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## THE EFFECT OF RECENT BEREAVEMENT ON OUTCOMES IN A PRIMARY CARE DEPRESSION INTERVENTION STUDY

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### Abstract

**Objectives**—Although bereavement and depression are both common in older primary care patients, the effect of bereavement on depression intervention outcomes is unknown. We examined whether standard interventions for depression in primary care were as effective for bereaved as for non-bereaved depressed patients.

**Design**—Randomized controlled trial.

**Setting**—Twenty community-based primary care practices in New York and greater Philadelphia and Pittsburgh. Randomization to either Intervention or Usual Care occurred by practice.

**Participants**—Patients 60 who met criteria for major depression or clinically significant minor depression (N=599). Patients who did not complete the bereavement measure or who were missing 4-month data were excluded (final N=417).

**Intervention**—Study-trained depression care managers offered guideline concordant recommendations to primary care physicians at intervention sites and assisted patients with treatment adherence. Patients who did not wish to take antidepressants could receive interpersonal psychotherapy.

**Measurements**—Bereavement was captured using the Louisville Older Persons Events Schedule (LOPES). Depression severity was assessed using the 24-item Hamilton Depression Rating Scale (HDRS). Outcomes at 4 months were remission (HDRS  $\leq$  7) and response (HDRS reduction  $\geq$  50% from baseline).

**Results**—Logistic regressions indicated that, for non-bereaved participants, response and remission were higher in Intervention than Usual Care. However, recently bereaved older adults

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were less likely to achieve response or remission at 4 months if treated in the Intervention Condition.

**Conclusions**—Standard depression care management appears to be ineffective among recently bereaved older primary care patients. Greater attention should be paid in primary care to emotional distress in the context of bereavement.

### Keywords

depression; bereavement; case management; primary care; clinical trial

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## INTRODUCTION

Bereavement, defined as the death of someone close, is especially common among older adults. A study of community-dwelling older adults found that 71.3% experienced the loss of a loved one over a 30 month observation period,<sup>1</sup> and in 2008, 42% of women and 14% of men age 65 were widows or widowers.<sup>2</sup> Symptoms of depression often accompany bereavement, with studies documenting a prevalence of depression of 20–32% at two months post-bereavement.<sup>3–6</sup>

Although bereavement within two months has served as an exclusion criterion for depression diagnoses in DSM-IV<sup>7</sup>, evidence has shown that bereavement-related and non-bereavement related depression have similar risk factors, patterns of comorbidity, associations with functional impairment, and treatment response.<sup>8</sup> In response, DSM-5 now allows a diagnosis of depression as soon as two weeks after bereavement.<sup>9</sup> Under DSM-5, a growing number of recently bereaved patients will likely receive a depression diagnoses and be considered for depression interventions. Yet to date, the impact of experiencing a recent bereavement on standard depression treatment outcomes remains unknown.

Previous studies have examined the impact of stressful life events on depression intervention outcomes.<sup>10–17</sup> However, these studies defined stressful life event broadly and included events such as job loss, conflicts in interpersonal relationships, and financial strains, in addition to bereavement. Findings are mixed, with some reporting that experiencing adverse pretreatment life events were associated with a positive depression intervention response,<sup>10–12</sup> while others found stressful life events associated with poorer response to intervention.<sup>13–15</sup> Other studies found no association between pretreatment life stressors and depression intervention outcomes.<sup>16, 17</sup> While these varying results may reflect different samples, study designs, life event measures and interventions, together they point to a possible influence of life experiences on the treatment process. None of these studies focused on older adult samples or studied interventions delivered in primary care. Now that depression treatment may be recommended for more recently bereaved patients, studying the impact of bereavement, separate from other stressful life events, on the effectiveness of depression intervention is urgently needed.

This paper begins to fill this knowledge gap by examining whether depression interventions delivered in primary care were as effective for recently-bereaved older adults with clinically significant depressive symptoms as for depressed patients without recent-bereavement. We

analyzed data from the Prevention of Suicide in Primary Care Elderly: Collaborative Trial (PROSPECT).<sup>18</sup> PROSPECT assessed the effectiveness of a multi-component depression intervention implemented in primary care practices for older patients. We hypothesized that recent bereavement would impact treatment response to the PROSPECT intervention. Hypotheses on the direction of the association could not be made, as previous findings were contradictory.

## METHODS

The PROSPECT Study compared a collaborative depression care intervention to Usual Care for improving depression outcomes. Details on the PROSPECT Study protocol and its primary outcomes have been published previously.<sup>18,19,20, 21</sup> Briefly, racially and ethnically diverse patients age 60 and over were recruited from 20 community-based primary care practices in New York, greater Philadelphia and Pittsburgh and were screened for inclusion and exclusion criteria (N=1,226). Because the intervention located depression care managers on-site, the study used a practice-randomization design to reduce potential contamination bias.

