

EFFECTS OF THE EARLY RISERS PROGRAM ON CHILDREN'S SOCIAL SKILLS AND
PARENTS' EMOTION AND COGNITION

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Effects of the Early Risers Program on Children's Social Skills and Parents'
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ABSTRACT

The Early Risers Skills for Success Program provides comprehensive skills training to children with adjustment problems and offers parent training to their parents. The present study expects parenting training contributes to increases in parenting confidence and involvement and decreases in relational frustration of parents in the program compared with the control. We also want to know whether improving children's social competence mediates the program's effects on parents' positive feeling and cognition.

114 early elementary school students and their parents received the intervention and training and 76 children and parents were in the control. Five waves of data were collected over two years. Parenting training was found to have no effects on parental emotion and cognitions over time. Teacher-rated social skills of children were found to have significant fixed effects on parent well-being and involvement over time. Therefore, children's social skills mediated the program's effects on parents' emotion and cognition.

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INTRODUCTION

Emotional and Behavioral Problems in Children

Emotional and behavioral problems in young children have become one of the toughest challenges that parents, families, schools and society have to face across countries. A sample of 1,887 children from a German preschool showed 12.4% displayed emotional and behavioral symptoms in the last six months (Furniss, 2006). A nationally representative sample from Turkey included 11.9% of toddlers clinically confirmed and 18.6% marginally diagnosed as problematic children (Erol, 2005). About 5% to 10% of children ages 5 to 15 years old in the United Kingdom and the United States showed conduct disorders of clinical significance (Meltzer, Gatward, Goodman, & Ford, 2003; Offord, Boyle, & Racine, 1989). Hutchings, et al. (2007) pointed out that higher rates of such events were associated with specific contextual factors, such as single parent situation, poor parenting skills, parental substance abuse, and parental mental disorders. About 20% of children in these contexts suffered conduct problems (Attride-Stirling, Davis, Markless, Sclare, & Day, 2001).

Early childhood emotional and behavioral difficulties, if not addressed in time, could lead to concurrent learning problems, thus upsetting the children's academic performance and life skills and making failure and frustration more likely (Eber, et al., 2013), which in turn could further worsen their emotional and behavioral problems. Young children need to learn social skills and develop their social and emotional competence in two major contexts: home and school (Anthony, et al., 2005). Their learning problems, that may result from emotional and behavior difficulties, could deprive them of the opportunity to develop social competence, either at home or in school.

Moreover, middle term and long term risky behaviors and poor outcomes across the life span, such as depression, substance abuse, psychosocial problems, and criminal behaviors, could be predicted by early unresolved emotional and behavioral problems (Champion, Goodall, & Rutter, 1995; Robins 1990; Rutter, 1996) accompanied by cognitive deficits. For instance, early onset aggression predicts antisocial and criminal behaviors in adolescence and adulthood (Broidy, et al., 2003). If unintervened, about 40% of children with early problems would develop conduct disorder later on such as substance use and violent behaviors (Coid, 2003).

From the angle of cost of conduct problems, all the expenses of treating a person with conduct disorder until 28 years old could be 10 times higher than that of a typically developing person; when criminal behavior takes place, the cost would elevate to the highest amount and still need to further cover education, health, legal services, etc. (Dretzke, et al., 2005).

In order to avoid middle term and long term negative risks and poor outcomes and minimize the cost of treating, an intervention early in life, when children's behavior patterns are more easily shaped (Tremblay, 2006), either in a direct (intervention to children) or indirect (parent training) way, should be introduced to block the path from the childhood behavior problems to antisocial behavior in adulthood.

The purpose of the current study is to examine the effects of parent training and the potential mediating role of children's social competence development on parents' positive feelings and cognition in a comprehensive intervention program – Early Risers Skills for Success.

Parent Training's Effects on Parenting

The education system expects children to acquire appropriate social behaviors from their families and teachers (Eber et al., 2013); however, parents are their children's first teachers.

Children of diverse family backgrounds experience different parenting (Eber et al., 2013). Positive, enthusiastic and dedicated parenting could lead to high self-esteem, and social and intellectual competence in children and prevent children from later developing conduct problems and substance abuse (Kumpfer & Bluth, 2004). However, parenting not involving encouragement and warmth but harsh, inconsistent discipline, infrequent parental involvement, and poor guidance and control would place children at the highest risk of negative outcomes in the future such as criminal offenses and substance misuse (Patterson, Dishion, & Chamberlain, 1993). More specifically, about 30% to 40% of child antisocial behaviors could be accounted for by parent child interactions and other family interactions (Patterson, DeBaryshe, & Ramsey, 1989).

