Long-term Effects of the Family Bereavement Program on Multiple Indicators of Grief in Parentally Bereaved Children and Adolescents

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Abstract

Objectives—This paper reports on results from a randomized experimental trial of the effects of the Family Bereavement Program (FBP) on multiple measures of grief experienced by parentally-bereaved children and adolescents over a six year period of time.

Method—Participants were 244 youth (ages 8–16, mean age = 11.4 years) from 156 families that had experienced the death of a parent. The sample consisted of 53% boys; ethnicity was 67% non-Hispanic white and 33% ethnic minority. Families were randomly assigned to the FBP (N=135) or a literature control condition (N=109). Two grief measures, the Texas Revised Inventory of Grief (TRIG) and the Intrusive Grief Thoughts Scale (IGTS) were administered at four times over six years, pre-test, post-test, eleven-month and six-year follow-ups. A third measure, an adaptation of the Inventory of Traumatic Grief (ITG) was administered only at the six-year follow-up.

Results—The FBP showed a greater reduction as compared to controls in their level of problematic grief (IGTS) at post-test and six-year follow-up and in the percent at clinical levels of problematic grief at the post-test. The FBP also reduced scores on a dimension of the ITG, Social Detachment/Insecurity, at six-year follow-up for three subgroups; those who experienced lower levels of grief at program entry, older youth, and boys.

Conclusion—These are the first findings from a randomized trial with long-term follow-up of the effects of a program to reduce problematic levels of grief of parentally-bereaved youth.

Keywords

Nearly 4% of American children experience the death of a parent before the age of 18 (Social Security Administration, 2000). The death of a parent is a major stressful event that has been found to increase risk for a wide range of mental health problems in childhood and adulthood (Cerel, Fristad, Verducci, Weller, & Weller, 2006; Lutzke, Ayers, Sandler, & Barr, 1997; Melhem, Walker, Moritz & Brent, 2008). Recent studies have extended the research on the effects of parental bereavement by focusing on grief as a set of cognitive and affective responses that are distinct from mental health symptoms and that have significant implications for healthy functioning. Although several studies have investigated the effects of intervention programs to reduce mental health problems of parentally-bereaved children (Currier, Holland, &

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[1]We use the term problematic grief when referring to the count of these symptoms to denote that these are grief experiences that are viewed as causing problems for youth.

Neimeyer, 2007), no randomized experimental trials have examined the effects of interventions on children's or adolescents' grief responses. The current study uses data from a six-year follow-up of a randomized experimental trial of the FBP, to assess the program's impact on grief responses of children and adolescents. Because researchers have only recently focused on the assessment of child and adolescent grief, we first discuss issues related to assessment. We then discuss the results of research on the effects of interventions with parentally-bereaved children and issues in evaluating such programs. Finally, we describe the goals of the current study.

Assessment of grief in children and adolescents

Recent research has identified multiple dimensions of grief responses in children. A recent factor analysis (Melhem, Day, Shear, Day, Reynolds & Brent, 2004) identified two dimensions, "complicated grief" (items such as finding it painful to recall memories of the deceased, preoccupation with the deceased) and normal grief (e.g., items such as missing the deceased). In studies with adolescents exposed to peer suicide (Melhem et al., 2004) and with parentally bereaved youth (Melhem, Moritz, Walker, Shear & Brent, 2007), complicated grief was found to be associated with functional impairment, suicidal ideation, and increased depressive and PTSD symptoms. Brown and Goodman (2005) used factor analysis to distinguish a dimension they labeled as traumatic grief from normal grief in children of parents who were killed in the World Trade Center attacks of September 11, 2001. They found that traumatic grief was related to depressive, PTSD, and anxiety symptoms and poorer coping responses. These studies represent progress in the assessment of children's grief as a multi-dimensional construct. However, to date there is no research about the persistence of different dimensions of youth grief responses over time or studies of sensitivity of these measures of grief to change over time as a result of interventions. The current study reports on the effects of the FBP to change the trajectories of different dimensions of grief responses of youth over multiple years after the death of a parent. It was hypothesized that the FBP would reduce problematic dimensions of grief at post-test and over a six-year follow-up. In addition, this study uses data from the randomized control group to assess the natural course of grief responses over time and examines whether girls, who experience higher levels of mental health problems after parental death than boys (Reinherz, Giaconia, Hauf, Wasserman, & Silverman, 1999; Schmiege, Khoo, Sandler, Ayers, & Wolchik, 2006), also report high levels of greater problematic grief than boys.

Evaluation of the Impact of Interventions on Grief Responses of Bereaved Youth

*S*everal recent experimental trials have demonstrated the positive impact of interventions to reduce problematic grief responses of bereaved adults (Boelen, Keijser, van den Hout, & van den Bout, 2007; Shear, Frank, Houck, & Reynolds, 2005). Two recent studies by Cohen and colleagues (Cohen & Mannarino, 2004; Cohen, Mannarino, & Staron, 2006) reported improvements in traumatic grief responses from pre- to post-intervention in child survivors of traumatic death (defined as death from causes such as violence, accidents, homicide or suicide). However, inferences concerning this program's effects are limited due to lack of a no-treatment comparison group. In their recent meta-analysis of 13 studies of child bereavement interventions which combined effects across outcomes, Currier et al. (2007) found that, the mean weighted effect size was small (d = .14) and not significantly different from zero. Three limitations noted by Currier and his colleagues in their evaluation of child bereavement interventions are particularly relevant to the current paper. First, the evaluations have focused almost exclusively on program effects on mental health problems, with very few including grief responses. Second, no study included a follow-up longer than one year. Third, analyses of sub-group that benefitted differentially from the intervention (Currier, Neimeyer, & Berman, 2008; Jordan & Neimeyer, 2003) were not conducted. The current study addresses these

limitations by using three measures of grief to assess effects of the FBP over a six-year follow-up and by examining differential program effects across gender and level of problems at program entry.

Family Bereavement Program (FBP)

The FBP is a 14-session (12 group and two individual sessions) program designed to promote resilient outcomes of parentally-bereaved youth by strengthening family- and child-level variables that have been shown to relate to multiple adaptive outcomes after parental death. The goal of the program was to impact multiple outcomes, including reducing problematic grief. The program has been fully described elsewhere (Ayers, Wolchik, Sandler, Towhey, Lutzke Weyer, Jones, et al., in press) so it will only be briefly described here. Variables were selected as targets based on studies supporting their relation to outcomes in bereaved youth or youth exposed to other major family disruptions (Lutzke et al., 1997; Silverman, 2000). The family-level variables targeted were positive quality of caregiver-child relationship, mental health problems of the caregivers, youth exposure to negative family stressors and effective discipline.

The child-level factors targeted were positive coping, appraisals of stressful events, adaptive control beliefs, perceptions of having one's feelings understood by caregivers, and adaptive expression of grief (Gottman, Katz, & Hooven, 1997; Gross & Levenson, 1997; Sandler, Tein, Mehta, Wolchik, & Ayers, 2000; Sheets, Sandler, & West, 1996; Worden & Silverman, 1996). The theory of the intervention was that by changing these resilience resources the FBP would improve multiple outcomes including reducing mental health problems, improving developmental competencies (e.g., academic and social functioning) and reducing problematic grief. The current paper reports on the evaluation of program effects to reduce problematic grief.

