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## The Effects of the Family Bereavement Program to Reduce Suicide Ideation and/or Attempts of Parentally Bereaved Children Six and Fifteen Years Later

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### Abstract

This paper presents findings concerning the long-term effects of the Family Bereavement Program (FBP) to reduce suicide ideation and/or attempts of parentally bereaved children and adolescents. Parental death is a significant risk factor for suicide among offspring (Guldin et al., 2015). The study is a long-term follow-up of 244 children and adolescents who had participated in a randomized trial of the FBP, examining the intervention effects on suicide ideation and/or attempts as assessed through multiple sources. Results indicated a significant effect of the FBP to reduce suicide ideation and/or attempts at the six- and fifteen- year follow-up evaluation. The findings support the potential benefits of further research on “upstream” suicide prevention.

### Keywords

Bereavement; Children; Suicidal Ideation; Suicide Attempts

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There is emerging interest in “upstream” approaches to the prevention of suicide in which interventions delivered in childhood or adolescence to prevent mental health or substance abuse problems have cascading effects to reduce suicide at later developmental periods (National Alliance for Suicide Prevention Research Prioritization Task Force, 2014; Wyman, 2014). The pathways through which these interventions may prevent suicide is hypothesized to be through reduction in suicide risk factors such as depression and anti-social behavior,

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<sup>1</sup>At the 15 year assessment, three suicide items (ideation, plans and attempts) from the Composite International Diagnostic Interview (CIDI; World Health Organization, 1990) were administered for the 32% of the youth (N = 59) who passed the screening questions . Because these items were only administered to less than a third of the sample the items were not included in the main analyses. Separate analyses for the sample who were asked suicidal items indicated that there was no significant difference between FBP and LS controls on the rates of ideation [ $\chi^2(1)=.02$ ,  $p = .90$ ]; plans [ $\chi^2(1)=.03$ ,  $p = .86$ ]; attempts [ $\chi^2(1)=1.48$ ,  $p = .22$ ]

and the strengthening of protective factors such as exposure to positive parenting, and the development of emotion regulation skills (Bridge, Goldstein & Brent, 2006).

There are two significant methodological challenges to detecting effects of upstream prevention programs on later suicidal behavior. First, detecting effects on suicidal behavior requires a long-term follow-up of participants in experimental trials of the prevention program to assess impact in adolescence or early adulthood (Bridge, Goldstein & Brent, 2006). Second, most prevention trials which target higher base rate outcomes such as depression or substance abuse are not adequately powered to detect effects on low base rate suicidal behavior and do not have adequate measures of suicidal behavior (Wyman, 2014). Despite these challenges several prevention programs that target child or contextual risk and protective factors have found long-term effects on suicidal behavior. Kerr, DeGarmo, Leve and Chamberlain (2014) found that a parenting focused intervention for girls in foster care reduced suicidal ideation (i.e. thoughts about suicide). The effects, which occurred over a nine year period following the intervention, were only for ideation and did not have impact on suicide attempts during that time. Wilcox et al. (2008) found that a classroom-based intervention, the Good Behavior Game, designed to increase children's adaptation to the demands of first grade, also reduced lifetime suicide ideation and attempts reported when the youth were age 19–21. A second cohort that received the same intervention as part of an implementation study had findings in the same direction (reduced ideation) but did not reach statistical significance (Wilcox et al., 2008). Hawkins, Kosterman, Catalano, Hill and Abbott (2005) found that a multi-component, multi-year program, the Seattle Social Development Program, designed to impact the classroom environment, children's social and emotional skills, and improve positive parenting, reduced suicide ideation nine years following the program, when the children were age 21.

The current study presents findings from the six- and fifteen-year follow-ups of a randomized trial of the Family Bereavement Program (FBP) to assess prevention of later suicide ideation and behavior. The FBP is a multi-component program for parentally-bereaved children and adolescents which targets risk (e.g., child depression, distressing grief, externalizing behaviors and parental depression) and protective factors (e.g., child coping, positive parenting) to prevent mental health problems in children and their parents. Emerging evidence indicates that loss of a parent during childhood is a risk factor for suicide, approximately doubling the odds of death by suicide over 25 years (Guldin et al., 2015). The FBP has been found to impact multiple risk (e.g., child depression, externalizing problems, distressing grief, parental depression) and protective factors (e.g., coping, positive parenting) for suicidal behavior (Sandler et al., 2003; Sandler, Ayers, Tein et al., 2010, Sandler, Ma et al., 2010). Therefore, it is plausible that a program that reduces known risk factors will reduce suicide ideation and/or attempts in this at risk population.

