Treating Prolonged Grief Disorder
A Randomized Clinical Trial

Richard A. Bryant, PhD; Lucy Kenny, PhD; Amy Joscelyne, PhD; Natasha Rawson, MPsychol; Fiona MacCallum, PhD; Catherine Cahill, MPsychol; Sally Hopwood, MPsychol; Idan Aderka, PhD; Angela Nickerson, PhD

IMPORTANCE Prolonged grief disorder (PGD) is a potentially disabling condition that affects approximately 10% of bereaved people. Grief-focused cognitive behavior therapy (CBT) has been shown to be effective in treating PGD. Although treatments for PGD have focused on exposure therapy, much debate remains about whether exposure therapy is optimal for PGD.

OBJECTIVE To determine the relative efficacies of CBT with exposure therapy (CBT/exposure) or CBT alone for PGD.

DESIGN, SETTING, AND PARTICIPANTS A randomized clinical trial of 80 patients with PGD attending the outpatient University of New South Wales Traumatic Stress Clinic from September 17, 2007, through June 7, 2010.

INTERVENTIONS All patients received 10 weekly 2-hour group therapy sessions that consisted of CBT techniques. Patients also received 4 individual sessions, in which they were randomized to receive exposure therapy for memories of the death or supportive counseling.

MAIN OUTCOMES AND MEASURES Measures of PGD by clinical interview and self-reported measures of depression, cognitive appraisals, and functioning at the 6-month follow-up.

RESULTS Intention-to-treat analyses at follow-up indicated a significant quadratic time × treatment condition interaction effect (B [SE], 0.49 [0.16]; t_{120.16} = 3.08 [95% CI, 0.18-0.81]; P = .003), indicating that CBT/exposure led to greater PGD reductions than CBT alone. At follow-up, CBT/exposure led to greater reductions in depression (B [SE], 0.35 [0.12]; t_{112.65} = 2.83 [95% CI, 0.11-0.60]; P = .005), negative appraisals (B [SE], 0.68 [0.25]; t_{110.99} = 2.66 [95% CI, 0.17-1.18]; P = .009), and functional impairment (B [SE], 0.24 [0.08]; t_{111.40} = 3.01 [95% CI, 0.08-0.40]; P = .003) than CBT alone. In terms of treatment completers, fewer patients in the CBT/exposure condition at follow-up (14.8%) met criteria for PGD than those in the CBT condition (37.9%) (odds ratio, 3.51; 95% CI, 0.96-12.89; χ² = 3.81; P = .04).

CONCLUSIONS AND RELEVANCE Including exposure therapy that promotes emotional processing of memories of the death is an important component to achieve optimal reductions in PGD severity. Facilitating emotional responses to the death may promote greater changes in appraisals about the loss, which are associated with symptom reduction. Promotion of emotional processing techniques in therapies to treat patients with PGD is needed.

TRIAL REGISTRATION anzctr.org.au Identifier: ACTRN12609000229279

Published online October 22, 2014.

Author Affiliations: School of Psychology, University of New South Wales, Sydney, Australia (Bryant, Kenny, Joscelyne, Rawson, MacCallum, Cahill, Hopwood, Nickerson); Department of Psychology, University of Haifa, Haifa, Israel (Aderka).

Corresponding Author: Richard A. Bryant, PhD, School of Psychology, Mathews Bldg, Room 836, University of New South Wales, Sydney, NSW, Australia 2052 (r.bryant@unsw.edu.au).

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Disabling psychological responses to bereavement have received considerable attention in recent years. The upcoming International Statistical Classification of Diseases, 11th Revision, has proposed a new diagnosis termed prolonged grief disorder (PGD) to describe this condition. This disorder involves persistent yearning for the deceased and associated emotional pain, difficulty in accepting the death, a sense of meaninglessness, bitterness about the death, and difficulty in engaging in new activities. To diagnose PGD, these symptoms need to persist at least 6 months after the death because evidence suggests that bereaved people with these symptoms beyond this time are most likely to develop long-term impairment. Prolonged grief disorder has been associated with increased rates of mental disorder and sleep disturbance, poor health behaviors, cardiovascular and cancer conditions, and work and social impairment. Although most people adapt to the loss by 6 months, studies indicate that approximately 10% of bereaved people experience PGD; this percentage equates to approximately 1 million new cases of PGD each year in the United States alone, representing a major public health issue. Although PGD and depression can present with sadness, crying, suicidal ideation, and sleep disturbances, PGD is distinct from depression by the preoccupation with the deceased. Accordingly, comorbidity between PGD and major depressive episodes ranges from only 50% to 70%. Factor analytic studies demonstrate that the impairment secondary to PGD extends beyond bereavement-related anxiety or depression.

