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 lasting 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; Ross, Rosenthal, & Dawson, 1993). Thus, our analyses included three important indicators of death context that may mediate (or counteract and hence 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, thus enabling 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, 1984–85; Hinds, 1985). We know of

no studies that have empirically assessed whether these behaviors mediate the relationship between death forewarning and psychological adjustment. Thus, our analyses included indicators of whether the couple talked about how the survivor would cope with being alone and whether the survivor was with his or her spouse at the moment he or she 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 & Gilhooly, 1990). The operationalization of sudden versus anticipated death has varied across studies. Sudden deaths have included those where the deceased was dead on arrival at the hospital (Carey, 1979–80), as well as those where the survivor had less than 2 hr (Lundin, 1984), 1 week (Sanders, 1982–83) or 2 weeks (Bowling & Cartwright, 1982) of warning. As noted earlier, still other studies have considered 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 1 month (Bornstein, Clayton, Halikas, Maurice, & Robins, 1973; Clayton et al., 1973) or 2 months (Vachon et al., 1982; Gerber et al., 1975) up to 6 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). Several studies have focused on specific symptoms, such as anger, guilt, and rumination (Glick et al., 1974; Sanders, 1982–83), yet most have focused on global indicators of mental health such as depression or broad grief scales (Carey, 1979–80; Clayton, Desmarais, & Winokur, 1968; Fulton & Fulton, 1971). 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, we explored 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 6 and 18 months after the death. Moreover, rather than operationalizing sudden death and prolonged forewarning a priori, we empirically evaluated diverse measures of each construct to ascertain the specific nature of the relationship between death forewarning and adjustment of older adults. Drawing on past research and theory, we evaluated three possible relationships: sudden death effects only, linear effects of warning time, and curvilinear effects of warning time. Thus, our analyses evaluated whether a particular parameterization of forewarning better predicts widowed persons' psychological adjustment.

### *Other Influences on Psychological Adjustment and Spousal Loss*

Finally, our research addressed the possibility that pre-loss characteristics might affect both the suddenness and con-

text of spousal death, as well as adjustment to the loss, hence creating a spurious relationship between them. Because we had baseline data prior to actual widowhood, we could control for important baseline (or prewidowhood) characteristics. First, we controlled baseline mental health, to help distinguish the spouse's affective state prior to the death and change in affective state that occurred following the death (Jacobs, 1993; Zisook & Schuchter, 1991). Second, we controlled baseline demographic characteristics (age and sex) and socioeconomic status (education, income, and home ownership), because these characteristics have been linked to both 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 was controlled, because it may influence both how the spouse manages stressors related to the death timing and psychological adjustment following the death (George & Gwyther, 1986).

In sum, our research had three objectives: first, to identify the relationship between death forewarning and widowed persons' psychological adjustment 6 and 18 months after the loss, adjusting for psychological adjustment and other characteristics prior to widowhood; second, to assess whether and how the relationship between death forewarning and widowed persons' well-being differs for men and women; and third, to evaluate the extent to which the effect of death forewarning is mediated or suppressed by death context characteristics. Analyses were based on data from the Changing Lives of Older Couples (CLOC) survey, a prospective study of a sample of married individuals aged 65 and older.

## **METHODS**

### *Sample*

The 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. To be eligible for the study, respondents had to be English-speaking members of a married couple where the husband was aged 65 or older. All sample members were noninstitutionalized and were capable of participating in a 2-hr-long interview. The original researchers oversampled women in an effort to maximize the number of respondents who would experience bereavement during the study period. Baseline face-to-face interviews were conducted from June 1987 through April 1988. The response rate for the baseline interview was 68%, which is consistent with the response rate from other Detroit area studies in that period.

