Cascading Effects of the Family Bereavement Program Preventive Intervention on Competence in Emerging and Young Adults

by

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ABSTRACT

Using data from a randomized, experimental trial of a brief family-based preventive intervention for parentally-bereaved families, this study evaluated whether participation in the Family Bereavement Program (FBP) when the offspring were in childhood/adolescence (ages 8 to 16) improved competencies when the offspring were emerging/young adults (ages 23 to 32). Participants were 244 emerging/young adults; data used were from assessments at pretest, posttest, 6 years post-intervention, and 15 years post-intervention. In addition to testing the direct effects of the program, developmental cascade effects models were used to test the relations between program-induced improvements in positive parenting and decreased negative life events at posttest and subsequent effects on domains of competence and behavior problems in adolescence/emerging adulthood (ages 14 to 22) and four developmental competencies of emerging/young adulthood: academic, peer, romantic, and work competence. Results supported a cascading effects model of program effects on competence outcomes. In the full sample, there were significant mediation effects of the intervention to decreased negative life events at posttest to increased grade-point average (GPA) at the 6-year follow-up to higher academic and work competence at the 15-year follow-up. For females only, two additional significant mediational pathways of the FBP occurred. The FBP led to an increase in peer competence 6 years post-intervention, which was associated with an increase in work competence 15 years post-intervention. Also, the FBP led to a decrease in externalizing problems in adolescence/emerging adulthood, but externalizing problems were positively associated with work competence. For males, additional mediation effects of the FBP on work competence occurred. The FBP

decreased negative life events. However, higher negative life events were associated with lower externalizing problems in adolescence/emerging adulthood, and externalizing problems were positively associated with work competence. For males only, a significant three-pathway mediation effect of the intervention occurred on increased positive parenting at posttest to increased romantic attachment at the 6-year follow-up to higher romantic competence at the 15-year follow-up. Peer competence showed continuity over development. Mediational analyses highlighted the role of program-induced improvements in parenting, reductions in exposure to negative life events, and earlier developmental competencies on competence outcomes in emerging/young adulthood. Implications for promoting resilience in parentally-bereaved, at-risk youth are discussed.

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INTRODUCTION

Approximately 4% to 5% of youth in the United States will experience the death of a parent before the age of 18 (Harrison & Harrington, 2001; Owens, 2008; Social Security Administration, 2000; Unicef, 2009), with similar rates observed in Great Britain and other developed countries (Childhood Bereavement Network, 2016; Parsons, 2011). Most youths do *not* experience significant maladjustment following the death of a parent. However, parental bereavement has been linked to the development of multiple behavior problems and failure to achieve key developmental competencies in childhood (e.g., Worden & Silverman, 1996), adolescence (e.g., Brent et al., 2012), and adulthood (e.g., Marks et al., 2007).

Although there are several interventions that have found short-term program effects on problem behaviors in parentally-bereaved youth (e.g., Trauma-Focused Cognitive Behavioral Therapy; see Bergman et al., 2017 for a review of evidence-based interventions; see Hagan et al., 2016 for detailed information on selected evidence-based interventions), there is very little research on the effects of such interventions on competence (see Sandler et al., 2015 for a review). The current study evaluates the long-term direct and cascading effects of a family-based preventive intervention, the Family Bereavement Program (FBP; Ayers et al., 2013-2014; Sandler et al., 2003), on competence outcomes. This study examines effects of the FBP on four key developmental competencies 15 years following program participation when the offspring were emerging/young adults: 1) academic, 2) peer, 3) romantic, and 4) work competence. The following sections focus on defining competence, describing post-bereavement impairments in competence and behavior problems, and discussing the

factors affecting post-bereavement outcomes and cascading effects models. Then, the FBP and its effects are discussed, and the current study is described.

Competence

Competence is typically defined as observable behaviors demonstrating success in age-salient developmental tasks that are culturally and socially determined (Luthar et al., 2015; Masten & Tellegen, 2012). Erikson (1963) and Havighurst (1974) were among the earliest researchers to identify specific developmental tasks proposed to be desirable or necessary for children's optimum adjustment based on the social norms and expectations of one's environment, culture, and society. Havighurst defined a *developmental task* as, "a task which arises at or about a certain time in the life of an individual, successful achievement of which leads to his happiness and to success with later tasks, while failure leads to unhappiness in the individual, disapproval by the society, and difficulty with later tasks" (Havighurst, 1974, p. 2). These researchers proposed that these tasks include forming a successful attachment relationship with one's caregiver, developing positive self-beliefs, interacting skillfully with one's peers, and attaining competence in the areas of academic and work performance, as well as in forming successful romantic relationships or secure romantic attachment styles. Although these tasks are presented in the approximate order in which they become salient, their importance and the order in which they develop vary between individuals (Masten & Tellegen, 2012).

Outcomes after Childhood Parental Bereavement

Children have rated experiencing the death of a parent as one of the most stressful life events (Brown, 1986; Coddington, 1972, 1984; Ryan-Wenger et al. 2005; Sandler, 2001), and most youth experience some form of distress following the death. Youths

often experience a gradual decline in maladjustment following a grieving period typically lasting from a few months to a year, but the amount of time needed for adequate grieving before symptoms become pathological differs across children (Kaplow et al., 2012).

Childhood and Adolescence

Competence. Parentally bereaved children and adolescents have been found to differ from their non-bereaved peers raised in two-parent families in their attainment of competence. Several indicators of worse outcomes for bereaved youths include lower self-esteem or self-worth (Brent et al., 2012; Hetherington, 1972; Worden & Silverman, 1996), lower internal locus of control (Amato & Anthony, 2014; Worden & Silverman, 1996), lower academic competence and attainment (Abdelnoor & Hollins, 2004; Amato & Anthony, 2014; Ambert & Saucier, 1984; Berg et al., 2014; Steele et al., 2009; Van Eerdewegh et al., 1982; Worden & Silverman, 1996), less success at work (Brent et al., 2012), and lower peer attachment and social skills (Brent et al., 2012; Hetherington, 1972; Worden & Silverman, 1996).

Behavior Problems. In addition to competence outcomes, children who experience the death of a parent experience higher levels of behavior problems. These problems include being diagnosed with a clinical depressive disorder (Brent et al., 2009; Cheifetz et al., 1989; Gersten et al., 1991; Gray et al., 2011; Kessler & Magee, 1993; Melhem et al., 2008; Van Erdewegh et al., 1982; Weller et al., 1991), internalizing problems (Cerel et al., 2006; Felner et al., 1975; Gersten et al., 1991; Hetherington, 1972; Kranzler et al., 1990; Thompson et al.,1998; Van Erdewegh et al., 1982; Worden & Silverman, 1996), externalizing problems (Gregory, 1965; Kaplow et al., 2010; Kranzler et al., 1990; Thompson et al., 1998), delinquency and criminal convictions (Wilcox et al.,

2010), substance abuse (Kaplow et al., 2010), overall psychological disturbance (Brent et al., 2009; Cerel et al., 2006; Dowdney, 1999; Felner et al., 1975; Hamdan et al., 2012; Kaplow et al., 2010; Kranzler et al., 1990; Melhem et al., 2008; Worden & Silverman, 1996), post-traumatic stress disorder (PTSD; Brent et al., 2012; Kaplow et al., 2010; Melhem et al., 2008), psychiatric diagnoses (Hamdan et al., 2012; Melhem et al., 2008), and suicidality (especially for those bereaved by parental suicide; Melhem et al., 2008; Wilcox et al., 2010).

Adulthood

Competence. Individuals who experience parental bereavement in childhood or adolescence are more likely to experience impairments in competence in adulthood than their counterparts in two-parent families. These impairments include significantly lower self-confidence and self-esteem (Mack, 2000; Marks et al., 2007), lower educational attainment (Fronstin et al., 1999; Maier & Lachman, 2000), lower frequency of social contacts and higher frequency of intense, unstable interpersonal relationships (Ragan & McGlashan, 1986), higher avoidance and anxiety in adult romantic relationships (Mireault et al., 2001-2002), and higher levels of serious marital problems (McLeod, 1991). Maternally bereaved women report more parenting difficulties and perceive themselves more negatively as parents (Birtchnell & Kennard, 1982; Mireault et al., 2002; Zall, 1994).

Behavior Problems. Many studies have found an association between childhood parental bereavement and problems in adulthood. These problems include increased panic symptoms and phobias (Otowa et al., 2014; Stikkelbroek et al., 2012; Tweed et al., 1989); higher depressive symptoms and disorders (Barnes & Prosen, 1985; Birtchnell,

1972; Mack, 2001; Tsuchiya et al., 2005; Zall, 1994); greater suicide ideation, attempts, and completions (Adam et al., 1982; Birtchnell, 1970, Hollingshaus & Smith, 2015; Niederkrotenthaler et al., 2010; Tsuchiya et al., 2005; Zall 1994); psychiatric disorders (Dennehy, 1966; Tsuchiya et al., 2005); substance use disorders (Birtchnell, 1972; Dennehy, 1966; Otowa et al., 2014; Stikkelbroek et al., 2012; Tsuchiya et al., 2005); criminality (Tsuchiya et al., 2005); and poorer health outcomes and increased risk of mortality (Hollingshaus & Smith, 2015; Marks et al., 2007; Neeleman et al., 2002; Smith et al., 2014).

Factors Affecting Bereavement Outcomes

On average, those who experience parental bereavement have greater behavior problems and lower competence, although there is significant variability in terms of whether behavior problems and impairment in competencies develop and persist. Many factors before the death are related to the outcomes of parentally-bereaved offspring including the child's age at the time of the death, previous relationship with the deceased, and gender of the child and the deceased parent (e.g., Black, 1978; Fristad et al., 1993; Silverman & Worden, 1992; Weller et al., 1991). Additionally, those whose parent(s) died under unexpected, violent, or traumatic circumstances have been found to be at a higher risk for developing behavior problems (Brent et al., 2009; Cerel et al., 2006; Kuramoto et al., 2010; Pfeffer et al., 2000; Pitman et al., 2014; Tsuchiya et al., 2005; Wilcox et al., 2010).

Evidence suggests it is not only the death itself but also the stressors and changes in the family environment both before and after the death that affect outcomes (Lutzke et al., 1997; Partridge & Kotler, 1987; Sandler et al., 1988; Tennant, 1988; West et al.,

1991). Most parentally-bereaved children experience a number of stressors such as changes in family income, responsibilities, relocation, psychological distress of the caregiver and less time with their parent (e.g., Clark et al., 1994; Layne et al., 2010; Lin et al., 2004; Lutzke et al., 1997; Sandler et al., 2007; Tremblay & Israel, 1998). The greater the number of stressors children experience after a parent's death, the poorer their adjustment compared to those who undergo fewer stressors (e.g., Sandler, 2001; Thompson et al., 1998; West et al., 1991). In contrast to those who experience frequent and/or chronic life stressors, children who experience positive stable events report more positive adaptation (e.g., West et al., 1991).

There are several interpersonal and intrapersonal factors that affect post-bereavement outcomes. One of the strongest predictors of children's post-bereavement adjustment is the quality of children's relationship with their caregiver (Christ, 2000; Haine et al., 2006; Harris et al., 1986; Lin et al., 2004; Luecken et al., 2009; Raveis et al., 1999; Saler & Skolnick, 1992; Sandler et al., 1988; West et al., 1991; Wolchik et al., 2006). Higher levels of parental warmth and consistency of discipline have been shown to relate to better outcomes (e.g., Lin et al., 2004; Saldinger et al., 2004). Also, higher levels of coping efficacy (Lin et al., 2004), greater emotional expression (Pennebaker et al., 2001), adaptive control beliefs (e.g., Worden, 1996), higher self-esteem (e.g., Brent et al., 2009; Haine et al., 2003), and better global functioning across developmental competencies (e.g., Brent et al., 2012) have been related to fewer post-bereavement behavior problems.

Cascade Effects Models

Developmental cascades are defined as "the cumulative consequences for development of the many interactions and transactions occurring in developing systems that result in spreading effects across levels, among domains at the same level, and across different systems or generations" (Masten & Cicchetti, 2010, p. 1). Success in age-salient tasks promotes future success within and across domains of functioning and developmental periods (e.g., Masten et al., 1995) whereas failure to achieve key developmental competencies is likely to have an opposite influence on functioning. There is also strong evidence that certain intrapersonal, interpersonal, and environmental resources are consistently related to resilience in the face of adversity including higher intelligence, socioeconomic status (SES), and parenting quality (e.g., Masten et al., 2004); lower intelligence, SES, and parenting quality have been associated with higher risk of adjustment problems and lower competencies. The cumulative and compounding effects of early adverse experiences and disadvantages can substantially hinder positive adjustment while good parenting, socioeconomic advantages, and cognitive skills facilitate the development of competencies over time.

Cascading Effects of Competence and Behavior Problems

An abundance of research has found linkages between experiencing the death of a parent in childhood and concurrent competence and mental health outcomes as well as outcomes in later stages of development, yet there is a paucity of research on the processes through which parental death affects outcomes over time. Masten and colleagues (e.g., 1999, 2004; Masten & Obradovic, 2006) have provided evidence of the cascading effects of other childhood adversities (e.g., loss of family home or job,

incarceration, maltreatment, interparental conflict, divorce, natural disasters, etc.) on competence and mental health outcomes across developmental periods (i.e., childhood, adolescence, emerging adulthood, and young adulthood). Their research shows that there is considerable continuity in competence outcomes over time. Children who fare well in a particular competence domain early on are likely to perform well in that domain over time; those with early impairments are likely to experience impairment in later developmental stages (e.g., Masten & Tellegen, 2012).

There is particularly strong continuity in academic and social competence from childhood through young adulthood (Burt et al., 2008; Masten et al., 1995, 2004, 2005; McCarty et al., 2008; Obradovic et al., 2009; Roisman et al., 2004). The same degree of continuity has not been consistently found for work and romantic competence, although one study found consistency in work performance across developmental periods (Masten et al., 2010) and another found that success in romantic relationships in adolescence predicted healthier romantic relationships in early adulthood (Madsen & Collins, 2011).