Contributions of the Current Study

This study tests the hypothesis that the FBP reduces problematic grief responses of parentally-bereaved youth at post-test and over six years after the program. The study also conducted sub-group analyses across gender and level of grief at program entry, variables that have been related to response to other bereavement interventions. The inclusion of a control group provides an opportunity to examine the natural course of multiple dimensions of youth's grief responses over time. Several researchers have studied the course of grief in adults (e.g., Zhang, El-Jawahri, & Prigerson, 2006), but none have reported on the longitudinal course of grief in children and adolescents.

Method

Participants

Two hundred and forty-four youth from 156 families participated in the study. Of the 156 families, 90 (including 135 children) were randomly assigned to the intervention group, and 76 (including 109 children) were assigned to the self-study group using computer generated randomization. Sample size was determined to have adequate power to detect program effects. Of the caregivers, 63% were mothers, 21% were fathers, and 16% were another relative or friend. Of the youth, 53% were boys; the mean age at program entry was 11.4 years old (*SD* = 2.43) (range = 8 –16). Ethnicity of the families was 67% European American, 15% Hispanic American, 6% African American, 4% Native American, 1% Asian American or Pacific Islanders, and 6% other. Median family income was in the range of $30,001 to $35,000. The percentage of families below the poverty line using 1996 HHS poverty guidelines was 15.9% and 37.0% were below 200% of the poverty line. As another indicator of social class the highest

level of education achieved by the surviving parent was 4.6% less than high school graduation, 22.5% high school graduate, 50.3% some college or technical school, and 22.5% college graduate or above. On average, parental death occurred 9.8 months (*SD* = 5.7, range = 4–30 months) prior to participation. Cause of death was 67% illness, 20% accident, and 13% homicide or suicide. With regard to gender match between youth and the deceased parent, there were 88 (36.4%) male/male, 65 (26.9%) male/female, 49 (20.2%) female/female, and 40 (16.5%) female/male pairs; overall for 43.4% experienced the death of a parent of the opposite gender.

Recruitment and assignment to conditions

The procedures for recruitment, assessment and random assignment to the FBP vs. self-study comparison condition are fully described in a previous publication (Sandler, Ayers, Wolchik, Tein, Kwok, Haine, et al., 2003). To briefly review, families that had experienced parental death and had one or more children between the ages of 8 and 16 were recruited through referrals from school counselors, service agencies, and police departments in a Southwestern metropolitan area. After screening for eligibility criteria (e.g., not currently receiving other mental health or bereavement services, death occurred between four and 30 months prior to beginning the program), those who were eligible and willing to participate in either the group or self-study program completed the pre-test. Randomization was done after the pre-test using a computer generated randomization sequence which was administered by a program staff.

The FBP is fully described elsewhere (Ayers, in press). The program consisted of 12 group sessions and two individual sessions. Separate groups were conducted for caregivers, children, and adolescents. Each group was led by two counselors with a master's degree or Ph.D. in a helping profession. The program involved teaching skills that have been found to relate to better outcomes for bereaved youth and those who have experienced other major family disruptions, such as effective parenting skills for the caregivers and effective coping skills for the youth. Each session in the child and adolescent components included a structured 20-minute grief discussion. In the self-study group, caregivers, children and adolescents each received three books on dealing with grief. Information on adherence to the interventions is provided in a prior publication (Sandler, et al., 2003).

Four assessments were conducted: pre-test (T1), post-test (T2), short-term follow-up (T3, 11-months after post-test), and long-term follow-up (T4, six years after post-test). Grief measures were completed by a high proportion of the sample, 96%, 87% and 84% at T1, T2, T3, and T4, respectively. There was no differential attrition between the FBP and self-study groups. Data collection for T1 – T3 was completed between 1995 and 1998 for groups delivered in the Fall and Spring of each year. For T4, data collection occurred between 2001 and 2004, at the time corresponding to the six year follow-up of completion of the program. Assessments were completed in individual home interviews with trained interviewers who were blind as to program conditions (i.e., 96% of the interviewers reported being blind to condition when asked about the interviewee's experimental condition after the interview). Confidentiality was explained and caregiver informed consent and child assent were obtained prior to the interviews. All procedures were approved by the University Institutional Review Board.

Measures

Texas Revised Inventory of Grief (Present)(TRIG)—The 13-item Present Feeling Subscale of the TRIG (Faschingbauer, 1981) was used to obtain self-report of continued experience and present feelings about the death (e.g., "I still cry when I think of my [deceased]). The TRIG is one of the most commonly used measures of grief and has been demonstrated to have acceptable levels of reliability and construct and convergent validity (Neimeyer & Hogan, 2001). However, the measure has been criticized because there is little variation in the response

to several items, because many of the items represent benign normative aspects of grief, and because few items assess experiences that are more problematic (Neimeyer & Hogan, 2001). The scale was originally developed for adults, so several items were rewritten to be appropriate for children (e.g., "I found it hard to work well" was modified to "I found it hard to do well at school"). A five-point Likert scale was used (1 = completely true; 5 = completely false). The responses were reverse coded so higher scores indicated higher levels of grief. Two items were dropped from the measure at all time points ("sometimes I very much miss my [deceased parent]"; "no one will ever take the place of my [deceased parent] who died") because of high skewness and kurtosis. Cronbach's alpha coefficients for the remaining 11 items were .89, .89, .92, and .92 for T1 to T4, respectively. Because of the broad age range of the participants, we tested invariance of a one factor model of the TRIG at T1 and T4 across two age sub-groups, children ages 8–11 and 12 16 at the pre-test using Mplus (Muthen & Muthen, 1998–2007). Results indicated that all factor loadings, factor variances, and intercepts were invariant across age group.

Intrusive Grief Thoughts Scale (IGTS)—A nine-item scale (Program for Prevention Research, 1999) was developed to assess the frequency of intrusive, negative or disruptive grief-related experiences. Examples of items are "I think about the death when I don't want to" and "I have trouble doing things I like because of thinking about the death." A five-point Likert scale was used to assess frequency of the experiences in the past month (1 = "several times a day", 2 = "about once a day", "3" = "once or twice a week", "4"= "less than once a week" and "5" = "not at all"). Items were reverse coded so higher scores indicated more frequent intrusive and disruptive grief experiences. Cronbach's alpha coefficients were .88, .91, .93, and .90 for T1 to T4, respectively. The test of invariance of a one factor model of the IGTS at T1 and T4 across two age sub-groups, children ages 8–11 and 12 – 16 indicated that all factor loadings, factor variances, and intercepts were invariant across age group.

Adapted Inventory of Traumatic Grief (ITG): Symptoms of prolonged grief disorder—A 26-item scale of symptoms of grief disorder, derived from the 34-item version of the ITG (Prigerson & Jacobs, 2001), was administered at T4. The scale was originally developed for adults and has been modified several times, so consultation with Prigerson was used to select items that best represented the prolonged disordered grief construct (Prigerson, Vanderwerker & Maciejewski, 2008) and were appropriate for parentally-bereaved youth. Research conducted primarily with adults has shown that measures of problematic grief, which has also been labeled as traumatic grief, complicated grief and most recently prolonged grief disorder predict impaired functioning, physical health problems and suicidal ideation over and above the effects of other mental health problems (Prigerson et al., 2008). For the continuous measure, responses were scored so that higher values reflected greater levels of disordered grief. Cronbach's alpha was .92.