The study drew an age-stratified (60–74, 75 years), random sample of patients with an upcoming appointment. Physicians notified sampled patients by mail, allowing patients to decline further contact. Research associates telephoned the remaining sample to confirm study eligibility. Inclusion criteria were: age 60 years or older, ability to give informed consent, Mini- Mental State Examination (MMSE) score of  $\geq 18$ <sup>22</sup>, and ability to communicate in English. Eligible patients were then screened for depression using the Centers for Epidemiologic Studies Depression scale (CES-D).<sup>23</sup> All patients with CES-D scores  $>20$ , as well as a 5% random sample of patients with lower scores, were invited to participate. Study interviewers blinded to patient treatment condition conducted in-person baseline interviews and telephone follow-up assessment at 4 months post-enrollment. Although the PROSPECT included additional follow-up assessments, we focused on the 4-month outcomes because the original PROSPECT intervention intent to treat analyses were statistically significant at 4 months and because there were a sizable number of missing responses on the bereavement measure at later interviews. Informed consent was obtained from all participants, and the study protocols were approved by the Institutional Review Boards of Cornell University, the University of Pittsburgh, and the University of Pennsylvania.

Details on the PROSPECT treatment intervention have also been described previously.<sup>19</sup> The intervention involved the inclusion of depression care managers to support physicians' use of guideline concordant treatments and to work with patients to monitor symptoms, side effects, and treatment adherence. The protocol chose antidepressant medication as the first line treatment, and interpersonal psychotherapy (IPT) delivered by depression care managers was available as an alternative or adjunct treatment. At Usual Care sites, primary care physicians were provided education in depression treatment guidelines and were informed of their patients' depression diagnoses but were not provided with any specific recommendations, except in cases where psychiatric emergencies were identified by research staff.

## Measures

The Structured Clinical Interview for Axis I DSM-IV Diagnoses (SCID)<sup>24</sup> was administered by trained research assistants (Ph.D., M.A. or experienced B.A. level) and used to identify depression diagnosis (major depression, clinically significant minor depression or no depression diagnosis). Severity of depression was assessed using the 24-item Hamilton Depression Rating Scale (HDRS).<sup>25</sup> Criteria for clinically meaningful minor depression included four SCID symptoms (including mood or anhedonia) and HDRS score  $\geq 10$ . Remission was defined as a HDRS score of 7 or lower at 4 month follow-up. Treatment response was defined as a change in HDRS scores  $\geq 50$  from baseline to 4 month follow-up.

The Louisville Older Persons Events Schedule (LOPES)<sup>26, 27</sup> was used to identify the experience of recent bereavement. The LOPES was specifically designed to retrospectively sample events relevant to older adults. Participants were asked a single open-ended question: "During the last six months, what single thing or event put you under the most unpleasant stress, not including your medical problems?" The LOPES contains 54 categories (coded by the interviewer). For this analysis, bereavement was defined by positive responses to any of several codes about recent deaths (e.g. "Death of parent," and "Death of spouse").

Control variables were chosen based on factors found in previous literature to be associated either with the likelihood of experiencing bereavement or with depression treatment outcomes.<sup>28-30</sup> Variables considered included sociodemographic factors (e.g., age, gender, and years of education, income). Comorbidity was measured with the Charlson Comorbidity Index<sup>31</sup> which assigns weights to 19 common medical conditions based on their risk of mortality. Suicidal ideation was measured with the Scale for Suicidal Ideation (SSI).<sup>32</sup> Because the SSI was highly skewed, we created a dichotomous variable for "any current suicidal ideation." Social support was measured with the 35-item Duke Social Support Index (DSSI), which measures multiple dimensions of social support and has been used extensively with older adults.<sup>33</sup> All measures were well-validated with good psychometric properties.

## Data Analysis

For this analysis, our sample included the 599 PROSPECT participants with either major depression or clinically significant minor depression. Excluding the 93 participants with missing LOPES data from the analyses and 111 participants missing 4 month HDRS data (with 22 missing both), the final sample size for the current analysis was 417.

The 182 patients excluded from the analysis due to missing LOPES (n=93) and/or four month HDRS data (n=111) did not statistically significantly differ from the rest of the sample on baseline HDRS scores (mean (SD) missing =19.38 (5.78), mean (SD) included=19.45 (6.27),  $t=0.12$ ,  $p=0.90$ ), diagnostic status (n (%) missing= 122 (67.0), n (%) MDD included= 274 (65.7),  $\chi^2(1)=.099$ ,  $p=0.75$ ), or demographic characteristics (e.g. mean (SD) age missing=70.77 (8.55), mean (SD) age included=70.04(7.66),  $t=-0.996$ ,  $p=0.32$ ; n (%) female missing = 131 (72.0), n (%) female included=298 (71.5),  $\chi^2(1)=0.17$ ,  $p=0.90$ ), n(%) White missing= 125 (69.1), n (%) White included= 294 (70.5),  $\chi^2(1)=.125$ ,  $p=0.72$ ; one individual was missing data on race but had data on the HDRS and LOPES). Nor did

intervention status appear associated with the likelihood of missing LOPES or 4-month HDRS data those missing data (n (%)) Intervention group missing data= 107 (58.8), n (%) Intervention included=213 (51.1); UC missing=75 (41.2%), UC included=204 (48.9%)  $\chi^2(1)=3.03$ ,  $p=0.08$ ). Finally, those with bereavement did not appear to differ in the likelihood of having missing 4-month HDRS data than those without bereavement (n (%) bereaved missing= 10 (20.8), n (%) non-bereaved missing=79 (17.2),  $\chi^2(1)=0.39$ ,  $p=0.54$ ).

