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Effects of the Family Bereavement Program on Academic Outcomes, Educational Expectations and Job Aspirations 6 Years Later: The Mediating Role of Parenting and Youth Mental Health Problems

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Abstract

Experiencing the death of a parent during childhood is associated with a variety of difficulties, including lower academic achievement, that have implications for functioning in childhood and adulthood. This study examines effects of the Family Bereavement Program (FBP), a preventive intervention for parentally-bereaved youth and their caregivers, on grade point averages (GPA), educational expectations and job aspirations of youths 6 years after the intervention. A total of 244 bereaved youths ages 8-16 and their caregivers were randomized to either the FBP or a comparison group that received books about bereavement. Assessments occurred at pretest, post-test, and 11-month and 6-year follow-ups. Direct program effects on educational outcomes and job aspirations 6 years later were non-significant, although the program improved educational expectations for children with fewer behavior problems at program entry, and GPA for younger children. Mediation pathways for program effects on educational outcomes were also tested. Program-induced improvements in effective parenting at 11-month follow-up were associated with higher GPAs at 6-year follow-up for youth who were younger or for whom more time had passed since the loss. Program-induced improvements in parenting and teacher-rated youth mental health problems at the 6-year follow-up mediated program effects on youths' educational expectations for those with fewer behavior problems at program entry. The implications of these findings for understanding processes related to academic and educational outcomes following the death of a parent and for prevention efforts to help bereaved and other high-risk children succeed in school are discussed.

Keywords

Bereavement; educational outcomes; parenting; mental health; mediation analysis

Nearly 4% of American children experience a parent's death by age 18 (Social Security Administration, 2000). Parentally-bereaved children are at increased risk for mental health

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problems, including depression, anxiety, and behavior problems (Lutzke, Ayers, Sandler, & Barr, 1997; Melhem, Moritz, Walker, Shear, & Brent, 2007). Less is known about the impact of a parent's death on academic and job-related outcomes. Academic success is an important competency of childhood and adolescence and is associated with resilience from adversity (Masten et al., 2005; Roisman, Masten, Coatsworth, & Tellegen, 2004). Childhood academic functioning is related to long-term mental health (e.g., Masten et al., 2005), although additional risks may partially explain the relation. In addition, positive expectations for one's academic achievement are associated with adult educational attainment (Beal & Crockett, 2010) and vocational success (Harackiewicz, Barron, Tauer, & Elliot, 2002). Given long-term associations of childhood academic performance with adaptive functioning, it is important to identify prevention strategies to promote academic functioning in youth at high risk for such difficulties.

Several studies have examined academic functioning for American youth who experienced parental death. Brent, Melhem, Masten, Porta and Payne (2012) found that youth who experienced the sudden death of a parent (i.e., accident, suicide) had lower educational expectations and career goals 5 years later compared to non-bereaved peers. High school students who experienced a parent or sibling's death received lower achievement test scores compared to non-bereaved students (Abdelnoor & Hollins, 2004). Similarly, inner-city children exposed to a parent's homicide had lower standardized reading scores than peers who had not experienced such an event (Duplechain, Reigner & Packard, 2008). Although several studies have found that preventive interventions improved educational success and career expectations for youths who experienced other family disruptions, such as divorce (Forgatch & DeGarmo, 1999; Sigal, Wolchik, Tein, & Sandler, 2012), no studies have examined whether programs for bereaved youths lead to similar improvements.

Theoretically, a preventive intervention may affect the development of academic success and career expectations through a cascade of changes in family context or child behaviors. In a 6-year longitudinal study of youth who experienced a parent's sudden death, Brent and colleagues (2012) found that post-loss family climate changes were related to subsequent difficulties in youths' academic and occupational functioning. Research on another major family disruption, parental divorce, provides a model for how evaluations of preventive interventions can test program effects on educational and occupational outcomes and enhance our understanding of pathways to these outcomes (Forgatch & DeGarmo, 1999; Sigal, et al., 2012). For example, Sigal and colleagues (2012) found that a prevention program for divorcing parents (Wolchik et al., 2000) with similar content to the bereavement program examined in the current study improved youth educational expectations and job aspirations 6 years after the program for youth who were at high risk for developing later problems at program entry. Intervention-induced changes in mother-child relationship quality as well as youths' externalizing problems, self-esteem, and academic competence at 6-year follow-up mediated program effects on educational expectations. Further, reduced externalizing problems and improved academic competence at 6-year follow-up mediated program effects on job aspirations (Sigal et al., 2012).

The current study examined the effects of the Family Bereavement Program (FBP), a prevention program for parentally-bereaved families, on youth grade point average (GPA),

educational expectations, and job aspirations 6 years later. The study also tested moderators of program effects to provide further information about which families benefit from the program. As noted above, long-term follow-up evaluations of preventive interventions can also provide an opportunity to learn about pathways leading to developmental outcomes. This study investigated whether program-induced changes on family contextual variables (i.e., parenting) or child-level variables (i.e., mental health) mediated program effects on educational and vocational outcomes.