A diagnostic algorithm was developed to reflect meeting diagnostic criteria proposed by Prigerson et al. (2008) which includes six general criteria for prolonged grief disorder following the same general structure of other DSM diagnoses (e.g. event criterion, separation distress, cognitive, emotional and behavioral symptoms, duration, impairment and relation to other mental disorders). Because the criteria have evolved over time (Prigerson, Shear, Jacobs, Reynolds, Reynolds, Maciejewski et al. 1999, Prigerson et al., 2008), some criteria in Prigerson et al. (2008) were not included in the measure administered in the current study. Items from the TRIG and IGTS were used to supplement those in the ITG to assess the proposed diagnostic criteria outlined by Prigerson and colleagues (2008).[2]

Measurement of common and unique dimensions of grief at six-year follow-up —Although the three measures of grief administered at T4 were designed to capture different domains of grief, they are not independent from each other (correlations ranged from .44 to .

64). To allow assessment of FBP effects on the common underlying dimension of grief shared across these measures and on the unique dimensions assessed by the different measures, measurement modeling of the items on these scales was done. As described in greater detail elsewhere (Kennedy, Sandler, Tein, Ayers, Millsap, & Wolchik, 2009), a common factor of general grief was identified and three unique dimensions were identified which were uncorrelated with the general factor or each other. These common and unique dimensions are described below.

A bi-factor measurement model is considered particularly appropriate (Chen, West, & Sousa, 2006) to assess both the common and unique factors underlying correlated variables. These models use confirmatory factor analyses (CFA) to identify a general factor that accounts for the commonality of all of the items and specific factors over and above the general factor. The small sample size to item ratio precluded item-level measurement modeling using all three measures that were administered at six-year follow-up. Because disordered grief is theorized to be distinct from "normal grief" (Melhem et al., 2004; Prigerson et al., 2008) and because of the general interest in the Inventory of Traumatic Grief as a measure of disordered grief (Prigerson, et al., 2008) it was decided to test a bi-factor model for the items on this scale, and a second bi-factor model was tested for the items from the TRIG and IGTS.

One specific factor and one general factor emerged from the 26 items from the Inventory of Traumatic Grief. The items that loaded most highly on the specific dimension involved lack of social trust, loneliness, lack of control and hyperarousal (i.e., jumpiness), so that this specific factor was labeled Social Detachment/Insecurity. Two specific factors besides a general factor emerged from the items of the TRIG and IGTS. The items from IGTS loaded most highly on one specific dimension which was labeled as Intrusive Grief Thoughts. Most of the items that loaded highly on the second specific dimension involved the expression of negative affect when thinking about the death (e.g., still cry when I think about my deceased parent), so that this dimension was labeled Continuing Affective Reactions.

Using factor scores from the latent general and the three specific factors from the bi-factor models, we generated five measures to represent the two general grief dimensions and the three specific dimensions. Due to a high correlation between the general measures from the Inventory of Traumatic Grief model and the TRIG/IGTS model ($r = .92$; $p < .001$), a composite of the two general variables was computed to represent the general grief measure. As expected from a bi-factor model, the intercorrelations of the four dimensions of grief were low (range of .01 to .22) with only the correlations between the Intrusive Grief Thoughts specific dimension and the Continuing Affective Reactions specific dimension and the composite general grief dimension being significant ($r = -.18$ and $r = .22$ respectively).

Partial correlations between each of these measures of grief controlling for the effects of the other three measures were calculated with measures of seven T4 outcomes: mental health problems (caregiver and youth report of internalizing and externalizing problems) and positive social adaptation (self-esteem, academic and peer competence). Different patterns of partial correlations were found for the different grief dimensions. For the specific factor of Social

[2]Prigerson et al., (2008) outline six general criteria for prolonged grief disorder following the same general structure of other DSM diagnoses. Most of the criteria are assessed with items in the version of the ITG administered in the current study. Items on the ITG were missing for certain dimensions of two criterion; separation distress and cognitive, behavioral symptoms. Two items from the TRIG (i.e., "I still cry when I think of my [deceased relation]", and "Even now it is painful to recall the memories of my deceased") where the respondent endorsed that it was "completely true" or "mostly true" and one item from the IGTS (i.e. How often have you had strong bad feelings about your [deceased relation to child]'s death?) where the respondent endorsed either "several times a day" or "about once a day" were used as proxy measures of separation distress. One symptom from the cognitive, emotional and behavioral symptoms criterion was not available on any measure, "feeling stunned, dazed or shocked by the loss". To account for the lack of this symptom we modified Prigerson and colleagues (2008) criterion of five of nine cognitive, emotional and behavioral symptoms being experienced daily or to a distressing or disruptive degree to four or eight symptoms.

Detachment/Insecurity significant partial correlations were found for six of the seven variables; caregiver and youth report of internalizing and externalizing problems and negative partial correlations with self-esteem and peer competence (range of .49 to −.35). For the Intrusive Grief Thoughts dimension only one partial correlation was significant (self-esteem; partial r = −. 25). For the General Grief dimension only two partial correlations were significant (youth report of internalizing problems and self-esteem; partial r = .43 and −.30, respectively). None of the partial correlations were significant for the Continuing Affective Reactions dimension.

Results

Data analysis overview

To make maximal use of the multiple measures of grief, two approaches were employed to assess program effects. For the measures of grief that were assessed at four time points (i.e., TRIG, IGTS), linear growth modeling (LGM) under the mixed (multilevel) model framework was used to assess the impact of the FBP on trajectories of growth. Mixed model Analysis of Covariance (ANCOVA) was used to assess the program effects at six-year follow-up on the factor-analytically derived dimensions of grie on the TRIG, IGTS, and ITG. SAS 9.1 PROC MIXED was used for these analyses. We also assessed program effects on the percent meeting the proposed diagnostic criteria for prolonged grief disorder with impairment and the percent above a 20% cut-point of clinically significant levels of grief on the IGTS.

We also examined whether program effects differed across youth age, youth gender, gender match between caregiver and youth, gender match between deceased parent and youth, cause of death, and time since death[4]. We found that program effects were only moderated by two variables, gender and age for either the LGM or ANCOVA analyses. Thus, we focus this report on program, program by gender and program by age effects.

Preliminary analysis of interrelations of grief measures for linear growth models (LGM)

Because the LGM analyses assessed the effects of two different grief measures it was important to establish their interrelations and their unique relations with other indicators of adjustment. These data are being reported in more detail elsewhere (Kennedy et at., 2009) but are briefly reviewed here. The TRIG and IGTS were moderately highly correlated at T1 (r = .69, p < .01). However, although they were each positively correlated with measures of mental health problems (youth and caregiver report of internalizing and externalizing problems), and negatively correlated with measures of positive adjustment (self-esteem, academic and social competence), a different pattern was observed for the partial correlations between each of these measures of grief with measures of adjustment controlling for the effects of the other measure of grief. Significant positive correlations were found between the IGTS and youth report of internalizing and externalizing problems and negative correlations were found between IGTS and measures of self-esteem and peer competence (range of .35 to −.18). Only one significant partial correlation was found for the TRIG (r = .16, p <.01; youth report of internalizing problems (Kennedy et al, 2009). Descriptively, the item-level means of the TRIG and IGTS at each of the four waves are presented in Table 1. As can be seen, for the IGTS, the mean item response when they entered the program (Time 1) indicates experiencing the grief item between "less than once a week" and "once or twice a week." For the TRIG, the mean response indicates that the grief experience is between "true and false" and "mostly true" for them.

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[4]Time since death was the time unit for the LGM; we included it in all analyses with LGM.