At the outset, we conducted analyses with three categories of stressful events, comparing those who endorsed a recent bereavement, those who reported stressful life events other than bereavement (n=179), and those who reported no recent stressful events (n=200). However, we found that the only differences in outcomes were in the recently bereaved group. Thus, in subsequent analyses, we compared those endorsing recent bereavement to the rest of the sample.

Next, we examined if there were differences in sociodemographic characteristics between the bereaved and the non-bereaved. Due to the small size of the bereaved group, Fisher's exact tests and/or Whitney U tests were used to examine the statistical significance. To examine the association between bereavement and depression treatment outcomes, we first conducted bivariate analyses using Fisher's exact tests to examine the statistical significance. We then conducted a multivariate logistic regression modeling to test whether, controlling for baseline HDRS score, gender, age, race, baseline suicidal ideation, Charlson Comorbidity Index, type of treatment received, and Duke Social Support Index subscales, recent bereavement affected treatment outcomes. Lastly, we added an interaction term between recent bereavement and intervention status for each outcome to the previous model. We then repeated all of these analyses for those with major depression and those with clinically significant minor depression. The overall fit of each model was assessed with an F statistic, and the significance of each individual term within each model was assessed by a t statistic. SAS version 9.1 was used to carry out analyses (SAS Institute Inc., Cary, North Carolina).  $P=.05$  was the level of significance.

## RESULTS

The 417 primary care patients in this analysis had a mean age of 70.0 years (range 60–94), 71.5% (n=298) were female, and patients had a race/ethnicity distribution of 26.9% (n=112) African American, 70.5% (n=294) White and 2.6% (n=11) other. Two thirds (65.7%, n=274) met DSM-IV criteria for major depression, while the remainder had minor depression.

Almost one in ten of the 417 patients (9.1%, n=38) reported a recent bereavement at the baseline interview. Rates of recent bereavement did not differ by intervention status (Intervention n(%)= 19 (50.0), Usual Care n(%)=19 (50.0),  $\chi^2(1)=0.02$ ,  $p=0.89$ ).

Table 1 compares the bereaved to the rest of the sample by baseline sociodemographic and clinical characteristics. None of these factors differed statistically significantly. Table 2 presents the association between bereavement and depression treatment outcomes (remission and response), stratified by treatment group assignment. Within the Intervention group,

response rates were lower among the bereaved compared to non-bereaved (21.1% vs. 46.4% ( $p=.05$ ). Remission showed a similar but not statistically significant relationship (21.1% vs. 35.6%). In contrast, within the Usual Care group, bereaved older adults tended to have high rates of response and remission (47.4% vs. 29.2% and 47.4% vs. 23.8%) with statistical significance reached for remission ( $p=.05$ ). In those with MDD only and those with minor depression only, remission and response was not statistically significantly different between the bereaved and non-bereaved (Table 2).

Logistic regressions (Table 3) showed that the impact of a recent bereavement on remission and response at 4 months differed significantly between Intervention and Usual Care. Findings did not change after controlling for gender, age, race, baseline suicidal ideation, Charlson Comorbidity Index and Duke Social Support Index subscales. Our final models only controlled for baseline HDRS score and any treatment receipt. In models with remission and response as outcomes, the interactions between intervention status and recent bereavement were statistically significant (Wald  $\chi^2(1)=6.31$ ,  $p=0.012$  for response and Wald  $\chi^2(1)=3.86$ ,  $p=0.045$  for remission).

Overall, older adults with a recent bereavement were less likely to achieve response and remission at 4 months if treated in the Intervention Condition compared to Usual Care. Table 4 shows models within the MDD only and minor depression only subgroups. The interaction term was not significant in the group with minor depression only.

### Exploratory Analyses

To further explicate these findings, we examined whether there were differences in treatments received by bereaved and non-bereaved participants within each study arm using Fisher's Exact tests. In the intervention group, 17.6% (3/17) of bereaved patients compared to 9.5% (18/189) of non-bereaved did not receive psychotherapy or pharmacotherapy, a difference that was not statistically significant ( $p=0.22$ ).

Among intervention patients who did receive treatment, though differences were not statistically significant, bereaved patients were nearly twice as likely to receive psychotherapy (57.1%, 8/14) as the non-bereaved (33.3%, 57/171),  $p=.09$ ). Conversely, bereaved intervention patients were less likely to receive medication alone than non-bereaved intervention patients, though this result was also not significant (42.9%, 6/14 vs. 66.7%, 114/171),  $p=.09$ ).

In contrast, in Usual Care (UC), the bereaved and non-bereaved did not differ in their likelihood of receiving any depression treatment (bereaved  $n(\%)=8$  (42.1%); non-bereaved  $n(\%)=88$  (50.0%),  $p=0.63$ ), or in treatment type received. Most treated patients were only prescribed antidepressants (bereaved  $n(\%)=9$  (47.4%); non-bereaved  $n(\%)=68$  (38.6%),  $p=0.47$ ) and few received psychotherapy (bereaved  $n(\%)=2$  (10.5%); non-bereaved  $n(\%)=20$  (11.4%),  $p=1.00$ ). Within Usual Care, 77 received medication only (bereaved  $n(\%)=9$  (47.4%); non-bereaved  $n(\%)=68$  (38.6%),  $p=0.47$ ).