Cross-domain effects between behavior problems and competence have also been consistently demonstrated. In a large national sample, externalizing problems before age five were negatively associated with both academic and social competence in first grade, which were both associated with internalizing and externalizing problems in third grade when children were approximately 10 years old (Burt & Roisman, 2010). In the same sample, social competence in third grade was negatively associated with both internalizing and externalizing problems in fifth grade. Childhood externalizing problems are consistently negatively associated with adolescent academic achievement (Burt & Roisman, 2010; Masten et al., 1995, 2005; McCarty et al., 2008; Obradovic et al., 2009).

In addition, academic achievement in adolescence is related to adolescent job competence (Masten et al., 1995), educational attainment (Wolchik et al., 2020), social competence and internalizing problems in emerging adulthood (Masten et al., 2005; Obradovic et al., 2009). Internalizing problems in childhood also are negatively associated with adolescent academic performance and social competence (McCarty et al., 2008; Obradovic et al., 2009), leading to internalizing problems in adulthood. Also, social competence in childhood has been linked with internalizing problems in adolescence (Burt et al., 2008; Obradovic et al., 2009), academic competence in adolescence has been associated with internalizing problems in young adulthood (McCarty et al., 2008), and academic performance and social competence in emerging adulthood have been negatively related to internalizing problems in young adulthood (Burt et al., 2008; Masten et al., 2005; Obradovic et al., 2009).

Very few researchers have examined cascading effects in samples of parentally-bereaved children. One exemplary study by Brent and colleagues (2012), which spanned approximately 5 years, examined participants who ranged in age from 7 to 18 years old at study entry, with more than 50% being 18 or older at the last assessment. Competence outcomes were measured at the final assessment, which was on average 62 months following the death. This study found significant direct effects of bereavement on self-esteem, involvement with friends, peer attachment, quality of career development planning, and success at work in adolescence or early adulthood; no significant direct effects of bereavement were found on educational success or satisfaction in romantic relationships. However, all the direct effects of bereavement on outcomes became non-significant when important pre-death (i.e., parental and child history of mental health and

behavior problems) and mediating variables (i.e., parent mood and youths' functional status or impairment following the death) were included in the models. Brent and his colleagues found that functional status, represented by functioning in psychological, social, educational, and occupational domains in the first 3 years following the death accounted for much of the variance in work success, career development, and peer attachment outcomes in adolescence/early adulthood (Brent et al., 2012). For those employed in adolescence/early adulthood, the caregiver's mood and youths' functional status in the time between the death and adolescence/early adulthood mediated youths' work success. Youths' history of behavioral disorders was associated with their functional status nine months following the death which predicted youths' quality of career development planning outcomes in adolescence/early adulthood. Adolescents' and young adults' peer attachment was accounted for by their functional status and the family's level of adaptability and cohesion two to three years post-death.

Although parental death is associated with impairments in the accomplishment of salient developmental tasks of adulthood, researchers have not addressed whether prevention programs for bereaved families have direct or cascading effects on the salient developmental tasks of emerging/young adulthood. A few comprehensive prevention programs for other populations have shown positive direct program effects on various domains of adult competence, such as educational attainment, occupational prestige, employment and emotion regulation in adulthood (Campbell et al., 2002; Hawkins et al., 2005, 2008; Hill et al., 2014; Reynolds et al., 2007; Reynolds & Ou, 2011; Schweinhart et al., 2005). However, all these programs lasted *a year or more.*

In one of the few studies to examine the pathways through which prevention programs may affect competence in later developmental periods, Wolchik and colleagues (2020) found significant cascade effects of the New Beginnings Program preventive parenting program for divorced families on academic, peer, and work competence in emerging adulthood 15-years after the intervention. Intervention effects were mediated through earlier, intervention-induced improvements in positive parenting and behavior problems in childhood (ages 8 to 12 years old), which led to higher competence and lower behavior problems 6 years post-intervention in adolescence (14 to 19 years old), which led to increased academic, peer, and work competence, but not romantic competence, 15 years post-intervention in emerging adulthood (24 to 28 years old). These results support the potential of preventive interventions to create lasting, long-term changes in adaptive functioning into early adulthood through cascading effects across developmental transition periods.

Examining the effects of prevention programs for at-risk youth on competence outcomes in emerging/young adulthood is important for several reasons. First, during this developmental period, autonomy and executive functioning capabilities become increasingly important in promoting successful adaptation and performance in newly salient developmental tasks. Second, this stage of development presents unique challenges and opportunities, where problems may have more severe consequences and success may provide greater life rewards than in prior or later developmental periods. Third, evidence of long-term program effects on outcomes that have financial benefits, such as academic and work competence (e.g., Day & Newburger, 2002, Trevor et al., 1997; Wolla & Sullivan, 2017) could have high return on investment and thereby

leverage support for implementing such programs. Fourth, interventions with families intended to trigger positive and progressive effects over time offer compelling experimental tests of cascade models based on developmental systems theory as well as resilience theory (Masten & Cicchetti, 2010). Identifying the developmental cascades set in motion by prevention programs can advance theory about the spreading effects of interventions across development and identify the pathways through which prevention programs influence later outcomes (Coie et al., 1993; Reynolds & Ou, 2016).

Family Bereavement Program

The current study tests direct effects as well as cascading effects of participating in the FBP on four domains of competence in emerging/young adulthood: academic competence, peer competence, romantic competence, and work competence. The FBP, a relatively brief (12 sessions) preventive intervention designed to promote resilience in parentally-bereaved offspring (ages 8-16 years old) and their caregivers using developmentally-informed, evidence-based, and cognitive-behavioral strategies, was evaluated in a randomized controlled trial (RCT). Program activities sought to promote more positive offspring, parent, and family adjustment by targeting empirically supported risk and protective factors related to outcomes in parentally-bereaved youths (i.e., promote more adaptive cognitions, emotional expression, and coping; increase self-esteem and self-efficacy; decrease youth exposure to negative life events; and improve parent-child relationship quality). From the perspective of developmental cascade models, the program's effects on these risk and protective factors in childhood/adolescence were expected to lead to positive changes across development (Masten et al., 2005; Rutter & Sroufe, 2000; Sameroff, 2000).

Positive effects of the FBP have been found at posttest, and the 11-month, 6-year and 15-year follow-ups. At posttest, the FBP led to significant improvements in positive parenting and decreases in negative life events children experienced (Sandler et al., 2003). Increases in positive parenting were also found at the 11-month (Sandler et al., 2003) and 6-year follow-ups (Hagan et al., 2012). Direct program effects on offspring outcomes were reported on decreased internalizing problems and externalizing problems at the 11-month and 6-year follow-ups. At the 6-year follow-up, the FBP also led to higher self-esteem, fewer externalizing diagnoses, higher educational aspirations and expectations, and for younger children, higher grade-point averages (Sandler et al., 2010).

At the 15-year follow-up, offspring who participated in the FBP were significantly less likely to attempt suicide, endorse suicidal ideation, have clinical levels of behavior problems, and receive mental health services than those in the control condition (Sandler et al., 2017). Also, offspring in the FBP who were younger at program entry showed significantly lower internalizing and externalizing problems at the 15-year follow-up than their counterparts in the control condition.

Mediational analyses found that program-induced decreases in negative life events and increases in positive parenting at posttest were associated with lower internalizing and externalizing problems at the 11-month and 6-year follow-up as well as lower substance use and internalizing and externalizing diagnoses at the 6-year follow-up (Sandler et al., 2003, 2015; Tein et al., 2006). Also, increases in positive parenting and academic competence at the 11-month follow-up were associated with higher grade-point average at the 6-year follow-up, especially for those who were younger and had a longer

period of time between the death and participation in the study (Schoenfelder et al., 2015).

Current Study

This study examined whether the FBP had positive direct effects on competence in emerging/young adulthood. It also examined whether the FBP had cascading effects on competence in emerging/young adulthood through the program's effects on positive parenting and negative life events in childhood/adolescence, which were expected to affect behavior problems and competence in adolescence/emerging adulthood, which were expected to lead to competence in emerging/young adulthood. This study extends previous research on the effects of the FBP by its focus on competence and examination of the pathways through which the program may affect competence in emerging/young adulthood.

Based on previous research on the FBP (e.g., Ayers et al., 2013-2014), similar preventive interventions (e.g., Reynolds et al., 2007; Wolchik et al., 2020), and developmental cascades (e.g., Masten & Cicchetti, 2010), I expected to find program effects on improved positive parenting and reductions in the experience of negative life events at posttest. I proposed that program-induced improvements in positive parenting and reductions in negative life events would be associated with higher competence and lower behavior problems in adolescence/emerging adulthood, which were expected to relate to the four competence outcomes 15 years post-intervention in emerging/young adulthood (see Figure 1). I also expected to find stability in functioning within each domain of competence. Based on longitudinal findings from non-experimental studies (e.g., Obradovic et al., 2009) and from other preventive interventions (e.g., Wolchik et

al., 2016, 2020), I expected to find cross-domain effects of competence. In addition, higher levels of internalizing, externalizing, and substance use problems in adolescence/emerging adulthood were expected to be related to lower competence in each of the four domains in emerging/young adulthood. Finally, because some gender differences have been found in previous waves of the FBP trial (Ayers et al., 2013-2014), exploratory gender analyses were conducted.

METHOD

Participants

Participants were 244 young adults and 156 caregivers (131 of 156 caregivers were spousally-bereaved parents) who participated in the RCT of the FBP. Participants were recruited from community service agencies and mail solicitation in the Phoenix, Arizona metropolitan area. Families were eligible for participation if they had experienced parental death within the past 4 to 30 months, had one or more children between the ages of 8 to 16, and were not receiving any other mental health or bereavement services. Families also had to be able to complete all assessments in English and planned to stay in the Phoenix area for the next 6 months, and youth could not be in a special class for intellectually disability. Because of ethical considerations, families were excluded from participating and referred for treatment if at the pretest assessment, the caregiver or youth endorsed suicidal ideation which included intent or a plan to act or met diagnostic criteria for a mental health disorder that would interfere with program participation (i.e., major depressive disorder for caregivers; conduct disorder or unmedicated attention-deficit/hyperactivity disorder for offspring).

Sample Characteristics

The average age of offspring at pretest was 11.4 years (*SD* = 2.4, range = 8-16); 54% were male and 46% were female. Parental death occurred on average 10.1 months (*SD* = 6.3, range = 4-30) before program entry. The cause of parental death was 67% illness, 20% accident, and 13% homicide or suicide. Sixty-three percent of caregivers were mothers, 21% were fathers, and 16% were relatives or friends; given the predominance of parents, the term parents will be used. Family ethnicity composition

included: 67% non-Hispanic White, 16% Hispanic, 7% African American, 3% Native American, 1% Asian or Pacific Islander, and 6% other. The median family income was between $30,000 and $35,000; 15.9% of the sample had incomes below the poverty line (based on 1996 U.S. Health and Human Services poverty guidelines).

After the pretest, families were randomly assigned to the FBP (90 families, 135 offspring) or to a literature control condition (LC; 66 families, 109 children) using computer generated randomization procedures. All children in the family between ages 8 and 16 were invited to participate in the study. The baseline demographic, offspring, and family variables were comparable across the two groups with one exception; the percentage of non-Hispanic white participants was lower in the FBP than in the LC (64% vs. 72%).

Intervention Conditions

FBP

The FBP was designed to target modifiable risk factors and protective factors that were significantly associated with outcomes for parentally-bereaved youths. Families participated in 12 two-hour sessions, with concurrent group sessions run for parents, children, and adolescents. Children aged 8 to 11 years old participated in one group while adolescents aged 13 to 16 participated in another group; children age 12 were randomly assigned to either the child or adolescent group. Conjoint activities, which included parents and youths, occurred in half of group sessions. Parents also completed two one-hour individual sessions to tailor the intervention activities to better meet their family's needs. Groups ranged in size from 5 to 11 members and were led by two trained mental health professionals.

The aims of the parent group included increasing positive parenting and effective discipline as well as reducing parent demoralization and children's exposure to negative events. Youth groups targeted increasing the quality of the parent-child relationship and adaptive expression of emotions. Youth groups also taught the use of positive coping skills and adaptive control beliefs instead of applying negative or threat appraisals to situations. Leaders promoted positive self-esteem by providing reinforcement when youths participated in group activities and successfully utilized program skills. For more information on program activities, see Ayers et al. (2013-2014) and Hagan et al. (2016).

Using five videotaped sessions selected at random, implementation of each main intervention component was rated by two independent raters who achieved 85% agreement before they conducted independent ratings. Leaders of the child group averaged 89% completion of program activities. Leaders of the adolescent and parent groups both averaged 84% completion of program activities. Leaders also self-reported on their completion of program activities, and the percentages completed ranged from 92% to 93% for the child, adolescent, and parent components (Sandler et al., 2003).

Literature Control Condition

Children, adolescents, and parents each received three books about grief along with a syllabus to guide their reading at one-month intervals after the pre-test assessment. Books were age appropriate. Forty-two percent of parents, 38% of adolescents, and 71% of children reported reading at least half the books (Sandler et al., 2003).

Procedure

Data were collected at five time points: pretest (T1), posttest (T2), 11 months post-intervention (T3), 6 years post-intervention (T4), and 15 years post-intervention

(T5). The current study includes data from the pretest, posttest, 6-year follow-up, and 15-year follow-up assessments. The percentage of offspring in the FBP (n = 135) and control conditions (n = 109) who completed assessments at each time-point were: a) 98% and 97% at T2, b) 86% and 94% at T4, and c) 81% and 80% at T5, respectively.

Structured interviews were conducted in the families' homes, with parents and offspring being interviewed individually by trained staff. At the beginning of the assessments, confidentiality was explained to parents and offspring; parents and young adults signed consent forms and offspring under age 18 signed assent forms. At the pretest, posttest, and 11-month follow-ups, families with one child received $40 compensation for completing interview assessments. An extra $30 was paid to families for each additional child. At the 6-year follow-up assessment, both parents and offspring were compensated $175, and parents received $100 compensation for each additional youth interview they completed. At the 15-year follow-up assessment, emerging/young adults received $200; parents received $75. Approval from the Institutional Review Board at Arizona State University was obtained before study recruitment or enrollment commenced.

Measures

The measures are described in terms of the developmental period in which they were administered (i.e., childhood/adolescence for the pretest [T1] and posttest [T2]; adolescence/emerging adulthood for the 6-year follow-up [T4]; and emerging/young adulthood for the 15-year follow-up [T5]). Measures with a timeframe referred to the last month, with exceptions noted. We report reliability coefficients of the measures for the assessment points included in the models when possible.