Three-level Individual Linear Growth Models (LGM) of the Effects of FBP on Grief Over Four Times

In the multilevel LGM, three levels of data were included, with repeated measures of grief (level-1) nested within youth (level-2), which in turn nested within families (level-3). Youth gender and age were level-2 predictors (i.e., differed among youth); group condition was a level-3 predictor (i.e., differed among families). To account for the fact that families entered the study at different times after the death (range of 4–30 months) and that grief scores are likely to be related to time since death, the starting point of the grief growth trajectory was set at the time of parental death rather than at pre-test (labeled as T0; Schmiege et al, 2006). Thus, the time scaling of the growth trajectory was allowed to differ across families. This approach uses individual data vector-based analyses for fitting growth curves and produces proper estimates of all parameters in the GCM (Mehta & West, 2000).

As shown in conceptual models displayed in Figure 1, two different forms of the intervention effects were considered most plausible (see Singer & Willett, 2003). The linear growth models included two growth parameters: the intercept and slope. The intercept parameter captured the average grief level at the time of parental death; the slope parameter captured the average growth rate of grief across time. The estimates of these two parameters in the control group indicated youths' natural growth trajectory of grief without the intervention (Model 0). One form of the intervention effect is a change in the growth rate in the intervention group versus control group over the four waves of assessment. This kind of intervention effect was modeled with an added slope starting from the pre-test (T1; pre-test is considered as the start of the intervention) (Model 1). A second plausible form of the intervention effect is a downward shift in the grief level in the intervention group immediately after the program. That is, the intervention group would have lower level of grief than the control group starting at post-test (T2) and would be similar in the growth rate from that point onward. This kind of intervention effect was modeled with an added intercept starting from the post-test (T2) (Model 2). We also tested models that simultaneously included both these forms of intervention effects (Model 3). All three models were tested separately for the two grief outcomes. Although different shapes of growth function can be specified (e.g., quadratic), because of the complexity of the models with the change of intercept and slope simultaneously tested, we focused on linear changes. We first tested the overall program effect and then examined whether the program effect differed by gender. Including age as a covariate, the multilevel model equations of the fixed and random effects and the corresponding mixed model equation for testing the overall program effects for Model 3 are shown below:

$$\text{Level} - 1: \; Y_{tij} = \pi_{0ij}(Int1) + \pi_{1ij}(Int2) + \pi_{2ij}(Time1) + \pi_{3ij}(Time2) + e_{tij}$$
$$\text{Level} - 2: \; \pi_{0ij} = \beta_{00j} + \beta_{02j}(Age) + r_{0ij}$$
$$\pi_{1ij} = \beta_{10j} + r_{1ij}; \quad \pi_{2ij} = \beta_{20j} + r_{2ij}; \quad \pi_{3ij} = \beta_{30j} + r_{3ij}$$
$$\text{Level} - 3: \; \beta_{00j} = \gamma_{000} + u_{00j}; \quad \beta_{02j} = \gamma_{020}$$
$$\beta_{10j} = \gamma_{101}(Treat); \quad \beta_{20j} = \gamma_{200}; \quad \beta_{30j} = \gamma_{301}(Treat)$$

Mixed:

$$Y_{tij} = \gamma_{000}(Int1) + \gamma_{101}(Treat) \times (Int2) + \gamma_{200} \times (Time1) + \gamma_{301}(Treat) \times (Time2)$$
$$+ \gamma_{020}(Int1)(Age) + (e_{tij} + r_{0ij} + r_{1ij} + r_{2ij} + r_{3ij}u_{00j})$$

(1)

To test the program by gender interaction effect, we added gender as a level-2 predictor. The equations for mixed models are:

$$Y_{tij}=[\gamma_{000}+\gamma_{010}(Gender)+\gamma_{020}(Age)](Int1)+[\gamma_{101}(Treat)+\gamma_{111}(Gender \times Treat)] \times (Int2)$$
$$+[\gamma_{200}+\gamma_{210}(Gender)] \times (Time1)+[\gamma_{301}(Treat)+\gamma_{311}(Gender \times Treat)] \times (Time2)$$
$$+(e_{tij}+r_{0ij}+u_{00j}) \tag{2}$$

In these model equations, Y_{tij} is the observed grief score at time t of individual i from family j. "*Int1*", "*Int2*", "*Time1*", and "*Time2*" are the intercept and time variables that are used to capture the growth parameters and intervention effects on these growth parameters. "*Int1*" is associated with the natural intercept that represents the initial status of grief at the anchor time point, i.e., the time of parental death (T0). "*Int2*" is associated with the added intercept that represents the difference between the control and the intervention groups at post-test. It is used to test the shift of mean grief level at the post-test (T2) in the intervention group associated with the intervention (Singer & Willett, 2003). "*Time1*" is associated with the natural slope (i.e., natural growth rate) without intervention. "*Time2*" is associated with the added slope that represents the additional growth rate starting from pretest (T1) for the intervention group. It is used to test the change in growth rate in the intervention group associated with the intervention. e_{tij} r_{0ij} r_{1ij}, r_{2ij} r_{3ij} and u_{00j} are the random effects. Because the change in grief score per month was very small, the time unit was converted from months to years. "Age" is youth age at pre-test (T1) centered at the grand mean. "*Intervention*" is the group condition, with 0 = control group and 1 = intervention group, and with 0 = male and 1 = female.

To be sure that the group difference found in the linear growth models was not simply reflecting group differences at pre-test, the random assignment assumption was first tested for each outcome. The results showed no significant difference between the intervention and control group on the pre-test TRIG or IGTS scores.

TRIG: Nonproblematic Grief Outcome

For the overall program effect, a group difference was found in both grief level at post-test and growth rate starting from pre-test. Thus, the findings are based on Model 3 with both added intercept and added slope. The intercept, $\gamma_{000}=3.49$ is the mean initial status of grief at the time when parental death occurred. The estimated parameter for *Time1*, $\gamma_{200}=-.10$ [95% CI $=(-.12,-.08); t=-8.25, p<.001$], is the mean natural growth rate of grief without intervention, indicating that without the intervention, grief decreased across time. The estimated parameter for *Int2*, $\gamma_{101}=.16$ [95% CI $=(.03, .29); t=2.33, p<.05$], is the group difference in the status at post-test (T2), which captures the shift in the grief level of the intervention group; indicating that youth in the intervention group had a higher level of grief right after the intervention as compared with those in the control group. The parameter estimate for *Time2*, $\gamma_{301}=-.04$ [95% CI $=(-.07,-.01); t=-2.12, p=.035$] is the group difference in the growth rate due to the intervention effect starting from pre-test (T1). The significant negative value indicates that following the start of the intervention, the intervention group decreased faster than the control group. An inspection of the means (see Table 2) of the intervention and control groups at T1 and T2 indicated that, although the differences between groups were not significant at T1, they were directionally different and the T2 difference in the model might be accounted for by differences between the groups at T1. To probe this possibility, an analysis of covariance was done in which the effects of the FBP on T2 TRIG was tested covarying T1 TRIG. The results showed that the effect of the FBP on T2 TRIG was not significant (t = −.26, p = .79; adjusted mean FBP = 3.53, adjusted mean control = 3.51)

Adding the gender effect into the model (see Eq. 2), the results showed two significant effects related to gender. Compared to boys, girls had significantly higher grief scores at the time of parental death [$\gamma_{010}=.30$, 95% CI = (.09, .51); $t=2.76, p<.01$]. The gender difference in the natural growth rate was significant [$\gamma_{210}=.06$, 95% CI = (.01, .11); $t=2.37, p=.018$], such that

although grief decreased across time for boys [$\gamma_{200} = -.13$, 95% CI = (−.17, −.10); $t = -7.67$, $p < .0001$] and girls [$\gamma_{200}+\gamma_{210} = -.08$, 95% CI = (−.11, −.04); $t = -4.26$, $p < .0001$], the decrease for girls was significantly slower than for boys. The group by gender interaction effects at T2 and in the growth rate due to the intervention effect were not significant.