Reinforcing the proposal that PGD is distinct from depression is evidence that PGD does not respond to antidepressants. In contrast, emerging evidence suggests that targeted cognitive behavior therapy (CBT) is an effective strategy for reducing specific symptoms of PGD. In a seminal study, patients with PGD were randomized to 16 sessions of CBT (consisting of revisiting the death to facilitate emotional processing of the death, fostering positive memories of the relationship, and promoting new goals; in addition to usual CBT practice, this treatment also included imaginal dialogue with the deceased (to address outstanding issues the patient felt toward the deceased) or interpersonal psychotherapy (focused on developing interpersonal skills, including understanding of the patient’s relationship with the deceased). Cognitive behavior therapy achieved markedly superior outcomes relative to interpersonal psychotherapy. In a subsequent study, PGD patients were administered CBT with exposure therapy (CBT/exposure) (involving repeated revisiting of the death) followed by cognitive restructuring or the same components in reverse order. These studies highlight that exposure-based therapies are an effective means of alleviating the symptoms of PGD. Because both of these studies integrated exposure therapy as a core component of the treatment, the outstanding question is the extent to which exposure therapy is essential for treating PGD. Despite their success, exposure-based approaches can elicit marked distress during the reliving. Although this distress is transient, it can limit the appeal of exposure therapy for PGD. Therefore, an understanding of whether exposure therapy is essential to treat PGD effectively is needed. This study tested CBT for PGD by comparing CBT that contains exposure therapy (CBT/exposure) and CBT alone.

Methods

Patients
Participants were bereaved patients who sought treatment at the University of New South Wales Traumatic Stress Clinic from September 17, 2007, through June 7, 2010, after the death of parents (23 patients [29%]), partners (24 [30%]), children (25 [31%]), or others (8 [10%]). The causes of death included sudden illness (16 [20%]), chronic illness (43 [54%]), accident (12 [15%]), or suicide (9 [11%]). Inclusion criteria were that the patient had experienced bereavement at least 12 months earlier and satisfied criteria for PGD. Exclusion criteria included a history of psychosis, current substance dependence, borderline personality disorder, severe suicidal risk, an inability to converse in English, and being younger than 17 years or older than 70 years. Participants underwent initial screening by telephone, and full assessments were conducted only for participants who did not report any exclusion criteria on telephone screening. The characteristics of patients are presented in Table 1. This study was approved by the Human Research Ethics Committee of New South Wales, and all participants completed written informed consent.

Measures

Diagnostic Interview
The Complicated Grief Assessment is a clinician-administered semistructured interview for assessing PGD. The Complicated Grief Assessment interview is based on the Inventory of Complicated Grief and provides a diagnosis and severity index of complicated grief. The interview assesses for the presence of separation distress (criterion A) and difficulty accepting the death, emotional numbness, bitterness, difficulty reengaging in life, and a sense of purposelessness and meaninglessness (criterion B). A diagnosis of complicated grief is given if 6 months has passed since the death, criteria A and B have been met for at least 6 months, and evidence of functional impairment exists (criterion C).

The Clinician-Administered PTSD Scale is a structured clinical interview that indexes the 17 symptoms described by the DSM-IV criteria for posttraumatic stress disorder (PTSD). Each symptom is rated on a 5-point scale in terms of severity and frequency of the symptoms in the past month. This measure was used to assess for PTSD diagnosis before treatment. The Mini-International Neuropsychiatric Interview (version 5.5) was used to assess for comorbid Axis I depression and anxiety disorders.

Self-report Measures
Additional psychopathology measures included the Beck Depression Inventory, Second Edition, to measure depression and the Posttraumatic Cognitions Inventory (PTCI) to index cognitive responses to trauma. The PTCI is a 36-item self-report scale that yields 3 factors, including negative cognitions about one’s self (PTCI-Self), negative cognitions about the world (PTCI-World), and self-blame.

The World Health Organization Quality of Life short-form assessment (WHOQOL-BREF) is a World Health Organiza-
A measurement instrument that assesses quality of life across the following 4 domains of functioning: physical health (daily living, pain, and work capacity), psychological health (mood, self-esteem, and concentration), social relationships (personal relationships, social support, and sexual activity), and environment (financial resources, health care, and home environment). The WHOQOL-BREF demonstrates good discriminant validity, content validity, internal consistency, and test-retest reliability.32 Functional impairment was defined by Australian norms for each domain of the WHOQOL-BREF.33

At the completion of session 1 and after the rationale had been explained, patients completed the Credibility/Expectancy Questionnaire.24 Specifically, patients in the CBT/exposure or CBT group rated their confidence in the treatment (1, not at all confident; 10, extremely confident) and the logic of the treatment (1, not at all logical; 10, extremely logical). All measures were administered at each assessment, with the exception of the therapy confidence and logic ratings, which were administered at baseline only.

