Racial Disparities in the Outcomes of Communication on Medical Care Received Near Death

Jennifer W. Mack, MD, MPH; M. Elizabeth Paulk, MD; Kasisomayajula Viswanath, PhD; Holly G. Prigerson, PhD

**Background:** Black patients tend to receive more life-prolonging care at the end of life (EOL) than white patients. This study aimed to evaluate whether differences in patient-physician communication contribute to disparities in EOL care between black patients and white patients.

**Methods:** Multi-institutional prospective longitudinal cohort study of 71 black patients and 261 white patients with advanced cancer. The main outcome measures were differences between black patients and white patients in relationships among EOL discussions and communication goals (terminal illness awareness, treatment preferences, and do-not-resuscitate [DNR] orders) and EOL care outcomes (life-prolonging care, hospice care, and receipt of EOL care consistent with preferences).

**Results:** End-of-life discussions between physicians and their white patients were associated with less life-prolonging EOL care compared with their black patients (adjusted odds ratio [aOR], 0.11; P = .04). Despite similar rates of EOL discussions (black vs white patients 35.3% vs 38.4%, P = .65), more black patients than white patients received life-prolonging EOL care (19.7% vs 6.9%, P = .001). End-of-life discussions were associated with attainment of some communication goals among black patients, including placement of DNR orders (aOR, 4.25; P = .04), but these communication goals were not consistently associated with EOL care received by black patients. For example, black patients with DNR orders were no less likely than black patients without DNR orders to receive life-prolonging EOL care (aOR, 1.57; P = .58).

**Conclusions:** End-of-life discussions and communication goals seem to assist white patients in receiving less life-prolonging EOL care, but black patients do not experience the same benefits of EOL discussions. Instead, black patients tend to receive life-prolonging measures at the EOL even when they have DNR orders or state a preference for symptom-directed care.

Arch Intern Med. 2010;170(17):1533-1540
resuscitation, although they often wish to have such discussions.20 Black patients tend to receive less information in their interactions with physicians than white patients,21 and family members of black patients who have died describe more communication problems at the EOL than families of white decedents.22 Therefore, differences in preferences between black patients and white patients might be a function of discrepancies in patient-physician communication rather than inherent racial differences in values for care.

Most prior research has examined discrete aspects of EOL decision making as potential sources of disparities in EOL care. For example, studies have examined differences between black patients and white patients in care preferences,3–10 clinician trust,3–10,12,13 and rates of feeding tube use at the EOL1 as isolated outcomes. We used the structural influence model of health communication23 to conceptualize pathways from physician-patient communication to the receipt of EOL care. This model specifies that social factors influence EOL communication.24,25 As shown in the Figure, EOL discussions lead to communication goals that then predict subsequent clinical outcomes.

We report herein findings from a multi-institutional study of 71 black patients and 261 white patients with advanced cancer. Previous studies24,25 reported associations among race, treatment preferences, and intensive EOL care in this cohort but without evaluating mechanisms for disparities as part of an integrated model of EOL communication and without considering a full spectrum of EOL care outcomes. This study was designed to evaluate the extent to which racial differences in the effects of EOL discussions on communication goals account for established differences in EOL care between black patients and white patients. For this study, we focused on patient communication goals rather than on caregiver goals based on the finding that patient goals, not caregiver goals, are most closely associated with clinical outcomes.26

We hypothesized that black patients and white patients differ in the extent to which EOL communication relates to communication goals, including patient recognition that the illness is terminal, formulation of preferences for care, and documentation of those preferences as do-not-resuscitate (DNR) orders. For example, EOL discussions between black patients and their physicians might not be associated with the greater awareness of terminal illness and the preferences for less intensive care that were observed previously in a cohort of predominantly white patients with advanced cancer.11 In addition, we hypothesized that communication goals affect clinical outcomes (such as receipt of life-prolonging EOL care and hospice services) to differing degrees in black patients and white patients.