When parents lack effective parenting skills or use illogical practices, cognitive behavioral parent training or education programs can effectively help them overcome their parenting deficiency (Hutchings, Gardner, & Lane, 2004) and provide their children with an indirect early intervention. As a type of short-term intervention, parent training is used to help parents strengthen their positive relationship with their children and prevent or treat a range of emotional and behavioral problems of children (Barlow, Smailagic, Ferriter, Bennett & Jones, 2010). Research from randomized trials (e.g., Scott, Spender, Doolan, Jacobs, & Aspland, 2001) and systematic reviews (Barlow & Stewart-Brown, 2000) have shown that the conduct problems of children can be prevented and treated by parenting interventions. Besides alleviating children's behavioral symptoms, parent training has also been found to spontaneously reach goals such as increasing children's cognitive level (Cicchetti, Rogosch, & Toth, 2000), decreasing anxiety (Barrett, Dadds, & Rapee, 1996), and improving physical health (Reifsnider, 1998). Thus, parent training has been widely used across agencies for child welfare to improve

parenting skills in disadvantaged families, with about 800,000 families involved in parenting education programs each year (Barth, et al., 2005).

Barlow et al. (2010) noted that parenting programs are rooted in extensive theories such as Behavioral, Family Systems, Psychodynamic, etc. The programs make use of different techniques including meeting, discussion, role play, video-watching, instruction, etc., in their distribution in the form of one-to-one or group-based instruction among parents. Parenting program delivery can take place in various settings from clinical locations such as hospitals or social services to community-based sites such as schools, churches, etc.

Moreover, a range of evidence from follow-up or longitudinal studies indicated that multiple components relating to maternal or paternal psychosocial ill health could affect early parent-child (or infant) relationship, leading to social and cognitive deficits of children (Murray, 1990; Stein et al., 1991) and long term psychological dysfunctions of children (Caplan, Coghill, & Alexandra, 1989; Ghodsian, Zajicek, & Wolkin 1984; Rutter, 1996). In this way, researchers began to think about the role that parent training could play in the improvement of parental mental health. Barlow, Coren, and Stewart-Brown (2002) concluded parent training significantly improved short-term maternal psychosocial health. A study from meta-ethnographic information noted parent training provided parents with parenting knowledge and skills, thus making them feel more confident to guide and help their children, feel accepted and supported by other parents in the groups, feel less social isolation, and feel less stressed about their parent-child interaction due to increasing their understanding of their children (Kane, Wood, & Barlow, 2007). Research has suggested that parenting education programs could influence parenting attitudes and parenting practices (Dembo, Sweitzer, & Lauritzen, 1985), and even more, could impact the

functioning of mothers, including their self-esteem (Todres, & Bunston, 1993) and depression (Mullin, Quigley, & Glanville, 1994).

Parenting confidence. As for parental self-esteem, it has been interchangeably utilized with parental self-efficacy, parental or maternal confidence, and parental sense of competence (Coleman, & Karraker, 1997) as one construct related to parental feelings toward their parental capability (Hess, Teti, & Hussey-Gardner, 2004). Moreover, both the parental self-efficacy measure of Teti and Gelfand (1991) and the maternal confidence measure of Conrad, Gross, Fogg, and Ruchala (1992) adopted mothers' perception of their parenting effectiveness. Further, self-efficacy has the strongest theoretical basis of the concept of parental confidence (Crncec, Barnett, & Matthey, 2010). Therefore, the present study will include measures of parenting self-efficacy or parental confidence, and view them to be the same in meanings.

Parents' self-efficacy or parental confidence can be defined as: "beliefs or judgements a parent holds of their capabilities to organize and execute a set of tasks related to parenting a child" (de Montigny, & Lacharite, 2005, p. 390). Parenting self-efficacy/ parenting confidence assessment originated from the self-efficacy theory of Bandura (1977, 1982, 1989b). The theory holds that if one believes oneself to be highly effective on a specific task, one will make great effort to go through trials necessary to be successful at the task; on the other hand, one with low self-efficacy will reduce his/her efforts sooner than expected or give up completely, though success is coming soon (Hess et al., 2004). Bandura (1982, 1989a) noted the basis of the self-efficacy judgement lied in task achievement; indirect experiences probably from observing others' task-fulfillment; expressed encouragement; and emotional and physiological states. In this way, parents need to feel they are effective parents to become skillful parents; parents who believe they are effective parents probably work harder to meet challenges from childrearing,

especially when their children's cues are difficult to understand due to children's health or developmental problems (Teti, O'Connell, & Reiner, 1997). Further, parents who feel they are effective parents are more likely to achieve parental competence (Hess et al., 2004). In this sense, parent training provides parents without enough effective parenting skills with an opportunity to acquire indirect experiences from successful parenting performance. Parents after intervention will probably feel they would be effective parents, and would be willing to deal with more challenging parenting issues. So, they would be more confident than they were before intervention.