The FBP

The FBP is a 12-session group intervention that includes caregiver and youth group components that target risk and protective factors. The caregiver component targets positive caregiver-child relationships, effective discipline, caregiver mental health problems and children's exposure to stressful events. The youth component targets positive caregiver-youth relationships and positive coping, self-esteem, negative appraisals of stressful events, adaptive control beliefs and adaptive emotional expression (see Sandler, Wolchik, Ayers, Tein, & Luecken, 2013, for the basis for selecting these risk and protective factors and description of the program activities). The FBP was evaluated using an experimental trial in which families were randomly assigned to the FBP or a literature control (LC) group. At 11-month follow-up, intent-to-treat analyses showed that compared to LC families, families assigned to the FBP had improved parenting for caregivers with more parenting problems at pretest, as well as decreased caregiver-reported internalizing problems for youths with higher internalizing problems at program entry. At the 6-year follow-up, relative to those in the LC, youths in the FBP had lower externalizing and internalizing problems (Sandler et al., 2010a) and their caregivers had improved parenting (Hagan, Tein, Sandler, Wolchik, Ayers, & Luecken, 2012). In regard to academic outcomes, a significant age by program interaction effect was previously found on GPA at 6-year follow-up (Sandler et al., 2010a). However, after the false discovery rate was employed to adjust for the multiple tests (a total of 15 outcomes), this effect was no longer significant. FBP effects on educational expectations or job aspirations have not been examined, nor have mediational pathways to these outcomes or GPA been tested.

Putative Moderators and Mediators of FBP Effects on Academic and Occupational Outcomes

Although moderators of the effects of the FBP on educational expectations and job aspirations have not been studied, prior research identified child gender and baseline risk as significant moderators of FBP effects on mental health outcomes (Sandler et al., 2003; 2010a). FBP was found to improve self-reported externalizing and internalizing symptoms for girls but not boys at 11-month follow-up (Sandler et al., 2003; Schmiedege, Khoo, Sandler, Ayers, & Wolchik, 2006). Additionally, FBP-induced improvement in mental health outcomes occurred at 11-month follow-up for those at higher initial risk, but more improvement was found for those at lower initial risk at the 6-year follow-up (Sandler et al., 2003; Sandler et al., 2010a). Sigal and colleagues (2012) also found that initial level of risk moderated program effects on academic and vocational outcomes for divorced families. Thus, we examined the effects of gender and baseline risk as moderators of the effects of the

FBP on educational expectations, GPA, and job aspirations. In an exploratory vein, we tested child age and time since parent's death as moderators of FBP effects to provide information about optimal timing of the intervention. Children's academic trajectories may be less firm than adolescents', and thus more amenable to intervention. Children are also likely to spend more time with parents, who are more involved in supporting their school functioning; thus, the influence of a parenting-focused intervention such as the FBP on academic functioning is likely to vary at different ages. Time since death also ranged considerably for our sample, and testing this moderator provides information on when families are most prepared to benefit from intervention following the loss.

The FBP did not specifically target academic outcomes nor contain content related to school. However, theoretically, participation in the FBP might set in motion a cascading effect in which the proximal child- and family-level factors it impacted would in turn impact academic and vocational outcomes. Family- and youth-level factors changed by the FBP that could lead to improvements in educational and occupational outcomes include improved parenting, reduced youth internalizing and externalizing problems, and improved academic competence. Research with non-bereaved populations has found that quality of parenting is related to adolescents' educational and occupational goals, aspirations, and engagement (Bryant, Zvonkovic, & Reynolds, 2006; Jodl, Michael, Malanchuk, Eccles, & Sameroff, 2001; Sigal et al., 2012). Mental health problems in childhood have also been consistently linked to academic functioning in adolescence (e.g., Masten et al., 2005). The FBP's effect on academic competence at the 11-month follow-up has not been investigated, but given that the FBP led to improvements in teacher reports of child behavior problems in school, it is plausible to expect that FBP also improved other measures of school functioning at that time point. Research with non-bereaved populations has found that academic self-perceptions predict later academic achievement and occupational goals (Ahmavaara & Houston, 2007; Emmanuelle, 2009; Juang & Silbereisen, 2002). The study expands on previous research in several important ways. It is the first study to investigate the long-term effects of a prevention program for parentally-bereaved youths on educational expectations and job aspirations. It is also the first study to examine plausible mediating pathways that account for program effects on academic and vocational outcomes.

Method

Participants

Participants were youths and their caregivers who participated in the randomized experimental trial of the FBP. A full description of recruitment and eligibility criteria has been presented elsewhere (Sandler et al., 2003) and will only be briefly described here. Participants were recruited in an urban metropolitan area in the Southwestern U.S. using media and agency presentations and mail solicitation. Eligibility criteria included: a) death of a biological parent or parent figure 4 to 30 months before the intervention, b) at least one youth in the family between 8 and 16 years old, and c) family members not currently receiving other mental health or bereavement services. All children in ages 8-16 were invited to participate. Caregivers with a diagnosis of major depression were excluded and referred to more intensive services.

One hundred and fifty-six families with 244 children ages 8-16 ($M = 11.4$, $SD=2.4$) were randomized using a computer program (see Sandler et al., 2003) to either the FBP (90 families; 135 children) or LC condition (66 families; 109 youths). Families were assigned to the FBP or LC condition using a 50:50 ratio or, for smaller cohorts, a 60:40 ratio (to ensure that intervention groups had adequate size to be clinically viable).

Of the caregivers, 63% were mothers, 21% were fathers, and 16% were other relatives (aunt, grandparent, etc.). Families had on average 1.6 children participating in the program and 50% were boys. Parental death occurred between 2 and 28 months (mean=10.8 months, $SD = 6.4$) prior to initial data collection. Youth ethnicity was non-Hispanic Caucasian (67%), Hispanic (16%), African American (7%), Native American (3%), Asian or Pacific Islander (1%), and Other (6%). Cause of parental death was illness (67%), accident (20%), and homicide/suicide (13%). At pretest, median family income ranged from \$30,001 to \$35,000 annually; mean caregiver age was 41.2 ($SD=8.6$) and 62% were female. The median level of education attained for both caregivers and deceased parents was some college or an associate's degree.