## METHODS

### Participants and Recruitment

Participants were 244 children and adolescents from 156 families. Participating children had experienced the death of a parent between 3 and 30 months prior to beginning the program and were between the ages of 8 and 16. Participants were recruited from community

agencies that had contact with bereaved children (e.g., schools) and media presentations. Full details on eligibility criteria are provided elsewhere (Sandler et al., 2003), but it is important to note that families were excluded from the program and referred for treatment if the youth or caregiver endorsed suicide ideation that included an intent or plan during the pre-test prior to beginning the program. The sample was 67% non-Hispanic Caucasian, 16% Hispanic, 7% African American, 10% other ethnicities. At the pretest assessment, mean age of the youth was 11.39 years (range: 8–16,  $SD = 2.43$ ). Median family income was in the range of \$30,001 to \$35,000. The sample consisted of 63% mother- and 21% father-headed households. Sixteen percent of households were headed by an adult caregiver who was not a parent. Parental death occurred an average of 10.81 ( $SD = 6.35$ ) months prior to the program and the cause of death was illness (67%), accident (20%), and homicide or suicide (13%).

After recruitment and assessment for eligibility, families completed the pre-test battery. Families were randomly assigned to receive either the FBP (135 youth from 90 families) or a self-study comparison program (109 youth from 66 families). The FBP consisted of 12 group sessions for caregivers, children and adolescents, which were conducted concurrently, plus two individual sessions. The program, fully described elsewhere (Ayers et al., 2014; Sandler et al., 2013), taught positive parenting and effective coping skills. The literature control (LC) program consisted of three books about adaptation to grief and a study guide for parents, children and adolescents.

There were 4 assessments completed primarily in home by interviewers blinded to condition: pretest, posttest, 11 months, 6 years, and 15 years after the posttest. Youth and caregiver reports were collected at all assessments. At the 15-year follow-up, data on the young adults' behavior problems and substance use were also collected from a key informant (nominated by the young adult). Data for this analysis were collected 6 years and 15 years after the posttest. Data were collected from at least one informant for 218 (89%) and 209 (86%) adolescents or young adults at the 6- and 15-year follow-up, respectively. There was no differential attrition between the FBP and the self-study condition at either the six or fifteen year follow-up.

## Measures

### Suicide Ideation and Attempts.

At the 6-year follow-up, youth suicide ideation and attempts were assessed by caregiver report on items “Deliberately harms self or attempts suicide” and “Talks about killing self” from the Child Behavior Check List (for youth 18 years old or younger) or Young Adult Behavior Check List (for youth over 18 years of age) and youth report on the items “I deliberately try to hurt or kill myself” or “Talks about killing self”/“I think about killing myself” from the Youth Self Report (for youth 18 years old or younger) or Young Adult Self Report (YASR; for youth over 18 years of age) (see Achenbach & Rescorla, 2001). Youth and caregiver reports of “Thoughts of death, suicide ideation, suicide attempt or plan” from the youth and caregiver versions of the Diagnostic Interview Schedule for Children (DISC; Shaffer, Fisher, & Lucas, 2003) were used. At the 15-year follow-up, youth report of the two items from the YASR as described above and key informant items of “Deliberately harms self or attempts suicide” and “Talks about killing self” from the YABCL were used. The

time frame for each of these measures was in the past month except for the key informant report which was in the last 6 months. We considered both suicide ideation and/or attempts as important outcomes. They were considered present if endorsed by either the youth/young adult, caregiver or key informant. Separate suicidal ideation and/or attempts scores were created at the 6-year follow-up, 15-year follow-ups, and across the 6- and 15-year follow-up.

### Baseline Covariates.

Baseline youth grief and internalizing problems were used as the covariates because both have been found to be associated with suicide ideation (Bridge et al., 2006; Prigerson et al., 1999). The nine-item Intrusive Grief Thoughts Scale (Sandler, Ma et al., 2010;  $\alpha = .88$ ) was used to assess the frequency of intrusive, negative, or disruptive grief-related thoughts. Youth internalizing problems were assessed with the composite scores of the 1991 version of CBCL (Achenbach, 1991;  $\alpha = .87$ ), Children's Depression Inventory (Kovacs, 1992;  $\alpha = .87$ ), and Revised Children's Manifest Anxiety Scale (Reynolds & Richmond, 1978;  $\alpha = .90$ ).

## RESULTS

Logistic regression analyses, using Mplus 7.3 (Muthén & Muthén, 1998–2012), were conducted to compare the rates of suicide ideation and/or attempts between the FBP and the LC conditions at the 6-year follow-up and at the 15-year follow-up, separately and in combination (i.e., having suicide thoughts and/or attempts at either assessment point). Baseline intrusive thoughts and internalizing problems were included as covariates. All analyses were based on the intent-to-treat approach, using full-information maximum likelihood estimation to address missing data (Arbuckle, 1996).