Next, we examined whether treatment type received was associated with 4 month outcomes among bereaved Intervention patients. Of the 14 bereaved intervention patients who



received treatment, the 8 who received psychotherapy had poor outcomes (25.0% remission (n=2), 25.0% response (n=2)) as did the 6 bereaved Intervention patients who received medication alone (16.7% remission (n=1), 16.7% response (n=1)).

Finally, we examined whether treatment receipt affected outcomes, regardless of intervention status. Among the depressed bereaved who received psychotherapy, 25% showed response and 23.1% showed remission, while 23.7% of the non-bereaved receiving psychotherapy showed response and 23.4% showed remission. This difference was not statistically significant (Wald  $\chi^2$  (1)= 0.010, p=0.92 for response and Wald  $\chi^2$  (1)=0.001, p=0.98 for remission). Similarly, among the bereaved who received medication alone, 58.3% showed response and 61.5% showed remission, while among the non-bereaved who received medication alone, 54.8% showed response and 53.3% showed remission (Wald  $\chi^2$  (1)= 0.055, p=0.81 for response and Wald  $\chi^2$  (1)= 0.319, p=0.57 for remission). Treatment receipt does not appear to account for differences in outcomes between the bereaved and non-bereaved. Controlling for treatment receipt in regression models did not alter primary outcomes (Table 3).

## DISCUSSION

We examined whether experiencing a recent bereavement had an impact on the effect of the PROSPECT intervention on depression outcomes, compared to Usual Care. This is one of the few studies to examine the association of bereavement on depression treatment provided in community settings and the only study we could identify focused solely on older adults.

For non-bereaved participants, results were consistent with overall results of the PROSPECT study, with those in the Intervention practices having higher remission and response rates than those in Usual Care.<sup>19</sup> For recently bereaved participants, the PROSPECT intervention was not as effective, and response and remission was significantly lower than in Usual Care. The results of the current analysis are incongruent with previous literature showing that bereavement-related depression responds well to pharmacological and psychotherapeutic interventions.<sup>34</sup>

There are several possible explanations for these disparate findings. First, our analysis examined outcomes from a depression care management intervention designed to influence treatment and care over time, whereas previous studies were clinical trials where subjects volunteered to be randomized to specialized treatments. There may be unique aspects of the PROSPECT depression care management protocol which were not as helpful to recently bereaved older adults- for example, the intensity of contact with the depression care manager or the focus on psychoeducation.

We explored whether treatment receipt might account for the associations between bereavement experiences and outcomes. Our results do imply that PROSPECT care managers may interpret or manage depression in the context of bereavement differently than when there has been no bereavement, as bereaved patients in the intervention group were more likely to receive psychotherapy than non-bereaved intervention patients. In Usual Care, however, when care managers were not in place, physicians showed a tendency to

prescribe medications at roughly equal levels to both bereaved and non-bereaved patients. Care managers may feel that psychotherapy is more appropriate in the context of a life stressor like bereavement; health care providers have expressed concerns about overmedicalizing grief<sup>35</sup> and often recommend counseling for bereavement<sup>36</sup>. Yet, type of treatment received was not differentially associated with outcomes between the bereaved and non-bereaved. This implies that other intervention components influenced results. Regardless of treatment type delivered, the PROSPECT intervention as a whole focused on coping with depression, rather than grief feelings in particular. Intervention patients may have therefore found the entire intervention ill-fitted to their needs or preferences, resulting in poor treatment response. In Usual Care, in contrast, bereaved patients may have felt more allowed to focus on their grief, either with existing providers or independently.

Lastly, symptoms or disease course in the bereaved older adults may differ in some way from the non-bereaved. In the current analyses, the recently bereaved did not show differences in anxiety severity or in the severity, duration, or lifetime recurrence of their depression. However, complicated grief,<sup>37, 38</sup> a recently recognized bereavement-related mental health condition, may have co-occurred with depression and interfered with treatment response in the intervention group. About 25% of those with bereavement-related depression meet criteria for complicated grief.<sup>39</sup> Complicated grief does not respond to antidepressants alone<sup>40</sup> and requires specialized cognitive-behavioral psychotherapy.<sup>41</sup> By chance, more complicated grief-positive patients may have enrolled in Intervention than Usual Care. Because the PROSPECT intervention focused on medication treatment or IPT, it is unlikely that any patients with complicated grief would have received a treatment regime consistent with this evidence base. The PROSPECT study did not include any measures of grief, so we cannot confirm this hypothesis.

### Limitations

The sample size of participants experiencing a death of someone close was small (n=38) which may have limited statistical power to detect differences. However, the associations we found between intervention status, bereavement experience and outcomes were quite robust. The LOPES, a self-reported measure, allowed for endorsement of only one stressful life event. Thus, bereavement data may have been underreported. There may also be other unmeasured individual, provider- and practice-level characteristics that influenced the associations between bereavement and depression treatment outcomes. For example, because our data did not include the nature and the quality of relationship between the deceased and the patient, we are unable to control for the possible influence on outcomes. We were unable to examine the context of bereavement because this data was not collected in the PROSPECT study. Moreover, we were unable to analyze data collected at follow-up interviews from 8–24 months because of small sample sizes. Finally, patients were recruited from 20 primary care practices in the New York City, Philadelphia, and Pittsburgh areas. Results may not be generalized to all primary care patients or practices in other regions of the U.S. Nonetheless, our findings suggest that attention must be paid to recent bereavement experiences when treating depressed older adult patients.