Study Procedure

The FBP consisted of 12 separate two-hour group sessions for caregivers, children and adolescents; conjoint exercises involving caregivers and youths were included in four sessions. Session attendance averaged 86% for caregivers and 88% for youth, and was unrelated to treatment group and not significantly correlated with any mediator or outcome variables of the current study (see Schoenfelder, et al., 2013 for findings on FBP attendance). LC condition families received three books and related outlines about youths' post-bereavement adjustment at 1-month intervals. On average, 42% of caregivers, 38% of adolescents and 71% of children reported reading at least half of the books. Program condition was coded as 0=LC and 1=FBP.

Data were collected prior to randomization (pretest) and 3 months (posttest), 14 months (11-month follow-up), and 6 years after pretest (6-year follow-up). A total of 89% of families randomized to condition (140 families, 218 youths) participated in the 6-year follow-up. Attrition did not differ by condition or by any baseline variable or covariate (Sandler et al., 2010a).

Youths and caregivers were interviewed individually by trained interviewers. Adults signed informed consents and minors signed assent forms. At pretest, post-test, and 11-month follow-up, caregivers received \$40 compensation for interviews concerning one child and \$30 for each additional child. Caregivers and youth each received \$175 compensation for 6-year follow-up interviews and caregivers received \$100 for each additional offspring interview. One teacher per youth completed youth mental health questionnaires by mail at pretest and 11-month follow-up, and were reimbursed \$5 for each. The youth's homeroom teacher was selected as long as the teacher also taught the child an academic subject; otherwise, a primary academic subject teacher (English, social studies, or math/science in that order) completed it. Two teachers completed questionnaires for each youth at 6-year follow-up and scores were averaged. Teacher data were obtained for 100% of youths at

baseline and 11-month follow-up and 95% of youths who participated in the 6-year follow-up and were still enrolled in school.

Measures

Outcome Variables—The three outcome variables assessed at 6-year follow-up. These variables were found to be related to adult academic attainment in another data set following children who experienced parental divorce for 15 years into adulthood (see Wolchik et al., 2000).

Educational expectations: Educational expectations were assessed by asking the highest level of education the youth expected to attain [1 = high school, 5 = post-college graduate or professional school; Future Expectations Scale (Linver, Barber, & Eccles, 1997)]. Predictive validity was supported by positive correlations with self-esteem ($r = .29, p < .01$) and academic competence ($r = .20, p < .01$) in this sample.

Job aspirations: Job aspirations were assessed by asking youths to select which of 28 occupations they would hold when they were age 30 if they could have any job they wanted (Possible Jobs Scale; Tucker, Barber, & Eccles, 1997). Each occupation's "prestige" was scored by two independent raters based on the SES and educational backgrounds of individuals holding the jobs on a 1-12 scale; higher scores reflected more prestigious jobs. Inter-rated reliability was 96.5%. In this sample, job aspirations were correlated negatively with externalizing problems ($r = -.21, p < .01$) and positively with academic competence ($r = .25, p < .01$).

Grade point average: An average GPA of youths' core subject class grades (math, science, English, social studies/history) was created from school transcripts corresponding to the year-long period preceding the 6-year follow-up. Transcripts were collected for 80% of the 142 youth in middle or high school within one year of the follow-up. Youth without GPA data had marginally higher teacher-reported externalizing problems scores at baseline than youth with GPA data [$t(140) = 3.87, p = .0511$; $M_{\text{noGPA}} = .25, M_{\text{withGPA}} = -.08$].

Moderators and Covariates—At pretest, caregivers provided information about three of four moderators: youths' age, gender (0=male, 1=female), and number of months since the death. The fourth moderator was the "baseline behavior problems" variable described below. Caregivers also reported on other covariates, including income and their own and the deceased parent's educational attainment.

Mediators

Effective Parenting: A composite variable of caregiver- and child-report measures of two aspects of parenting, warmth and discipline, was used. This composite included parallel caregiver and child-reports of the Acceptance (at pretest and 11-month follow-up, youth $\alpha = .92$ and $.94$; caregiver $\alpha = .91$ and $.92$) and Rejection (at pretest and 11-months, youth $\alpha = .85$ and $.86$; caregiver $\alpha = .87$ and $.86$) subscales from the Child Report of Parental Behavior Inventory (CRPBI; Schaefer, 1965) and an adaptation of the Dyadic Routines subscale from the Family Routines Inventory (Jensen, James, Boyce, & Hartnett, 1983; at pretest and 11-

months, youth $\alpha = .74$ and $.76$; caregiver $\alpha = .76$ and $.77$). It also included the Sharing of Feelings Scale, which measures children's perceptions of their caregiver's understanding and empathy for the child's feelings (e.g., "Your caregiver knows just how to comfort you share your sad feelings") (Ayers, Sandler, Twohey, & Haine, 1998; at pretest and 11-months, $\alpha = .85$ and $.89$). Effective discipline was measured by caregiver and youth report of the caregiver's reinforcement of desirable child behavior using an adaptation of the Parent Perception Inventory (Hazzard, Christensen, & Margolin, 1983; at pretest and 11-month follow-up, youth $\alpha = .91$ and $.90$; caregiver $\alpha = .92$ and $.89$) and caregiver and youth report of the caregiver's inconsistent discipline using the Inconsistency of Discipline subscale of the CRPBI (Schaefer, 1965; at pretest and 11-month follow-up, youth $\alpha = .85$ and $.83$; caregiver $\alpha = .86$ and $.89$). The construct of effective parenting comprised of these five caregiver and six child-report measures has previously been investigated using confirmatory factor analysis (for details see Hagan, et al., 2012), and the model was found to have satisfactory fit (at pretest: $X^2(19, N=139)=28.07, p=.08, CFI=.98, RMSEA=.06, SRMR=.04$) and good internal consistency (at pretest, 11-month and 6-year follow-ups, $\alpha = .87, .85$, and $.85$). Composite scores of parenting were created by taking the mean of the standardized scores of the measures; the pretest mean and standard deviation were used to create the standardized scores to put the measures in the same metric across assessments. Similar composites of these measures were found to predict lower levels of youths' problem outcomes in this sample (e.g., Kwok et al., 2005), and the FBP was shown to improve this measure of parenting 11 months and 6-years later (Sandler et al., 2003; Sandler et al., 2010a; Tein et al., 2006). Discipline measures were not obtained from young adults living outside the home at 6-year follow-up; only the warmth composite was available for these participants.