Childhood/Adolescence

Demographics. Parents and offspring provided information on demographics such as age, gender, income, household composition, time since death, and cause of death.

Positive Parenting. A composite of standardized scores on the measures of parent-child relationship quality and effective discipline described below was used. Parents and youths each completed seven questionnaires; two observational measures were also included. The composite was based on a second-order confirmatory factor analysis (CFA) using the pretest measures to examine a multi-method, multi-reporter factor model (Kwok et al., 2005). The model fit the data adequately. The weighted alphas were .97 at T1 and .98 at T2 (alphas did not include the two observational measures). The composite has been negatively associated with problem behaviors in parentally-bereaved youths (Kwok et al., 2005; Lin et al., 2004).

Relationship quality was assessed using four youth-report and three parent-report measures. Acceptance and rejection were measured using parallel youth- and parent-report versions of the Acceptance (16 items, e.g., "Your caregiver enjoyed doing things with you;" at T1, youth $\alpha = .92$, parent $\alpha = .91$) and Rejection (16 items, "Your caregiver acted as though you were in the way;" at T1, youth $\alpha = .87$, parent $\alpha = .87$) subscales of the Child Report of Parental Behavior Inventory (CRPBI; Schaefer, 1965a, 1965b; Teleki et al., 1982). Rejection items were reverse scored. The CRPBI has adequate internal consistency reliability and convergent validity when reported on by children, adolescents, and adults (Furman & Buhrmeister, 1985; Schaefer, 1965b; Schludermann & Schludermann, 1970; Teleki et al., 1982).

Youths and parents completed the parent-child Dyadic Routines Scale (Wolchik et al., 2000; 7 items, "You went someplace special with your family each week;" at T1, youth $\alpha = .74$, parent $\alpha = .76$), adapted from the Family Routines Inventory (Jensen et al., 1983). This measure has demonstrated adequate internal consistency reliability and convergent validity (Cohen et al., 2000).

Youths and parents also completed the Stable Positive Events Scale (Sandler et al., 1991; 5 items, e.g., "You had free time to do things you like"). Internal reliability is not appropriate for life events measures because the items are assumed to be uncorrelated (Sandler & Guenther, 1985). The items have demonstrated adequate face and predictive validity (Roosa et al., 1988). Stable positive events were related to lower behavior problems and mediated the effects of parental death on child symptoms in prior bereaved samples (Sandler et al., 1991; West et al., 1991).

Youths and parents each completed one unique measure. Youth completed the Sharing of Feelings Scale created for this RCT (Ayers et al., 1998; 10 items, e.g., "Your parent understands your sad feelings;" at T1, $\alpha = .85$) assessing perceptions about whether one's parent understands or has empathy for their feelings. Scores have been negatively associated with mental health problems in parentally-bereaved youths (Ayers et al., 1998). Parents completed the Talk with Reassurance subscale of the Caregiver Expression of Emotion Questionnaire (Jones & Twohey, 1998; 6 items, e.g., "[You do] not show your depressed feelings when interacting with child;" at T1, $\alpha = .74$). This scale has adequate reliability and validity (Jones & Twohey, 1998).

Discipline was assessed using parallel youth and parent versions of two scales: the Inconsistency of Discipline subscale of the CRPBI (8 items, "Your caregiver frequently

changed the rules you were supposed to follow;" at T1, youth $\alpha = .80$, parent $\alpha = .86$) and an adapted version of the Parent Perception Inventory (PPI) that assesses parents' use of positive reinforcement (Hazzard et al., 1983; 8 items, "How often did your caregiver tell you that you are a good kid;" at T1, youth $\alpha = .91$, parent $\alpha = .92$). The Inconsistency of Discipline subscale and PPI were scored so that higher scores indicated more consistent discipline and effective parenting. The CRPBI and the PPI have both demonstrated adequate internal consistency reliability and convergent validity (Hazzard et al., 1983; Schaefer, 1965b; Teleki et al., 1982).

Ratings from videotaped 15-minute behavioral interactions between parents and youths were used to assess parent-child dyadic communication (Griffin & Decker, 1996). Two scores were used: affective tone (interrater reliability $\kappa = .77$) and attending behaviors (interrater reliability $\kappa = .82$).

Negative Life Events. At T1 and T2, youths reported on whether any of 51 negative events taken from the General Life Events Schedule for Children (Sandler et al., 1986; e.g., "A close friend of yours moved away") and the Parent Death Events List (Sandler et al., 1992; e.g., "Your relatives said bad things about your deceased parent") happened. The sum of the negative events experienced was used. Internal reliability is not appropriate for life events measures (Sandler & Guenther, 1985). This measure predicts child mental health problems and lower levels of effective parenting (Sandler et al., 1992; Tein et al., 2006).

Internalizing and Externalizing Problems. At T1, youths completed the Children's Depression Inventory (CDI; Kovacs, 1981; 27 items, e.g., "I am sad all the time;" $\alpha = .87$) which assesses affective, cognitive, and behavioral symptoms of

childhood depression over the past two weeks. Youths also completed the Revised Children's Manifest Anxiety Scale (RCMAS; Reynolds & Richmond, 1978; 28 items, e.g., "You worried a lot of the time;" α = .90) which assesses anxiety symptoms. These measures were standardized and averaged to create a composite score of internalizing problems. Adequate internal consistency reliability and validity have been demonstrated for both the CDI (Kovacs, 1981; Saylor, Finch, Furey et al., 1984; Saylor, Finch, Spirito et al., 1984) and the RCMAS (Reynolds, 1980a, 1980b; Reynolds & Paget, 1981; Reynolds & Richmond, 1978).

Youth-report externalizing problems were assessed using the externalizing subscale of the Youth Self-Report (YSR; Achenbach, 1991b; 30 items, e.g., "You were mean to others," α = .86), which has demonstrated adequate reliability and validity (Achenbach 1991a, 1991b). Continuous symptom count scores were used.

Parents completed the Child Behavior Checklist (CBCL; Achenbach 1991a; 112 total items; internalizing, e.g., "Cries a lot," α = .87; externalizing, e.g., "Argues a lot," α = .90). Symptom scores from the internalizing problems and externalizing problems subscales were used. This measure has demonstrated adequate reliability and validity (Achenbach, 1991a; Achenbach & Edelbrock, 1983; Achenback & Rescorla, 2001).

An overall composite score of baseline behavior problems was calculated by standardizing the youth and parent measures of internalizing problems and externalizing problems and computing an average score.

Academic Competence. At T1, youths completed the academic competence subscale of the Coatsworth Competence Scale (Coatsworth & Sandler, 1993; 6 items, "Compared to other kids in your class you got good grades," α = .87). This measure has

adequate internal consistency reliability and discriminant and convergent validity (Coatsworth & Sandler, 1993; Spaccarelli et al., 1995).

Peer Competence. At T1, youths completed the peer competence subscale of the Coatsworth Competence Scale (Coatsworth & Sandler, 1993; 7 items, e.g., "You were liked by lots of kids in your class," $\alpha = .62$). This measure has adequate reliability and validity (Coatsworth & Sandler, 1993; Spaccarelli et al., 1995).

Adolescence/Emerging Adulthood

Internalizing and Externalizing Problems. Youths under the age of 18 completed the internalizing and externalizing subscales of the YSR and those 18 and older completed the internalizing and externalizing subscales of the Young Adult Self-Report (YASR; Achenbach, 1997; 112 total items; internalizing, e.g., "Feels worthless or inferior;" externalizing, e.g., "Impulsive or acts without thinking"). Adequate reliability and validity for these measures have been demonstrated (Achenbach, 1997; Achenbach & Rescorla, 2003). Item response theory was used to create equivalent measures across the adolescent and emerging adult report measures. An equating transformation selected conceptually equivalent items and placed them on a common metric using scale scores from a large data set, which was obtained from Achenbach. The resulting YSR and YASR internalizing problems subscales included 22 items ($\alpha = .90$) and 22 items ($\alpha = .88$), respectively. The resulting YSR and YASR externalizing problems subscales included 32 items ($\alpha = .88$) and 27 items ($\alpha = .87$), respectively.

Substance Use. Youths reported on their alcohol and drug use on 21 items from the Monitoring the Future Scale (MFS; Johnston et al., 1993a, 1993b; e.g., "On how many occasions (if any) have you had alcoholic beverages to drink – more than just a few

sips during the last 12 months?"). An alcohol and marijuana use subscale assessing the frequency of use was computed from the sum of two items assessing past year use. This scale has demonstrated adequate internal consistency, reliability, and construct validity (Johnston & O'Malley, 1985; Johnston et al., 1992, 1993a, 1993b).

Academic Competence. Data were collected for those currently enrolled in middle school and high school. Fifty-percent of the sample were in school at the time of the assessment (123 of 244); school transcript data were collected for 92% of offspring enrolled in school (113 of 123). Overall GPA was calculated based on the mean of English, math, science, and social studies grades over the two semesters prior to the assessment. GPA is widely accepted as a reliable and valid measure of academic achievement and is associated with later academic and work competencies .

Peer Competence. Youths completed the peer competence subscale of the Coatsworth Competence Scale (Coatsworth & Sandler, 1993; 7 items, e.g., "You were liked by lots of kids in your class," $\alpha = .62$). This measure has adequate reliability and validity (Coatsworth & Sandler, 1993; Spaccarelli et al., 1995).

Romantic Competence. The 36-item Experiences in Close Relationships scale (Brennan et al., 1998) was administered. This measure has two subscales, anxiety and avoidance. Reflecting on their close romantic relationships generally rather than a specific partner, adolescents/young adults rated the degree to which the items described their feelings in close relationships (0 = "not at all" to 8 = "very much"); the original Likert response options ranged from one to seven in the original scale but due to an error constructing the assessment battery in the current study, the response options included a wider range of scores, from zero to eight, but were qualitatively equivalent. An overall

mean romantic attachment security composite score was calculated from the anxiety and avoidance subscales as suggested by the scale creators; higher scores indicate higher attachment security. Adequate reliability and validity have been demonstrated (e.g., Brennan et al., 1998; Mikulincer & Florian, 2000). Alpha was .83 in the current study.

Work Competence. The Assessment of Work Performance scale was used to measure participation and success in occupational activities over the past year as well as the past 6 years for those who responded "Yes" to having ever worked any type of job for pay (Jessor et al., 1981; 12 items, e.g., "Have you received a negative evaluation from a supervisor at work?"; 1 = Yes, 0 = No). Participants also rated how evaluations of their work performance have been (1 = "Much below average" to 5 = "Much better than average"). Negatively worded items were reverse scored, and all items were recoded into dichotomous scores. The items were then summed to form a total work competence score where higher scores indicate better work performance. Alpha was .41 in the current study; additional information on the reliability and validity of this measure as it is scored presently is unknown.

Emerging/Young Adulthood

Academic Competence. Academic competence was measured using a single item assessing educational attainment ("What is the highest level of school you have completed or the highest degree you have;" 1-11 = "First grade through 11th grade," to 20 = "Doctorate degree" or higher). This single-item measure has demonstrated adequate predictive validity in prior intervention and non-experimental studies (Masten et al., 2012; Roisman et al., 2004; Wolchik et al., 2020).

Peer Competence. The peer attachment subscale of the Inventory of Parent and Peer Attachment (IPPA; Armsden & Greenberg, 1987, 2009) was used. This 25-item scale assesses affective and behavioral dimensions of close relationships with friends perceived as sources of psychological security (i.e., mutual trust, quality of communication, and anger and alienation; e.g., "I can count on my friends when I need to get something off my chest;" 1 = "Almost never or never true" to 5 = "Almost always or always true"). Negatively worded items were reverse coded before the peer attachment items were summed to compute a total peer attachment score as a proxy for peer competence. This measure has good reliability and validity (Armsden & Greenberg, 1987, 2009; Cotterell, 1992). Alpha was .85 in the current study.

Romantic Competence. Emerging/young adults completed 12 items from the Experiences in Close Relationships scale (Brennan et al., 1998). Participants rated the degree to which items described their feelings in close relationships on dimensions of Anxiety and Avoidance (1 = "not at all" to 7 = "very much"). Negatively worded items were reverse coded, and an overall mean romantic attachment security score was calculated, where higher scores indicate higher attachment security. Adequate reliability and validity of the 12-item measure have been demonstrated both as a standalone measure and when embedded within the larger 36-item scale (Brennan et al., 1998; Mikulincer & Florian, 2000; Wei et al., 2007). Alpha was .77 in the current study.

Work Competence. Work competence was measured using a single item from the interviewer-administered version of the Status Questionnaire (Masten et al., 1995, 1999; Roisman et al., 2004; i.e., "When you work[ed], how well do [did] you carry out the responsibilities of your job compared to other people your age [i.e., get to work, do

your job, don't miss work, etc.]?") on a 5-point Likert scale (1 = "Well below average/Not well at all" to 5 = "Well above average").

Analyses

Preliminary Analyses

SAS Version 9.4 software (2014) was used to conduct descriptive statistics and zero-order correlations between baseline and post-intervention variables. Non-normality of all observations and variables was assessed. I also conducted outlier analysis and attrition analysis. Attrition analyses were conducted using recommended procedures (Jurs & Glass, 1971) to determine if the validity and generalization of the results were affected by attrition over the assessments. Specifically, I tested differences between those who participated in the 15-year follow-up study and those who did not on baseline levels of study variables and covariates in predictive models. I also examined whether there was differential attrition between the intervention groups. Baseline equivalence analyses were conducted in previous studies and showed two significant differences between participants assigned to intervention and LC conditions on the 30 comparisons of baseline measures of offspring and parent functioning, putative mediators, and demographics (Sandler et al., 2003); parents in the FBP condition reported significantly more positive affective tone and attending behaviors than those in the self-study condition.

Primary Analytic Strategy

Four tests of the direct effects of the FBP on academic, peer, romantic, and work competence outcomes at the 15-year follow-up were conducted using multiple linear regression in Mplus (Muthén & Muthén, 1998-2017). Path analysis in structural equation modeling (SEM; with observed variables) tested four cascading effects models across

four waves of data (intervention condition → posttest [T2] → 6-year follow-up [T4] → 15-year follow-up [T5]). Pretest measures of positive parenting and negative life events were included in relevant model pathways to account for levels of these variables prior to random assignment to the intervention or control condition. For academic and peer competence variables, the same or similar baseline measure was included in all relevant pathways (e.g., T1 academic competence with T4 GPA and T5 educational attainment). Based on developmental literature, previous studies of this RCT, and correlations of these variables with putative mediators and/or outcomes, age, gender, and the composite score of behavior problems (i.e., youth and caregiver reports of internalizing problems and externalizing problems) were included as covariates for each mediator and outcome predicted at T2 to T5.