IGTS: Problematic Grief Outcome

A group difference was found for IGTS scores at post-test, but not in growth rate starting from pre-test for analyses with and without the gender effect in the model. Thus, the findings are based on Model 2 (see Figure 1) with only added intercept. Different from Model 3, the equations for Model 2 do not include "*Time2*" variable (i.e., removing the parameters that have subscripts started with 3, γ_{301} in Eq. 1 and γ_{301} and γ_{311} in Eq. 2). The analysis indicated that the mean natural growth rate of IGTS in both groups decreased across time [$\gamma_{200} = -.14$, 95% CI = (−.16, −.12); $t = -15.37$, $p < .0001$]. The intervention did not change the growth rate. However, the intervention group had a significant reduction in grief level at post-test [$\gamma_{101} = -.20$, 95% CI = (−.33, −.07); $t = -3.08$, $p = .002$]. Grief decreased for boys and girls across time and it decreased more slowly for girls than boys [$\gamma_{200} = -.16$, 95% CI = (−.19, −.14); $t = -12.59$, $p < .0001$- boys; $\gamma_{200}+\gamma_{210} = -.12$, 95% CI = (−.15, −.10); $t = -9.21$, $p < .0001$- girls].

Analysis of the Effects of the FBP on Dimensions of Grief at Six-Year Follow-up

Mixed model ANCOVA for two-level data structure (i.e., youth nested in families) was applied to evaluate the effects of the FBP at the six-year follow-up on the four dimensions of grief derived from the two bi-factor measurement models, the three specific dimensions of Social Detachment/Insecurity, Intrusive Grief Thoughts, Continuing Affective Reaction and the composite General Grief dimension. Table 2 shows the means and standard deviations of the general grief and three specific grief dimension scores at the six-year follow-up. A standardized pre-test grief score was calculated as the unweighted sum of the standardized pre-test TRIG and IGTS scores, and was used as the covariate for all analyses. To ensure that any observed difference between groups on these measures could be attributed to the program rather than a failure of randomization the comparability between the FBP and control group on 27 pre-test variables (i.e., demographic, mental health, grief and developmental competencies) were tested; only one out of 27 (3.7%) comparisons was significant at the .05 level, which is less than expected by chance. Although we tested program moderation effects on multiple other variables, as described above, significant program moderation effects were only found for baseline grief level, youth age and youth gender; results of these analyses are presented below.

Table 3 shows the findings, including parameters, confidence intervals, t-statistics, and effect sizes for mean differences that were statically significant. There was a significant main effect for the intervention condition to reduce the specific Intrusive Grief Thoughts dimension, a finding that is consistent with the evidence from the growth curve analysis of the IGTS at the scale level. There were significant pre-test Grief × program, gender × program, and age × program interaction effects on the Social Detachment/Insecurity dimension, $t(189) = -2.11$, $p < .05$, $t(189) = 2.17$, $p < .05$, and $t(196) = 2.51$, $p < .05$, respectively. To understand these moderation effects, post-hoc comparisons were conducted to identify the pre-test score or age level at which the intervention and control conditions differed significantly. We plotted the slopes of the two conditions and used the contrast feature of PROC MIXED to compare the adjusted means at each 10th percentile on the pre-test score (e.g., 10%, 20%, to 90%) or each age (e.g., 14-year old to 22-years old) (see Littell, Milliken, Stroup, & Wofinger, 1996). Similar to the Johnson Neyman technique (Aiken & West, 1991), this procedure indicates the region where the groups differ significantly and provides information about the percentage of the sample in the range where the groups differ significantly. The Johnson—Neyman technique could not be used because of the multilevel nature of the data. The intervention reduced Social Detachment/ Insecurity scores for those who had *lower* composite grief scores at baseline; 20%

of the sample was in the region of significant differences (Cohen's $d_{\text{at the cutoff}}$ = .37). The program reduced Social Detachment/ Insecurity scores for youth who were 13 or older at pre-test, with 35% of the sample being in the region of significant differences (Cohen's $d_{\text{at 13 years old}}$ = .36). In addition, post-hoc comparisons showed that boys in the program reported lower Social Detachment/Insecurity scores than those in the self-study condition (adjusted M_{fbp} = −.10; adjusted Mself-study = .03), whereas the program effect was nonsignificant for girls. The program main and interaction effects for Continuing Affective Reactions and General Grief dimensions were nonsignificant.

Because multiple comparisons were conducted, an adjustment was needed to reduce the family-wise probability of Type I error (Wilkinson & Task Force on Statistical Inference, 1999). We addressed this problem by applying adjustments to two families of related measures, main effects (4 tests), and moderation effects (12 tests). As the Bonferroni alpha correction tends to be overly conservative at the level of individual contrasts (Simes, 1986), we set the family alpha at p = .10. Using these corrected alpha levels, we found that the main effect on IGTS and age × condition interaction effects on Social Detachment/ Insecurity were sustained. These findings are denoted in bold in Table 3.

Prolonged Grief Disorder at T4

Of the sample, 4.9% met proposed diagnostic criteria for prolonged grief disorder with impairment. We assessed the effects of the FBP, youth gender and youth age, using Fisher's exact test (because of the low frequency in each cell). The program effect was nonsignificant. Gender was significantly related to prolonged grief disorder, with significantly more girls than boys meeting criteria (8.1% versus 1.9% [p = .032]). To test for the effect of age on grief disorder, we categorized youth into two age groups according to the age group assignment.[3] No significant age effects were found.

Clinical significance of the effects of the FBP on reductions in problematic grief on the IGTS

The statistically significant program effects to reduce scores on measures of grief do not necessarily indicate that the effects are clinically meaningful. To assess effects of the program to reduce clinically significant levels of grief we focused on the IGTS because the items on this scale assess disturbing and intrusive grief experiences that are reported to interfere with functioning. In the absence of national norms on the IGTS, we used the score that identified the highest 20% on the baseline IGTS as the cut-point for a clinically significant level of grief. The 20th percentile cut-point was selected to be consistent with that used in research identifying items that differentiated those with a clinically significant level of grief on the Inventory of Complicated Grief (Prigerson et al., 1999). The average item score on the IGTS at the upper 20th percentile was 3.7 which corresponds to reports of having these disturbing grief experiences between once a day and once or twice a week. Significance of the FBP to affect the likelihood of being above the clinical cut-point at post-test, 11-month follow-up and six-year follow-up was assessed using mixed model logistical regression. SAS 9.1 PROC GLIMMIX was used to test the main effect of the program condition and the interaction between the program condition and baseline status of being above or below the clinical cut-off. A significant baseline x program interaction and a marginal program main effect were found for the likelihood of being above the clinical cut-off at the post-test (t = −2.27, p < .05; t = 1.92, p = .10, respectively). At pre-test, 21 of the youth in the control group (21. 0%) and 25 (19.6%) youth in the FBP group scored above this cut point. The significant program × baseline effect was due to a difference between the FBP and control groups in the decrease

[3]For families assigned to the FBP, children age 8–11 were assigned to the child group, those age 13–16 were assigned to the adolescent group and 12-year-olds were randomly assigned to the child (20%) or adolescent (80%) group. Youth in the self-study group were categorized using the same assignment procedure.

from baseline to the post-test in the proportion who were above the clinical cut-point. For the FBP group 68% of those who were above the clinical cut-point at baseline were below the cut-point at post test. For the control group 33% of those who were above the cut-point at baseline were below the cut-point at post-test. No significant program or program × baseline interaction were found for the 11-month follow-up clinical scores. At the six-year follow-up there were only four participants who were above the clinical cut-point, all of whom were in the control condition.