METHODS

Subjects were recruited as part of the Coping With Cancer Study, a multi-institutional, prospective, longitudinal cohort investigation of patients with advanced cancer and their primary caregivers.11,27 The 332 patients included in the present study identified themselves as non-Hispanic white or black, were recruited between October 16, 2002, and September 4, 2007, and died during the course of the study. Participating sites included Yale Cancer Center (New Haven, Connecticut), Veterans Affairs Connecticut Healthcare System Comprehensive Cancer Clinics (West Haven), Memorial Sloan-Kettering Cancer Center (New York, New York), Simmons Comprehensive Cancer Care Center (Dallas, Texas), Parkland Hospital Palliative Care Service (Dallas), Massachusetts General Hospital and Dana-Farber Cancer Institute (Boston), and New Hampshire Oncology-Hematology (Hooksett).

Patients were eligible to participate in the study if they had cancer with distant metastases and with failure of first-line chemotherapy, were 20 years or older, spoke English or Spanish, were able to identify an unpaid caregiver, and had adequate stamina to complete the interview. Patient-caregiver dyads were excluded if the patient or caregiver met criteria for dementia or delirium on the Neurobehavioral Cognitive Status Examination.28 All study participants provided written informed consent. Of 983 eligible patients, 691 (70.3%) enrolled in the full cohort study.

Patients were asked to participate in a baseline 43-minute interview in English or in Spanish; a $25 payment was provided. Interviews covered topics that included sociodemographic information, quality of life,34,35 mental health,29,30 coping style, religiousness,31 and therapeutic alliance with the physician,32 as well as additional variables described herein. Medical record review at enrollment and after death was used to ascertain comorbidity at enrollment, location of death, and the use of invasive measures at the EOL. A postmortem questionnaire was administered within 2 weeks of death to a caregiver (paid health care provider or family member) who had cared for the patient during his or her last week of life.

The institutional review boards of participating institutions approved the study procedures. Measures used in the analyses are described herein.

DETERMINANTS OF EOL CARE

Social

Race/ethnicity was identified by patient self-report. Other sociodemographic characteristics were identified by self-report of sex, age, marital status, income, health insurance status, religious preference, and years of education.

Medical

Dates of death documented in medical records were used to determine survival time from the baseline assessment. Performance status was assessed according to the method by Karnofsky33 by the research interviewer at the time of enrollment, in consultation with the treating physician. Symptom burden was measured using the physical symptom subscale of the McGill Quality of Life Questionnaire.34,35
EOL COMMUNICATION

Patients were asked about EOL discussions. They were asked in yes or no format whether they and their physician had discussed any wishes about the care they would want to receive if they were dying.

COMMUNICATION GOALS

Regarding terminal illness awareness, patients were asked “Describe your current health status,” with response options of “relatively healthy,” “seriously but not terminally ill,” and “seriously and terminally ill.” Patients who described themselves as “seriously and terminally ill” were considered to be aware of their terminal illness.

Regarding treatment preferences, patients were asked “If you could choose, would you prefer (1) a course of treatment that focused on extending life as much as possible, even if that meant more pain and discomfort, or (2) a plan of care that focused on relieving pain and discomfort, even if that meant not living as long?” Patients who chose the former were designated as preferring life-prolonging EOL care, and those who chose the latter were designated as preferring symptom-directed care. This question has been used previously, including in the Study to Understand Prognoses and Preferences for Outcomes and Risks of Treatments. Patients’ informal caregivers were also asked an analogous question about patient preferences.

Patients were asked about DNR orders and whether they had such an order in place.

EOL CARE OUTCOMES

Receipt of life-prolonging EOL care was defined as the use of mechanical ventilation, resuscitation, or intensive care unit hospitalization in the last week of life. These outcomes were determined through medical record review and caregiver interviews.

Receipt of hospice care was determined through medical record review. Hospice care for more than 1 week was used as the outcome measure based on the previous finding that more than 1 week of hospice care was associated with better patient quality of life.

Receipt of EOL care consistent with preferences was defined as concordance between baseline preferences (as already defined) and actual EOL care received. Patients who desired and received life-prolonging measures were designated as having received care consistent with their preferences, as were patients who preferred symptom-directed care and did not receive life-prolonging measures.

STATISTICAL ANALYSIS

First, we examined differences in social and medical factors between black patients and white patients. Differences between proportions were compared using χ² test, and distributions of continuous variables were compared using t test.

Second, we evaluated associations between EOL discussions and our predefined communication goals, including terminal illness awareness, treatment preferences, and DNR orders. Logistic regression was used to determine associations in bivariable and multivariable analyses. Data in the tables give the unadjusted (bivariable) odds ratios from binary logistic regression and the adjusted (multivariable) odds ratios. Adjusted models included the following confounders: patient age, sex, marital status, years of education, health insurance, survival time from the baseline assessment, and Karnofsky performance status.