The joint significance test was used to evaluate two- and three-pathway mediation effects, where if each of the paths in the mediated effect is significantly different from zero, then the findings support a significant mediation effect (Taylor et al., 2008). Simulation studies showed that the joint significant test method for detecting two-path or three-path mediation pathways has good statistical power and controls Type I error well (MacKinnon et al, 2002; Taylor et al., 2008), comparable to both percentile or bias-corrected bootstrap methods. Two-pathway mediation effects were also tested using the Rmediation method for computing the distribution of the product of coefficients method, a method that has been shown to have good statistical power and control of Type I error rates (Tofighi & MacKinnon, 2011). If zero was not included in the 90% confidence interval (CI), it was assumed that the mediated effect was statistically significant.

Mplus version 8 (Muthén & Muthén, 1998-2017) was used to conduct SEM. Full-information maximum likelihood (FIML; Enders, 2010) was used to handle missing data. This approach was used to reduce bias due to missing data and allows for testing models based on the full sample of participants with data available at pretest. This approach is recommended over traditional deletion methods, such as listwise and pairwise deletion (Enders & Bandalos, 2001). FIML allows all available observations to be used to provide unbiased estimates of model parameters in the presence of missing values while preserving statistical power to detect effects. MLR maximum likelihood estimation in Mplus produced standard errors and parameter estimates that were robust to non-normality of relations between the range of variables across models. All analyses controlled for the family clustering effect due to multiple youth within the same families, using a sandwich estimator (Muthen & Muthen, 1998-2017).

To conduct the exploratory gender analyses given the complicated cascade effects models and relatively restricted sample, I employed the following heuristic method to test only the parameters that appeared to be different between groups based on the following procedure. First, each cascade model was examined for males and females separately. Based on the results from the separate groups, I tested regression parameters for differences if: (1) the regression coefficients were both significant and the signs were opposite for males (e.g., negative) and females (e.g., positive); or (2) the regression coefficient was significantly different from zero for one group (e.g., males) but not for the other group (e.g., females), regardless of the signs. Then, the cascade model was conducted simultaneously including both groups (i.e., multi-group analysis), and the

"MODEL CONSTRAINT" feature in Mplus was applied to examine the differences in these regression coefficients between males and females.

RESULTS

Preliminary Data Analyses

All values fell within the acceptable ranges for skewness and kurtosis (less than 2 and 7, respectively; West et al., 1995). All Cook's *D* values were less than 1.0 and did not indicate any influential data (Cohen et al., 2013). Results from a 2 x 2 chi-square test showed that the rates of attrition did not differ significantly across the intervention conditions ($\chi^2[1, 244] = .282$, $p = .596$). Additional results from a series of logistic regressions and ANOVAs showed that those who dropped out did not significantly differ from those who completed the 15-year follow-up on any of the baseline measures used in the current study, and there were not any significant Intervention Condition x Attrition Status interactions or Attrition Status main effects.

Tables 1 through 3 present the correlations and significance levels among the baseline measures, among the post-intervention measures, and between the baseline and post-intervention measures, respectively. Means, standard deviations, and skewness and kurtosis indices of these variables are also included.

There were several significant zero-order correlations among post-intervention putative mediators and outcome variables (see Table 2). Positive parenting and negative life events were significantly, negatively related ($r = -.35$, $p < .01$). Positive parenting and negative life events were each significantly related to internalizing problems ($r = -.17$, $p < .05$; $r = .15$, $p < .01$, respectively) and externalizing problems ($r = -.24$, $p < .01$; $r = .20$, $p < .01$. respectively), although in opposite directions. Correlations were .59 between T4 internalizing and externalizing problems and .30 (*p*s < .01) between externalizing problems and substance use. Among the T4 competence variables, peer

competence was significantly, positively related to romantic attachment (r = .29, p < .01) and work competence (r = .19, p < .05). Correlations between T4 peer and romantic competence and T4 internalizing and externalizing problems ranged from -.26 to -.48 (ps < .01). T4 internalizing, externalizing, and substance use problems were each significantly, positively related to T4 work competence (range = .23 - .34, ps < .01). Among the T5 competence variables, peer competence was significantly, positively related to T5 romantic attachment (r = .25, p < .01) and work competence (r = .17, p < .05); romantic attachment and work competence were positively correlated (r = .27, p < .01). Positive correlations between T4 and T5 within-domain competence outcomes were significant and ranged from .25 (p < .05) to .47 (p < .01). Cross-domain associations of T4 peer competence and romantic attachment with T5 work competence (r = .31, p < .01; r = .22, p < .05, respectively) and T4 peer competence with T5 romantic attachment (r = .21, p < .01), were positive and significant.

Primary Data Analyses

Direct Effects of FBP on Competence

There were no significant direct effects of intervention condition (FBP vs. LC) on academic, peer, romantic, or work competence at the 15-year follow-up when examining the path from FBP to each competence outcome in isolation, after accounting for baseline covariates: T5 academic competence ([Standardized] β = .113; [unstandardized] b = .590, SE = .397, z = 1.487, p = .137); T5 peer competence (β = -.006; b = -.007, SE = .086, z = -.082, p = .935); T5 romantic competence (β = .035; b = .066, SE = .153, z = .433, p = .665); and T5 work competence (β = -.036; b = -.051, SE = .125, z = -.412, p = .681). Offspring age and baseline academic competence were significantly related to T5

academic competence outcomes (β = .156; b = .167, SE = .069, z = 2.414, $p \leq .05$; β = .222; b = .896, SE = .269, z = 3.337, $p \leq .001$). Gender was significantly related to T5 peer competence (β = .165; b = .896, SE = .269, z = 3.337, $p \leq .001$).

Cascade Model Analysis

Tables 4 through 7 report standardized and unstandardized estimates of the regression coefficients related to FBP, T2 and T4 mediators, and T5 outcome variables for the cascade mediation models with T5 academic competence, peer competence, romantic competence, and work competence as the outcome, respectively. I also included regression coefficients between baseline covariates and T2 to T4 mediators and T5 outcome variables that were significant. The parameter estimates and statistical significance levels of the similar paths for the models predicting T5 academic competence, T5 peer competence, and T5 romantic competence varied slightly across analyses and when stratified by gender due to the use of the maximum likelihood method across models. Some pathways between study variables in the model predicting work competence differed from those in the other models. The work competence model included only those who had ever worked (n = 195) versus the whole sample (N = 244).

Figures 5 through 8 show the models for a) academic competence, b) peer competence, c) romantic competence, and d) work competence. The figures include the model fit indices and standardized regression coefficients for the paths that were significant. Included in the model but not shown in the figures are the effects of the covariates for each mediator and outcome, as well as all the correlations among the study variables measured at the same time point (i.e., all the T1 covariates; T2 parenting and negative life events; and all the T4 mediators). All four models demonstrated good fit

(e.g., reflected by a CFI > .95, RMSEA < .05, and SRMR < .05; Hu & Bentler, 1999; Kline, 2005). In the following sections, I report results of: 1) pathways from FBP and posttest parenting and negative life events to competence and behavior problems in adolescence/emerging adulthood across models, 2) model with academic competence as the outcome, 3) model with peer competence as the outcome, 4) model with romantic competence as the outcome, 5) model with work competence as the outcome, and 6) effects of covariates to the mediators and competence outcomes. Gender differences in results are presented at the end of each section.

FBP and Posttest Parenting and Negative Life Events to Adolescence/Emerging Adulthood. Using the model that included T5 academic competence as the outcome for reporting the following statistics, the significant effects of the FBP on improved parenting (β = .130; b = .140, SE = .046, z = 3.080, $p \leq .01$) and decreased exposure to negative life events (β = -.118; b = -.183, SE = .082, z = -2.215, $p \leq .05$) at posttest were consistent with findings from prior studies of this intervention trial (see Figures 2–5; Luecken et al., 2014; Sandler et al., 2000, 2003; Tein et al., 2006). T2 negative life events were significantly, negatively related to GPA at the 6-year follow-up (β = -.296; b = -.353, SE = .115, z = -3.077, $p \leq .01$) but were not significantly related to other post-intervention variables. None of the post-intervention outcomes were significantly predicted by T2 positive parenting in the overall models. Significant correlations between the covariates and the post-intervention variables are presented in Table 3 while the significant effects of the covariates on mediators and competence outcomes are presented in Tables 4 through 7. The relations between covariates and post-intervention variables will be discussed in detail at the end of the results section.

Multigroup comparisons of the models across gender revealed that, for females only, the intervention had a significant negative association with T4 externalizing problems (β = -.195; *b* = -.442, *SE* = .193, *z* = -2.287, $p \leq .05$). In addition, for the model with work competence as the outcome (*n* = 195), intervention condition had a significant positive association with T4 peer competence (β = .308; *b* = .316, *SE* = .124, *z* = 2.555, $p \leq .05$). In two of the four models (i.e., peer and romantic competence), negative life events were significantly, negatively related to T4 work competence (β = -.234; *b* = -.366, *SE* = .174, *z* = -2.103, $p \leq .05$). Contrary to hypotheses, a direct positive association was found between T2 positive parenting and T4 substance use in females (β = .311; *b* = .961, *SE* = .328, *z* = 2.926, $p \leq .01$).

For males only, T2 positive parenting was significantly related to higher T4 romantic attachment (β = .312; *b* = .743, *SE* = .257, *z* = 2.891, $p \leq .01$). In the model predicting work competence, T2 positive parenting also predicted lower T4 substance use (β = -.205; *b* = -.736, *SE* = .374, *z* = -1.968, $p \leq .05$). Contrary to hypotheses, T2 negative life events were significantly, negatively related T4 externalizing problems (β = -.238; *b* = -.326, *SE* =.150, *z* = -2.180, $p \leq .05$).

Academic Competence. As shown in Figure 2, T4 GPA was positively related to educational attainment in emerging adulthood (β = .471; *b* = 1.325, *SE* = .270, *z* = 4.905, $p \leq .001$). The path from the FBP to T2 negative life events was significant (β = -.117; *b* = -.178, *SE* = .090, *z* = -1.980, $p \leq .05$), the path from negative life events to T4 GPA was significant (β = -.296; *b* = -.353, *SE* = .115, *z* = -3.077, $p \leq .01$) and the path from T4 GPA to T5 academic competence was significant (β = .471; *b* = 1.325, *SE* = .270, *z* = 4.905, $p \leq .001$). Thus, according to the joint significance test, this 3-path mediation

pathway provides evidence of a significant mediation effect. Multigroup comparisons of the models for males and females did not reveal any significant gender differences in the mediation pathways predicting T5 academic competence.

Peer Competence. Significant within-domain relations occurred for peer competence. T4 peer competence was significantly positively associated with T5 peer competence ($\beta = .250$; $b = .295$, $SE = .111$, $z = 2.653$, $p \leq .01$). None of the other variables at T4 were significantly related to T5 peer competence. Neither T2 parenting nor negative life events had a significant association with T4 peer competence. Thus, mediation pathways to T5 peer competence were not tested. Multigroup comparisons of the models across gender showed no significant differences in the models for males and females.

Romantic Competence. Figure 4 shows a positive within-domain association of T4 and T5 romantic attachment ($\beta = .281$; $b = .204$, $SE = .060$, $z = 3.411$, $p \leq .001$). None of the other variables at T4 had significant relations to T5 romantic competence. T2 parenting and negative life events did not have significant associations with T4 peer competence in the full sample. Thus, mediational analyses to T5 romantic competence were not conducted.

Multigroup comparisons of the models across gender revealed a significant linkage between T2 positive parenting and T4 romantic attachment for males only ($\beta = .295$; $b = .702$, $SE = .253$, $z = 2.772$, $p \leq .01$). Results of joint significance testing showed a significant 3-path mediation pathway of FBP on T5 romantic attachment for males through cascading intervention-induced improvements in T2 positive parenting to T4 romantic attachment to T5 romantic attachment. The path from the FBP to T2 positive

parenting was significant (β = .117; *b* = .113, *SE* = .054, *z* = 2.099, $p \leq .05$), the path from positive parenting to T4 romantic attachment was significant (β = .295; *b* = .702, *SE* = .253, *z* = 2.772, $p \leq .01$), and the path from T4 romantic attachment to T5 romantic attachment was significant (β = .281; *b* = .204, *SE* = .060, *z* = 3.411, $p \leq .001$).

Work Competence. This model included only offspring who had ever worked. As shown in Figure 5, positive cross-domain relations between T4 GPA (β = .278; *b* = .217, *SE* = .099, *z* = 2.199, $p \leq .05$) and peer competence (β = .443; *b* = .674, *SE* = .179, *z* = 3.770, $p \leq .001$) and T5 work competence occurred. Contrary to hypotheses, T4 externalizing problems were associated with higher T5 work competence (β = .261; *b* = .163, *SE* = .071, *z* = 2.294, $p \leq .05$).

The joint significance test showed a significant 3-path mediation pathway from FBP to T5 work competence. Youths in FBP had lower scores on T2 negative life events (β = -.117; *b* = -.178, *SE* = .090, *z* = -1.980, $p \leq .05$); youths who experienced lower T2 negative life events had higher T4 GPA (β = -.270; *b* = -.329, *SE* = .150, *z* = -2.188, $p \leq .05$), which in turn, was related to higher work competence at T5 (β = .278; *b* = .217, *SE* = .099, *z* = 2.199, $p \leq .05$).

Multigroup comparisons of the models across gender revealed several gender differences. For males only, T2 negative life events predicted lower externalizing problems (β = -.250; *b* = -.326, *SE* = .150, *z* = -2.180, $p \leq .05$). Also, results of joint significance testing showed an unexpected mediation pathway for males. Males in the FBP had lower scores on T2 negative life events (β = -.117; *b* = -.178, *SE* = .090, *z* = -1.980, $p \leq .05$); males who experienced higher T2 negative life events had lower externalizing problems (β = -.250; *b* = -.326, *SE* = .150, *z* = -2.180, $p \leq .05$) which, in

turn, were associated with higher scores on work competence at T5 (β = .261; *b* = .163, *SE* = .071, *z* = 2.294, $p \leq .05$).