## Implications

Despite its limitations, our paper contributes to the literature and clinical practice. With the removal of the bereavement from the MDE exclusion criteria in DSM-5, a growing number of recently bereaved patients may be eligible for a depression diagnosis. Accurately identifying depression in the context of bereavement and providing appropriate support for bereavement-related depression will be necessary to reduce the suffering associated with this condition. Moreover, considering that older adults are more likely to experience bereavement than their younger counterparts, preventing depression and complicated grief in this vulnerable population should be a high public health priority.

Our findings suggest that treatment needs of bereaved older adults experiencing depressive symptoms could differ from those of other depressed primary care patients. Indeed, providing standard depression care management rather than care focused on the unique treatment needs of bereaved patients may lead to poorer outcomes than even providing minimal usual care. Co-occurring grief symptoms or the impact of the loss on daily routines may both require acknowledgement, for example.<sup>42</sup> When discussing grief, clinician concern about inappropriately medicalizing grief should be balanced with an awareness of the proper diagnosis and treatment options for bereavement-related mental health disorders. In cases of bereavement, treatment focused specifically on grief, with watchful waiting for bereavement-related mental health disorders, might be more appropriate. Active depression treatment may best only be initiated when grief-focused approaches are not effective. Thus, a stepped-care approach may be most useful in these cases.

Training providers on a few standardized screening items to consistently review bereavement events and related symptoms may also be effective.<sup>43</sup> Providers may interpret or manage bereavement-related depression differently than other depressive episodes, which could also be addressed during training. Using language that is acceptable to patients may be another way to improve detection.

Our findings differ from those in some previous studies, which found that stressful events were associated with positive outcomes.<sup>10–12</sup> In some previous studies, bereavement was one of many events included under a broader grouping during analysis, such as “interpersonal events.” Our findings suggest that bereavement may have a unique impact on depression treatment outcomes. Future studies of the impact of stressful events on depression outcomes might consider bereavement separately.

With the DSM-5 alteration, more detailed data on bereaved depressed older adults’ preferences for support from their primary care providers within the two months post-loss might be relevant. These studies could include data collection on the language that patients prefer to use in describing bereavement-related depression symptoms. Moreover, our study suggests that collaborative care models for late-life depression may benefit from modules tailored for bereaved older adults. Modifications to existing depression care protocols could be tested in future studies. Ideally, treatment recommendations would be consistent with patient treatment preferences. In addition, future research could test the feasibility and effectiveness of training primary care providers to detect and manage depression in the context of bereavement.

## CONCLUSIONS

Findings of this study indicate that recent bereavement may be an important predictor of poor outcomes in depressed primary care patients receiving collaborative depression care management. Recent bereavements should be taken into account when delivering interventions to older adult primary care patients. Bereaved depressed older adult primary care patients may benefit from watchful waiting and grief-focused care, rather than generic depression-focused treatment. Recent DSM depression criteria changes may foster practice changes in detection and treatment provision.

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## References

1. Williams BR, Sawyer Baker P, Allman RM, Roseman JM. Bereavement among African American and White older adults. *J Aging Health*. 2007; 19:313–333. [PubMed: 17413138]
2. Federal Interagency Forum on Aging Related Statistics: Older Americans 2008: Key indicators of well-being. Accessed at: [http://www.aoa.gov/Agingstatsdotnet/Main\\_Site/Data/2008\\_Documents/Population.aspx](http://www.aoa.gov/Agingstatsdotnet/Main_Site/Data/2008_Documents/Population.aspx).
3. Futterman A, Gallagher D, Thompson LW, Lovett S, Gilewski M. Retrospective assessment of marital adjustment and depression during the first 2 years of spousal bereavement. *Psychol Aging*. 1990; 5:277–283. [PubMed: 2378693]
4. Zisook S, Paulus M, Shuchter SR, Judd LL. The many faces of depression following spousal bereavement. *J Affect Disord*. 1997; 45:85–94. discussion 94-85. [PubMed: 9268778]
5. Zisook S, Shuchter SR. Depression through the first year after the death of a spouse. *Am J Psychiatry*. 1991; 148:1346–1352. [PubMed: 1897615]
6. Zisook S, Shuchter S. Major depression associated with widowhood. *Am J Geriatr Psychiatry*. 1993; 1:316–326.
7. American Psychiatric Association. Diagnostic and statistical manual of mental disorders. Washington, DC: American Psychiatric Association; 1994. Edited by
8. Zisook S, Corruble E, Duan N, Iglewicz A, Karam EG, Lanouette N, Lebowitz B, Pies R, Reynolds C, Seay K, Katherine Shear M, Simon N, Young IT. The bereavement exclusion and DSM-5. *Depress Anxiety*. 2012; 29:425–443. [PubMed: 22495967]
9. American Psychiatric Association. Diagnostic and statistical manual of mental disorders. 5th edition. Washington, DC: American Psychiatric Association; 2013. Edited by
10. Monroe SM, Bellack AS, Hersen M, Himmelhoch JM. Life events, symptom course, and treatment outcome in unipolar depressed women. *Journal Consult Clin Psychol*. 1983; 51:604–615.
11. Monroe SM, Roberts JE, Kupfer DJ, Frank E. Life stress and treatment course of recurrent depression: II. Postrecovery associations with attrition, symptom course, and recurrence over 3 years. *J Abnorm Psychol*. 1996; 105:313–328. [PubMed: 8772002]
12. Reno RM, Harlaris A. The relationship between life stress and depression in an endogenous sample. *Compr Psychiat*. 1990; 31:25–33. [PubMed: 2404657]
13. Zimmerman M, Pfohl B, Coryell W, Stangl D. The prognostic validity of DSM-III axis IV in depressed inpatients. *Am J Psychiatry*. 1987; 144:102–106. [PubMed: 3799826]
14. Monroe SM, Kupfer DJ, Frank E. Life stress and treatment course of recurrent depression: 1. Response during index episode. *Journal Consult Clin Psychol*. 1992; 60:718–724.