On the other hand, pure confidence in one's ability is just one aspect of task-mastery; in order to perform a task successfully, specific and accurate knowledge about the task should be acquired (Bandura, 1977, 1989a). So, when one is confident in his/her ability to be a successful parent and also is equipped with specific knowledge required to be a good caregiver, he or she will become a parent of high self-efficacy/confidence. In this sense, parent education provides parents with knowledge of how to appropriately understand and respond to a child's needs, or of how to help a child in a challenging situation such as bullying. Thus, parents would be more confident because they will be able to use acquired knowledge to guide their children through a variety of situations.

Indeed, several studies indicated that high parental self-efficacy/parenting confidence can function as a protector against parental depression, stress and relationship frustrations, and is linked to positive parental strategies and positive child outcome (Coleman, & Karraker, 1998).

High parental self-efficacy/parent confidence has been found to be associated with positive parent-child interaction (Dumka, Stoerzinger, Jackson, & Roosa, 1996; Izzo, Weiss, Shanahan, & Rodriguez-Brown, 2000), and with more parental involvement for parents of

elementary school children and middle school children (Eccles, & Harold, 1996), and adolescents (Shumow, & Lomax, 2002). It was also correlated with independently observed parenting competence after controlling for depression, social support, and child temperament (Teti, & Gelfand, 1991). Higher parental self-efficacy/ confidence was found to be linked to positive parenting practices and negatively linked to negative parenting (Hill, & Bush, 2001). Parental self-efficacy/confidence was found to be able to predict the extent to which parents undertook promotive and preventive strategies; the former meant to create positive child experiences and help children foster skills and interests, the latter meant to decrease child risk and negative outcomes (Elder, Eccles, Ardel, & Lord, 1995).

Jones and Prinz (2005) noted that there has been the strongest evidence for the relationship between parental self-efficacy/confidence and child behaviors. High task-related parental self-efficacy/confidence significantly predicted high children's positive emotion and behaviors and fewer behavioral problems (Coleman, & Karraker, 2003, Day, Factor, & Szkiba-Day, 1994; Gross, & Tucker, 1994). Further, better child behavior, in turn, leads to more parental efficacy.

In clinical settings, parental self-efficacy/confidence has become a predictor of treatment outcomes (Hoza, et al., 2000). Following intervention, correction of the parents' and children's behaviors was correlated to increased parental self-efficacy/confidence (Gross, Fogg, & Tucker, 1995). Overall, the assessment of parents' confidence/self-efficacy in child caring is an indicator of clinical and research significance (Crncec, et al., 2010).

After the implementation of a parent training program, Gross et al. (1995) found that parents' improved self-efficacy/confidence was connected with reduced stress. Other studies also showed parental self-efficacy/confidence negatively related to parenting stress (Erdwins,

Buffardi, Casper, & O'Brien, 2001; Scheel, & Rieckmann, 1998). Scheel and Rieckmann (1998) even found that parenting stress could significantly predict parental self-efficacy/confidence.

Parenting stress. Parenting stress is a multidimensional construct with various meanings for parenting, parent-child relationships, and children's well-being (Crnic, Gaze, & Hoffman, 2005). Though rare major life events could bring stress to families, parenting daily hassles could also lead to problems of families (Crnic & Greenberg, 1990). In the model of parenting daily hassles, parenting stress meant disappointments and annoyance from childrearing challenges, including children's problematic behaviors (Crnic & Greenberg, 1990). Some studies have provided evidence that parenting daily hassles is a valid stress indicator for families and child development (Creasey & Reese, 1996; Crnic & Booth, 1991). Though little research further explored the relations between parenting daily hassles, parenting behavior, and child outcomes (Crnic & Low, 2002), maternal hassles were shown to be more frequent in troubled families (Belsky, Woodworth, & Crnic, 1996b). Crnic, Gaze, and Hoffman (2005) noted parenting and quality of the early parent child relationship can be accounted for by stress from major life events and minor parenting daily hassles, independently of each other. Therefore, the present study will view parenting stress to be from a combination of major life events and parenting daily hassles; relational frustrations will be viewed to be a part of parenting stress. Crnic et al. (2005) found that parenting daily hassles contributed to more stable stress than life stress did; therefore, cumulated stress could grow to result in risks for parenting and child functioning. As children develop, parenting tasks become more complicated, parental stress might change across the developmental period (Crnic et al., 2005). Stress in the parent child relationship, in turn, has been shown to be related to depression (Webster-Stratton & Hammond, 1988).