For females only, there was a significant within-domain association of T4 and T5 work competence (β = .279; *b* = .175, *SE* = .073, *z* = 2.382, $p \leq .05$). The intervention also had a significant, direct positive association with T4 peer competence (β = .308; *b* = .316, *SE* = .124, *z* = 2.555, $p \leq .05$) and a negative association with T4 externalizing problems (β = -.242; *b* = -.578, *SE* = .247, *z* = -2.344, $p \leq .05$). As shown, T4 peer competence and T4 externalizing problems were positively related to T5 work competence.

Two mediational pathways from FBP to T5 work competence were found for females. Results of joint significance testing and the Rmediation significance testing were consistent with mediation effects of FBP on T5 work competence through cascading intervention-induced improvements in T4 externalizing and T4 peer competence for females. Females who received FBP reported higher T4 peer competence (β = .308; *b* = .316, *SE* = .124, *z* = 2.555, $p \leq .05$) and lower externalizing problems (β = -.242; *b* = -.578, *SE* = .247, *z* = -2.344, $p \leq .05$). The path from T4 peer competence to T5 work competence (β = .443; *b* = .674, *SE* = .179, *z* = 3.770, $p \leq .001$) and the path from T4 externalizing problems to T5 work competence (β = .261; *b* = .163, *SE* = .071, *z* = 2.294, $p \leq .05$) were positive and significant. Results of the Rmediation test showed significant mediation from the FBP to T4 peer competence to T5 work competence (mediation effect = .142, *SE* =90% CI = [.006, .332]) and from FBP to T4 externalizing problems to T5 work competence (mediation effect = -.187, *SE* =90% CI = [-.338, -.066]). Both were significant at the 90% confidence interval. However, the mediation effect through T4

externalizing problems was opposite than expected. Although the FBP reduced externalizing problems at T4, lower externalizing problems at T4 were associated with lower work competence at T5.

Effects of Covariates to the Mediators and Competence Outcomes. There were several significant findings related to the covariates. Offspring gender was significantly associated with T4 romantic attachment (β = -.169; *b* = -.440, *SE* = .180, *z* = -2.440, $p \leq .05$), work competence (β = .143; *b* = .333, *SE* = .158, *z* = 2.11, $p \leq .05$), and internalizing problems (β = .238; *b* = .698, *SE* = .191, *z* = 3.661, $p \leq .001$) such that T4 romantic attachment was higher for males while work competence and internalizing problems were higher for females. T5 peer competence was significantly related to gender (β = .167; *b* = .187, *SE* = .087, *z* = 2.160, $p \leq .05$). Compared to males, females reported higher T5 peer competence. Age was significantly, positively related to T4 substance use (β = .216; *b* = .163, *SE* = .048, *z* = 3.401, $p \leq .001$) and negatively related to T4 peer competence (β = -.186; *b* = -.130, *SE* = .059, *z* = -2.189, $p \leq .05$), work competence (β = -.362; *b* = -.174, *SE* = .034, *z* = -5.074, $p \leq .001$), and externalizing problems (β = -.148; *b* = -.068, *SE* = .031, *z* = -2.183, $p \leq .05$). T1 behavior problems was significantly associated with: a) lower T2 positive parenting (β = -.121; *b* = -.096, *SE* = .040, *z* = -2.374, $p \leq .05$), T4 peer competence (β = -.186; *b* = -.130, *SE* = .059, *z* =2.189, $p \leq .05$) and work competence (β = -.187; *b* = -.320, *SE* = .160, *z* = -1.999, $p \leq .001$); and b) higher T2 negative life events (β = .192; *b* = .217, *SE* = .084, *z* = 2.583, $p \leq .01$) and T4 internalizing problems (β = .222; *b* = .479, *SE* = .150, *z* = .3.202, $p \leq .001$), externalizing problems (β = .333; *b* = .549, *SE* = .104, *z* = 5.273, $p \leq .01$), and substance use (β = .217; *b* = .586, *SE* = .220, *z* = 2.660, $p \leq .01$). T1 peer competence was

significantly related to T4 peer competence (β = .173; b = .169, SE = .078, z = 2.176, $p \leq$ .05). Finally, T1 academic competence was significantly, positively associated with T5 educational attainment (β = .202; b = .814, SE = .281, z = 2.899, $p \leq .01$).

DISCUSSION

This is one of the very few studies to test the effects of a relatively brief parenting-focused prevention program delivered during childhood/adolescence on competence in emerging/young adulthood. Using a cascading effects model, the analyses examined competence in four developmentally salient tasks of emerging/young adulthood: academic, peer, romantic, and work competence. The current study evaluated the long-term direct and cascade effects of a 12-session program for parentally-bereaved families 15 years after participating in the intervention. Tests of the cascading effects of the FBP to post-intervention outcomes were conducted within a longitudinal, multiple-linkage model across four waves of data.

Summary of Findings

There were no significant direct effects of the FBP on any of the four measures of competence in emerging/young adulthood. Instead, the FBP's effects on academic competence, romantic competence, and work competence at the 15-year follow-up occurred through multiple-linkage pathways from the FBP to posttest negative life events or positive parenting to outcomes at 6 years post-intervention. Some of the cascading pathways were moderated by gender. Because the analyses controlled for the longitudinal stability of functioning in these domains and for the within-time-period covariance among functioning in the domains assessed, they provided conservative tests of the cascading effects. The results provide support for the cascade model of development (Cicchetti & Sroufe, 2000) in which cascading effects occur from one domain of behavior or system of development to successes or difficulties in other domains of behavior across

developmental transition periods. Below, I discuss how the findings relate to other research, the contributions of the study, its limitations, and directions for future work.

Academic Competence

The positive effects of the FBP on academic competence, defined as higher educational attainment, in emerging/young adulthood were mediated through reduced frequency of negative life events and subsequent improvements in high school GPA. Overall GPA in high school is an important indicator of performance in academic tasks that require motivational, learning, and organizational strategies. Understanding intervention effects on educational attainment is important given that it influences future employment (e.g., Johnson & Mortimer, 2011) and mid-life career and life satisfaction (e.g., Chow et al., 2017). When considering the well-documented positive relation between educational level and earnings, and the compounding of earning differences across the lifespan (e.g., Day & Newburger, 2002), this program effect has important implications for reducing the public health burden of parental death.

Although in the bivariate correlations externalizing problems in adolescence/emerging adulthood were significantly negatively correlated with educational attainment, this relation became nonsignificant in the context of the other competence and behavior problem outcomes. The within-domain relation was significant; higher GPA in adolescence/emerging adulthood predicted greater educational attainment. This continuity may reflect the cumulative effect of early success on academic tasks to facilitate later academic competence through the use of skills and attitudes required for academic success as well as the stability of cognitive abilities and achievement motivation over development. This finding is consistent with results from non-

experimental research (French et al., 2015; Masten et al., 2005) and from an RCT of a similar preventive intervention for divorced families that showed intervention-induced improvement in high school GPA was associated with educational attainment in emerging adulthood (Wolchik et al., 2020).

Peer Competence

Peer competence was not affected by participation in the intervention either directly or indirectly through the aspects of adolescent/emerging adulthood functioning that were tested. Peer competence showed significant continuity across the two developmental periods assessed. The observed continuity may reflect the cumulative effect of earlier peer competence facilitating later peer competence through the use of skills and attitudes required for interpersonal success.

Romantic Competence

In the full sample, romantic competence showed significant continuity from adolescence/emerging adulthood to emerging/young adulthood. Although evidence of continuity in romantic competence from adolescence to emerging adulthood is limited and mixed, there is agreement among researchers that romantic competence is a relatively unexplored but important indicator of young adult adaptation worthy of further investigation (Madsen & Collins, 2011; Masten et al., 2010; Roisman et al., 2004; Seiffge-Krenke et al., 2001). For example, one study found that aspects of romantic love and relationship quality in adolescence predicted similar romantic relationship outcomes at age 20, whereas another study found a non-significant relation between romantic competence at age 20 (i.e., capacity to form close and mutual romantic relationships) and romantic competence outcomes 10 years later.

Also, there were significant bivariate correlations between internalizing problems and peer competence in adolescence/emerging adulthood and romantic competence. However, in the context of the other variables, these cross-domain relations became nonsignificant. The lack of significant cross-domain effects of academic and peer competence is contrary to findings by Roisman and colleagues (2004) that academic competence and peer competence around age 20 predicted romantic relationships about age 30. This discrepancy may be due to differences in the measures, developmental level of the samples, or both.

For males, the FBP led to more positive romantic competence. These long-term program effects were initiated by improvements in positive parenting at posttest, which led to cascading effects on romantic competence in adolescence/emerging adulthood, which showed continuity into emerging/young adulthood.

Work Competence

The domain of work is considered a developing area of competence in emerging adulthood (Masten et al., 2010; McCormick et al., 2010; Roisman et al., 2004). For both males and females, GPA was positively associated with work competence. Unexpectedly, externalizing problems were also positively related to work competence for males and females. Gender differences occurred for two other cross-domain effects of competence. For females only, there was significant continuity in work competence, and peer competence was positively related to work competence

The significant relation between GPA and work competence is consistent with other intervention research studies, which found that promoting early academic success led to long-term effects on work success in emerging/young adulthood (Hawkins et al.,

2005, 2008; Reynolds et al., 2007). This finding is also consistent with prior developmental research showing that skills associated with early academic success facilitate later competence in work responsibilities (e.g., Masten et al., 2010; Pinquart et al., 2003; Rabiner et al., 2016). These skills include intrapersonal factors including effortful self-control (Allemand et al., 2019; Converse et al., 2018; Valiente et al., 2008), self-esteem and -efficacy (Fenning & May, 2013), task persistence (Andersson & Bergman, 2011), autonomy (Ryan & Shin, 2011), motivation (Elliot et al., 2017), and social problem-solving (Fitzgerald et al., 2005).

In the bivariate correlations, externalizing problems were non-significantly, negatively related to work competence; however, in the context of the other variables, externalizing problems were significantly, positively related to work competence. This finding differs from those of a large body of research that show that youth externalizing problems in adolescence and work competence in adulthood are negatively related (e.g., Masten et al., 2010; Wolchik et al., 2020). Explanations for this unexpected association are unclear. It is possible that levels of externalizing problems were low in this sample compared to normative levels or that the findings reflect a statistical artifact (i.e., due to issues of multicollinearity, measurement or Type I error) or suppression of true direct and mediated effects among the post-intervention outcomes. Given the discrepancy from the larger literature, the highly subjective nature of self-reported work competence outcomes at 15 years post-intervention, and differing relations with 6-year behavior problems in bivariate correlations versus simultaneous regressions, it would be important to replicate these findings in another sample of bereaved youth.

The current findings add to the limited literature demonstrating gender differences in continuity in work performance from adolescence/emerging adulthood to emerging/young adulthood, especially when other salient, and competing, domains of competence are examined concurrently (e.g., Roisman et al., 2004). Perhaps understanding aspects of the positions that males and females held in adolescence, such as nature, duration, and fit with interests, would help to explain this gender difference. The few longitudinal studies that have examined peer competence as a predictor of work competence have found significant positive associations between peer competence in earlier stages of development and work competence in emerging/young adulthood for both males and females (Collins & van Dulmen, 2006; Gest et al., 2006). The differences between those findings and the current finding could be due to different measures of peer and work competence or differences in the developmental level of the samples.

The FBP effects on work competence were mediated through program-induced reductions in negative life events and improved GPA 6 years post-intervention. This finding is consistent with prior research showing the significant relation between negative life events and lower academic achievement (Vaillancourt & McDougall, 2013). For females only, two additional significant mediational pathways of the FBP occurred. The FBP led to an increase in peer competence, which was associated with an increase in work competence. Also, the FBP led to a decrease in externalizing problems but externalizing problems were positively associated with work competence. For males, additional mediation effects of the FBP on work competence occurred. The FBP decreased negative life events. However, higher negative life events were associated with lower externalizing problems in adolescence/emerging adulthood, and externalizing

problems were positively associated with work competence. Given the unexpected directions of both of these paths, future studies should attempt to replicate gender-specific mediational effects.

The program effects on work competence have important implications given the well-documented relation between success in the workplace and a wide array of outcomes in emerging adulthood and later developmental stages, including occupational, financial, mental health, life satisfaction and deviant behavior outcomes (e.g., Erdogan et al., 2012; Masten et al., 2006, 2010; Sampson & Laub, 1990; Scollon & Diener, 2006; Upadyaya & Salmela-Aro, 2017). Work competence is a unique domain of functioning that likely requires a higher level of additional competences and/or integrated skills that facilitate stability in employment and opportunities for growth.

Contributions

This study contributes to the literature on interventions for parentally-bereaved youth as well as other at-risk groups of youth and to the larger literature on developmental cascade effects in several ways. First, this study extends previous research on long-term effects of relatively short, family- and evidence-based parenting programs that have examined problem behaviors, such as mental health problems, substance use, and risky sexual behavior (e.g., Sandler et al., 2018; Spoth et al., 2013, 2014; Trudeau et al., 2016; Wolchik et al., 2013, 2016, 2020) by its focus on competencies. Second, it extends the research on the long-term effects of the FBP by examining gender differences. For example, the effect of the intervention on peer competence and externalizing problems were found only for females at the 6-year follow-up. Third, it extends the findings of the studies of comprehensive, lengthy prevention programs that

have shown long-term effects on competence (e.g., Hawkins et al., 2005; Reynolds et al., 2001; Schweinhart et al., 2005). Given the current emphasis on minimizing costs while ensuring a maximum return-on-investment of prevention programs (Forman et al., 2009; Fosco et al., 2014), the current findings have important implications for the potential public health impact of the FBP program and other relatively short, evidence-based parenting interventions. Fourth, these findings contribute to our knowledge about the developmental processes that explain long-term effects of preventive interventions. In the early 1990's, Coie and his colleagues (1993) argued that the field of prevention science needs long-term follow-up of intervention samples to provide information on developmental processes to track pathways of changes in outcomes across developmental stages. However, only a handful of researchers have done this (e.g., Forgatch et al., 2009; Reynolds & Ou, 2011, 2016; Spoth et al., 2013, 2014; Trudeau et al., 2016; Wolchik et al., 2016, 2020), and nearly all of this research has focused on problem outcomes. The current study tracked developmental processes across three stages of development and identified links between program participation, program-induced increases in positive parenting and decreases in negative life events, problems and competence outcomes in adolescence/emerging adulthood and competence in emerging/young adulthood. This type of research not only strengthens causal inferences about long-term program effects (Reynolds et al., 2004), it also furthers theories about the spreading effects of both problems and competence outcomes across development.