Procedure

Participants were informed that they would be randomized to one of 2 treatment conditions. Randomization was conducted by a process of minimization stratified on sex and grief severity total score. Participants were assigned according to a random numbers system administered by an individual who was independent of the study and who worked at a site that was distant from the treatment center. Every 6 months, allocation was amended by the independent assigner to ensure that sex and grief severity were balanced across conditions. Patients were considered dropouts if they commenced taking medication after starting treatment to ensure that observed changes could not be attributed to medication. Adverse reactions were monitored by the therapist and recorded on the basis of significant exacerbation of symptoms requiring removal or respite from the program. The Figure summarizes participant flow. Eighty patients were randomized into the study and were randomized to CBT/exposure (n = 41) or CBT alone (n = 39). Sixty-one patients (76%) completed treatment, and 56 patients (70%) completed the 6-month follow-up assessment.

Initial pretreatment assessments were conducted before randomization. Posttreatment and 6-month follow-up assessments were conducted by independent clinicians who were unaware of the treatment condition of participants. Blindness was maintained by ensuring that clinicians who conducted assessments did not have access to participant notes or condition allocation of participants.

### Table 1. Participant Characteristics

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Treatment Condition*</th>
<th>Test</th>
<th>P Value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>CBT/Exposure (n = 41)</td>
<td>CBT</td>
<td></td>
</tr>
<tr>
<td></td>
<td>n = 39</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age, mean (SD), y</td>
<td>51.0 (14.4)</td>
<td>54.8 (9)</td>
<td>F&lt;sub&gt;78&lt;/sub&gt; = 1.30 .18</td>
</tr>
<tr>
<td>Time since death, mean (SD), y</td>
<td>4.00 (3.39)</td>
<td>3.62 (3.10)</td>
<td>F&lt;sub&gt;78&lt;/sub&gt; = 0.53 .60</td>
</tr>
<tr>
<td>Educational level, mean (SD), y</td>
<td>13.6 (2.6)</td>
<td>13.3 (2.9)</td>
<td>F&lt;sub&gt;78&lt;/sub&gt; = 0.50 .65</td>
</tr>
<tr>
<td>Male</td>
<td>4 (10)</td>
<td>7 (18)</td>
<td>χ&lt;sup&gt;2&lt;/sup&gt; = 1.13 .29</td>
</tr>
<tr>
<td>Female</td>
<td>37 (90)</td>
<td>32 (82)</td>
<td></td>
</tr>
<tr>
<td>Employed</td>
<td>31 (75)</td>
<td>28 (73)</td>
<td>χ&lt;sup&gt;2&lt;/sup&gt; = 0.04 .84</td>
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<tr>
<td>Relationship of deceased</td>
<td></td>
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<td></td>
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<tr>
<td>Partner</td>
<td>11 (27)</td>
<td>13 (33)</td>
<td>χ&lt;sup&gt;2&lt;/sup&gt; = 4.23 .52</td>
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<tr>
<td>Child</td>
<td>11 (27)</td>
<td>14 (36)</td>
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<tr>
<td>Parent</td>
<td>14 (34)</td>
<td>9 (23)</td>
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<tr>
<td>Other</td>
<td>5 (12)</td>
<td>3 (8)</td>
<td></td>
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<tr>
<td>Death type</td>
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<td></td>
<td></td>
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<tr>
<td>Sudden illness</td>
<td>9 (22)</td>
<td>7 (18)</td>
<td>χ&lt;sup&gt;2&lt;/sup&gt; = 0.76 .86</td>
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<tr>
<td>Chronic illness</td>
<td>22 (54)</td>
<td>21 (54)</td>
<td></td>
</tr>
<tr>
<td>Accident</td>
<td>6 (15)</td>
<td>6 (15)</td>
<td></td>
</tr>
<tr>
<td>Suicide</td>
<td>4 (10)</td>
<td>5 (13)</td>
<td></td>
</tr>
<tr>
<td>Comorbid depression</td>
<td>26 (63)</td>
<td>24 (62)</td>
<td>χ&lt;sup&gt;2&lt;/sup&gt; = 0.01 .93</td>
</tr>
<tr>
<td>Comorbid PTSD</td>
<td>21 (51)</td>
<td>25 (64)</td>
<td>χ&lt;sup&gt;2&lt;/sup&gt; = 1.36 .25</td>
</tr>
<tr>
<td>Comorbid anxiety disorder</td>
<td>11 (27)</td>
<td>8 (21)</td>
<td>χ&lt;sup&gt;2&lt;/sup&gt; = 0.53 .47</td>
</tr>
<tr>
<td>Comorbid substance use disorder</td>
<td>4 (10)</td>
<td>4 (10)</td>
<td>χ&lt;sup&gt;2&lt;/sup&gt; = 0.00 .97</td>
</tr>
<tr>
<td>Logic rating, mean (SD)&lt;sup&gt;b&lt;/sup&gt;</td>
<td>7.0 (1.4)</td>
<td>7.8 (1.7)</td>
<td>F&lt;sub&gt;78&lt;/sub&gt; = 1.42 .16</td>
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<tr>
<td>Expectancy rating, mean (SD)&lt;sup&gt;b&lt;/sup&gt;</td>
<td>6.3 (1.6)</td>
<td>7.0 (2.2)</td>
<td>F&lt;sub&gt;78&lt;/sub&gt; = 1.10 .24</td>
</tr>
</tbody>
</table>