Youth and Caregiver-Reported Internalizing Problems and Externalizing Problems. At pretest and 11-month follow-up, youth-reported internalizing problems were assessed with the Child Depression Inventory (CDI, Kovacs, 1981) and Revised Children's Manifest Anxiety Scale (R-CMAS, Reynolds & Richmond, 1978) (weighted composite $\alpha = .91$ and $.93$ at pretest and 11-months); externalizing problems were assessed with the Youth Self Report (YSR, Achenbach, 1991b; $\alpha = .86$ and $.93$ for externalizing problems subscale at pretest and 11 months). Caregivers completed the Child Behavior Checklist (CBCL, Achenbach, 1991a) ($\alpha = .97$ and $.89$ for internalizing problems subscale and $\alpha = .90$ and $.91$ for externalizing problems subscale at pretest and 11-months, respectively). At the 6-year follow-up, caregivers completed the CBCL for youth under age 18 (CBCL: Achenbach & Rescorla, 2001) and the Young Adult Behavior Checklist (YABCL: Achenbach, 1997) for youth ages 18 and over. At the 6-year follow-up, youth under age 18 completed the YSR (Achenbach & Rescorla, 2001) and youth 18 and older completed the Young Adult Self Report (YASR: Achenbach, 1997); the internalizing and externalizing subscales were used. An equating transformation has previously been applied to these non-identical measures using item response theory to select conceptually-equivalent items and place them on a common metric (Sandler et al., 2010a). For internalizing problems subscales, the α 's at 6-year follow-up were: CBCL, 23 items, $\alpha = .86$; YABCL, 19 items, $\alpha = .90$; YSR, 22 items, $\alpha = .90$; YASR, 22 items, $\alpha = .88$. For externalizing problems subscales, the α 's at 6-years were

as follows: CBCL, 35 items, $\alpha = .92$; YABCL, 34 items, $\alpha = .93$; YSR, 32 items, $\alpha = .88$; YASR, 27 items, $\alpha = .87$. Raw scores were used for all measures.

A confirmatory factor analysis (CFA) of the caregiver and youth report measures of internalizing problems and externalizing problems was conducted. The fits of the two-factor model (an internalizing and externalizing factor) were adequate at pretest ($X^2(3) = 6.375$, $p = .10$; RMSEA = .07; SRMR = .02), 11-month ($X^2(3) = 2.646$, $p = .88$; RMSEA = 0.0; SRMR = .02), and 6-year follow-up ($X^2(1) = 2.593$, $p = .11$; RMSEA = .09; SRMR = .03). Some of the residual variances of variables by the same reporter were correlated to account for method variance. Caregiver and youth reports were standardized based on the mean and standard deviation at baseline and averaged into single variables of caregiver/youth-reported internalizing problems and caregiver/youth-reported externalizing problems.

None of the dependent variables in the current study were assessed at pretest. Thus, consistent with previous studies using this data set (e.g., Sandler et al., 2010a), we controlled for a “baseline behavior problems” variable, which was the mean of standardized internalizing problems and externalizing problems subscales by both youth and caregiver reports.

Teacher-Reported Internalizing and Externalizing Problems: Teachers completed the Teacher Report Form (TRF: Achenbach, 1991c) for youth at pretest and 11-month follow-up, and youth in middle or high school at 6-year follow-up (2001 TRF: Achenbach, & Rescorla, 2001). Internalizing and externalizing subscales had α of .82, .92 at pretest, .90 and .95 at 11-month follow-up, and .90 and .90 at 6-year follow-up, respectively.

Academic Competence: Academic competence was assessed for all youth at pretest and 11-month follow-up and for school-aged youth or those in college at 6-year follow-up. At 6-year follow-up, data were obtained for 154 of 180 youths in school or college. Youths completed the 6-item academic competence subscale of the Coatsworth Competence Scale (Coatsworth & Sandler, 1993; “I have problems learning new subjects in school”). Scores are significantly related to other measures of academic competence and mental health problems (Coatsworth & Sandler, 1993). Alpha was .90, .85, and .87 at pretest, 11-months, and 6-years.

Analytic Strategy—Intent-to-treat analyses were conducted using all 244 youths who participated in the study. Only a subset of the sample was eligible for inclusion in analyses with academic competence at the 6-year-follow-up ($n = 180$; youth who were enrolled in middle school, high school or college) and GPA ($n = 142$ youths who were enrolled in middle or high school; 3.2% were reported to have dropped out). Analyses were conducted with structural equation modeling (SEM) in MPlus software (Version 7.0; Muthen & Muthen, 1998-2012). We used the TYPE = COMPLEX command and Yuan-Bentler robust standard errors (i.e., ESTIMATOR = MLR) to account for the multiple children nested in families and for nonnormality (Muthen & Muthen, 1998-2012). Full Information maximum likelihood (FIML) estimation was used to account for missing data (see Table 1 for n of each variable). FIML estimates are less biased than conventional methods for handling missing data, such

as listwise deletion or mean substitution (Collins, Schafer, & Kam, 2001; Schafer & Graham, 2002).