Limitations and Directions for Future Research

There are several limitations that need to be noted. First, the sample was predominantly non-Hispanic White and middle class, and all the families were enrolled in

a trial of a preventive intervention for parentally-bereaved families. These sample characteristics limit the generalizability of the findings. Given these characteristics, replicating the findings with samples that are more diverse in ethnicity and socioeconomic background as well as with non-treatment seeking samples would be important.

Second, there are sample size concerns. The subsample analyses by gender were modest in size. Future research with larger samples of bereaved offspring would allow examination of whether the observed gender effects held in larger sample and provide more power for detecting significant mediation pathways in multiple-linkage models.

Third, nearly all the measures were subjective, self-report assessments of competence and adjustment outcomes, which may raise concerns about reporter bias. Although evidence supports the predictive validity of subjective appraisals of competence (e.g., Masten 2016, 2018), it would be valuable for future research to include both objective and subjective appraisals of competence. Measures of competence that incorporate both perceived competence and observed may prove most effective in capturing the multifaceted and interactive nature of competence and resilience in the face of adversity.

Future research might also investigate aspects of earlier functioning or adaptation that were not included in the current study. For example, it is likely that adaptive coping and social problem-solving abilities that promote the resolution of interpersonal problems in adolescence/emerging adulthood may help explain continuities and discontinuities in the development of competence over time. Further, research on the long-term effects of other relatively short prevention programs on competence would be valuable.

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Table 1

Correlations of the Baseline Measures

	Intervention [a]	Age [a]	Gender [a, c]	Behavior problems [a]	Positive parenting [a]	Negative life events [a]	Academic competence [b]	Peer competence [b]
Intervention	1							
Age	.03	1						
Gender	-.02	.01	1					
Behavior problems	.03	-.01	.04	1				
Positive parenting	.02	-.08	-.03	-.45**	1			
Negative life events	.05	-.10	.09	.42**	-.28**	1		
Academic competence	.07	-.11	.02	-.29**	.23**	-.14*	1	
Peer competence	.03	.21**	.14*	-.26**	.19**	-.15*	.29**	1
Mean	.55	11.39	1.47	-.01	0.00	0.00	3.05	3.36
Standard deviation	.50	2.43	.50	.68	.54	1.00	.64	.49
Skewness	-.22	.23	.13	.95	-.34	.68	-.51	-.99
Kurtosis	-1.97	-1.04	-2.00	1.20	-.23	.28	.03	1.06

[a] $n = 244$. [b] $n = 238$. [c] Gender is coded 1 = male, 2 = female.

** $p < .01$, * $p < .05$.

Table 2

Correlations of the Post-Intervention Measures

	1	2	3	4	5	6	7	8	9	10	11	12	13
1. T2 Positive Parenting	1												
2. T2 Negative Life Events	-.35**	1											
3. T4 GPA	.18	-.23**	1										
4. T4 Peer Competence	.14*	-.10	-.05	1									
5. T4 Romantic Attachment	.10	-.10	.05	.29**	1								
6. T4 Work Competence	.03	-.01	.00	.19*	.09	1							
7. T4 Internalizing Problems	-.17*	.15*	-.01	-.47**	-.48**	.23**	1						
8. T4 Externalizing Problems	-.24**	.20**	-.18	-.35**	-.26**	.27**	.59**	1					
9. T4 Substance Use	-.03	.07	-.18	-.06	-.07	.34**	.10	.30**	1				
10. T5 Educational Attainment	.13†	-.13†	.47**	.10	.01	.04	-.02	-.16*	-.07	1			
11. T5 Peer Competence	.02	-.08	.11	.27**	.05	.11	-.09	-.12	-.02	.11	1		
12. T5 Romantic Attachment	.23**	-.09	.03	.21**	.35**	.04	-.27**	-.16	-.06	.12	.25**	1	
13. T5 Work Competence	.07	-.13	.07	.31**	.22*	.25**	-.25**	-.10	-.05	.09	.17*	.27**	1
N	237	235	113	208	208	159	207	207	206	194	185	170	167
Mean	.15	-.61	2.48	3.22	5.97	8.55	3.51	3.70	2.53	14.63	4.09	4.94	4.10
Standard deviation	.54	.77	.90	.47	1.30	1.14	1.47	1.12	1.83	2.60	.56	.94	.71
Skewness	-.74	.68	-.13	-.63	.36	.34	-.43	-.61	1.09	.07	-.76	-.11	-.34
Kurtosis	.67	.25	-.67	.29	-.51	-.70	.08	1.33	.02	-.86	.13	-.76	-.33

Note. ** $p \leq .01$, * $p \leq .05$, † $p \leq .10$.

Table 3

Correlation between baseline measures and post-intervention measures

	1	2	3	4	5	6	7	8	9	10	11	12	13
Intervention	.14*	-.09	.05	.13†	.04	-.05	-.04	-.14†	.02	.14†	-.01	.05	-.02
Age	-.08	-.07	-.01	.06	.08	-.30**	-.09	-.15*	.20**	.15*	.12	.10	.06
Gender	.03	.06	.10	-.05	-.16*	.11	.24**	-.02	-.09	.11	.19*	-.03	-.02
Behavior Problems	-.44**	.38**	-.15	-.24**	-.10	-.12	.28**	.39**	.19**	-.19**	-.09	-.13	-.02
Positive Parenting	.80**	-.30**	.07	.12†	.10	.01	-.13†	-.19**	-.01	.11	-.09	.17*	.03
Negative Life Events	-.27**	.54**	-.10	-.08	-.13†	.06	.16*	.16*	.08	-.08	.00	-.14†	-.07
Academic Competence	.22**	-.24**	.11	.16*	.04	.07	-.05	-.13†	-.04	.26**	.02	.11	.08
Peer Competence	.21**	-.07	.14	.21**	.05	-.08	-.07	-.07	.14*	.12	.18*	.06	.12

Note. 1. T2 Positive Parenting; 2. T2 Negative Life Events; 3. T4 GPA; 4. T4 Peer Competence; 5. T4 Romantic Attachment; 6. T4 Work Competence; 7. T4 Internalizing Problems; 8. T4 Externalizing Problems; 9. T4 Substance Use; 10. T5 Educational Attainment; 11. T5 Peer competence; 12. T5 Romantic Attachment; 13. T5 Work Competence.

** $p \leq .01$, * $p \leq .05$, † $p \leq .10$.

Table 4

Pathways from Intervention to Educational Attainment in Emerging/Young Adulthood

Predictor (*Covariate)* →	T2 Positive Parenting				
	β	*b*	*SE*	*z*	*p*
Intervention	0.130**	0.140	0.046	3.080	0.002
T1 Behavior Problems	-0.121*	-0.096	0.040	-2.374	0.018
T1 Positive Parenting	0.056**	0.734	0.058	12.749	0.000
Predictor (*Covariate)* →	T2 Negative Life Events				
	β	*b*	*SE*	*z*	*p*
Intervention	-0.118*	-0.183	0.082	-2.215	0.027
T1 Behavior Problems	0.192**	0.217	0.084	2.583	0.010
T1 Negative Life Events	0.453**	0.348	0.049	7.049	0.000
Predictor (*Covariate)* →	T4 GPA				
	β	*b*	*SE*	*z*	*p*
Intervention	-0.021	-0.039	0.173	-0.228	0.820
T2 Positive Parenting	0.089	0.152	0.171	0.888	0.374
T2 Negative Life Events	-0.296**	-0.353	0.115	-3.077	0.002
Predictor (*Covariate)* →	T4 Peer Competence				
	β	*b*	*SE*	*z*	*p*
Intervention	0.115	0.109	0.068	1.611	0.107
T1 Behavior Problems	-0.186*	-0.130	0.059	-2.189	0.029
T1 Peer Competence	0.173*	0.169	0.078	2.176	0.030
T2 Positive Parenting	0.014	0.012	0.071	0.175	0.861
T2 Negative Life Events	0.006	0.003	0.040	0.085	0.932
Predictor (*Covariate)* →	T4 Romantic Attachment				
	β	*b*	*SE*	*z*	*p*
Intervention	-0.003	0.055	0.171	-0.321	0.748
Gender	-0.169*	-0.440	0.180	-2.440	0.015
T2 Positive Parenting	0.118	0.285	0.207	1.374	0.169
T2 Negative Life Events	-0.025	-0.042	0.120	-0.351	0.725
Predictor (*Covariate)* →	T4 Work Competence				
	β	*b*	*SE*	*z*	*p*

Intervention	-0.041	-0.095	0.175	-0.547	0.585
Age	-0.362**	-0.174	0.034	-5.074	0.000
Gender	0.143*	0.333	0.158	2.111	0.035
T1 Behavior Problems	-0.187*	-0.320	0.160	-1.999	0.046
T2 Positive Parenting	-0.104	-0.223	0.185	-1.205	0.228
T2 Negative Life Events	-0.039	-0.059	0.126	-0.465	0.642
Predictor (*Covariate)* →	T4 Internalizing Problems				
	β	*b*	*SE*	*z*	*p*
Intervention	-0.005	-0.014	0.273	-0.151	0.880
Gender	0.238**	0.698	0.191	3.661	0.000
T1 Behavior Problems	0.222**	0.479	0.150	3.202	0.001
T2 Positive Parenting	-0.099	-0.269	0.191	-1.410	0.158
T2 Negative Life Events	0.023	0.044	0.143	0.310	0.756
Predictor (*Covariate)* →	T4 Externalizing Problems				
	β	*b*	*SE*	*z*	*p*
Intervention	-0.109	-0.245	0.148	-1.657	0.098
Age	-0.148*	-0.068	0.031	-2.183	0.029
T1 Behavior Problems	0.333**	0.549	0.104	5.273	0.000
T2 Positive Parenting	-0.082	-0.170	0.158	-1.072	0.284
T2 Negative Life Events	0.042	0.061	0.101	0.606	0.544
Predictor (*Covariate)* →	T4 Substance Use				
	β	*b*	*SE*	*z*	*p*
Intervention	-0.011	-0.041	0.273	-0.151	0.880
Age	0.216**	0.163	0.048	3.401	0.001
T1 Behavior Problems	0.217**	0.586	0.220	2.660	0.008
T2 Positive Parenting	0.102	0.347	0.257	1.348	0.178
T2 Negative Life Events	0.053	0.127	0.190	0.670	0.503
Predictor (*Covariate)* →	T5 Educational Attainment				
	β	*b*	*SE*	*z*	*p*
Intervention	0.102	0.531	0.399	1.330	0.183
T1 Academic Competence	0.202**	0.814	0.281	2.899	0.004
T2 Positive Parenting	-0.033	-0.157	0.413	-0.380	0.704
T2 Negative Life Events	0.118	0.396	0.274	1.448	0.148

T4 GPA	0.471**	1.325	0.270	4.905	0.000
T4 Peer Competence	0.064	0.346	0.421	0.822	0.411
T4 Romantic Attachment	-0.031	-0.062	0.154	-0.403	0.687
T4 Work Competence	-0.140	-0.312	0.223	-1.398	0.162
T4 Internalizing Problems	0.041	0.073	0.193	0.377	0.706
T4 Externalizing Problems	-0.093	-0.215	0.261	-0.824	0.410
T4 Substance Use	-0.012	-0.017	0.114	-0.147	0.883

Note. N = 244. T1 = Pretest; T2 = Posttest; T4 = 6-year follow-up; T5 = 15-year follow-up; b = Unstandardized coefficient; SE = Standard error; ** $p \leq .01$, * $p \leq .05$, † $p \leq .10$.

Table 5

Pathways from Intervention to Peer Competence in Emerging/Young Adulthood

Predictor (*Covariate)* →	T2 Positive Parenting				
	β	*b*	*SE*	*z*	*p*
Intervention	0.130**	0.140	0.046	3.080	0.002
T1 Behavior Problems	-0.121*	-0.096	0.040	-2.375	0.018
T1 Positive Parenting	0.739**	0.734	0.058	12.749	0.000
Predictor (*Covariate)* →	T2 Negative Life Events				
	β	*b*	*SE*	*z*	*p*
Intervention	-0.118*	-0.182	0.082	-2.207	0.027
T1 Behavior Problems	0.192**	0.218	0.084	2.586	0.010
T1 Negative Life Events	0.453**	0.348	0.049	7.055	0.000
Predictor (*Covariate)* →	T4 GPA				
	β	*b*	*SE*	*z*	*p*
Intervention	0.004	0.008	0.179	0.042	0.967
T2 Positive Parenting	0.127	0.217	0.180	1.205	0.228
T2 Negative Life Events	-0.304**	-0.365	0.119	-3.063	0.002
Predictor (*Covariate)* →	T4 Peer Competence				
	β	*b*	*SE*	*z*	*p*
Intervention	0.116	0.111	0.068	1.626	0.104
T1 Behavior Problems	-0.185*	-0.129	0.059	-2.174	0.030
T1 Peer Competence	0.176*	0.172	0.077	2.218	0.027
T2 Positive Parenting	0.015	0.013	0.071	0.184	0.854
T2 Negative Life Events	-0.001	-0.001	0.040	-0.020	0.984
Predictor (*Covariate)* →	T4 Romantic Attachment				
	β	*b*	*SE*	*z*	*p*
Intervention	-0.003	-0.007	0.175	-0.041	0.967
Gender	-0.170*	-0.442	0.180	-2.455	0.014
T2 Positive Parenting	0.118	0.285	0.207	1.375	0.169
T2 Negative Life Events	-0.028	-0.047	0.120	-0.393	0.694
Predictor (*Covariate)* →	T4 Work Competence				
	β	*b*	*SE*	*z*	*p*