Abbreviations: CBT, cognitive behavior therapy; CBT/exposure, CBT with exposure therapy; PTSD, posttraumatic stress disorder.

* Unless otherwise indicated, data are expressed as number (percentage) of patients.

* Calculated using the Credibility/Expectancy Questionnaire.24

### Treatment Conditions

Therapy consisted of 10 weekly 2-hour group sessions and 4 weekly 1-hour individual sessions. Group therapy was conducted by 2 experienced master’s-level clinical psychologists, and individual sessions were conducted by 1 clinical psychologist (from a pool of 6 clinical psychologists) who were trained to use treatment manuals and who received weekly supervi-
sion from one of us (R.A.B.). All therapists provided each type of treatment. Patients randomized to each condition participated in distinct group sessions dedicated to that condition.

**CBT/Exposure**

Session 1 focused on clarification of group processes, education about grief, and an overview of treatment components. Session 2 included a detailed review of the rationales for the treatment strategies (including the need to manage avoidance, rumination, and excessively negative appraisals; to facilitate positive memories; and to develop new goals). Sessions 3, 4, and 5 focused on teaching specific strategies in cognitive restructuring to reframe common maladaptive grief-related appraisals (e.g., hopelessness and guilt). Session 6 addressed rumination management, including identification of the merits and costs of repetitive thinking and distraction techniques. This session also included a letter-writing task in which participants expressed unresolved issues they wished to communicate to the deceased, which was intended to facilitate the cognitive restructuring. Session 7 continued with cognitive challenging and letter writing to the deceased and began facilitation of positive memories, in which participants described memories of positive experiences with the deceased. Session 8 continued letter writing and facilitation of positive memories and initiated steps for new goals and activities. Session 9 focused predominantly on identification of future goals and steps to achieve them. This strategy was continued in session 10, which also developed relapse prevention strategies for high-risk times (e.g., anniversaries). After group session 2, participants commenced 4 weekly 1-hour individual therapy sessions. In the initial individual session, participants were instructed in the rationale for exposure therapy and the need to minimize avoidance of grief memories to manage the distress and integrate the loss into one’s memory. Participants then relived the time they experienced the death of the person for 40 minutes, including providing accounts in the first person and present tense of their emotional, cognitive, sensory, and somatic reactions; if patients completed the narrative in less than 40 minutes, they were directed to repeat the narrative until 40 minutes had lapsed. Distress ratings were provided by patients every 10 minutes to ensure they were engaging with emotional content. This process continued for 3 subsequent sessions; in later exposure sessions, therapists focused patients’ attention on critical aspects of the memories that elicited the most distress to ensure that they were sufficiently engaged. Exposure sessions were not audiotaped, but patients were instructed to conduct the exposure at least once between sessions for homework by following the same technique used in the therapy session and to maintain the relieving for 40 minutes.

**CBT Alone**

The group therapy was identical to the treatment provided in the CBT/exposure condition. In each of the 4 weekly 1-hour individual sessions that commenced after group therapy session 2, participants were invited to discuss anything they wished. The facilitators of the individual sessions (the same therapists who conducted the exposure sessions) did not instruct participants in any exposure-based approaches. Facilitators responded to participants in a nondirective manner. To equate to the homework activity of those in the exposure condition, participants were asked to complete a diary of grief states between sessions.

**Treatment Fidelity**

Audiotapes of 48 individual therapy sessions (20% of the 240 completed individual therapy sessions) and 20 group therapy sessions (20% of the 100 therapy sessions) were randomly selected and rated by 3 clinicians experienced in CBT who were independent of the study. Raters listened to audiotapes and rated the presence or absence of each of 44 treatment components without regard to treatment condition or treatment session. Raters also indicated the quality of the therapy provided on a 7-point scale (1, unacceptable; 7, very good). All individual sessions of CBT/exposure included adequate exposure sessions, and no individual CBT session included exposure. The mean (SD) quality rating for treatment components across conditions was 5.3 (1.6).