The CLOC researchers monitored spousal loss using monthly death record tapes provided by the State of Michigan and by reading the daily obituaries in Detroit-area newspapers. Researchers used the National Death Index and direct ascertainment of death certificates to confirm deaths and obtain causes of death. Of the 335 respondents known to have lost a spouse during the study, 316 were contacted for possible interview (19 persons, or 6%, had died during the interim). Of the 316 contacted, 263 persons (83%) participated in at least one of the three follow-up interviews, which were conducted 6 months (Wave 1), 18 months (Wave 2), and 48 months (Wave 3) after the spouse's death.

Wave 1 analyses were based on the 250 widowed persons (35 men and 215 women) interviewed at the 6-month follow up, or 79% of the 316 living respondents who lost a spouse. Wave 2 analyses were based on the 184 widowed persons (159 women and 25 men) who were also interviewed at the 18-month follow-up, representing 79% of the 246 persons who were interviewed at Wave 1 and still alive at Wave 2. We weighted the data to adjust for unequal probabilities of selection and differential response rate at baseline. The final weighted analytic sample for Waves 1 and 2 comprised 210 widowed persons (59 men and 151 women) and 155 widowed persons (110 women and 45 men), respectively.

The issue of selective attrition deserves mention. If persons who failed to participate in the followup interviews were significantly different from those who did participate (in terms of baseline characteristics) then caution should be taken in generalizing findings to the larger population of elderly widowed persons. Thus, we estimated logistic regression models to predict the correlates of widowed persons' nonparticipation in the Wave 1 and Wave 2 interviews. For models predicting Wave 1 nonparticipation, baseline demographic and socioeconomic characteristics, physical and mental health, and spouse's physical health were evaluated as predictors. Age and baseline anxiety increased risk of nonparticipation, and home ownership significantly decreased one's risk of nonparticipation. For models predicting Wave 2 nonparticipation (given that one participated in the Wave 1 interview), sudden death; months of forewarning; baseline demographic, physical, and mental health; and Wave 1 levels of grief were evaluated as predictors. Not one variable was a significant predictor ( $p \leq .05$ ) of attrition at Wave 2. Caution should be taken in generalizing findings to the population at large, because older, more anxious, and the residentially mobile persons may be underrepresented in the analytic sample.

### 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 ( $\alpha = .83$ ) was assessed with a subset of nine negative items from the 20-item Center for Epidemiologic Studies Depression (CES-D) scale (Radloff, 1977). In the CES-D, 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 (a) I felt depressed; (b) I felt that everything I did was an effort; (c) My sleep was restless; (d) I felt lonely; (e) People were unfriendly; (f) I did not feel like eating; My appetite was poor; (g) I felt sad; (h) I felt that people disliked me; and (i) I could not "get going."

Anxiety ( $\alpha = .86$ ) was 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 10 symptoms in the week prior to interview. Response categories are "not at all," "a little bit," "moderately," "quite a bit," and "extremely." Symptoms include being bothered by (a) nervousness or shakiness; (b)

trembling; (c) feeling suddenly scared for no reason; (d) feeling fearful; (e) heart pounding or racing; (f) feeling tense and keyed up; (g) spells of terror and panic; (h) feeling so restless you could not sit still; (i) feeling that something bad is going to happen to you; and (j) thoughts and images of a frightening nature.

Psychological reactions specific to the loss, as well as an overarching grief scale, were also considered. The four components of grief we considered were shock, anger, yearning, and intrusive thoughts. Shock ( $\alpha = .77$ ) was evaluated with three questions: In the last month, (a) have you felt as though you were in a state of shock; (b) have you felt as though you couldn't believe what was happening; and (c) have you felt emotionally numb? Anger ( $\alpha = .68$ ) was assessed with three questions: In the past month, (a) have you felt resentful or bitter about your spouse's death; (b) have you felt that the death of your spouse was unfair; and (c) have you felt anger toward God? Yearning ( $\alpha = .75$ ) was assessed with four questions: In the last month, (a) have you found yourself longing to have your spouse with you; (b) have you had painful waves of missing your spouse; (c) have you experienced feelings of intense pain or grief over the loss of your spouse; and (d) have you experienced feelings of grief, loneliness, or missing your spouse? We evaluated intrusive thoughts ( $\alpha = .66$ ) with three questions: In the past month, (a) have you had difficulty falling asleep because thoughts about your spouse kept coming into your mind; (b) have you tried to block out memories or thoughts of your spouse; and (c) have you been unable to get thoughts about your spouse out of your mind?