Discussion

The results supported the hypothesis that the FBP would reduce problematic grief responses of parentally-bereaved youth over a six year period. These findings are the first evidence from a randomized experimental trial of a program for bereaved youth to show program-induced reductions in problematic grief over such a long period of time. The longitudinal design, use of several measures of grief and inclusion of a self-study comparison group allowed examination of the natural course of multiple dimensions of grief responses (both problematic and non-problematic) over time. Girls reported more persistent grief responses on multiple dimensions of grief and a higher prevalence of prolonged grief disorder than boys. The discussion considers the effects of the FBP on each dimension of grief and places these findings in the context of current research on the effects of interventions for bereaved youth.

The FBP reduced IGTS scores at post-test (growth curve analysis) and at the six-year follow-up (covariance analysis using the specific Intrusive Grief Thoughts dimension). The IGTS assesses problematic grief experiences that the individual views as disturbing (e.g., strong bad feelings about your [deceased]'s death), impairing functioning (e.g., trouble doing things you like because you were thinking about how much better things were before your [deceased]'s death) or intrusive (e.g., think about your [deceased]'s death even when you didn't want to). Thus, the short- and long-term results are seen as providing evidence of program effects to reduce problematic grief. The effect size (d=.41) at six year follow-up is between small and moderate and is similar to those of other prevention programs (Weisz, Sandler, Durlak, & Anton, 2005).

The program effects on the TRIG measure of present grief were more ambiguous. The growth model found that those in the FBP had higher grief scores at post-test than those in the control group. However, when pre-test TRIG scores were used as a covariate, the program effects at post-test were no longer significant. Thus, we are inclined not to interpret the post-test difference in the growth model as a reliable program effect. The effect of the FBP to increase the negative slope of TRIG scores indicated a sharper decrease over time in the FBP than self-study condition. As noted previously, the TRIG has been described as over-representing normative aspects of grief and under-representing more debilitating aspects of grief, and in our analyses this measure had few significant partial correlations with other measures of adjustment after controlling for the effects of the IGTS. Therefore, the greater decline over time in FBP participants in the grief experiences assessed by the TRIG is not interpreted as a program effect on problematic grief experiences but rather as an effect on the trajectory of normative grief.

The FBP reduced scores on the Social Detachment/Insecurity dimension of grief at six-year follow-up for three subgroups, those who experienced lower levels of grief at program entry, older youth, and boys. It is important to note that because boys had lower pre-test levels of grief than girls, the interactive effects for gender and level of grief at pre-test are confounded. The Social Detachment/Insecurity dimension includes items that reflect a lack of social trust, loneliness, lack of control, loss of a sense of security and jumpiness. This dimension has previously been interpreted to represent aspects of grief related to a sense of diminished social

connectedness (Kennedy et al., 2009) and appears to have elements of symptoms that overlap with PTSD.

The findings of moderated program effects on the Social Detachment/Insecurity dimension need to be interpreted in the context of the broader literature. The finding of positive program effects for youth with lower grief scores at pre-test contrasts with findings from a recent meta-analysis of interventions for the bereaved (both adults and children) that reported stronger effects for interventions that targeted bereaved who were experiencing higher levels of distress at pre-test (Currier et al., 2008). The difference between the current findings and those of the meta-analysis may be due to the focus on children and adults in the meta-analysis versus only children in the current study or to use of a long-term follow-up in the current study, which is rare in prior studies of bereavement interventions. The positive effect of the program for boys but not girls may be due to girls' social relationships being more intimate than boys' relationships (McNelles & Connolly, 1999), so that the support provided by the program represented a greater increase in support for boys than girls. The finding that the FBP led to a reduction in Social Detachment/Insecurity for older (13 and above) but not younger (8–12) youth may be due to developmental differences in cognitive processing and affective awareness which may have allowed older children to benefit more from some program components (e.g., decreasing negative appraisals of stressful events) than younger children. The findings that boys showed more positive program effects than girls and those with lower pre-test grief showed more positive effects than those with higher pre-test grief are contrary to our findings on mental health outcomes at the 11-month follow-up of the FBP (Sandler et al., 2003). The finding that moderators of program effects at one point in time do not necessarily carry over to later points in time highlights the need for additional research on who does and does not benefit from the FBP and how benefits may differ across time.

The clinical significance of the effects of the FBP on IGTS measure of grief was assessed by using the upper 20th percentile on the distribution of IGTS scores at pre-test as the clinical cut-point. While this cut-point has the limitation of not being based on norms from a representative sample of bereaved children, it corresponds to children reporting experiencing these disturbing grief responses between once a day and several times a week. The FBP was found to decrease the proportion of children who exceeded this clinical cut-point at post-test, primarily by decreasing the likelihood that those who were above the clinical cut-point at pre-test would also be above the clinical level at post-test. Although the number of youth who remained above this clinical level on the IGTS was very low six years following the intervention, the persistence of differences between the program and control groups indicates a lasting effect of the program on disturbing grief experiences long after the death.

The FBP also had significant effects to reduce problematic grief experiences six years later as measured by the specific Social Detachment/Insecurity dimension. The effect of the FBP on this dimension indicates a reduction in problems of social connection, which is a central developmental task for both adolescents and young adults. It is notable that at the six-year follow-up that the FBP had an impact on the two dimensions of grief, IGTS and Social Detachment/Insecurity, that have the strongest relations with measures of mental health problems and adaptive functioning. Thus, although the rates of youth meeting the proposed diagnostic criteria for prolonged grief disorder were too low at the six-year follow-up to detect program effects, it is likely that the program effect on these two dimensions of grief represent a meaningful effect on children's overall functioning six years following program participation. Given the positive relations between both the IGTS and the Social Detachment/Insecurity scores and measures of mental health and adaptive functioning, future research should investigate the interrelations between change in grief and change in mental health problems and adaptive functioning over time.

The finding of gender differences in grief responses over time are worth noting. Although grief declined for boys and girls across time, both normative (TRIG) and problematic (IGTS) grief decreased significantly more slowly in girls than boys. Further, although the number of those reaching criteria for prolonged grief disorder with impairment was low, significantly more girls than boys met criteria six years after participating in the FBP, which was six to nine years following the death of their parent. Although probing the mechanisms that account for this gender difference is beyond the scope of this paper, it is interesting to speculate about possible mechanisms. Gender differences in the social roles in stressed families (Grant & Compas, 1995) and in response to social loss (Cyranowski, Frank, Young, & Shear, 2000) may account for gender differences in grief responses over time. Future research is called for to study gender differences in youths' grief and to develop interventions that reduce aspects of grief that impair the functioning of girls.