**Statistical Analysis**

Power analysis was derived with GPower 3.3.4 We adopted a Hedges g effect size estimate in the power analysis to accommodate smaller samples. Interpretation of the $g$ statistic is categorized as large ($>0.80$), medium ($0.50-0.79$), or small ($0.20-0.49$). To achieve a power of 80%, we based calculations on a previous study that has used exposure-based therapy with PGD32 and determined that we required 80 participants to detect an 8-point difference in Inventory of Complicated Grief scores at $\alpha = .05$.

The primary focus of analyses was intention to treat. Using commercially available software (SPSS, version 21; SPSS Inc), we adopted hierarchical linear models to study treatment effects because this method allows the number of observations...
to vary between participants and effectively handles missing data.\textsuperscript{35} Hierarchical linear models use a multilevel data structure that includes fixed and random intercepts and slopes. Time (linear and quadratic), treatment condition, and their interaction were included in the model. Fixed-effects parameters were tested with the Wald test (2-tailed t test) and 95% CIs.

Levels 1 and 2 models were estimated; however, results focus on level 2 models. Intraclass correlations were calculated to examine potential clustering effects of the data according to treatment group. Results revealed no significant clustering effects for any of the primary or secondary outcome measures after treatment or at follow-up; therefore, a level 3 (i.e., group-level) model was not estimated. To determine the effects of treatment on longer-term outcome, we focused analyses on follow-up rather than posttreatment data. We calculated effect sizes based on previous recommendations for multilevel models using the following formula:\textsuperscript{36}

\[d = B \times \left[ \frac{\text{Time}}{\text{Raw Score of Pretreatment SD}} \right] .\]

We also calculated PGD diagnostic rates and number needed to treat, which were based on treatment completers. In addition, we calculated the number of patients needed to treat as 1 divided by the proportion responding in the CBT/exposure group as an estimate of the number of patients who would need to be given CBT/exposure for 1 of them to achieve a response outcome (defined as no longer meeting criteria for PGD) and who would not have achieved it with CBT alone. Efficacious treatments typically have a number needed to treat that ranges from 2 to 4.\textsuperscript{37} We also calculated the differential treatment gains made by patients according to antidepressant use and PGD secondary to sudden/traumatic death.

### Results

Table 1 presents the patient characteristics. Planned comparisons of treatment completers and treatment dropouts indicated no differences between conditions on any pretreatment psychopathology, demographic, or bereavement-related factor. Similarly, we found no differences in those who did and did not drop out of treatment on any of these variables. Patients in each condition did not differ in their expectations about therapy success. No adverse effects of the treatments were reported, although 2 patients dropped out of the CBT/exposure group owing to excessive distress, apparently as a result of other bereavements that occurred in the course of treatment. Dropout rates during treatment did not differ statistically between patients randomized to CBT/exposure and CBT.

Table 2 contains the least-squares mean scores for the primary and secondary outcome measures by treatment condition. In terms of PGD severity, the level 2 model indicated a significant linear time × treatment interaction from pretreatment to follow-up (B [SE], −1.57 [0.39]; \( t_{122.92} = -4.00 \) [95% CI, −2.36 to −0.79]; \( P < .001 \)), indicating that CBT/exposure led to significantly greater decreases in prolonged grief symptoms relative to CBT. The level 2 model also indicated a significant quadratic time × treatment interaction (B [SE], 0.49 [0.16]; \( t_{120.16} = 3.08 \) [95% CI, 0.18−0.81]; \( P = .003 \)), indicating that participants in the CBT/exposure condition evidenced a stronger quadratic relationship between time and PGD symptoms compared with those in the CBT condition.

Similarly, in relation to depressive symptoms, we found a significant linear time × treatment interaction (B [SE], −1.12 [0.31]; \( t_{125.26} = -3.59 \) [95% CI, −1.74 to −0.50]; \( P = .01 \)) and a significant quadratic time × treatment interaction (B [SE], 0.35 [0.12]; \( t_{122.65} = 2.83 \) [95% CI, 0.11−0.60]; \( P = .005 \)), indicating that patients in the CBT/exposure condition had a greater reduction of depression over time relative to those in the CBT condition. In terms of the PTCI-Self, we found a significant linear time × treatment interaction (B [SE], −2.39 [0.64]; \( t_{122.40} = -3.73 \) [95% CI, −3.65 to −1.12]; \( P < .001 \)) and a significant quadratic time × treatment interaction (B [SE], 0.68 [0.25]; \( t_{93.98} = 2.66 \) [95% CI, 0.17−1.18]; \( P = .009 \)), indicating that patients in the CBT/exposure condition had greater reduction in negative appraisals about the self than those in the CBT condition. We found a significant linear time × treatment interaction (B [SE], −0.99 [0.21]; \( t_{131.64} = -4.77 \) [95% CI, −1.41 to −0.58]; \( P < .001 \)) and a significant quadratic time × treatment interaction (B [SE], 0.24 [0.08]; \( t_{111.40} = 3.01 \) [95% CI, 0.08−0.40]; \( P = .003 \)) of PTCI-Self scores, indicating that CBT/exposure resulted in better appraisals about the world than CBT. Regarding the PTCI-Self blame score, we also found a significant linear time × treatment interaction (B [SE], −0.50 [0.18]; \( t_{177.58} = -2.87 \) [95% CI, −0.85 to −0.16]; \( P = .005 \)), indicating that CBT/exposure led to greater decreases in negative cognitions relating to self-blame than CBT.