Third, we evaluated associations between EOL discussions, communication goals, and EOL care outcomes, defined as receipt of life-prolonging care, use of hospice care, and receipt of EOL care consistent with preferences. Bivariable and multivariable analyses were performed as already described. We did not assess associations between preferences for care and receipt of care consistent with preferences because of endogeneity of the predictor and outcome.

All analyses were performed using commercially available software (SAS statistical package version 9.1; SAS Institute, Cary, North Carolina) was used.

DIFFERENCES BETWEEN BLACK PATIENTS AND WHITE PATIENTS

Sociodemographic Characteristics

Black patients and white patients were similar with respect to sex, cancer type, Karnofsky performance status, symptom burden, and survival time from the baseline assessment (Table 1). However, black patients were younger on average (P = .002), were less likely to be married and to have health insurance (P < .001 for both), and had fewer mean years of education (P < .001) than their white counterparts.

EOL Discussions, Communication Goals, and EOL Care

Black patients reported similar rates of EOL discussions to white patients (35.3% and 38.4%, respectively, P = .65), but less terminal illness awareness (31.8% and 47.3%, respectively, P = .02). Compared with white patients who had not had EOL discussions with their physicians, white patients who reported having EOL discussions tended to have worse Karnofsky performance status (mean score, 55.7 vs 65.5; P < .001) and a shorter survival time from the baseline assessment (mean, 136 vs 223 days; P < .001). Compared with black patients with fewer years of education, black patients with more years of education (mean, 12.0 vs 10.8 years; P = .06) were marginally more likely to report having had EOL discussions. Despite similar rates of EOL discussions, white patients were more likely than black patients to prefer symptom-directed care over life-prolonging EOL care (78.5% vs 63.2%, P = .01) and to have DNR orders in place (50.4% vs 30.9%, P = .005). White patients were also less likely to receive life-prolonging care in their last week of life (6.9% vs 19.7%, P = .001) (Table 1).

STRUCTURAL INFLUENCE MODEL OF HEALTH COMMUNICATION

White Patients

End-of-life discussions among white patients were associated with several communication goals and EOL care outcomes. For example, white patients who reported EOL discussions with their physicians were more likely to be aware that they were terminally ill (adjusted odds ratio [aOR], 3.06; P < .001), to prefer symptom-directed care over life-
patients who had DNR orders in place were less likely to receive life-prolonging EOL care (aOR, 0.15; P = .02) and were more likely to receive EOL care that was consistent with their baseline preferences (4.91; P < .001) than white patients who did not have DNR orders in place (Table 4). White patients who were aware that they were terminally ill were also less likely to receive life-prolonging EOL care (aOR, 0.26; P = .05).

Black Patients

As among white patients, EOL discussions among black patients were associated with attainment of some communication goals. For example, black patients who reported EOL discussions with their physicians were more likely to prefer symptom-directed care (aOR, 3.85; P = .06) and to have DNR orders in place (4.25; P = .04) than black patients who did not have EOL discussions (Table 2). However, unlike relationships seen in white patients, EOL discussions were not directly associated with EOL care outcomes among black patients (Table 3), and attainment of communication goals was not consistently associated with EOL care (Table 4). Although a preference for symptom-directed care was associated with greater likelihood that black patients received hospice care in the last week of life (aOR, 4.53; P = .02), having DNR orders in place neither decreased the likelihood that black patients received life-prolonging EOL care (1.57; P = .58) nor increased the likelihood that black patients received EOL care consistent with their preferences (1.17; P = .82).

To evaluate this finding further, we examined baseline preferences of black patients’ informal caregivers to assess whether family preferences for life-prolonging EOL care might account for the use of such care, despite DNR orders in place. Although some (n = 5) caregivers of black patients expressed a preference for life-prolonging EOL care when the patient preferred symptom-directed care, none of these patients ultimately received life-prolonging measures.

Compared with black patients, white patients with advanced cancer who engage in EOL discussions with their physicians are less likely to receive intensive life-prolonging care at the EOL, an effect that seems to work through resultant patient awareness that their illness is terminal, preferences for symptom-directed care, and the documentation of preferences with DNR orders. Black patients tend to receive life-prolonging care at the EOL, despite EOL discussion rates similar to those reported by white patients and despite important potential goals of those discussions, such as DNR orders and preferences for symptom-directed care.