15. Mazure CM, Bruce ML, Maciejewski PK, Jacobs SC. Adverse life events and cognitive-personality characteristics in the prediction of major depression and antidepressant response. *Am J Psychiatry*. 2000; 157:896–903. [PubMed: 10831468]
16. Lloyd C, Zisook S, Click M Jr, Jaffe KE. Life events and response to antidepressants. *J Human Stress*. 1981; 7:2–15.
17. Billings AG, Moos RH. Life stressors and social resources affect posttreatment outcomes among depressed patients. *J Abnorm Psychol*. 1985; 94:140–153. [PubMed: 3998282]
18. Bruce ML, Pearson JL. Designing an intervention to prevent suicide: PROSPECT (Prevention of Suicide in Primary Care Elderly: Collaborative Trial). *Dialogues Clin Neurosci*. 1999; 1:100–112. [PubMed: 22033641]
19. Bruce ML, Ten Have TR, Reynolds CF 3rd, Katz II, Schulberg HC, Mulsant BH, Brown GK, McAvay GJ, Pearson JL, Alexopoulos GS. Reducing suicidal ideation and depressive symptoms in depressed older primary care patients: a randomized controlled trial. *JAMA*. 2004; 291:1081–1091. [PubMed: 14996777]
20. Mulsant BH, Alexopoulos GS, Reynolds CF 3rd, Katz IR, Abrams R, Oslin D, Schulberg HC. Pharmacological treatment of depression in older primary care patients: the PROSPECT algorithm. *Int J Geriatr Psychiatry*. 2001; 16:585–592. [PubMed: 11424167]
21. Schulberg HC, Bryce C, Chism K, Mulsant BH, Rollman B, Bruce M, Coyne J, Reynolds CF 3rd. Managing late-life depression in primary care practice: a case study of the Health Specialist's role. *Int J Geriatr Psychiatry*. 2001; 16:577–584. [PubMed: 11424166]
22. Folstein MF, Folstein SE, McHugh P. Mini-Mental State: A practical method for grading the cognitive state of patients for the clinician. *J of Psychiatr Res*. 1975; 12:189–198. [PubMed: 1202204]
23. Radloff LS. The CES-D Scale: A self-report depression scale for research in the general population. *Appl Psych Meas*. 1977; 1:385–401.
24. First, M.; Spitzer, R.; Gibbon, M.; Williams, J. Non-patient Edition (SCID-I/NP). New York, NY: Biometrics Research, New York State Psychiatric Institute; 2002. Structured Clinical Interview for DSM-IV Axis I Disorders, Research Version. Edited by
25. Hamilton M. A rating scale for depression. *Journal of Neurol Neurosurg Psychiatry*. 1960; 25:56–67.
26. Murrell SA, Norris FH. Resources, life events, and changes in positive affect and depression in older adults. *Am J Community Psychol*. 1984; 12:445–464. [PubMed: 6486109]
27. Murrell SA, Norris FH, Hutchins GL. Distribution and desirability of life events in older adults: Population and policy implications. *J Community Psychol*. 1984; 12:301–311.
28. Whisman MA. Mediators and moderators of change in cognitive therapy of depression. *Psychol Bull*. 1993; 114:248–265. [PubMed: 8416032]
29. Travis LA, Lyness JM, Shields CG, King DA, Cox C. Social support, depression, and functional disability in older adult primary-care patients. *Am J Geriatr Psychiatry*. 2004; 12:265–271. [PubMed: 15126227]
30. Stroebe M, Schut H, Stroebe W. Health outcomes of bereavement. *Lancet*. 2007; 370:1960–1973. [PubMed: 18068517]
31. Charlson ME, Pompei P, Ales KL, MacKenzie CR. A new method of classifying prognostic comorbidity in longitudinal studies: development and validation. *J Chronic Dis*. 1987; 40:373–383. [PubMed: 3558716]
32. Beck AT, Brown GK, Steer RA. Psychometric characteristics of the Scale for Suicide Ideation with psychiatric outpatients. *Behav Res Ther*. 1997; 35:1039–1046. [PubMed: 9431735]
33. Landerman R, George LK, Campbell RT, Blazer DG. Alternative models of the stress buffering hypothesis. *Am J Community Psychol*. 1989; 17:625–642. [PubMed: 2627025]
34. Lamb K, Pies R, Zisook S. The Bereavement Exclusion for the Diagnosis of Major Depression: To be or not to be. *Psychiatry*. 2010; 7:19–25. [PubMed: 20805915]
35. Woof WR, Carter YH. Bereavement care. [Letter.]. *Br J Gen Pract*. 1995; 45:689–690. [PubMed: 8745872]
36. Payne S, Jarrett N, Wiles R, Field D. Counselling strategies for bereaved people offered in primary care. *Counsel Psychol Quarterly*. 2002; 15:161–177.