Table 1 shows the number of youth who had suicide ideation and/or attempts at the 6-year follow-up, 15-year follow-up, and at either the 6-year or 15-year follow-up. The intervention effects were marginally significant at six years ( $t = -1.94, p = .053$ ), significant at 15 years ( $t = -2.039, p = .041$ ), and significant for the combined 6-year and 15-year follow-up ( $t = -2.344, p = .019$ )]<sup>1</sup>

## Discussion

This is the first demonstration from a randomized trial that a preventive intervention not originally designed to prevent suicide reduces suicidal ideation and/or attempts in parentally bereaved children, a group that has approximately double the risk of suicide death as the general population (Guldin et al., 2015). The findings are discussed in terms of their implications for suicide prevention and directions for research on upstream prevention of suicide. Consistent with the recommendations from the National Alliance for Suicide Prevention Research Prioritization Task Force (2014) these findings add to prior studies (Hawkins et al., 2005; Kerr et al., 2014; Wilcox et al., 2008) that link research on a preventive intervention for mental health problems with suicide prevention research.

As the current study was not specifically designed to prevent suicide, the measures of suicide ideation and attempts needed to be gathered from available items that measured a broad array of symptoms of mental health problems. Wyman (2014) noted that this is a

common problem for research on upstream prevention of suicide, but that long-term follow-up of prevention trials targeting risk and protective factors for suicide provide a rare opportunity to test their effects on suicidal ideation and/or attempts. The current findings, demonstrating substantial effects on suicidal ideation and/or attempts (OR = 2.63) and 15 years (OR = 5.94) after program completion and at either of the two follow-ups (OR = 2.92), provide encouraging evidence for the potential for other long-term follow-up studies of prevention trials in childhood that did not specifically target suicide to show effects on suicidal ideation and/or attempts years later. In addition to the number of beneficial outcomes of the FBP (Sandler, et al., 2003; Sandler, Ayers et al., 2010; Sandler, Ma et al., 2010), the favorable 'number needed to treat' (10 to 15) to obtain reductions in suicide morbidity enhances the public health value of the program. For every 100 parentally bereaved children receiving the FBP, up to 10 youth will be prevented from experiencing suicide ideation and/or attempts over the following 15 years.

An important limitation of this analysis is that the measures of suicidal behavior included both ideation and attempts. Although ideation and attempts differ in terms of their prediction of suicide death (Joiner, 2002, Joiner, Rudd & Ra-Jab, 1997), both are important indicators of suicide risk. Suicide ideation has been found to be a significant predictor of future suicide attempts in the following year controlling for levels of depression and demographic variables (Lewinsohn, Rohde and Seeley, 1994). Suicide attempts are often part of the trajectory to suicide mortality (Joiner, 2002, Joiner, Brown & Wingate, 2005). Because the current study only assessed suicide ideation and attempts in the past month or six months, it does not allow an assessment of program effects on the more serious levels of suicidal behavior such as plans, and the duration or intensity of the ideation that may have occurred in the fifteen years following the program.

Suicide death is the result of a process that occurs over time and involves the confluence of multiple biological, individual and social factors. The FBP has been shown to impact multiple risk factors for suicide at the individual level (e.g., direct effects on antisocial behavior and depression, indirect effects on substance use; Sandler et al., 2003; Sandler, Ayers et al., 2010; Sandler, Ingram, Wolchik, S., Tein, & Winslow, 2015), biological level (i.e., HPA axis dysregulation, Luecken, Hagan, Sandler, Tein, Ayers & Wolchik, 2010), and environmental level (e.g., direct effect to improve positive parenting, Sandler et al., 2003). Each of these is a plausible pathway by which the FBP may have impacted suicidal ideation and/or attempts at more distal time periods. Although an exploration of these potential mediation pathways is beyond the scope of this report, future research on pathways to suicide ideation and/or attempts in follow-up evaluations of randomized trials of prevention programs in childhood may provide important theoretical insights into the developmental processes leading to suicide.

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**Table 1.**

Logistic Regression of the effects of the Family Bereavement Program on suicidal ideation and/or attempts at six- and fifteen-year follow-up

Time Point	Control		FBP		Program Effect		Odds Ratio		t-Statistics		NNT
	n/N	%	n/N	%	B (SE <sub>B</sub> )	95% CI	OR	95% CI	t value	P value	
6-year follow-up	14/99	14.14%	7/109	6.42%	.968 (.500)	(-.011, 1.947)	2.633	(.989, 7.011)	1.938	.053	12.95
15-year follow-up	7/81	8.64%	2/103	1.94%	1.782 (.87)	(.069, 3.494)	5.941	(1.072, 32.925)	2.039	.041	14.92
6-year or 15-year follow-up	17/101	16.83%	9/123	7.32%	1.074 (.458)	(-.176, 1.972)	2.927	(1.192, 7.186)	2.344	.019	10.51

Note: n/N, actual number of youth who had suicidal thoughts or attempt/actual total number of youth for the condition. NNT, number needed to treat to prevent one instance of suicidal behavior