Several limitations of the study also need to be acknowledged. The lack of normative data on these measures prevents us from comparing the level of grief in our sample to that in the population of bereaved children and adolescents, which limits the generalizability of the findings. Further, the ITG was not included in the pre-test, which prevented assessing program effects on the proportion of youth who met the proposed diagnostic criteria for disordered grief over six years and tracking of changes over time for those who would meet proposed diagnostic criteria in the control group at pre-test. It is hoped that recent advances in the assessment of youth grief (e.g., Brown & Goodman, 2005) and ongoing longitudinal studies of child and adolescent grief (Melhem et al., 2008) will provide valuable information to inform future interventions studies. Another limitation of the current evaluation is that, although the sample is quite diverse on ethnicity and social class, sample sizes of any ethnic minority group and low SES families was too small to allow a test of program effects within those potentially high risk subgroups.

The findings also need to be viewed from the perspective of the underlying theory of the program. The theory of the FBP proposed that by promoting multiple resilience resources the program would help families adapt in a healthy way to the stressors and challenges they faced following parental death, leading to a reduction in multiple problem outcomes including problematic dimensions of grief and mental health problems and to an increase in positive functioning. The findings presented in this paper support the hypothesis that the FBP would reduce dimensions of problematic grief. Other papers will report on the effects of the FBP to reduce mental health problems (Sandler, Ayers, Tein, J. Y., Wolchik, Millsap, Khoo, et al., 2009). The next set of questions concerns identifying the mechanisms through which the program achieved its positive effects and examining the relations between the program effects on grief and mental health problems. In that light, it is interesting to note that the effects on grief occurred at post-test, whereas the program effects on mental health problems occurred at 11-month follow-up (Sandler et al., 2003). Mediational analysis that identifies which of the targeted resilience resources are responsible for the program effects on grief and mental health problems will provide guidance for intervention re-design and advance our theoretical understanding of processes that affect long-term grief responses and adaptive functioning in bereaved children.
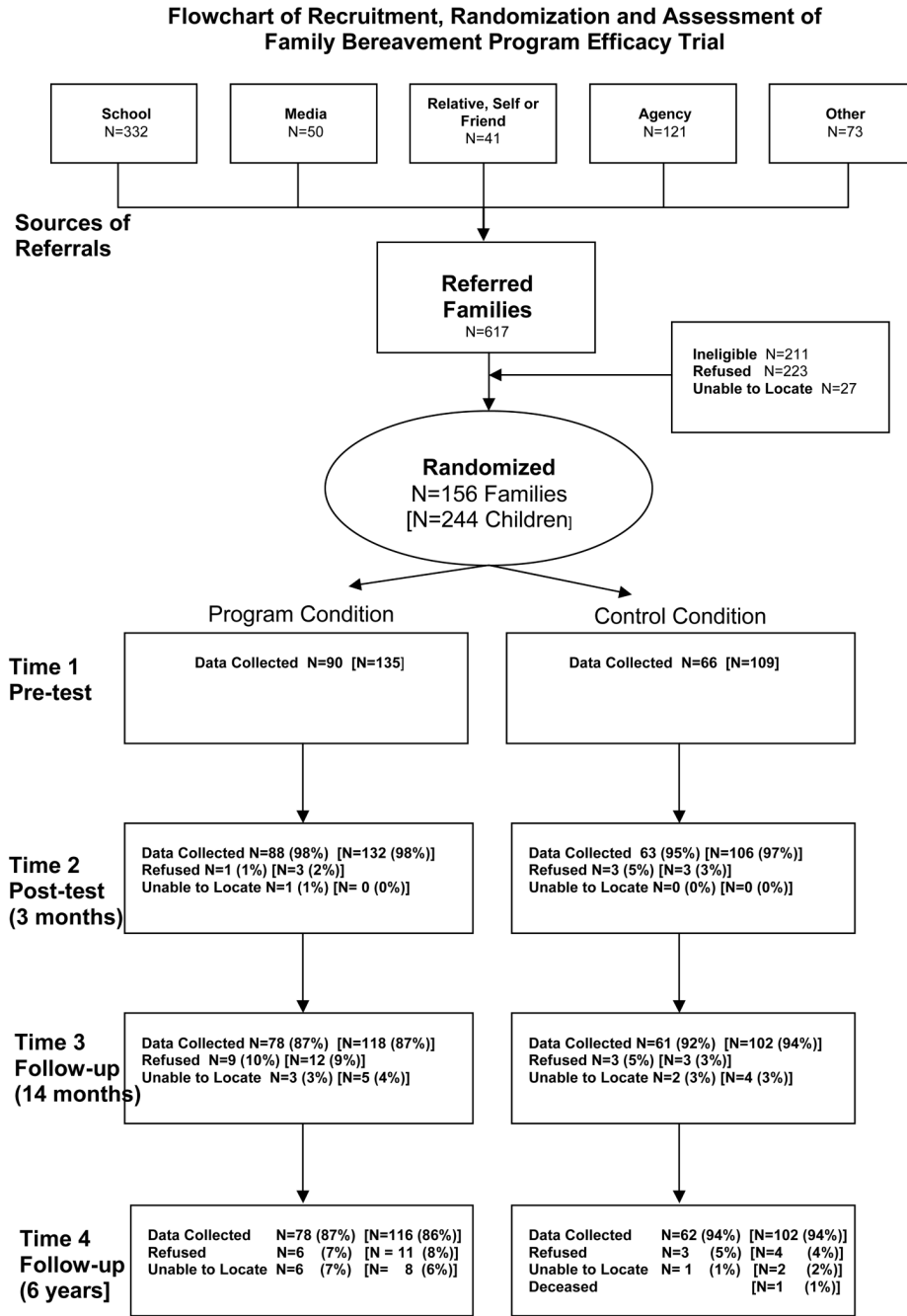
Acknowledgments

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Appendix 1

Flowchart of Recruitment, Randomization and Assessment of Family Bereavement Program Efficacy Trial

School N=332	Media N=50	Relative, Self or Friend N=41	Agency N=121	Other N=73

Sources of Referrals

Referred Families N=617

Ineligible N=211
Refused N=223
Unable to Locate N=27

Randomized N=156 Families [N=244 Children]

Program Condition

Control Condition

Time 1 Pre-test

Program: Data Collected N=90 [N=135]

Control: Data Collected N=66 [N=109]

Time 2 Post-test (3 months)

Program:
Data Collected N=88 (98%) [N=132 (98%)]
Refused N=1 (1%) [N=3 (2%)]
Unable to Locate N=1 (1%) [N= 0 (0%)]

Control:
Data Collected 63 (95%) [N=106 (97%)]
Refused N=3 (5%) [N=3 (3%)]
Unable to Locate N=0 (0%) [N=0 (0%)]

Time 3 Follow-up (14 months)

Program:
Data Collected N=78 (87%) [N=118 (87%)]
Refused N=9 (10%) [N=12 (9%)]
Unable to Locate N=3 (3%) [N=5 (4%)]

Control:
Data Collected N=61 (92%) [N=102 (94%)]
Refused N=3 (5%) [N=3 (3%)]
Unable to Locate N=2 (3%) [N=4 (3%)]

Time 4 Follow-up (6 years)

Program:
Data Collected N=78 (87%) [N=116 (86%)]
Refused N=6 (7%) [N = 11 (8%)]
Unable to Locate N=6 (7%) [N= 8 (6%)]

Control:
Data Collected N=62 (94%) [N=102 (94%)]
Refused N=3 (5%) [N=4 (4%)]
Unable to Locate N= 1 (1%) [N=2 (2%)]
Deceased [N=1 (1%)]