First, we identified covariates for each outcome variable using multiple regression. Each potential covariate (child's age, gender, months since the death, caregiver's level of education, deceased parent's education, family income) was entered into a separate regression model predicting one of the three outcome variables. Significant covariates were included in all further analyses for each outcome. Second, we tested program main effects and moderated effects on the three outcomes in separate regression models. We tested four moderators: 1) pretest behavior problems; 2) youth's gender; 3) youth's age, and 4) time since death. Continuous moderators were centered around the mean to facilitate interpretation of interaction effects. For significant interactions, the simple effect (e.g., program effect at different ages or at one standard deviation above (+1SD) and below (-1SD) the mean) were examined, following the procedure outlined by Aiken and West (1991). We examined the program effect at +2SD or -2SD if the group difference was not significant at +1SD or -1SD.

Third, we tested mediation of the effects on outcomes for which there was either a significant or marginally-significant main or moderated effect of the FBP. We tested mediation even for models with a marginally-significant effect because of the limited sample size and because a moderator that is marginally-significant for the main effect may still significantly moderate the mediational pathway (Muller, Judd, & Yzerbyt, 2005). Mediation was tested by examining the joint effect of the independent variable in predicting the mediator variable and the effect of the mediator variable in predicting the outcome variable after controlling for the independent variable (MacKinnon, 2008). It is optimal to use a three-wave design to test mediation, such that the intervention precedes the mediator and mediator precedes the outcome (Cole & Maxwell, 2003). However, because it is possible to miss detecting mediation effects if the time lag for the effect between the variables does not coincide with the assessment periods, we also tested a two-wave design in which mediator and the outcome were measured at the 6-year follow-up. Two-wave models were not tested for GPA, because GPA was assessed for the prior year, which preceded putative mediators. We examined mediated moderation effects with a separate model for each of the six mediators and four moderators. We probed simple mediation effects using procedures outlined by Tein, Sandler, MacKinnon, and Wolchik (2004).

Figure 1 illustrates the hypothesized mediation model. We also controlled for each mediator at baseline, but controlled for baseline behavior problems for models that included caregiver/youth reported internalizing problems and externalizing problems. The *a* path represents the path from program condition to the mediator, the *b* path represents the path from the mediator to the outcome variable, and *c* path represents the path from the program condition to outcome variable accounting for the effect of the mediator. The *a'* path and *c'* path account for moderation of the path by a specified moderator. The significance of the mediated effect was assessed by multiplying the *a* and *b* path coefficients, $a*b$. In the case of significant *a'* paths, we probed the simple mediation effect, consisting of $a*b$ plus $a'*b$ effect [i.e., $(a+a')*b$], by examining the *a'* path at different ages or at +1SD and -1SD (or

+2SD or -2SD). We calculated 95% confidence intervals using the RMediation program (Tofighi & MacKinnon, 2011).

The regression coefficients of 0.14, 0.39, and 0.59 correspond to Cohen's (1988) criteria for small, medium and large effect sizes (2%, 13%, and 26% of the variance, respectively) (see Fritz & MacKinnon, 2007). Given our sample size, a standardized regression coefficient .18 should be able to be detected for the full sample and .25 for the subsample used when evaluating GPA. A larger sample would be required to detect the similar regression coefficients for interaction effects, after accounting for measurement error (Aiken & West, 1991). According to the power table recommend by Fritz and MacKinnon (2007), power should be sufficient to detect a mediation effect in which both *a* and *b* paths are equal to or above the small-medium effect size of .26 for the full sample or the subsample used to evaluate GPA as the outcome. However, we might be underpowered when either *a* or *b* paths had a small effect.

Results

Preliminary Analyses

A diagnostic index of influence (Cook's Distance; Cook, 1977) and Mahalanobis Distance (Stevens, 1984) were used to identify potential outliers or influential data points. None were identified; thus, all cases were retained in the analyses. Table 1 shows the descriptive statistics for continuous study variables, including skewness and kurtosis and standard errors (Cramer, 1997). As shown, the job aspirations variable was highly skewed. The FBP and LC groups did not differ on demographic characteristics or any baseline measures, including the mediators tested, with the exception of ethnicity (% of non-White Hispanic participants was lower in FBP than LC group; Sandler et al., 2003; 2010). Covariate analyses revealed that family income and caregiver's and deceased parent's level of education were significantly related to educational expectations; these variables were included as covariates in further analyses with educational expectations. No covariates were significantly related to job aspirations or GPA.

Program Main and Interaction Effects

Standardized coefficients for main and moderated program effects are shown in Table 2. Although none of the main effects of the FBP were significant, three of the 12 (25%) tests of moderated effects were significant or marginally significant. For educational expectations, the main program effect was not significant, though the program x pretest behavior problems effect was significant (See Figure 2a). The FBP increased educational expectations for youth who entered the program with lower behavior problems (-1SD: $B=.49$, $SE=.17$, $p<.05$) but not youth with higher behavior problems. Main program effects on GPA were not significant. A significant program x age effect on GPA occurred, consistent with prior findings from Sandler and colleagues (2010) (see Figure 2b)¹. The program improved the GPA of younger but not older youths (e.g., at age 8: $B=.55$, $SE=.27$, $p<.05$). A marginally-

¹In Sandler et al.'s (2010) study, 15 youth outcome variables were examined and a program x age effect on GPA was identified. However, the false discovery rate was employed to adjust for the multiple testing, and the *p* value for the GPA did not meet the FDR criterion.

significant program x time since death effect on GPA was also found. For job aspirations, there were no significant main nor interaction effects; thus, no mediational models were tested for this outcome.