Grief ( $\alpha = .85$ ) was the average of the four subscale scores. Response categories for all grief scale items were "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 was standardized for ease of interpretation and comparison across indicators and thus had a mean of 0 and a standard deviation of 1.

*Independent variables.*—The central independent variable in the analysis was 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 of warning time was used as the independent variable. Months were top-coded at 24, because more than 90% of widowed persons said that they had fewer than 2 years of warning. Sudden death was a dummy variable indicating those who had "no warning/minutes" prior to their spouse's death (33% of sample). We did not separately consider the effects of violent sudden deaths (e.g., suicide or murder), because fewer than 2% died in this manner. Prolonged forewarning was a dummy variable indicating those who had more than 6 months of warning prior to their spouse's death (28% of sample). The reference group is persons with less than 6 months of warning.

*Death context.*—Because both the psychological consequences of loss and warning time may be associated with other conditions of the death, we controlled three additional characteristics of the spouse's death: (a) spouse's age at death (in years), and dichotomous variables indicating (b) whether the respondent was providing care to his or her spouse in the 6 months prior to the death, and (c) 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?" Closure was evaluated with the question, "Were you there with your [husband/wife] at the moment when [she/he] died?" Positive responses were coded as 1.

*Confounding factors.*—Depression and anxiety at baseline were measured exactly as described earlier (Derogatis & Cleary, 1977; Radloff, 1977). Respondent's physical health at baseline was 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" were coded 1, and all others were coded as 0.

*Demographic variables.*—Control variables included 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). We measured the total household income variable by having respondents indicate which of 10 income categories most accurately characterized their economic status. We derived a continuous measure of income by taking the midpoint of each of the 10 income categories, with Pareto estimation of the mean for the top income category. The natural log of income was used because the respondents' income distribution was skewed, with most respondents in the lower income categories. A final demographic characteristic—race—was not considered in this analysis. Preliminary analyses revealed that race (where 1 = Black) was not a significant predictor of the outcomes variables, nor did the effects of forewarning differ by race.

Finally, we controlled for the duration (in months) between the baseline and Wave 1 interviews. Although all Wave 1 interviews were conducted 6 months following spousal death, the duration between the baseline and Wave 1 interviews ranged from 9 to 76 months because of variation in the timing of spouse's death. Thus, baseline assessments were 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 did not differ from one another in terms of anxiety, yearning, or intrusive thoughts 6 or 18 months following their loss. Death forewarning did not differ significantly by gender; roughly one third of widowed persons experienced no forewarning of their spouse's death, and another one third reported more than 6 months of warning. The average warning time was 5–6 months.

Table 1. Means and Standard Deviations for Widowed Persons, by Sex, Changing Lives of Older Couples Study, 1987–93

Variable	Women ( <i>n</i> = 151)		Men ( <i>n</i> = 59)	
	<i>M</i> or %	<i>SD</i>	<i>M</i> or %	<i>SD</i>
Dependent Variables				
Anxiety, 6-month follow up (standardized)	0.055	1.009	0.031	1.03
Yearning, 6-month follow up (standardized)	-.066	1.01	0.171	0.955
Intrusive thoughts, 6-month follow up (standardized)	0.034	0.999	-.087	1.01
Anxiety, 18-month follow up (standardized)	-.001	0.872	-.303	0.496
Yearning, 18-month follow up (standardized)	-.066	1.06	0.149	0.839
Intrusive thoughts, 18-month follow up (standardized)	0.005	0.981	-.033	0.992
Independent Variables				
Warning Time Indicators				
No warning time prior to death	0.373	0.485	0.319	0.47
6 or more months warning time	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**
Provided care to spouse in 6 months prior to death	0.502	0.502	0.436	0.5
Communication About Death				
R and spouse discussed how R will cope with death	0.196	0.398	0.116	0.323
R was with spouse when he or she 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, baseline	0.898	0.304	0.966	0.182
Income, baseline	20,480	16,308	22,511	16,745
Natural log of income	1.29	0.523	1.37	0.522
Months between baseline and Wave 1 interviews	36.55	18.15	35.83	19.21
Baseline Well-Being				
Depression, baseline (standardized)	0.128	1.05	-.089	0.736
Anxiety, baseline (standardized)	0.152	1.09	-.205	0.715*
Fair or poor health, baseline	0.299	0.459	0.409	0.497