Intervention	-0.035	-0.082	0.176	-0.467	0.640
Age	-0.364**	-0.174	0.034	-5.128	0.000
Gender	0.143*	0.330	0.157	2.108	0.035
T1 Behavior Problems	-0.191*	-0.326	0.158	-2.062	0.039
T2 Positive Parenting	-0.105	-0.226	0.184	-1.229	0.219
T2 Negative Life Events	-0.040	-0.060	0.128	-0.471	0.638
Predictor (*Covariate)* →	T4 Internalizing Problems				
	β	*b*	*SE*	*z*	*p*
Intervention	-0.005	-0.014	0.199	-0.069	0.945
Gender	0.239**	0.701	0.190	3.683	0.000
T1 Behavior Problems	0.221**	0.476	0.150	3.173	0.002
T2 Positive Parenting	-0.099	-0.270	0.191	-1.416	0.157
T2 Negative Life Events	0.027	0.052	0.143	0.367	0.713
Predictor (*Covariate)* →	T4 Externalizing Problems				
	β	*b*	*SE*	*z*	*p*
Intervention	-0.111†	-0.249	0.147	-1.690	0.091
Age	-0.147*	-0.068	0.031	-2.159	0.031
T1 Behavior Problems	0.335**	0.552	0.104	5.287	0.000
T2 Positive Parenting	-0.082	-0.170	0.158	-1.073	0.283
T2 Negative Life Events	0.041	0.059	0.102	0.581	0.561
Predictor (*Covariate)* →	T4 Substance Use				
	β	*b*	*SE*	*z*	*p*
Intervention	-0.013	-0.049	0.275	-0.180	0.857
Age	0.218**	0.164	0.048	3.416	0.001
T1 Behavior Problems	0.219**	0.589	0.220	2.676	0.007
T2 Positive Parenting	0.102	0.347	0.258	1.348	0.178
T2 Negative Life Events	0.051	0.122	0.191	0.638	0.523
Predictor (*Covariate)* →	T5 Peer Competence				
	β	*b*	*SE*	*z*	*p*
Intervention	-0.033	-0.037	0.091	-0.404	0.687
Gender	0.038*	0.187	0.087	2.160	0.031
T2 Positive Parenting	-0.049	-0.051	0.083	-0.608	0.543
T2 Negative Life Events	-0.111	-0.081	0.058	-1.406	0.160

T4 GPA	-0.006	-0.004	0.072	-0.051	0.960
T4 Peer Competence	0.250**	0.295	0.111	2.653	0.008
T4 Romantic Attachment	0.015	0.007	0.038	0.173	0.863
T4 Work Competence	0.099	0.048	0.044	1.100	0.271
T4 Internalizing Problems	0.021	0.008	0.044	0.182	0.856
T4 Externalizing Problems	0.056	0.028	0.052	0.538	0.591
T4 Substance Use	-0.006	-0.002	0.022	-0.077	0.939

Note. $N = 244$; T1 = Pretest; T2 = Posttest; T4 = 6-year follow-up; T5 = 15-year follow-up; β = Standardized coefficient; *b* = Unstandardized coefficient; *SE* = Standard error; *z* = z-score.

** $p \leq .01$, * $p \leq .05$, † $p \leq .10$.

Table 6

Pathways from Intervention to Romantic Attachment in Emerging/Young Adulthood

Predictor (*Covariate)* →	T2 Positive Parenting				
	β	*b*	*SE*	*z*	*p*
Intervention	0.130**	0.140	0.046	3.080	0.002
T1 Behavior Problems	-0.121*	-0.096	0.040	-2.374	0.018
T1 Positive Parenting	0.739**	0.734	0.058	12.750	0.000
Predictor (*Covariate)* →	T2 Negative Life Events				
	β	*b*	*SE*	*z*	*p*
Intervention	-0.118*	-0.182	0.082	-2.211	0.027
T1 Behavior Problems	0.192**	0.217	0.084	2.586	0.010
T1 Negative Life Events	0.453*	0.348	0.049	7.053	0.000
Predictor (*Covariate)* →	T4 GPA				
	β	*b*	*SE*	*z*	*p*
Intervention	0.008	0.014	0.187	0.077	0.939
Gender	0.179*	0.332	0.170	1.957	0.050
T2 Positive Parenting	0.129	0.221	0.178	1.242	0.214
T2 Negative Life Events	-0.302**	-0.364	0.119	-3.070	0.002
Predictor (*Covariate)* →	T4 Peer Competence				
	β	*b*	*SE*	*z*	*p*
Intervention	0.114	0.109	0.068	1.603	0.109
T1 Behavior Problems	-0.180*	-0.126	0.060	-2.107	0.035
T1 Peer Competence	0.182*	0.178	0.078	2.282	0.022
T2 Positive Parenting	0.010	0.009	0.071	0.127	0.899
T2 Negative Life Events	0.000	0.000	0.041	0.000	1.000
Predictor (*Covariate)* →	T4 Romantic Attachment				
	β	*b*	*SE*	*z*	*p*
Intervention	-0.003	-0.009	0.174	-0.051	0.960
Gender	-0.162*	-0.420	0.179	-2.338	0.019
T2 Positive Parenting	0.113	0.271	0.204	1.327	0.184
T2 Negative Life Events	-0.036	-0.061	0.120	-0.506	0.613
Predictor (*Covariate)* →	T4 Work Competence				

	β	*b*	*SE*	*z*	*p*
Intervention	-0.041	-0.096	0.176	-0.545	0.586
Age	-0.359**	-0.172	0.034	-5.004	0.000
Gender	0.143*	0.332	0.158	2.104	0.035
T1 Behavior Problems	-0.192*	-0.327	0.157	-2.080	0.037
T2 Positive Parenting	-0.110	-0.236	0.184	-1.287	0.198
T2 Negative Life Events	-0.044	-0.066	0.128	-0.519	0.603
Predictor (*Covariate)* →	T4 Internalizing Problems				
	β	*b*	*SE*	*z*	*p*
Intervention	-0.004	-0.013	0.199	-0.064	0.949
Gender	0.233**	0.683	0.191	3.575	0.000
T1 Behavior Problems	0.216**	0.466	0.151	3.083	0.002
T2 Positive Parenting	-0.096	-0.262	0.191	-1.371	0.170
T2 Negative Life Events	0.031	0.059	0.143	0.415	0.678
Predictor (*Covariate)* →	T4 Externalizing Problems				
	β	*b*	*SE*	*z*	*p*
Intervention	-0.110†	-0.248	0.147	-1.686	0.092
Age	-0.148*	-0.068	0.031	-2.173	0.030
T1 Behavior Problems	0.333**	0.549	0.105	5.247	0.000
T2 Positive Parenting	-0.080	-0.167	0.158	-1.053	0.292
T2 Negative Life Events	0.041	0.060	0.101	0.592	0.554
Predictor (*Covariate)* →	T4 Substance Use				
	β	*b*	*SE*	*z*	*p*
Intervention	-0.013	-0.048	0.275	-0.175	0.861
Age	0.217**	0.164	0.048	3.412	0.001
T1 Behavior Problems	0.218**	0.587	0.220	2.669	0.008
T2 Positive Parenting	0.103	0.349	0.259	1.350	0.177
T2 Negative Life Events	0.051	0.121	0.191	0.634	0.526
Predictor (*Covariate)* →	T5 Romantic Attachment				
	β	*b*	*SE*	*z*	*p*
Intervention	-0.004	-0.008	0.146	-0.052	0.958
T2 Positive Parenting	0.194	0.339	0.213	1.592	0.111
T2 Negative Life Events	0.007	0.009	0.133	0.068	0.945

T4 GPA	-0.040	-0.040	0.155	-0.261	0.794
T4 Peer Competence	0.075	0.150	0.174	0.860	0.390
T4 Romantic Attachment	0.281**	0.204	0.060	3.411	0.001
T4 Work Competence	0.007	0.006	0.095	0.063	0.950
T4 Internalizing Problems	-0.097	-0.062	0.065	-0.961	0.336
T4 Externalizing Problems	0.086	0.072	0.091	0.796	0.426
T4 Substance Use	-0.015	-0.008	0.044	-0.176	0.860

Note. $N = 244$; T1 = Pretest; T2 = Posttest; T4 = 6-year follow-up; T5 = 15-year follow-up; β = Standardized coefficient; *b* = Unstandardized coefficient; *SE* = Standard error; *z* = z-score.

** $p \leq .01$, * $p \leq .05$, † $p \leq .10$.

Table 7

Pathways from Intervention to Work Competence in Emerging/Young Adulthood

Predictor (*Covariate)* →	T2 Positive Parenting				
	β	*b*	*SE*	*z*	*p*
Intervention	0.130**	0.136	0.050	2.741	0.006
T1 Behavior Problems	-0.116†	-0.095	0.051	-1.879	0.060
T1 Positive Parenting	0.742**	0.734	0.065	11.239	0.000
Predictor (*Covariate)* →	T2 Negative Life Events				
	β	*b*	*SE*	*z*	*p*
Intervention	-0.117*	-0.179	0.090	-1.980	0.048
T1 Behavior Problems	0.237**	0.266	0.084	3.161	0.002
T1 Negative Life Events	0.458**	0.349	0.055	6.388	0.000
Predictor (*Covariate)* →	T4 GPA				
	β	*b*	*SE*	*z*	*p*
Intervention	-0.053	-0.099	0.229	-0.431	0.667
T2 Positive Parenting	0.198	0.331	0.210	1.575	0.115
T2 Negative Life Events	-0.270*	-0.329	0.150	-2.188	0.029
Predictor (*Covariate)* →	T4 Peer Competence				
	β	*b*	*SE*	*z*	*p*
Intervention	0.160*	0.151	0.077	1.956	0.050
T2 Positive Parenting	0.083	0.071	0.082	0.857	0.392
T2 Negative Life Events	0.013	0.008	0.049	0.165	0.869
Predictor (*Covariate)* →	T4 Romantic Attachment				
	β	*b*	*SE*	*z*	*p*
Intervention	0.022	0.055	0.179	0.309	0.757
T2 Positive Parenting	0.183†	0.425	0.235	1.810	0.070
T2 Negative Life Events	0.016	0.027	0.152	0.178	0.859
Predictor (*Covariate)* →	T4 Work Competence				
	β	*b*	*SE*	*z*	*p*
Intervention	-0.026	-0.061	0.181	-0.338	0.735
Age	-0.348**	-0.169	0.035	-4.780	0.000
Gender	0.149*	0.342	0.164	2.084	0.037

T1 Behavior Problems	-0.188*	-0.322	0.158	-2.030	0.042
T2 Positive Parenting	-0.092	-0.192	0.182	-1.056	0.291
T2 Negative Life Events	-0.016	-0.025	0.132	-0.188	0.851
Predictor (*Covariate)* →	T4 Internalizing Problems				
	β	*b*	*SE*	*z*	*p*
Intervention	-0.025	-0.074	0.233	-0.316	0.752
Gender	0.204**	0.604	0.233	2.590	0.010
T1 Behavior Problems	0.201**	0.444	0.178	2.491	0.013
T2 Positive Parenting	-0.126	-0.340	0.220	-1.541	0.123
T2 Negative Life Events	-0.010	-0.019	0.179	-0.107	0.915
Predictor (*Covariate)* →	T4 Externalizing Problems				
	β	*b*	*SE*	*z*	*p*
Intervention	-0.122	-0.282	0.184	-1.530	0.126
Age	-0.146†	-0.071	0.039	-1.806	0.071
T1 Behavior Problems	0.346**	0.590	0.129	4.582	0.000
T2 Positive Parenting	-0.065	-0.136	0.201	-0.676	0.499
T2 Negative Life Events	-0.021	-0.031	0.131	-0.241	0.810
Predictor (*Covariate)* →	T4 Substance Use				
	β	*b*	*SE*	*z*	*p*
Intervention	-0.030	-0.112	0.311	-0.359	0.720
Age	0.232**	0.182	0.050	3.642	0.000
T1 Behavior Problems	0.221*	0.609	0.249	2.447	0.014
T2 Positive Parenting	0.041	0.138	0.307	0.451	0.652
T2 Negative Life Events	-0.016	-0.038	0.258	-0.149	0.881
Predictor (*Covariate)* →	T5 Work Competence				
	β	*b*	*SE*	*z*	*p*
Intervention	-0.142†	-0.205	0.123	-1.669	0.095
T2 Positive Parenting	-0.026	-0.034	0.117	-0.293	0.769
T2 Negative Life Events	-0.172†	-0.163	0.094	-1.729	0.084
T4 GPA	0.278*	0.217	0.099	2.199	0.028
T4 Peer Competence	0.443**	0.674	0.179	3.770	0.000
T4 Romantic Attachment	0.146†	0.082	0.045	1.829	0.067
T4 Work Competence	0.177†	0.110	0.058	1.894	0.058

T4 Internalizing Problems	-0.069	-0.033	0.052	-0.645	0.519
T4 Externalizing Problems	0.261*	0.163	0.071	2.294	0.022
T4 Substance Use	-0.078	-0.030	0.040	-0.749	0.454

Note. $N = 195$; T1 = Pretest; T2 = Posttest; T4 = 6-year follow-up; T5 = 15-year follow-up; β = Standardized coefficient; *b* = Unstandardized coefficient; *SE* = Standard error; *z* = z-score.