In terms of psychological functioning, we found a significant linear time × treatment interaction (B [SE], 2.24 [0.52]; \( t_{118.53} = 4.31 \) [95% CI, 1.21−3.26]; \( P < .001 \)) and a significant negative quadratic time × treatment interaction (B [SE], −0.70 [0.20]; \( t_{114.07} = -3.41 \) [95% CI, −1.10 to −0.29]; \( P = .001 \)), indicating that CBT/exposure led to greater psychological functioning over time than CBT. In terms of social functioning, we found no significant linear interaction, but a significant quadratic time × treatment interaction (B [SE], −0.70 [0.25]; \( t_{108.32} = -2.77 \) [95% CI, −1.18 to −0.36]; \( P = .007 \)) suggested that CBT/exposure also led to greater social functioning over time than CBT.

Analyses of diagnostic status and number needed to treat were based on treatment completers. After treatment completion, marginally fewer participants in the CBT/exposure condition (6 participants [19%]) met criteria for PGD than participants in the CBT condition (13 [43%]) (\( n = 61 \)) (odds ratio [OR], 2.89 [95% CI, 0.92−9.07]; \( \chi^2 = 3.42; P = .06 \)). At follow-up, fewer participants in the CBT/exposure condition (4 participants [15%]) met criteria for PTSD than participants in the CBT condition (11 [38%]) (\( n = 56 \))(OR, 3.51; 95% CI, 0.96−12.89; \( \chi^2 = 3.81; P = .05 \)). In terms of follow-up diagnostic status, the number needed to treat was 4.32.

In secondary analyses, an analysis of antidepressant use found no significant difference between those randomized to CBT/exposure (8 participants [20%]) and CBT (10 [26%]) (\( n = 50 \))(\( \chi^2 = 0.43; P = .51 \)). In terms of treatment response, we found no difference in meeting PGD criteria between those who used and did not use antidepressants after treatment (\( n = 61 \)) (6 participants [35%] vs 13 [30%]; \( \chi^2 = 0.19; P = .66 \); OR, 0.77 [95% CI, 0.23−2.52]) or at follow-up (\( n = 56 \)) (3 [23%] vs 12 [28%]).
χ² = 0.12; P = .73; OR, 1.29 [95% CI, 0.30-5.51]).

In terms of type of death, we found no difference in the rates of those bereaved after sudden or violent death (n = 80) between those in the CBT/exposure condition (18 participants [44%]) and the CBT condition (18 [46%]) (χ² = 0.43; P = .84). Regarding treatment response, we found no difference in satisfying PGD criteria between those bereaved after sudden/violent death and death after chronic illness after treatment (n = 61) (9 participants [32%] vs 10 [30%]; χ² = 0.02; OR, 0.92 [95% CI, 0.31-2.72]) or at follow-up (n = 56) (7 [30%] vs 8 [24%]; χ² = 0.26; P = .61; OR, 0.73 [95% CI, 0.22-2.41]).

Discussion

This study aimed to determine the additive benefit of including exposure therapy in psychotherapy targeted to symptoms of PGD. The convergent finding was that adding exposure to CBT led to greater reductions in grief and depressive symptoms and increased psychological and social functioning. This finding accords with those of previous studies stating that psychotherapy programs with some component of exposure-based treatment are effective.22,23 The novelty of this study is the finding that the exposure element was essential if optimal treatment gains were to be achieved. This conclusion is consistent with evidence from treatment studies among patients with anxiety disorder may not be correct. Exposure therapy is typically conceptualized in anxiety disorders as a form of extinction learning, which involves new learning that certain stimuli or thoughts do not signal threat or distress.39 Exposure techniques can involve a range of processes; however, including emotional processing of affective content and integration of corrective information can alleviate one's distress.41-43 The exposure element in the present study treatment may have facilitated emotional processing of the loss, and this facilitation had the additional benefit of augmenting more change in maladaptive cognitions or appraisals about themselves and their world. The finding that CBT/exposure had a stronger beneficial effect on appraisals than CBT underscored the suggestion that exposure may have facilitated patients’ abilities to modify negative appraisals about their loss. Cognitive models of PGD posit that the condition is maintained by entrenched negative interpretations about one’s