Mediation and Moderated Mediation of Program Effects

Based on the moderation findings, we next examined whether baseline risk moderated mediation effects for educational expectations and whether age and time since death moderated mediation effects for GPA.

Three-Wave Mediational Models—Table 3 shows the standardized path coefficients for the three-wave longitudinal mediational models. For the models with educational expectations as the outcome, none of the models had both significant a/a' and b paths; therefore, no three-wave mediation effects were found for this outcome. For models with GPA as the outcome, tests of mediation showed that academic competence mediated the effect of the program on GPA (95% CI: .001, .09). Effective parenting significantly mediated the effect of the program on GPA for families with younger children (at age 8; $B=.20$, $SE=.09$, $p<.05$; 95% CI= .001, .102) but not older children, and for families with longer time since the death (+1SD; $B=.18$, $SE=.08$, $p<.05$; 95% CI: .001, .09) but not shorter time since death. The direct effect of the program on GPA (i.e., c') was moderated by child's age and time since death.

Two-Wave Mediational Models—Table 4 shows the results of the two-wave models to test mediation of the FBP x baseline behavior problems effect on educational expectations at the 6-year follow-up. Tests of the significance of mediation effects showed that FBP-induced improvements in effective parenting (95% CI: .0004, .07), teacher-reported externalizing problems (95% CI: .02, .15), and teacher-reported internalizing problems (95% CI: .0018, .12) at 6-year follow-up each significantly mediated program effects on concurrent educational expectations. The direct effect of the program on educational expectations was moderated by baseline risk with a similar pattern as discussed for the three-wave models.

Discussion

The current study found no significant direct effects of the FBP to improve educational expectations or job aspirations of youths 6 years following program participation. However, two significant interaction effects were found. The lack of direct effects of the FBP on educational functioning is noteworthy, though significant or marginally-significant moderated effects account for 25% of the tests of program moderation, which considerably exceeds chance expectations. For each moderated effect, mediation analysis tested the pathways by which the program impacted the outcome for the sub-group that benefited from the FBP. Findings provide suggestive evidence that for specific sub-groups, the FBP promotes prosocial development in dealing with the tasks of succeeding in school and work.

FBP participation was associated with improved educational expectations for youth with fewer problems at program entry. This finding is consistent with a previous report that the FBP reduced diagnosed mental disorder at the 6-year follow-up for youth at lower initial

risk (Sandler et al., 2010a). Thus, although short-term evaluations found some evidence for stronger effects of the FBP for youth with higher baseline level problems (Sandler, et al., 2003), the pattern changes over time such that 6 years after participation, more positive effects occur for those with lower baseline level scores on two outcomes, educational expectations and diagnosed mental disorder. This finding provides further evidence that the long-term effects of the FBP are not constrained to those with higher problems when they entered the program, and that youth with high levels of mental health problems at baseline may require more intensive support and treatment.

Further, the FBP improved the GPAs of younger but not older youths. This finding also identifies sub-groups that show differential benefit from participation. It may be that the educational pathways of older youths were more firmly established at program entry and less amenable to change. Of note, when GPA was studied in the context of a broader study on 15 mental health, substance use and life adjustment outcomes (Sandler et al., 2010a), the effects were not significant when adjusted for multiple tests. Thus, this effect needs to be viewed with some caution. The study also found that FBP-induced improvements in parenting at the 11-month follow-up mediated program effects on GPA at 6-year follow-up for younger youths. This finding is consistent with research indicating that caregivers play an instrumental role in helping their children succeed in school (Juang & Silbereisen, 2002). Caregivers with a warm parenting style and consistent discipline may offer more support related to school, or provide direct help with organizational or academic tasks. The effects of improved parenting on academics would likely be stronger for younger children, for whom parents are more involved in school functioning, which is consistent with our findings. Results add to prior evidence indicating that longer-term adjustment in multiple domains can be promoted by interventions targeting short-term changes in risk and protective factors (Sandler et al., 2010a, b).

In the two-wave models, in which the mediator and outcome were measured simultaneously, improved parenting at the 6-year follow-up accounted for higher educational expectations. This finding may indicate that children whose relationships with their caregivers are warm and supportive experience an environment that fosters confidence in their academic abilities. Teacher-reported internalizing and externalizing problems also mediated program effects on GPA. These findings confirm previously established effects of the FBP that are manifest in youth classroom behavior (Sandler et al., 2010a), which would naturally affect their ability to learn and meet academic demands. Although the cross-sectional nature of the *b* path in these longitudinal models precludes inferences about effects, the findings strengthen evidence of the effects of the FBP to impact child adjustment in the educational domain.

Additional longitudinal mediational findings were found for GPA when accounting for time since death. FBP-induced improvements academic competence at 11-month follow-up significantly mediated effects on GPA, and parenting improvements at 11 months mediated effects on GPA for families for whom more time had passed since the death. These findings should be viewed cautiously due to the marginal significance of the original program x time since death effect on GPA, but nonetheless contribute to the sparse literature on prevention program effects for bereaved populations. Findings support evidence that self-perceptions of scholastic abilities are predictors of later academic achievement (Ahmavaara & Houston,

2007; Emmanuelle, 2009). They also highlight the importance of appropriate timing of programs for bereaved families, and possibly of allowing for post-loss adjustment prior to intervention.

In contrast to the finding of program effects of a similar program for divorced families (Sigal et al., 2012), the main and interactive effects of the FBP were non-significant for job aspirations. One reason for the non-significant findings may be that the job aspirations variable was highly skewed and less diverse in responses (i.e., high kurtosis) in our sample, and variability may have been insufficient to detect effects. Job aspirations may also be poorly formulated at this point in adolescence, and the effects of the FBP on youth vocational success may follow from their success in school and be detected at the next developmental stage.