37. Prigerson H, Frank E, Kasl SV, Reynolds CF 3rd, Anderson B, Zubenko GS, Houck PR, George CJ, Kupfer DJ. Complicated grief and bereavement-related depression as distinct disorders: preliminary empirical validation in elderly bereaved spouses. *Am J Psychiatry*. 1995; 152:22–30. [PubMed: 7802116]
38. Shear MK, Simon N, Wall M, Zisook S, Neimeyer R, Duan N, Reynolds C, Lebowitz B, Sung S, Ghesquiere A, Gorscak B, Clayton P, Ito M, Nakajima S, Konishi T, Melhem N, Meert K, Schiff M, O'Connor MF, First M, Sareen J, Bolton J, Skritskaya N, Mancini AD, Keshaviah A. Complicated grief and related bereavement issues for DSM-5. *Depress Anxiety*. 2011; 28:103–117. [PubMed: 21284063]
39. Sung SC, Dryman MT, Marks E, Shear MK, Ghesquiere A, Fava M, Simon NM. Complicated grief among individuals with major depression: prevalence, comorbidity, and associated features. *J Affect Disord*. 2011; 134:453–458. [PubMed: 21621849]
40. Reynolds CF 3rd, Miller MD, Pasternak RE, Frank E, Perel JM, Cornes C, Houck PR, Mazumdar S, Dew MA, Kupfer DJ. Treatment of bereavement-related major depressive episodes in later life: a controlled study of acute and continuation treatment with nortriptyline and interpersonal psychotherapy. *Am J Psychiatry*. 1999; 156:202–208. [PubMed: 9989555]
41. Shear MK, Frank E, Houck PR, Reynolds CF 3rd. Treatment of complicated grief: a randomized controlled trial. *JAMA*. 2005; 293:2601–2608. [PubMed: 15928281]
42. Zisook S, Shuchter SR. Treatment of the depressions of bereavement. *Am Behav Sci*. 2001; 44:782–797.
43. Shear KM, Jackson CT, Essock SM, Donahue SA, Felton CJ. Screening for complicated grief among Project Liberty service recipients 18 months after September 11, 2001. *Psychiatr Serv*. 2006; 57:1291–1297. [PubMed: 16968758]

**Table 1**

Socio-demographic Characteristics by Recent Bereavement, Among PROSPECT Patients with Minor or Major Depression (N=417)

	<b>Bereaved (n=38)</b>	<b>Not Bereaved (n=379)</b>	<b>Mann Whitney U or Fisher's Exact Values</b>
<b>Age, mean (SD), years</b>	70.68 (6.19)	69.97 (7.80)	U(1)=6526.000, Z=-.954, p=0.34
<b>Female, n (%)</b>	30 (78.9)	268 (70.7)	p=0.348
<b>White Race, n (%)</b>	27 (71.1)	267 (70.4)	p=1.00
<b>Education, mean (SD), years</b>	12.58 (2.02)	12.88 (4.68)	U=7137.00, Z=-.093, p=-0.93
<b>Income, mean (SD), ln</b>	37.97 (38.16)	32.63 (35.87)	U=6737.00, Z= -0.64, , p=0.53
<b>Charlson Comorbidity Index, mean (SD)</b>	2.74 (2.13)	2.86 (2.32)	U=7006.50, Z=-0.28, p=0.78
<b>Clinical Anxiety Scale, mean (SD)</b>	4.37 (4.12)	4.35 (4.54)	U=6875.50, Z=-0.36, p=0.72
<b>HDRS total score, mean (SD)</b>	17.76 (5.84)	17.96 (6.08)	U=7058.00, Z=-0.15, p=0.88
<b>Recurrent depression, n (%)</b>	17 (44.7)	127 (33.5)	p=0.21
<b>Duration of depression, mean (SD), months</b>	38.77 (130.58)	51.44 (131.16)	U=5278.50, Z=-1.16, p=0.25
<b>Suicidal ideation, n (%)</b>	9 (23.7)	99 (26.1)	p=0.85
<b>Duke Social Support Index Satisfaction with Instrumental Support, mean (SD)</b>	0.76 (0.43)	0.63 (0.48)	U=6142.50, Z=-1.63, p=0.10
<b>Overall Instrumental Support, mean (SD)</b>	7.54 (2.83)	8.08 (3.02)	U=6135.50, Z=-1.37, p=0.17

HDRS = Hamilton Depression Rating Scale

Sample excludes patients without LOPES data or 4 month follow-up data

**Table 2**  
4-Month Outcomes and Baseline and 4 Month Service Use by Death Experiences, for All Depressed Patients (N=417)