Notes: *t* tests were used to assess significant gender differences between means. *N*s are weighted *N*s.

\**p* ≤ .05; \*\**p* ≤ .01; \*\*\**p* ≤ .001.

Men and women did differ in terms of the context surrounding their spouse's death. Men were significantly more likely than women to report that their spouse was residing in a nursing home prior to death (14% vs 2%) and that they were with their spouse at the exact moment they died (54% vs 40%). One fifth of women and 12% of men reported 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%, respectively) reported providing care to their spouse in the months prior to death. Few demographic characteristics differed by gender, except that men in the CLOC were significantly older at baseline than the

women and were also slightly more likely to own their own homes. At baseline, women had significantly higher levels of anxiety than men.

### *Influence of Death Forewarning on Mental Health*

Our first two objectives of the multivariate analysis were (a) to specify the relationship between death forewarning and widowed persons' psychological adjustment 6 and 18 months after their loss and (b) 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 6 and 18 months after the death. The four models evaluated were (a) sudden death effects only, measured with a dichotomous indicator of sudden death; (b) linear effects of warning time, measured with a continuous indicator of months of warning time (from 1 to 24 months)

and a dichotomous indicator of sudden death; (c) curvilinear effects of warning time, measured with a continuous indicator of months of warning time, months of warning time squared, and a dichotomous indicator of sudden death; and (d) effects of sudden death and very prolonged warning time, measured with dichotomous indicators representing sudden death and warning time of more than 6 months; warning time of less than 6 months was the reference category. (In preliminary analyses, more fine-grained cutpoints were evaluated. However, the model including just two dichotomous indicators for no warning versus more than six months warning best fit the data—as evidenced by adjusted  $r^2$  values.) 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 first author.) Models with significant effects of warning time are presented in Tables 2–4.

Table 2. Ordinary Least Squares Regression Predicting Effects of Forewarning, Death Context, and Communication About Death on Intrusive Thoughts, Changing Lives of Older Couples Study, 1987–93

Variable	Intrusive Thoughts, 6 Months			Intrusive Thoughts, 18 Months		
	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3
<b>Warning Time Indicators</b>						
No warning time prior to death	.316*	.390*	.377*	.285	.242	.186
	(.145)	(.160)	(.160)	(.161)	(.179)	(.179)
<b>Demographic Characteristics</b>						
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, baseline	0.034	0.139	0.158	-.327	-.284	-.255
	(.251)	(.256)	(.253)	(.304)	(.306)	(.302)
Income (natural log), baseline	-.043	-.009	-.041	-.505**	-.471**	-.501**
	(.147)	(.148)	(.146)	(.166)	(.165)	(.164)
<b>Baseline Well-Being</b>						
Depression, baseline	0.037	0.064	0.075	0.076	0.132	0.127
	(.083)	(.085)	(.084)	(.095)	(.097)	(.096)
Anxiety, baseline	.162*	.155*	.164*	0.085	0.092	0.117
	(.081)	(.080)	(.079)	(.097)	(.096)	(.095)
Fair or poor health, baseline	0.109	0.145	0.123	-.295	-.223	-.233
	(.157)	(.161)	(.159)	(.180)	(.185)	(.183)
<b>Death Context</b>						
Spouse's age at death		0.015	0.013		-.006	-.006
		(.015)	(.015)		(.018)	(.018)
Spouse lived in nursing home prior to death		-.437	-.320		-.870*	-.834*
		(.356)	(.355)		(.359)	(.358)
Provided care to spouse in 6 months prior to death		0.228	0.251		0.047	0.091
		(.158)	(.159)		(.176)	(.175)
<b>Communication About Death</b>						
R and spouse discussed how R will cope with death			0.08			-.419*
			(.185)			(.207)
R was with spouse when he or she died			-.389**			-.148
			(.143)			(.159)
Adjusted $R^2$	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