Previous findings suggest that more frequent receipt by black patients of life-prolonging care at the EOL may be a reflection of preferences for such care. As black patients in our study expressed a preference for life-prolonging EOL care more often than white patients. However, our results do not seem to be fully explained by differing preferences; even when black patients had DNR orders in place, they were no less likely to receive me-

Table 1. Demographics, Health Characteristics, and End-of-Life (EOL) Care Attributes Among Black Patients and White Patients

<table>
<thead>
<tr>
<th>Variable</th>
<th>Black Patients</th>
<th>White Patients</th>
<th>P Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Demographics</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age, mean (SD), y</td>
<td>55.6 (11.1)</td>
<td>60.5 (11.9)</td>
<td>.002</td>
</tr>
<tr>
<td>Male sex, No. (%)</td>
<td>39 (54.9)</td>
<td>146 (55.9)</td>
<td>.88</td>
</tr>
<tr>
<td>Married, No. (%)</td>
<td>22 (31.0)</td>
<td>164 (63.6)</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Education, mean (SD), y</td>
<td>11.3 (3.2)</td>
<td>13.9 (3.0)</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Health insurance, No. (%)</td>
<td>23 (33.3)</td>
<td>201 (79.4)</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Religious preference, No. (%)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Catholic</td>
<td>4 (5.6)</td>
<td>101 (38.7)</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Protestant</td>
<td>13 (18.3)</td>
<td>55 (21.1)</td>
<td></td>
</tr>
<tr>
<td>Baptist</td>
<td>34 (47.9)</td>
<td>22 (8.4)</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Other</td>
<td>19 (26.8)</td>
<td>68 (26.1)</td>
<td></td>
</tr>
<tr>
<td>None</td>
<td>1 (1.4)</td>
<td>15 (5.7)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Health Characteristics</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cancer type, No. (%)</td>
<td>(n=71)</td>
<td>(n=261)</td>
<td></td>
</tr>
<tr>
<td>Lung</td>
<td>19 (27.1)</td>
<td>59 (23.1)</td>
<td>.17</td>
</tr>
<tr>
<td>Colon</td>
<td>12 (17.1)</td>
<td>32 (12.5)</td>
<td>.01</td>
</tr>
<tr>
<td>Breast</td>
<td>7 (10.0)</td>
<td>21 (8.2)</td>
<td></td>
</tr>
<tr>
<td>Pancreas</td>
<td>2 (2.9)</td>
<td>32 (12.5)</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Other</td>
<td>30 (42.9)</td>
<td>111 (43.5)</td>
<td></td>
</tr>
<tr>
<td>Karnofsky performance status score, mean (SD)</td>
<td>65.5 (14.8)</td>
<td>63.5 (19.3)</td>
<td>.36</td>
</tr>
<tr>
<td>Symptom burden, mean (SD)</td>
<td>5.6 (1.7)</td>
<td>5.5 (1.3)</td>
<td>.41</td>
</tr>
<tr>
<td>Survival time from the baseline assessment, mean (SD)</td>
<td>191 (180)</td>
<td>189 (192)</td>
<td>.92</td>
</tr>
</tbody>
</table>

Abbreviation: DNR, do not resuscitate.

aMissing data: marital status (black, 0; white, 3), health insurance (black, 2; white, 8), Karnofsky performance status (black, 3; white, 11), McGill symptom burden (black 1; white, 1), EOL discussions (black 3; white, 29), terminal illness awareness (black, 5; white, 31), hospice care (black, 0; white, 1), and receipt of care consistent with preferences (black 3; white, 29).

bDue to rounding, percentages do not total 100.

cCancer types in less than 5% of the sample.