Variables	Intervention (n=213)				Usual Care (n=204)			
	Bereaved (n=19)	Not Bereaved (n=194)	Fisher's Exact value	p-value	Bereaved (n=19)	Not Bereaved (n=185)	Fisher's Exact value	p-value
50% HDRS Decline (Response), n (%)	4 (21.1)	90 (46.4)	p=0.05		9 (47.4)	54 (29.2)		p=0.12
HDRS <7 (Remission), n (%)	4 (21.1)	69 (35.6)	p=0.31		9 (47.4)	44 (23.8)		p=0.05
MDD Only (N=274)								
Variables	Intervention (n=145)				Usual Care (n=129)			
	Bereaved (n=14)	Not Bereaved (n=131)	Fisher's Exact value	p-value	Bereaved (n=11)	Not Bereaved (n=118)	Fisher's Exact value	p-value
50% HDRS Decline (Response), n (%)	4 (28.6)	58 (44.3)	p=0.40		5 (45.5)	28 (23.7)		p=0.15
HDRS <7 (Remission), n (%)	3 (21.4)	38 (29.0)	p=0.76		4 (36.4)	17 (14.4)		p=0.08
Minor Depression Only (N=143)								
Variables	Intervention (n=68)				Usual Care (n=75)			
	Bereaved (n=5)	Not Bereaved (n=63)	Fisher's Exact value	p-value	Bereaved (n=8)	Not Bereaved (n=67)	Fisher's Exact value	p-value
50% HDRS Decline (Response), n (%)	0 (0)	32 (50.8)	p=0.06		4 (50.0)	26 (38.8)		p=0.70
HDRS <7 (Remission), n (%)	1 (20.0)	31 (49.2)	p=0.36		5 (62.5)	27 (40.3)		p=0.28

HDRS = Hamilton Depression Rating Scale



**Table 3**

Odds Ratios For Remission for (HDRS <7) and Response (50% HDRS Decline) for Depressed Patients According to Experience of Recent Death (N=417)

4 Month Outcomes	Effect	Model 1	Model 2	Model 3
		Complete Model	Intervention Group	Usual Care Group
		Beta (SE, p-values)	OR (95% CI)	OR (95% CI)
50% HDRS Decline (Response)	Bereaved	0.76 (0.50, 0.123)	0.26 (0.07–0.97)	2.14 (0.81–5.66)
	Intervention	0.58 (0.24, 0.019)	---	---
	Bereaved X Intervention	-2.07 (0.83, 0.012)	---	---
	Baseline HRSD	-0.04 (0.02, 0.048)	0.97 (0.92–1.01)	0.97 (0.91–1.02)
	Received Medication Alone	0.51 (0.28, 0.072)	1.51 (0.54–4.23)	1.75 (0.90–3.40)
	Received Any Psychotherapy	0.45 (0.34, 0.186)	1.50 (0.51–4.36)	1.47 (0.53–1.11)
HDRS <7 (Remission)	Bereavement	1.10 (0.54, 0.043)	0.58 (0.17–1.99)	3.12 (1.05–9.22)
	Intervention	0.46 (0.28, 0.106)	---	---
	Bereaved X Intervention	-1.69 (0.84, 0.045)	---	---
	Baseline HRSD	-0.16 (0.03, <.0001)	0.87 (0.82–0.92)	0.84 (0.77–0.90)
	Received Medication Alone	0.73 (0.29, 0.013)	1.45 (0.49–4.23)	2.14 (1.01–4.55)
	Received Any Psychotherapy	0.80 (0.40, 0.044)	1.28 (0.42–3.90)	1.43 (0.42–4.84)

Bivariate logistic regression model with random effects; df for each factor=1

OR = Odds Ratio; CI = Confidence Interval; HDRS = Hamilton Depression Rating Scale

**Table 4**

Regression Results For Remission for (HDRS <7) and Response (50% HDRS Decline) for Depressed Patients According to Experience of Recent Death, by Presence of Major Depressive Disorder (MDD) Minor Depression

4 Month Outcomes	Effect	Major Depression Only:	Minor Depression Only:
		Complete Model	Complete Model
		Beta (SE, p-values)	Beta (SE, p-values)
50% HDRS Decline (Response)	Bereaved	0.96 (0.66, 0.14)	0.54 (0.76, 0.48)
	Intervention	0.67 (0.31, 0.03)	0.45 (0.44, 0.30)
	Bereaved X Intervention	-1.87 (0.96, 0.05)	-14.73 (619.5, 0.98)
	Baseline HRSD	-0.04 (0.02, 0.13)	-0/01 (0.05, 0.80)
	Received Medication Alone	0.72 (0.37, 0.05)	0.24 (0.45, 0.60)
	Received Any Psychotherapy	0.63 (0.43, 0.15)	0.25 (0.57, 0.67)
HDRS <7 (Remission)	Bereavement	1.39 (0.74, 0.06)	0.85 (0.80, 0.29)
	Intervention	0.75 (0.37, 0.04)	0.34 (0.45, 0.44)
	Bereaved X Intervention	-1.65 (1.05, 0.12)	-1.97 (1.44, 0.17)
	Baseline HRSD	-0.15 (0.03, <.0001)	-0.17 (0.06, 0.005)
	Received Medication Alone	1.00 (0.45, 0.03)	0.29 (0.45, 0.52)
	Received Any Psychotherapy	0.70 (0.52, 0.18)	0.26 (0.59, 0.65)

Bivariate logistic regression model with random effects; df for each factor=1

HDRS = Hamilton Depression Rating Scale