Note: Number of months between baseline and Wave 1 interview controlled in all models.

\* $p \leq .05$ ; \*\* $p \leq .01$ ; \*\*\* $p \leq .001$ .

Table 3. Ordinary Least Squares Regression Predicting Effects of Forewarning, Death Context, and Communication About Death on Anxiety, Changing Lives of Older Couples Study, 1987–93

Variable	Anxiety, 6 Months			Anxiety, 18 Months		
	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3
<b>Warning Time Indicators</b>						
No warning time prior to death	.003 (.155)	-.002 (.163)	-.010 (.163)	-.107 (.139)	-.116 (.146)	-.110 (.147)
6 or more months warning time	.372* (.165)	.473** (.171)	.522** (.177)	.241 (.152)	.318* (.159)	.336* (.162)
<b>Demographic Characteristics</b>						
Sex (1 = female)	-.040 (.152)	-.243 (.189)	-.230 (.190)	0.151 (.141)	-.058 (.176)	-.032 (.177)
Age	-.012 (.009)	-.018 (.014)	-.019 (.014)	-.029*** (.009)	-.036** (.012)	-.036** (.012)
Years of education	0.038 (.024)	.048* (.024)	.048* (.024)	0.004 (.024)	0.014 (.024)	0.015 (.024)
Own home, baseline	0.384 (.237)	0.417 (.241)	0.443 (.242)	-.005 (.217)	0.052 (.223)	0.034 (.223)
Income (natural log), baseline	-.127 (.139)	-.086 (.138)	-.092 (.138)	0.037 (.124)	0.063 (.124)	0.066 (.124)
<b>Baseline Well-Being</b>						
Depression, baseline	0.092 (.079)	0.138 (.081)	0.133 (.081)	-.083 (.071)	-.05 (.072)	-.046 (.072)
Anxiety, baseline	.144+ (.076)	.146* (.075)	.152* (.076)	.192** (.071)	.200** (.069)	.193** (.070)
Fair or poor health, baseline	.435** (.148)	.445** (.150)	.448** (.151)	.351** (.133)	.350* (.137)	.351* (.137)
<b>Death Context</b>						
Spouse's age at death		0.013 (.014)	0.013 (.014)		0.014 (.013)	0.015 (.013)
Spouse lived in nursing home prior to death		-.912** (.346)	-.941** (.350)		-.680* (.290)	-.733* (.293)
Provided care to spouse in 6 months prior to death		-.013 (.151)	0.004 (.152)		-.006 (.131)	-.024 (.133)
<b>Communication About Death</b>						
R and spouse discussed how R will cope with death			-.219 (.181)			-.046 (.159)
R was with spouse when he or she died			-.021 (.136)			0.166 (.121)
Adjusted $R^2$	0.129	0.150	0.148	0.137	0.156	0.156
Constant	-.243 (.868)	-.695 (.954)	-.599 (.980)	1.61 (.749)	1.09 (.845)	0.897 (.859)
<i>N</i>	210	210	210	155	155	155

Note: Number of months between baseline and Wave 1 interview controlled in all models.

\* $p \leq .05$ ; \*\* $p \leq .01$ ; \*\*\* $p \leq .001$ .