dMeasured using the physical symptom subscale of the McGill Quality of Life Questionnaire.4,15

prolonging EOL care (2.23; P = .05), and to have DNR orders in place (2.82; P = .001) than white patients who had not had such discussions (Table 2). End-of-life discussions were also directly associated with EOL care, such that white patients who reported EOL discussions were less likely to receive life-prolonging EOL care (aOR, 0.11; P = .04) and were more likely to use hospice care (1.99; P = .04) and to receive EOL care that was consistent with their baseline preferences (2.59; P = .02) than white patients who had not had EOL discussions (Table 3). Finally, communication goals of EOL discussions were associated with some EOL care outcomes. For example, white patients who had DNR orders in place were less likely to receive life-prolonging EOL care (aOR, 0.15; P = .02) and were more likely to receive EOL care that was consistent with their baseline preferences (4.91; P < .001) than white patients who did not have DNR orders in place (Table 4). White patients who were aware that they were terminally ill were also less likely to receive life-prolonging EOL care (aOR, 0.26; P = .05).
Black Patients
Black Patients
Adjusted
White Patients
White Patients
Adjusted
Unadjusted
Unadjusted
Adjusted

Downloaded From:  on 10/11/2018

The Structural Influence Model of Health Communication allows us to consider some possible causes for the observed disparities. For example, results of previous studies suggest that disparities in communication may be a major underlying force driving differences in care received between black patients and white patients. In our study, EOL discussions were not associated with heightened terminal illness awareness among black patients. It is possible that sustained effects of EOL communication are mediated in part through recognition of one’s terminal illness, such that black patients who do not recognize that their illness is terminal may ultimately be more likely to receive life-prolonging EOL care. In addition, other unmeasured communication attributes—such as the timing of EOL communication relative to diagnosis, the content of conversations, or the extent to which physicians returned to such conversations over time—may explain why black patients would experience communication goals of EOL discussions in the short term but not the EOL care outcomes months later. Future research should consider the extent to which the nature of EOL discussions differs between black patients and white patients.

Our findings also suggest that wider issues within the health care system beyond patient-physician communication could explain the major disparity we identified, namely, the translation of preferences into care. White patients may have greater continuity of health care providers and sites of care, with the confirmation of DNR orders and documentation of preferences, for example, at every encounter. Alternatively, racial bias on the part of health care providers about patient preferences could be a major underlying force driving differences in care received between black patients and white patients.

Table 2. Relationships Between End-of-Life (EOL) Discussions and Communication Goals Among Black Patients and White Patients

<table>
<thead>
<tr>
<th>Communication Goal</th>
<th>All Patients</th>
<th>Black Patients</th>
<th>White Patients</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Unadjusted</td>
<td>Adjusted</td>
<td>Unadjusted</td>
</tr>
<tr>
<td>Terminal illness awareness</td>
<td>3.24 (1.98-5.30)</td>
<td>.001 2.96 (1.72-5.09)</td>
<td>.001 2.01 (0.70-5.83)</td>
</tr>
<tr>
<td>Preference for symptom-directed care</td>
<td>2.30 (1.27-4.15)</td>
<td>.06 2.63 (1.36-5.10)</td>
<td>.04 3.17 (1.00-10.00)</td>
</tr>
<tr>
<td>DNR orders in place</td>
<td>3.53 (2.15-5.81)</td>
<td>.001 2.92 (1.70-5.01)</td>
<td>.001 2.88 (0.99-3.87)</td>
</tr>
</tbody>
</table>

Abbreviations: CI, confidence interval; DNR, do not resuscitate; OR, odds ratio.

a Odds ratios represent the odds of the EOL care received when the patient reported that EOL discussions took place. Models were adjusted for age, sex, survival time from the baseline assessment, Karnofsky performance status, marital status, years of education, and health insurance status.

Table 3. Relationships Between End-of-Life (EOL) Discussions and EOL Care Received Among Black Patients and White Patients

<table>
<thead>
<tr>
<th>EOL Care Received</th>
<th>All Patients</th>
<th>Black Patients</th>
<th>White Patients</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Unadjusted</td>
<td>Adjusted</td>
<td>Unadjusted</td>
</tr>
<tr>
<td>Receipt of life-prolonging EOL care</td>
<td>0.23 (0.08-0.67)</td>
<td>.07 0.27 (0.09-0.82)</td>
<td>.02 0.43 (0.11-1.72)</td>
</tr>
<tr>
<td>Use of hospice care for &gt;1 wk</td>
<td>2.09 (1.27-3.43)</td>
<td>.04 1.87 (1.10-3.17)</td>
<td>.02 1.67 (.60-4.60)</td>
</tr>
<tr>
<td>Receipt of EOL care consistent with preferences</td>
<td>1.97 (1.11-3.50)</td>
<td>.02 2.01 (1.07-3.75)</td>
<td>.03 1.26 (0.44-3.58)</td>
</tr>
</tbody>
</table>