Parenting stress/frustration has been found to have an association with various negative results such as increased child conduct problems, more negative parenting practices and less frequent parental involvement (Crnic & Low, 2002; Deater-Deckard, & Scarr, 1996; Patterson, 1983; Repetti & Wood, 1997), and negative parenting attitudes and parental well-being (Crnic & Low, 2002; Deater-Deckard, & Scarr, 1996; Smith, Oliver, & Innocenti, 2001; Thompson, Merritt, Keith, Bennett & Johndrown, 1993). After intervention from parent training, parent stress often tends to decline (Bohr, Halpert, Chan, Lishak, & Brightling, 2010).

Children's Effects on Parenting

Family researchers increasingly identified reciprocal interaction between parents and children in parenting process, and even parents themselves agree that children actively contribute to parenting process (Grusec, Goodnow, & Kuczynski, 2000). This bidirectional nature between parents and children is consistent with Bell's (1968) bidirectional theories of social development. Bell (1968) noted children have effects on parents during their socialization process, e.g., children born with high or low assertiveness and mobility would evoke different parents' emotions and make parents adopt different parenting skills, thus, possibly using nonreinforcement for the former and using encouragement or command for the latter.

There is a growing literature about children's effects on their parenting (Crouter & Booth, 2003). Some researchers pointed out that the emotions of children were related to their mothers' emotions simultaneously (Cole et al., 2003; Lorber & Slep, 2005; Martin et al., 2002) and so were some behaviors of children (Cole, LeDonne, & Tan, 2013). In other words, if children were happier and more content in interaction with their peers, their mothers would enjoy more positive emotions at the same time (Cole et al., 2013). More positive behavioral adaptation of children toward their peers predicted greater positive emotions of their mothers, but if children were more

dissatisfied and angrier with their peers, their mothers would have more negative feelings (Cole et al., 2013). When children in the Early Risers intervention program improved their social competence, they could apply the acquired social skills to effectively deal with their interaction with peers and teachers in the real world; their positive self-regulation post-intervention led to decreased behavioral problems (Hektner, 2011). At the same time, the children may have benefited from improving parenting that resulted from parent training, such as warm responses, consistent discipline and guidance, thus making them more confident in their social skills. Children's positive feelings of satisfaction would arouse similar feelings of their mothers. Therefore, we expect improving children's social competence will lead to positive attention of their parents, thus mediating increases in parenting confidence and parental involvement and decreases in relational frustration over time.

The Current Study

“The Early Risers Skills for Success Program is a comprehensive intervention targeted to children showing adjustment problems in early elementary school and their parents” (Hektner, 2014, page 1). The program offered skills training to children with behavioral problems, and provided parent training to their parents. The purpose of the current study is to examine the effects of parent training on parents' feelings and cognition, and the potential role of children's social competence in mediating the relationship between being in the program and positive parental outcomes.

Based on the literature review above, we expect that parenting training will lead to increases in parenting confidence and parental involvement and decreases in relational frustration of parents in the program compared with the control. Thus, we would expect parents of children in the program to experience more positive changes than parents of children in the

control group. And we also have another research question: how did improving children's social competence mediate the program's effects on parents' positive feelings and cognition?

METHOD

Overview

This study is part of a larger study that was conducted from 2009 – 2012. Information about the larger study is provided here and taken from Hektner (2011).

The study was conducted in a Midwestern U.S. city primarily populated by Caucasians. Five demographically comparable public elementary schools consented to participate in the study. About half of the participants were kindergarteners and half were first graders. Three of the schools were randomly assigned to the intervention group. Two schools was assigned to the control group.

Participants were screened and recruited before the first summer program in 2008, and baseline assessment data were collected in spring 2008, before any intervention was given. The first follow-up assessment was conducted in the fall 2008. All of the data collection was completed again in spring 2009, fall 2009, spring 2010, and there were total 5 waves of data. Intervention services ended after the 2009 summer program.