Three important findings emerged from the regression results. First, the effect of death forewarning on survivors' well-being was far weaker than past research has suggested. Considering only those models that 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 did significantly affect psychological adjustment, its effect differed across outcomes. Death forewarning—regardless of how operationalized—was unrelated to four (i.e., depression, grief, shock, and anger) of the seven possible outcomes at both the 6- and

18-month follow-up. Even when potential counterbalancing or suppressor variables (i.e., death context and communication) were added to the regression equation, warning time was not a significant predictor of any of the four outcomes. Sudden death significantly increased intrusive thoughts 6 months after the loss, although the effect was no longer significant at the 18-month follow-up (Table 2). Prolonged forewarning (i.e., more than 6 months of forewarning) was associated with elevated anxiety both 6 and 18 months after the loss (Table 3).

Third, gender differences in the effect of forewarning were significant for just one of the seven outcomes: yearning. At both the 6- and 18-month follow-ups, sudden death (compared with anticipated death) was associated with slightly higher yearning scores among women and considerably lower yearning scores among men at both interviews (Table 4).

Table 4. Ordinary Least Squares Regression Predicting Effects of Forewarning, Death Context, and Communication About Death on Yearning, Changing Lives of Older Couples Study, 1987–93

Variable	Yearning, 6 Months			Yearning, 18 Months		
	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3
<b>Warning Time Indicators</b>						
No warning time prior to death	-.668*	-.559*	-.538	-.524	-.653	-.645
	(.274)	(.293)	(.297)	(.322)	(.353)	(.359)
No Warning Time × Sex	.770*	.758*	.733*	.695	.884*	.898*
	(.318)	(.323)	(.327)	(.377)	(.387)	(.393)
<b>Demographic Characteristics</b>						
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	0.031
	(.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, baseline	0.447	.527*	.527*	0.294	0.295	0.284
	(.243)	(.249)	(.251)	(.317)	(.319)	(.321)
Income (natural log), baseline	0.243	0.268	0.263	-.214	-.185	-.174
	(.143)	(.144)	(.145)	(.174)	(.173)	(.174)
<b>Baseline Well-Being</b>						
Depression, baseline	0.039	0.046	0.048	0.062	0.107	0.109
	(.080)	(.083)	(.083)	(.099)	(.101)	(.102)
Anxiety, baseline	0.107	0.099	0.101	0.008	0.003	-.007
	(.079)	(.078)	(.079)	(.101)	(.101)	(.101)
Fair or poor health, baseline	0.079	0.135	0.131	-.201	-.087	-.084
	(.152)	(.156)	(.156)	(.188)	(.193)	(.194)
<b>Death Context</b>						
Spouse's age at death		0.001	0.001		-.026	-.026
		(.014)	(.014)		(.019)	(.019)
Spouse lived in nursing home prior to death		-.209	-.180		-.727	-.752*
		(.351)	(.356)		(.385)	(.391)
Provided care to spouse in 6 months prior to death		0.273	0.276		0.14	0.121
		(.155)	(.157)		(.185)	(.188)
<b>Communication About Death</b>						
R and spouse discussed how R will cope with death			0.048			0.133
			(.182)			(.220)
R was with spouse when he or she died			-.076			0.087
			(.143)			(.169)
Adjusted R <sup>2</sup>	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

Note: Number of months between baseline and Wave 1 interview controlled in all models.

\* $p \leq .05$ ; \*\* $p \leq .01$ ; \*\*\* $p \leq .001$ .

### Death Context and Communication as Mediators of Death Forewarning Effects

To better understand the effect of death forewarning on anxiety, yearning, and intrusive thoughts, we expanded baseline models (Model 1) to include two sets of possible mediator (or suppressor) variables: death context (Model 2) and communication (Model 3) variables. Tables 2–4 show regression results for intrusive thoughts (Table 2), anxiety (Table 3), and yearning (Table 4). Separate models were estimated for the 6- and 18-month outcomes.