### Table 2. Mean Psychopathology Scores

<table>
<thead>
<tr>
<th></th>
<th>Treatment Condition, Mean Score (95% CI)</th>
<th>Effect Size, Pretreatment to Follow-up</th>
</tr>
</thead>
<tbody>
<tr>
<td>ICG</td>
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<td></td>
</tr>
<tr>
<td>Pretreatment</td>
<td>47.49 (43.75-51.23)</td>
<td>46.04 (42.21-49.88)</td>
</tr>
<tr>
<td>Posttreatment</td>
<td>27.52 (23.26-31.79)</td>
<td>38.16 (33.71-42.61)</td>
</tr>
<tr>
<td>Follow-up</td>
<td>28.13 (23.75-32.52)</td>
<td>36.44 (32.17-40.72)</td>
</tr>
<tr>
<td>BDI-2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pretreatment</td>
<td>31.07 (27.61-34.54)</td>
<td>28.08 (24.53-31.63)</td>
</tr>
<tr>
<td>Posttreatment</td>
<td>16.76 (12.88-20.64)</td>
<td>22.41 (18.55-26.28)</td>
</tr>
<tr>
<td>Follow-up</td>
<td>16.98 (13.06-20.90)</td>
<td>20.93 (17.06-24.79)</td>
</tr>
<tr>
<td>PTCI-Selfa</td>
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<td></td>
</tr>
<tr>
<td>Pretreatment</td>
<td>89.66 (81.65-97.67)</td>
<td>82.08 (73.86-90.30)</td>
</tr>
<tr>
<td>Posttreatment</td>
<td>58.94 (50.07-67.81)</td>
<td>68.68 (59.81-77.56)</td>
</tr>
<tr>
<td>Follow-up</td>
<td>61.75 (52.88-70.62)</td>
<td>69.55 (60.60-78.49)</td>
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<tr>
<td>PTCI-Worldb</td>
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<tr>
<td>Pretreatment</td>
<td>31.63 (28.38-34.89)</td>
<td>29.49 (26.15-32.83)</td>
</tr>
<tr>
<td>Posttreatment</td>
<td>22.99 (19.56-26.42)</td>
<td>27.43 (23.94-30.93)</td>
</tr>
<tr>
<td>Follow-up</td>
<td>22.73 (19.24-26.22)</td>
<td>27.35 (23.82-30.89)</td>
</tr>
<tr>
<td>PTCI-Self-blamec</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pretreatment</td>
<td>13.27 (11.27-15.27)</td>
<td>10.95 (8.90-13.00)</td>
</tr>
<tr>
<td>Posttreatment</td>
<td>9.99 (7.76-12.22)</td>
<td>9.48 (7.26-11.70)</td>
</tr>
<tr>
<td>Follow-up</td>
<td>8.47 (6.22-10.72)</td>
<td>10.51 (8.248-12.77)</td>
</tr>
<tr>
<td>WHOQOL-BREF Psychologicald</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pretreatment</td>
<td>33.65 (28.58-38.72)</td>
<td>36.92 (31.72-42.12)</td>
</tr>
<tr>
<td>Posttreatment</td>
<td>52.47 (46.64-58.29)</td>
<td>38.56 (32.79-44.33)</td>
</tr>
<tr>
<td>Follow-up</td>
<td>52.58 (46.75-58.40)</td>
<td>42.00 (36.09-47.92)</td>
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<tr>
<td>WHOQOL-BREF Sociale</td>
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<tr>
<td>Pretreatment</td>
<td>37.72 (31.48-43.95)</td>
<td>41.36 (34.97-47.75)</td>
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<tr>
<td>Posttreatment</td>
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<td>44.79 (37.38-52.20)</td>
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<tr>
<td>Follow-up</td>
<td>46.13 (38.97-53.30)</td>
<td>46.69 (39.28-54.10)</td>
</tr>
</tbody>
</table>

Abbreviations: BDI-2, Beck Depression Inventory, Second Edition; CBT, cognitive behavior therapy; CBT/exposure, CBT with exposure therapy; ICG, inventory of Complicated Grief; PTCI, Posttraumatic Cognitions Inventory; WHOQOL-BREF, World Health Organization Quality of Life short-form assessment.

a Indicates negative cognitions about self.
b Indicates negative cognitions about the world.
c Indicates negative cognitions about blame of oneself.
d Measures psychological health (mood, self-esteem, and concentration).
e Measures social relationships (personal relationships, social support, and sexual activity).