Flowchart of Recruitment, Randomization and Assessment of Family Bereavement Program Efficacy Trial
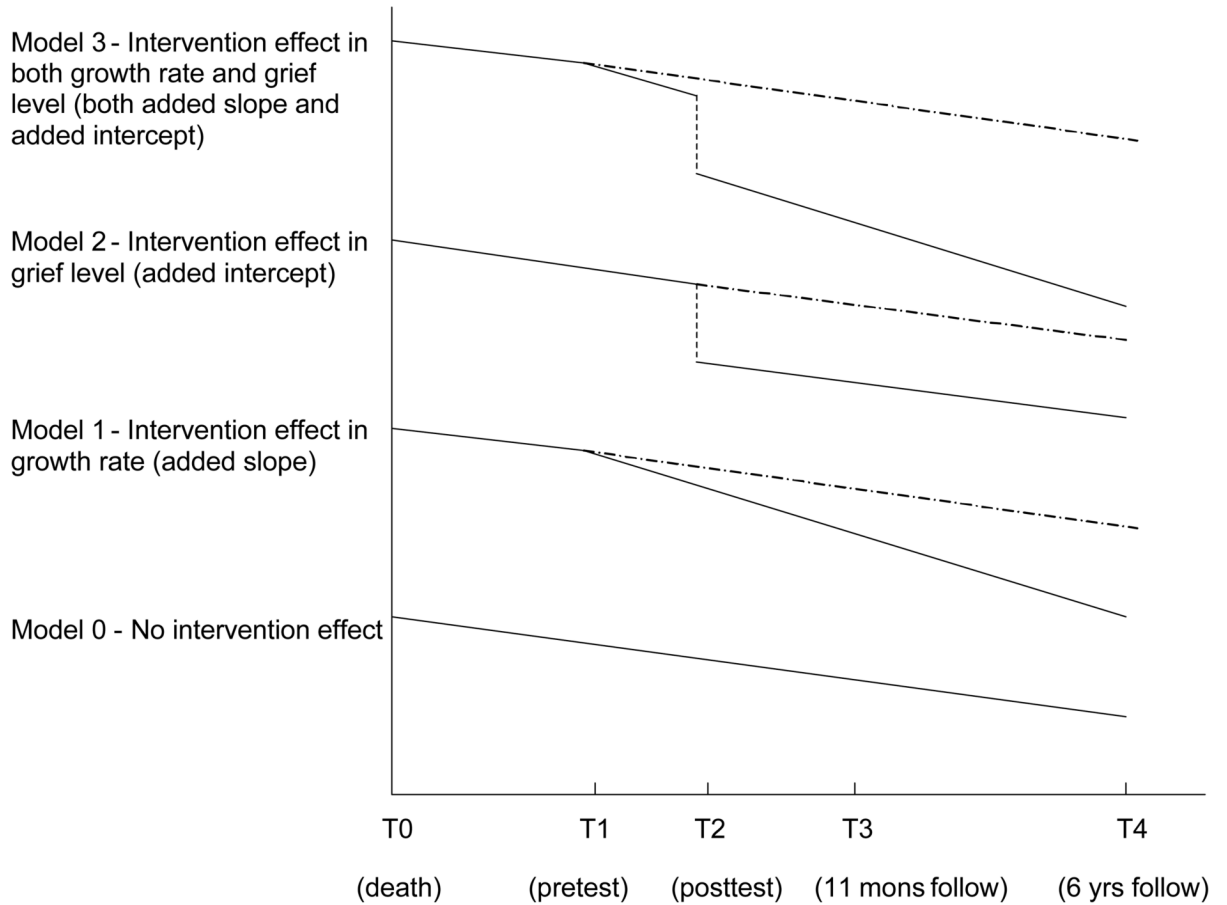
Figure 1. Hypothesized Growth Trajectories with Different Forms of Intervention Effects
Note: (1) The higher vertical position of a growth trajectory does not indicate a higher grief level. The purpose to put all the different trajectories in a single figure is to let people easily see the difference between the trajectories. (2) From the start of intervention effect, intervention group was represented using solid line, and control group was represented using dashed line.

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Table 1

Means (and standard deviations) of grief outcome variables at each time point

Outcome	Group	Pretest (T0)	Posttest (T1)	11 months follow-up (T3)	6 years follow-up (T4)
TRIG	Control group	3.29 (.86)	3.49 (.85)	3.31 (.94)	2.72 (.93)
	Control boys	3.07 (.86)	3.36 (.95)	3.21 (.91)	2.38 (.86)
	Control girls	3.53 (.80)	3.63 (.72)	3.40 (.97)	3.05 (.88)
	Intervention group	3.38 (.97)	3.53 (.89)	3.33 (.99)	2.68 (.96)
	Intervention boys	3.27 (.96)	3.48 (.89)	3.29 (.97)	2.49 (.92)
	Intervention girls	3.51 (.96)	3.59 (.90)	3.79 (1.03)	2.92 (.95)
IGTS	Control group	2.86 (.89)	2.77 (1.06)	2.64 (1.15)	1.93 (.83)
	Control boys	2.80 (.89)	2.71 (1.11)	2.58 (1.18)	1.78 (.72)
	Control girls	2.93 (.89)	2.83 (.99)	2.71 (1.14)	2.08 (.91)
	Intervention group	2.84 (1.02)	2.66 (1.05)	2.36 (1.02)	1.71 (0.66)
	Intervention boys	2.76 (.98)	2.67 (1.02)	2.34 (1.03)	1.62 (.54)
	Intervention girls	2.93 (1.06)	2.64 (1.09)	2.38 (1.03)	1.83 (.77)

Note: All scores reflect mean item level scores on the measure

Table 2

Means (and standard deviations) of General Grief and Three Specific Dimensions of Grief at Six-year Follow-up

Measure	Control	Intervention
Intrusive Grief Thoughts	.09 (.48)	−.08 (.40)
Social Detachment/ Insecurity	.02 (.32)	−.01 (.37)
Continuing Affective Reactions	.02 (.38)	−.02 (.39)
General Grief	.02 (.98)	−.01 (.94)

Table 3

Main Effects and Moderated Effects of the FBP on General Grief and Three SpecificDimensions of Grief at Six-year Follow-up

Measure	Group	T1 × Group	Gender × Group	Age × Group
Intrusive Grief Thoughts	.15 (.02, .29)			
	$t(122) = 2.26$			
	$d = .41$			
	$M_c = .09$ $M_P = -.07$			
Social Detachment/Insecurity		−.11 (−.21, −.01)	.20 (.39, .02)	.05 (.09, .01)
		$t(189) = -2.11^*$	$t(189) = 2.17^*$	$t(196) = 2.51^*$
		$d = .31$	$d = .32$	$d = .36$
			$M_c = .03^a; M_P = -.10^a$	
Continuing Affective Reactions	.04 (−.07, .15)			
	$t(198) = 0.73$			
General Grief	.05 (−.22, .32)			
	$t(106) = 0.32$			

[a]*Note*. For males.

[*] $p = .05$.

[**] $p = .01$. For each variable the numbers indicate unstandardized regression coefficient of the parameter, (95% confidence interval), t-statistics for the regression coefficient (degrees of freedom, *df;* based on Satterthwaite's approximation), and Cohen's *d*. For significant interactions with gender Cohen's *d* represents the effect size for the simple effect that had a significant contrast. For significant interactions with baseline status, Cohen's *d* represents the effect size at the point where the groups differed significantly and was calculated following Rosenthal (1994). Bold type indicates that the parameter estimate was significant after the Bonferroni correction.