Results of this study have implications for the design and evaluation of preventive interventions for bereaved and other high-risk youths. First, FBP effects on educational outcomes were modest, and significant only for certain sub-groups. The FBP cannot be considered to universally improve such outcomes, though moderated program effects on educational expectations and GPA indicate that the evaluation of bereavement programs should assess effects on multiple life domains beyond mental health. Second, the finding that educational expectations improved for those with lower problems at program entry adds to prior evidence that FBP effects are not constrained to youths who are most distressed at program entry, and it may not be sufficient intervention for those at higher initial risk. These findings differ from those of several recent meta-analyses that bereavement programs are most appropriate for the most distressed individuals (Currier et al., 2008; Wittouck, Van Autreve, De Jaegere, Portzky, & van Heeringen, 2012) but are consistent with other findings on the FBP's effects (Sandler et al., 2010a). Third, findings that program effects to strengthen parenting mediated the FBP's effects on academic expectations and GPA add to prior findings that improved parenting mediated program effects to improve youths mental health (Tein et al., 2006). These findings provide even more support for viewing parenting skills training as a core component of the FBP.

There are a number of limitations of the current study. First, educational expectations and job aspirations were measured using a single-item scale, and future studies may expand these measures to increase reliability and validity. Second, we obtained measures of academic competence only for youth enrolled in school at 6-year follow-up, and thus are not able to examine FBP effects on the competence of youth who did not continue in school. Third, the intervention-mediator and mediator-outcome time lags were substantially different in our fully-longitudinal models, which may make it difficult to detect significant relations between the mediator and outcome. Fourth, it is not possible to make causal inferences based on the two-wave models given the simultaneous measurement of the mediators and outcomes (Cole & Maxwell, 2003). Fifth, analyses accounted for multiple children nested within families, but not for nesting of families in intervention groups. Although the intraclass correlation coefficients of the studied variables were low (mean < .01), findings may somewhat underestimate the standard error and inflate type I errors. Sixth, the relatively small sample size might have limited our power to detect additional effects, including interaction effects and moderated mediation effects. Seventh, the study did not

include an attention-placebo group, and we cannot determine the degree to which program effects are due to participating in a supportive group rather than to specific program skills. Finally, other potential mediators of FBP effects on academic outcomes, such as parent involvement in school, were not assessed.

In sum, this paper is the first to demonstrate that a family-focused prevention program had effects to improve educational outcomes for a subset of bereaved youths and to identify pathways through which this program improved GPA and educational expectations. Findings indicate that positive impacts of the FBP may reach beyond demonstrated effects on mental health problems and grief and promote successful academic functioning.

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Figure 1.
Theoretical moderated mediational model

Figure 2a.
Baseline behavior problems moderates Family Bereavement Program (FBP) effect on Educational Expectations.

Figure 2b.
Child age moderates FBP effect on Grade Point Average (GPA).

Table 1

Descriptive Statistics for All Variables

Measure	N	Range	Mean	SD	Skewness(SE ¹)	Kurtosis (SE ²)
Pre-test						
1. Baseline Risk	244	-1.18 – 2.78	-.01	.67	.95(.16)	1.20(.32)
2. Months Death	240	3 - 29	9.77	5.70	1.43(.16)	1.70(.33)
3. Child Age	244	7 - 16	11.39	2.42	.23(.16)	-1.04(.32)
4. Caregiver's Edu.	244	1- 5	4.61	1.30	-.38(.16)	-.47(.32)
5. Deceased's Edu.	243	1- 5	4.32	1.68	-.06(.16)	-.96(.32)
11-month Follow-up (Mediators)						
6. Effective Parent.	213	-2.04 – 1.19	-.01	.60	-.71(.17)	.41(.35)
7. Internalizing	217	-1.86 – 3.02	-.45	.98	.45(.17)	.53(.34)
8. Externalizing	219	-2.54 – 1.93	-.42	.81	.03(.16)	-.53(.34)
9. Teacher Int.	216	-.97 – 5.39	.00	1.00	.36(.17)	.05(.34)
10. Teacher Ext.	216	-.72 – 5.60	.00	1.00	.57(.17)	.27(.34)
11. Acad. Comp.	211	1.5 – 4.0	3.13	.69	-.36(.17)	-.93(.35)
6-year Follow-up (Mediators and Outcomes)						
12. Effective Parent.	213	-1.85 – 1.25	.61	.49	-.60(.17)	-.03(.35)
13. Internalizing	216	-2.51 – 2.02	-.17	1.0	-.20(.17)	-.38(.34)
14. Externalizing	216	-2.93 – 2.32	-.25	1.00	-.10(.17)	-.39(.34)
15. Teacher Int.	117	-1.13 – 5.12	.00	1.00	.32(.22)	-.47(.48)
16. Teacher Ext.	117	-1.02 – 4.93	.00	1.00	.59(.22)	.43(.48)
17. Acad. Comp.	154	1.17 – 4.0	3.00	.68	-.36(.20)	-.60(.41)
18. Edu. Expect.	206	1 - 5	3.89	1.14	-1.19(.17)	.84(.35)
19. Job Aspirations	193	1 - 12	10.8	2.66	2.51(.17)	5.40(.36)
20. GPA	113	.33 – 4.0	2.48	.90	-.13(.23)	-.67(.49)

¹Note: Standard error of skewness,²Standard error of kurtosis

Table 2

Program effects on Academic/Occupational Outcome Variables.