** $p \leq .01$, * $p \leq .05$, † $p \leq .10$.

Figure 1

Theoretical Developmental Cascade Models of Competence

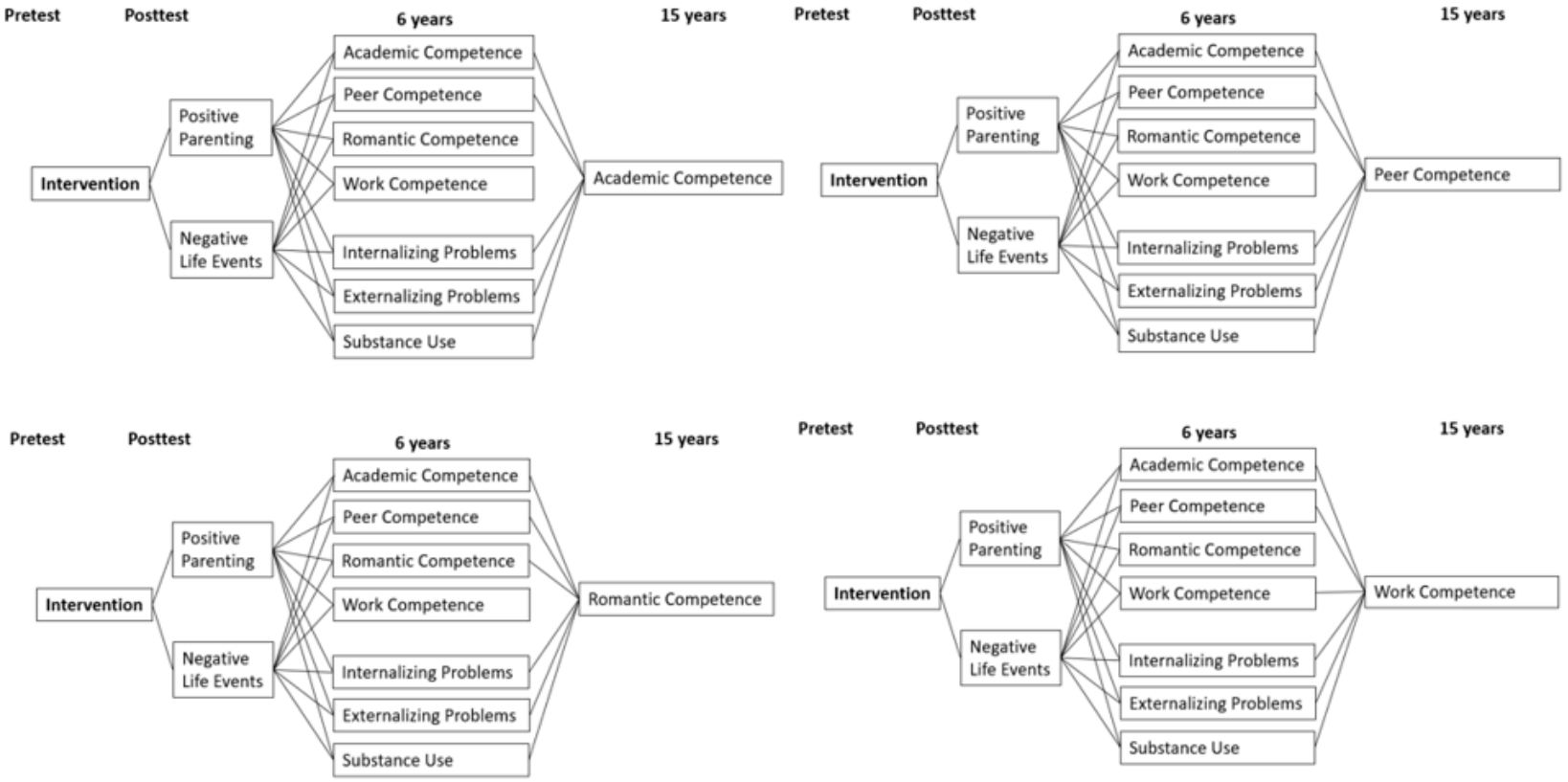

Figure 2

Developmental Cascade Model of Educational Attainment with Significant Estimates Only

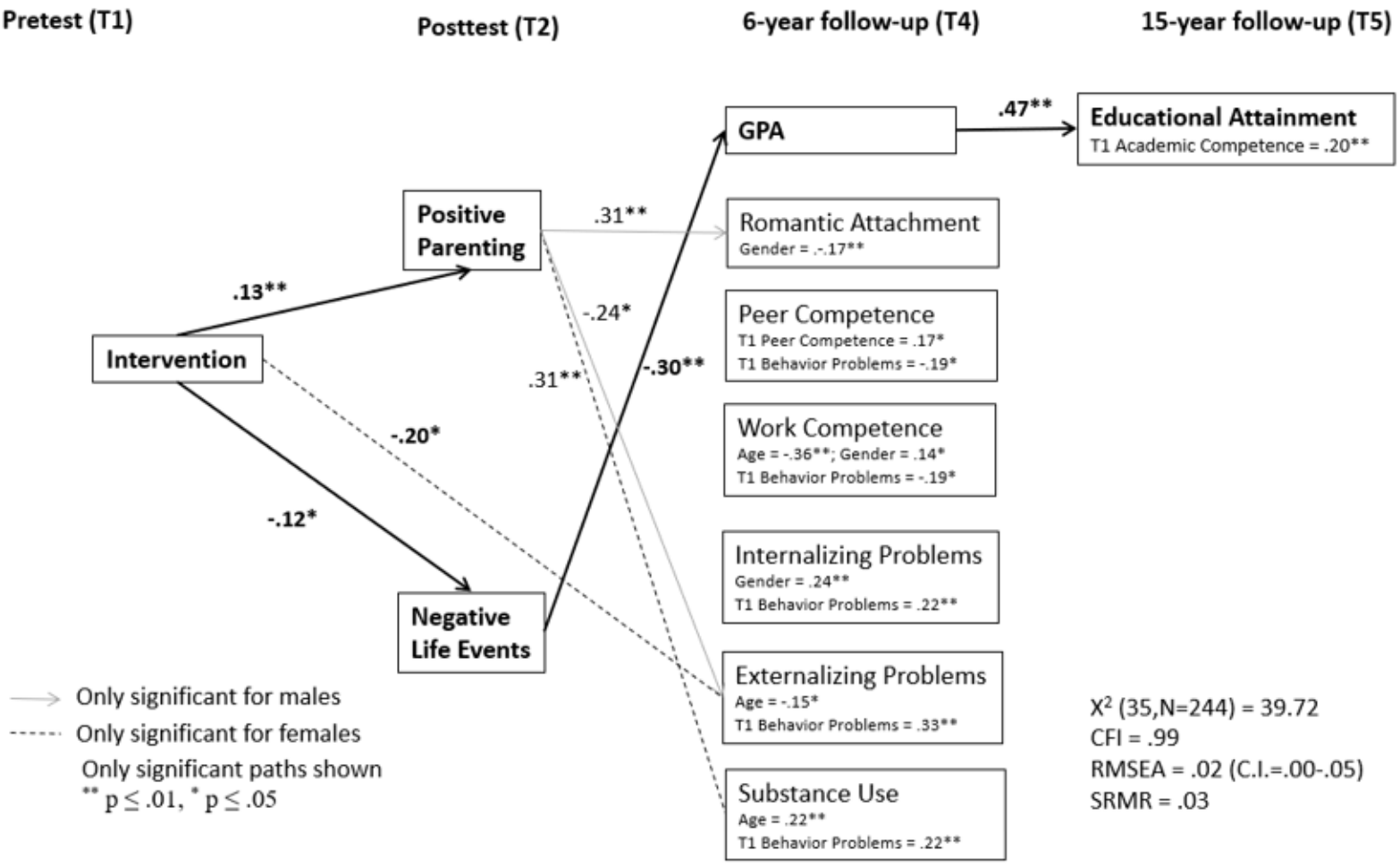

Figure 3

Developmental Cascade Model of Peer Competence with Significant Estimates Only

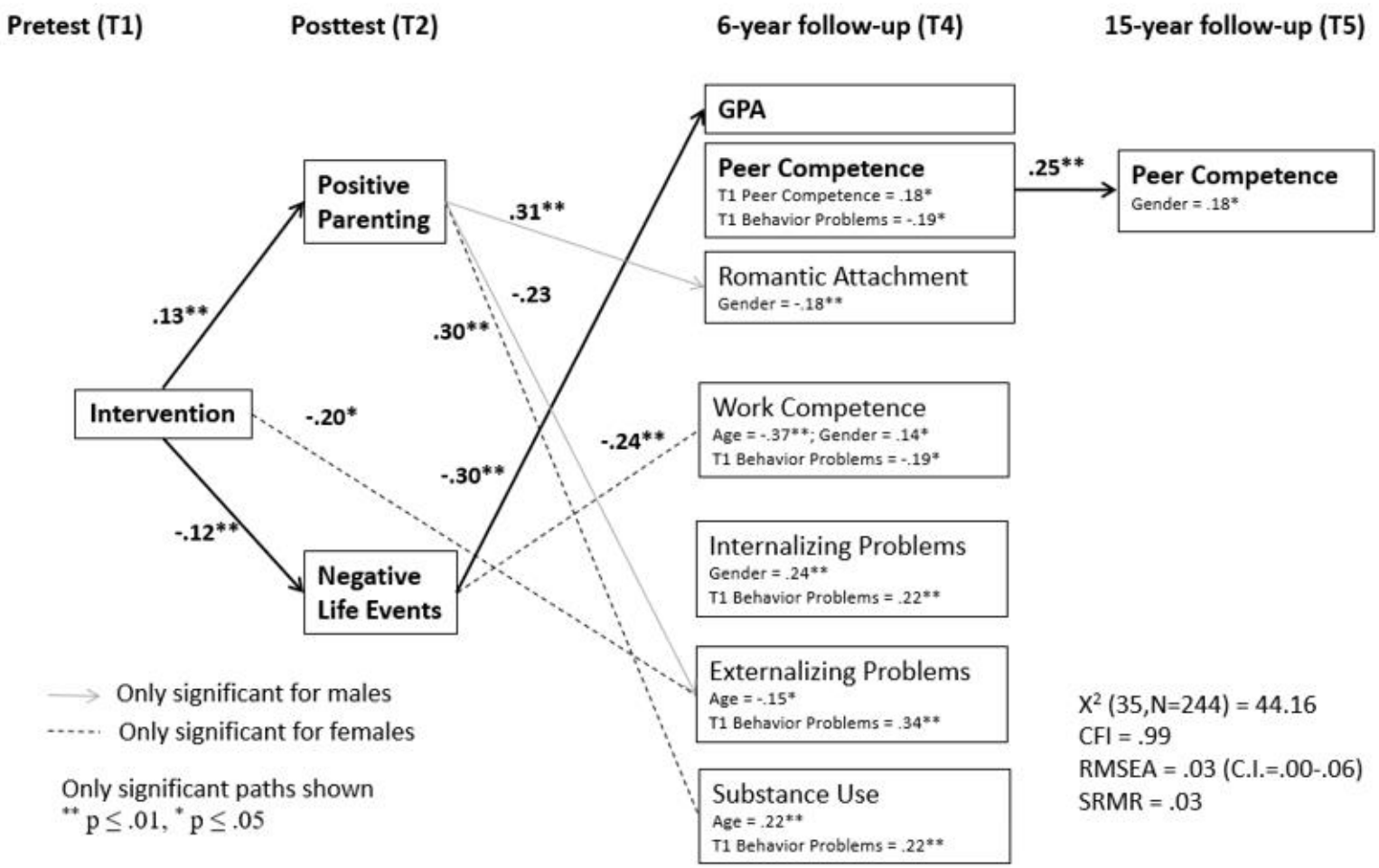

Figure 4

Developmental Cascade Model of Romantic Relationship Competence with Significant Estimates Only

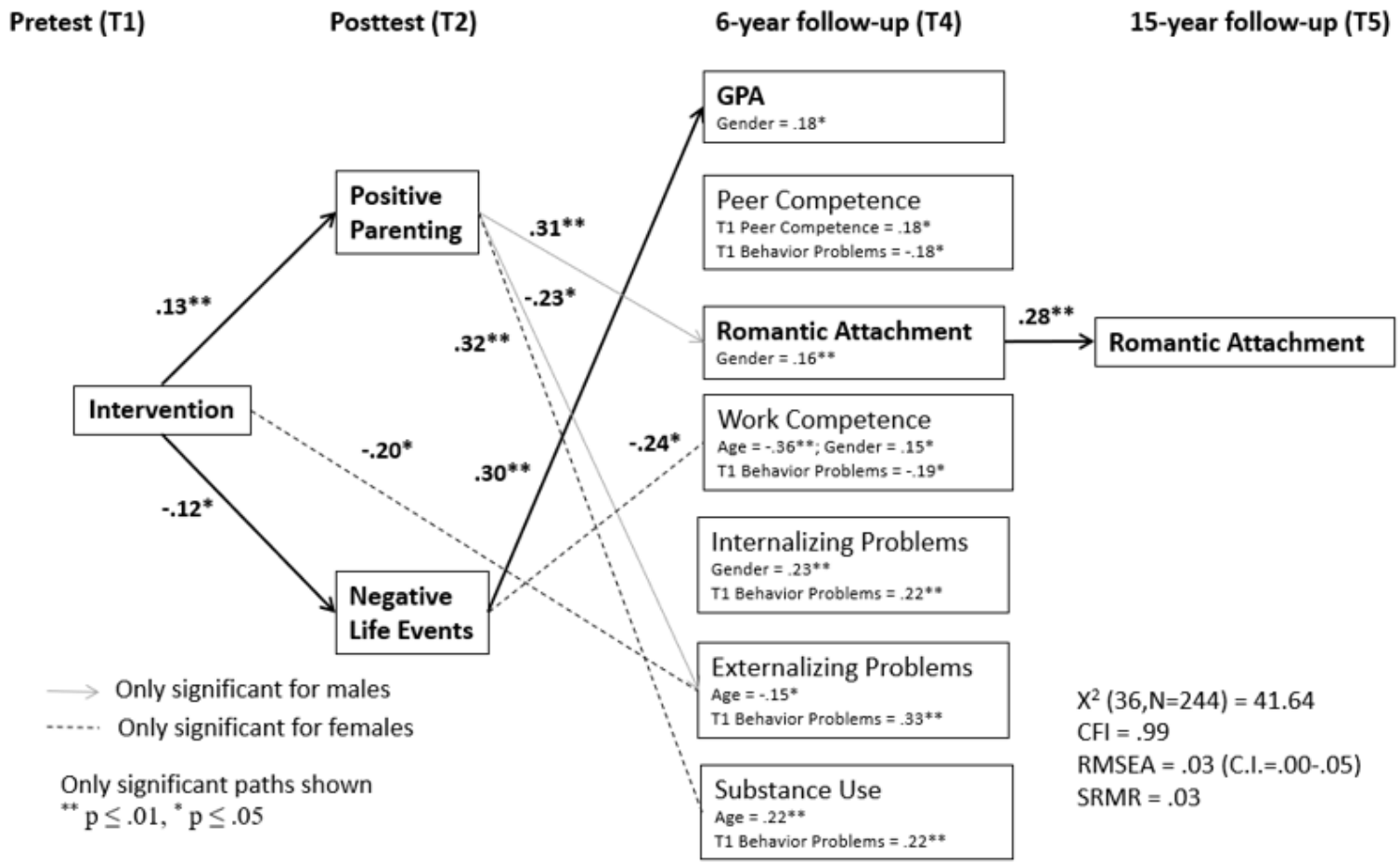

Figure 5

Developmental Cascade Model of Work Competence Showing Only Significant Paths for those who had Ever Worked During Adolescence/Emerging Adulthood