#### Intrusive Thoughts

Sudden death was associated with elevated levels of intrusive thoughts 6 months after the loss. The effect of death suddenness increased when death context and communication indicators were controlled. When only demographic and baseline health characteristics were controlled (Model

1), sudden death was associated with a .316 standard deviation increase in intrusive thoughts ( $p \leq .05$ ). When death context variables were adjusted, the effect of sudden death increased to .39 standard deviations. Few of the death context variables had direct effects on intrusive thoughts, although having been with one's spouse at the moment of death protected against high levels of intrusive thoughts ( $b = -.389$ ,  $p \leq .001$ ). Of the baseline variables, only anxiety was positively and significantly related to intrusive thoughts; those with higher levels of anxiety prior to their spouse's death had elevated levels of intrusive thoughts 6 months after the death.

In general, death forewarning, context, and demographic factors were relatively weak predictors of intrusive thoughts; the final model explained only 6% of the variance in Wave 1 intrusive thoughts. By Wave 2, intrusive thoughts were no longer significantly linked to sudden death. Although the

effect of sudden death faded over time, other death context variables were significantly associated with intrusive thoughts 18 months after the loss. Persons who discussed the death with their spouse and those whose spouses resided in nursing homes had significantly lower levels of intrusive thoughts.

### *Anxiety*

As shown in Table 3, having more than 6 months of forewarning was a positive and significant predictor of anxiety levels both 6 and 18 months after the death. The effect of prolonged forewarning was not mediated by death context or communication variables; rather, the effect was suppressed by these factors. The effects of death forewarning, death context, and demographic factors on anxiety were similar at both the 6- and 18-month follow-ups, and the amount of variance explained was the same at both time points.

The baseline model (Model 1) revealed that prolonged forewarning was associated with a .37 standard deviation increase in anxiety levels at Wave 1, and this effect increased when death context variables were considered. The baseline model predicting Wave 2 anxiety showed a positive (though not statistically significant) effect of prolonged death on anxiety. However, when death context factors were considered, this effect increased from .24 to .32 and was significant at the  $p \leq .05$  level. Individuals whose spouses resided in a nursing home prior to death had significantly lower anxiety levels at both waves. Communication about the death and being with one's spouse at death were unrelated to anxiety levels both 6 and 18 months after the death.

### *Yearning*

As shown in Table 4, sudden deaths were associated with reduced yearning among men and somewhat elevated yearning among women at both the 6- and 18-month interviews. The first row of coefficients represents the effect of sudden death among men, and the second row represents the interaction term or the difference between women and men in the effect of sudden death. When only demographic and health variables were controlled (Model 1), sudden death was associated with a .67 standard deviation reduction in men's yearning levels and a .10 standard deviation increase (i.e., from .67 to .77) in women's yearning levels at the 6-month follow-up (compared with those whose spouses died after a warning period). Interestingly, the effect of sudden death on men's yearning was partially mediated by death context and communication characteristics, yet the effect of sudden death on women's yearning was suppressed by these factors. Of the three death context variables, only one was (marginally) significant: Having provided care for one's spouse prior to death was associated with an increase ( $b = .27$ ) in yearning 6 months after the loss.

At the 18-month follow-up, the general patterns documented at Wave 1 persisted although effects were weaker. At Wave 2, men whose wives died suddenly continued to have yearning scores roughly .5 standard deviations lower than widowed men who had some forewarning. Women whose spouses died suddenly had yearning levels that were

roughly .2 standard deviations higher than widows who had been forewarned. Gender differences in the effect of forewarning remained significant at the  $p \leq .05$  level.

## **DISCUSSION**

Researchers have conducted many studies to determine whether sudden or anticipated deaths are more distressing to the bereaved. Although findings have been inconsistent across studies, the majority of such work has concluded that sudden deaths are more difficult for the survivor than anticipated deaths (Ball, 1977; Carey, 1979–80; Glick, Weiss & Parkes, 1974; Hill et al., 1988; Jacobs et al., 1986; Lundin, 1984; O'Bryant, 1990–91; Smith, 1978; Vachon et al., 1982; Wells & Kendig, 1997; Willis et al., 1987; Zisook et al., 1987). Our study of grief among elderly widowed persons 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 questions are "Which dimensions of psychological adjustment are affected by death forewarning?" and "For whom does death forewarning affect psychological well-being?"