Abbreviations: CI, confidence interval; OR, odds ratio.

a Odds ratios represent the odds of the EOL care received when the patient reported that EOL discussions took place. Models were adjusted for age, sex, survival time from the baseline assessment, Karnofsky performance status, marital status, years of education, and health insurance status.

b Ventilator use, cardiopulmonary resuscitation, or death in the intensive care unit.
Although we found that the communication goals of EOL discussions have a limited effect on EOL care among black patients with advanced cancer, an important exception is the increased use of hospice care at the EOL among black patients who reported a preference for symptom-directed care. This is a potentially significant outcome given evidence that hospice care is underused among black patients with advanced cancer, an important exception is the increased use of hospice care at the EOL.3,7 This result, along with our finding of communication goals that include EOL discussions took place. Models were adjusted for age, sex, survival time from the baseline assessment, Karnofsky37 performance status, marital status, years of education, and health insurance status.

In addition, because we measured attributes of care in the last week of life, surrogate decision makers may have had a role in deciding about the patient’s care during that period. Although we found discordance between patient and caregiver preferences for care among black patients, these familial differences were not associated with increased use of life-prolonging EOL care.

Our study has several limitations. Most important, the study included few black patients. Many relationships studied among black patients had odds ratios in similar directions to those of white patients, although often with attenuated magnitude. A larger study would enable us to determine whether some nonsignificant results we found among black patients are true-negative relationships.

In addition, we evaluated markers of life-prolonging EOL care, but a broad array of attributes may define a patient’s experience of quality EOL care. Future research should continue to evaluate the best ways to measure patient experiences of care at the EOL. We also posit a model of EOL communication in which discussions lead to communication goals and affect the care received. However, we do not know whether EOL discussions cause the examined outcomes or whether patient-level differences account for the associations observed. We also used pa-
tient reports of EOL discussions, but we do not know the extent to which patient reports of discussions reflect actual discussions and their content. Future research using additional tools, such as direct observation or audiointerviewing, is needed to determine discrepancies between what is said and what is heard and whether this varies by race. Finally, psychometric data for our questionnaire items are not available by race. It is possible that patients of different races interpret questions differently or considered different issues important, and this could account for some of our findings.

Both black patients and white patients seem to benefit from EOL discussions in terms of development and documentation of care preferences. Why black patients do not ultimately experience EOL care that consistently reflects those preferences is unclear. We considered explanations for our findings, such as disparities between black patients and white patients in the effects of EOL communication and broad differences in the ways health care systems support black patients and white patients at the EOL. These issues should remain a topic of ongoing research and a priority for physicians who care for patients at the EOL. Although the reasons for our findings are not fully understood, white patients appear to have undefined advantages when it comes to receiving EOL care that reflects their values. Care of black patients at the EOL must be brought to the same standard.

Accepted for Publication: February 6, 2010.

Correspondence: Jennifer W. Mack, MD, MPH, Department of Pediatric Oncology, Dana-Farber Cancer Institute, 44 Binney St, Boston, MA 02115 (Jennifer_Mack@dfci.harvard.edu).

Author Contributions: Study concept and design: Mack, Viswanath, and Prigerson. Acquisition of data: Pauluk and Prigerson. Analysis and interpretation of data: Mack, Viswanath, and Prigerson. Drafting of the manuscript: Mack. Critical revision of the manuscript for important intellectual content: Mack, Pauluk, Viswanath, and Prigerson. Statistical analysis: Prigerson. Obtained funding: Prigerson. Administrative, technical, and material support: Pauluk and Prigerson. Study supervision: Prigerson.

Financial Disclosure: None reported.

Funding/Support: This research was supported by grant MH63892 from the National Institute of Mental Health and grant CA106370 from the National Cancer Institute (Dr Prigerson), by a Fetzer Religion at the End-of-Life Grant, and by the Center for Psycho-oncology and Palliative Care Research, Dana-Farber Cancer Institute. Dr Mack was supported by an American Cancer Society Mentored Research Scholar Grant.

REFERENCES

29. Morina N, Rudan V, Bleichhardt G, Prigerson HG. Prolonged grief disorder, depression, and posttraumatic stress disorder among bereaved Kosovar civilian