Outcome	Moderator	FBP Mean (SE)	LC Mean (SE)	β	SE	P
Educational Expectations ^I	N/A (Main effect)	3.94(1.11)	3.83(1.16)	.07	.07	.28
	Pretest Behavior Prob.			-.34	.12	.01**
	Age			-.17	.12	.15
	Gender			.06	.13	.62
Job Aspirations	Months Since Death			.12	.12	.31
	N/A (Main effect)	10.96 (2.55)	10.63 (2.77)	.06	.07	.38
	Pretest Behavior Prob.			.03	.13	.83
	Age			-.07	.13	.60
	Gender			.16	.13	.21
	Months Since Death			-.06	.11	.56
	N/A (Main effect)	2.51(.90)	2.42(.91)	.05	.10	.62
	Pretest Behavior Prob.			-.10	.15	.53
	Age			-.27	.12	.03*
	Gender			.08	.17	.64
	Months Since Death			.31	.19	.09 [†]

[†] <.10,* $p < .05$,** $p < .01$;^I Included covariates: family income, caregiver's level of education, deceased's level of education. β = Standardized coefficient

Table 3

Summary of Three-Wave Longitudinal Mediation Models: Mediator Measured at 11 months and Outcome at 6 Years

Moderator	Mediator	a	a'	b	c	c'	χ ²	Df	RMSEA	SRMR	CFI
Outcome: Educational Expectations (covariates =caregiver's education, deceased's education, family income)											
Pretest Risk	Parenting	.12	.16	-.02	.06	-.24*	.02	1	0.0	.001	1.0
	Cg/Y Ext.	-.09	-.10	-.05	.06	-.25*	0.0	0 ³	0.0	.01	1.0
	Cg/Y Int.	-.04	-.31**	-.001	.06	-.25*	0.0	0 ³	0.0	.01	1.0
	Teacher Ext.	.05	.05	-.03	.06	-.24*	3.41	1	.10	.02	.97
	Teacher Int.	-.17†	.08	.02	.06	-.25*	.02	1	0.0	.001	1.0
	Acad. Comp	.08	.07	.15*	.05	-.26*	3.44	1	.10	.02	.97
Outcome: GPA ^f											
Child Age	Parenting	.06	-.16*	.19*	.05	-.23†	.76	1	0.0	.01	1.0
	Cg/Y Ext.	-.09	.17†	-.16	.04	-.26†	0.0	0 ³	0.0	.01	1.0
	Cg/Y Int.	-.03	.17†	.05	.06	-.29*	0.0	0 ³	0.0	.01	1.0
	Teacher Ext.	.03	-.03	-.10	.06	-.29*	1.48	1	.06	.02	.99
	Teacher Int.	-.22*	-.07	.06	.07	-.28*	.02	1	0.0	.002	1.0
	Acad. Comp.	.13	-.01	.28**	.06*	-.34**	.07	1	0.0	.003	1.0
Mo. Death	Parenting	.05	.20*	.20*	.03	.26*	.94	1	0.0	.008	1.0
	Cg/Y Ext.	-.08	-.16	-.17	.02	.29*	0.0	0 ³	0.0	.0	1.0
	Cg/Y Int.	-.02	-.10	-.01	.03	.32*	0.0	0 ³	0.0	.001	1.0
	Teacher Ext.	.03	-.10	-.08	.03	.31*	.67	1	0.0	.009	1.0
	Teacher Int.	-.22*	-.08	.07	.05	.32*	.006	1	0.0	.001	1.0
	Acad. Comp.	.15*	-.02	.24**	-.01	.34**	.094	1	0.0	.004	1.0

Note: a' = program × pretest moderator interaction on the mediator. c' = program × moderator interaction effect on outcome. Acad. Comp. = Academic Competence; Cg/Y = Caregiver and youth-reported; Ext.=Externalizing problems; Int.=Internalizing problems;

† p<.10,

* $p < .05$,
** $p < .01$;
 I $n = 142$;

³ Degree of freedom differed: At baseline, we controlled for behavior problems (risk), covariates, and mediators, but only controlled for baseline risk and covariates for models with Cg/Y internalizing or externalizing as outcome.

Table 4

Summary of Two-Wave Models –Mediator and Outcome Measured at 6-year Follow-Up

Moderator	Mediator	a	a'	b	c	c'	χ^2	Df	RMSEA	SRMR	CFI
Outcome: Educational Expectations (covariates =guardian's education, deceased's education, family income)											
Pretest Risk	Parenting	.17*	0.13	.17*	.03	-.23*	.42	1	0.0	.004	1.0
	Cg/Y Ext.	-.14*	.12	-.01	.06	-.24*	0.0	0 ⁴	0.0	0.0	1.0
	Cg/Y Int.	-.04	-.12	.03	.06	-.24*	0.0	0 ⁴	0.0	0.0	1.0
	Teacher Ext. ³	-.22**	.13	-.35**	.03	-.19 [†]	.11	1	0.0	.003	1.0
	Teacher Int. ³	-.26**	.08	-.19*	.01	-.22*	2.04	1	.08	.02	.98
	Acad. Comp ³	.05	-.03	.21**	.10	-.27*	1.50	1	.05	.01	.98

Note: a' = program $\times$ pretest moderator interaction on the mediator; c' = program $\times$ moderator interaction effect on outcome. Acad. Comp. = Academic Competence; Cg/Y = Caregiver and youth-reported; Ext.=Externalizing problems; Int.=Internalizing problems;

[†] $p < .10$,

* $p < .05$,

** $p < .01$;

¹ n=142;

³ n=180;

⁴ Degree of freedom differed: At baseline, we controlled for behavior problems (risk), covariates, and mediators, but only controlled for baseline risk and covariates for models with Cg/Y internalizing or externalizing as outcome.