First, our analyses reveal that death forewarning is not a significant predictor of broad mental health outcomes such as depression and overall grief either 6 or 18 months following the loss. These findings are consistent with past studies showing that broad measures of negative affect such as depression are unrelated to death forewarning (Ball, 1977; Bornstein et al., 1973; Bowling & Cartwright, 1982; O'Bryant, 1990–91). 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. Our subscale analyses reveal 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 postloss shock and anger. Because shock and anger are believed to be immediate reactions to loss (Glick et al., 1974; Parkes, 1970; Zisook et al., 1987), measurements obtained 6 months after the death may be too late to evidence effects. Death forewarning may also be unrelated to shock and anger in an older population, given that widowhood 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 have elevated levels of intrusive thoughts 6 months after the loss, although the effect fades by the 18-month follow-up. These findings are consistent with research examining symptoms of posttraumatic stress disorder (PTSD) among the bereaved. (Intrusive thoughts are believed to be similar conceptually to PTSD, where unprovoked painful thoughts about the deceased plague the survivor of a sudden or shocking loss; Archer, 1999.) Recent studies have revealed that individuals who lose family members to violent deaths

(accident, suicide, or homicide) are much more likely to meet the criteria for PTSD than those whose relatives die of other conditions (Zisook, Chentsova-Dutton, & Schuchter, 1998; Kaltman & Bonanno, 1999). Likewise, family members of murder victims report higher levels of intrusive thoughts than relatives of persons who die naturally (Ryerson & 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, consistent with the observation that intrusive thoughts will fade over time, as the widowed person becomes enmeshed in other activities and relationships (Parkes, 1985; Parkes & Brown, 1972).

Third, prolonged forewarning increases survivors' anxiety levels both 6 and 18 months following the death. The harmful effects of advanced forewarning (i.e., more than 6 months) are suppressed by death context and communication characteristics; thus past studies that omitted controls for death context characteristics may have underestimated the effect of advanced forewarning on elderly survivor's anxiety. Our analyses also show 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 provides a starting point for this inquiry. Chronic (or long-term) 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; see also Pearlin & Skaff, 1995, for a review). 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 prolonged periods anticipating their spouse's death are presumably at a greater risk of experiencing concurrent stressors than those whose anticipation periods are confined to a shorter time frame. By incorporating indicators of other prewidowhood 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 significantly for men and women. Sudden death predicts a slight increase in women's yearning, a finding that 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 this finding converges with past research on the effects of forewarning, 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 reduces yearning for men, yet has only a small harmful effect for women. We had expected the reverse: Because women are more likely than men to be widowed, they may be better prepared for the transition—even if it occurs suddenly

(Neugarten & Hagestad, 1976). The harmful effects of death forewarning on men's yearning may instead reflect gender differences in how individuals respond to their partner's end of life experiences. For men, the forewarning period may be associated with increased closeness to the spouse and isolation from others. During this time, men may become even more emotionally bonded to their spouse, at the expense of relationships with others. Given gender differences in mortality, men may have few same-sex peers who are also awaiting an ill wife's death. In contrast, women may rely on their female friends' direct experience with spousal illness to help them through the difficult dying process and thereafter (Fookan, 1985).

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 that is explicitly relational and thus may reflect gender differences in how spousal relationships unfold during the predeath 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 adults, sudden spousal death does not have far-reaching deleterious effects on mental health, except for increasing intrusive thoughts during the first 6 months after widowhood. Prolonged periods of anticipating a spouse's death are also not generally deleterious, but they do seem to increase anxiety for both men and women and yearning among men only. These gender-specific effects may 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.

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