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capacity to cope with the future or about one's role in the death.\textsuperscript{43,44} This supposition is supported by evidence of the role of catastrophic appraisals in PGD.\textsuperscript{43} Although all patients received the same dosage of cognitive restructuring to address these thoughts, patients who were given the opportunity to process the loss emotionally before the cognitive restructuring may have been better able to achieve cognitive change. This interpretation is consistent with a previous finding that providing exposure therapy before cognitive restructuring leads to greater improvement in grief symptoms than when the components are delivered in the reverse order.\textsuperscript{21}

Patients who received exposure therapy enjoyed better psychological and social functioning than those receiving CBT alone. Prolonged grief disorder leads to marked psychosocial impairment, including suicidality, social withdrawal, and substance abuse.\textsuperscript{7,9,10} The finding that exposure therapy resulted in a better quality of life 6 months after treatment underscores the conclusion that emotionally processing the loss, in combination with the other components of grief therapy, led to a marked shift in the PGD, which had a positive effect on patients' abilities to function psychologically and socially.

Exposure therapy did not result in adverse reactions. Exposure therapy has been believed to be overly distressing for patients and to lead to adverse outcomes or increased dropout from treatment.\textsuperscript{45,46} This distress is typically transient, and it abates as exposure sessions continue. Consistent with this notion, the present study found that exposure did not result in negative responses in PGD patients. Controlled studies of exposure therapy in other anxiety disorders, such as PTSD, have also demonstrated that exposure therapy does not result in negative outcomes relative to other interventions.\textsuperscript{47,48} Despite these results, much evidence exists that clinicians are often reluctant to use exposure therapy because of the perception that it can exacerbate excessive distress.\textsuperscript{49,50} This evidence suggests that, despite the strength of the present finding, clinicians who treat PGD should be educated about the merits and safety of using exposure techniques with PGD patients.

We note several limitations to this study. First, not all patients were medication free during the course of the study, with 18 (23%) using antidepressants. This medication use may have interacted with the psychotherapy; however, we lacked sufficient numbers of these patients to compare treatment outcomes for CBT/exposure and CBT for those using and not using medication. We included patients using antidepressants because (1) this approach allowed greater generalizability with the PGD population, (2) patients maintained stability of medication use during the course of the study (apart from 2 patients who changed medication), and (3) we found no difference in medication use between treatment conditions. Second, we included patients with PGD after a range of different types of death. Treatment response to exposure therapy may differ by the circumstances of the death; we have relatively few patients who developed PGD after suicide or homicide, which may have a distinct treatment response.

Conclusions

The accumulating evidence points to the very significant public health needs arising from PGD. Developing more effective treatments that can reduce the burden of this condition is important. In the most valuable lesson from this study, optimal gains with PGD patients are achieved when the emotions associated with the memories of the death and the sequelae of the loss are fully accessed. Numerous studies attest to the avoidant strategies in which PGD patients engage to minimize their distress,\textsuperscript{31} and this reluctance to engage with their distressing emotions may be a major reason for not managing the grief more effectively. Although focusing on appraisals and developing future directions apparently was somewhat beneficial, directing patients to access their emotional memories appears to achieve the most effective outcomes. Despite the distress elicited by engaging with memories of the death, this strategy does not lead to aversive responses. In light of evidence that many interventions provided to grieving people are not empirically supported,\textsuperscript{29} the challenge is to foster better education of clinicians through evidence-supported interventions to optimize adaptation to the loss as effectively as possible.

**ARTICLE INFORMATION**

Submitted for Publication: February 27, 2014; final revision received May 20, 2014; accepted June 24, 2014.


**Author Contributions:** Dr Bryant had full access to all the data in the study and takes responsibility for the integrity of the data and the accuracy of the data analysis.

Study concept and design: Bryant, Kenny, Joscelyne, Cahill, Hopwood.

Acquisition, analysis, or interpretation of data: All authors.

Drafting of the manuscript: Bryant, Kenny, Maccallum, Cahill, Hopwood, Nickerson.

Critical revision of the manuscript for important intellectual content: Bryant, Joscelyne, Rawson, Aderka, Nickerson.

Statistical analysis: Bryant, Aderka, Nickerson.

Obtained funding: Bryant.

Administrative, technical, or material support: Bryant, Kenny, Joscelyne, Rawson, Maccallum, Cahill, Hopwood, Nickerson.

Study supervision: Bryant, Rawson, Cahill.

Conflict of Interest Disclosures: None reported.

Funding/Support: This study was supported by grant 568970 from the National Health and Medical Research Council Program and grant 455341 from the National Health and Medical Research Council Project.

Role of the Funder/Sponsor: The funding sources had no role in the design and conduct of the study; collection, management, analysis, and interpretation of the data; preparation, review, or approval of the manuscript; and decision to submit the manuscript for publication.

**REFERENCES**