Participants

Permission forms were given to all children ($N = 777$) enrolled in kindergarten and first grade in the five schools to bring home to their parents. Parental consent was asked for via the forms for their children to be eligible for the nomination from teachers for the study. When children returned a form, whether indicating consent or not, they received a small gift. A total of 525 children returned the form with parental consent, for a participation rate of 67.6%.

Participants' names were given to their teachers who then classified some of them into two categories: one including those who showed behavioral problems such as aggressive/disruptive and/ or withdrawn behavior, the other including those who were well-adjusted emotionally and

behaviorally. For each participant, the teacher completed the Aggression Scale and the Withdrawal Scale from the Behavioral Assessment System for Children-2 Teacher Rating Scale (BASC-2-TRS; Reynold & Kamphaus, 2004). If a child received a gender-specific T-score at or above 60 on either the Aggression or Withdrawal scale and with a concurring nomination, he/she would be put into the category labeled as “child with difficulties” (WD). If a child received scores on both scales below 60 and with a concurring nomination, he/she would be put into the category labeled as “well-adjusted child” (WA). The children who had serious developmental, emotional or behavioral disorders that required individualized education placement or who needed considerable long term mental health services would not be nominated by the teachers.

A project representative met with the parents of the children who would be determined to qualify. The study was described in detail, consent forms were provided for the entire study, and written informed consents were obtained for participation in the study. In the program condition, parents were told about the entire intervention. In the control condition, parents were told that the study required repeated measures only. In both conditions, parents were told that their children were eligible for the study due to their behavioral adjustment problems or well-adjustment. The children were not provided with this information. The initial goals for sample size were 100 WD (with difficulty) and 100 WA (well-adjusted) children, with 60 in each group (WD and WA) in the program condition and 40 in each in the control. Among 525 children, 140 (26.7%) met the WD criteria, and 80 were recruited into the study (54 program, 26 control), 247 (47.0%) met the WA criteria, and 110 were recruited into the study (60 program, 50 control).

Composition of Control and Program Groups

Among the WD children, T-tests showed there were no significant differences between the program group and control group on aggression or withdrawal scores (See Table 1). The

means of aggression and withdrawal were higher than one standard deviation above the national normative mean of 50. Chi square tests showed no significant differences between these two WD groups on gender, race/ethnicity, and parent education. However, there was a marginally significant difference between the program and control groups on the proportion of 1st graders.

Table 1

Composition of Program and Control Groups for WD Children

| Variable | Program (<i>n</i> = 54) | | Control (<i>n</i> = 26) | | <i>p</i> |
|----------------------------------|-----------------------------|-----------|-----------------------------|-----------|----------|
| | <i>M</i> or % | <i>SD</i> | <i>M</i> or % | <i>SD</i> | |
| Aggression | 66.53 | 12.87 | 63.73 | 11.50 | .352 |
| Withdrawal | 64.25 | 10.53 | 64.98 | 11.24 | .777 |
| % 1 st Grade | 53.7% | | 76.9% | | .054 |
| % Female | 48.1% | | 38.5% | | .477 |
| % Non-white | 22.6% | | 19.2% | | .990 |
| % Parents < college education | 52.1% | | 60.9% | | .612 |

Among the WA children, T-tests showed there were significant mean differences between the program and control groups on both Aggression and Withdrawal scores (See Table 2). However, because means of both groups were lower than the national normative mean of 50, the group differences were not deemed meaningful. Chi square tests showed no significant differences between the program and the control groups in WA children on grade. But there were

marginally significant differences on gender and race/ethnicity. Moreover, the WA program group appeared to be higher in socioeconomic status than control due to a significantly higher proportion of parents with college degrees.

Table 2

Composition of Program and Control Groups for WA Children

| Variable | Program (<i>n</i> = 60) | | Control (<i>n</i> = 50) | | <i>p</i> |
|-------------------------------|-----------------------------|-----------|-----------------------------|-----------|----------|
| | <i>M</i> or % | <i>SD</i> | <i>M</i> or % | <i>SD</i> | |
| Aggression | 45.63 | 4.46 | 43.55 | 2.73 | .003 |
| Withdrawal | 46.14 | 5.78 | 40.49 | 2.73 | .001 |
| % 1 st Grade | 41.7% | | 48.0% | | .566 |
| % Female | 50.0% | | 68.0% | | .080 |
| % Non-white | 25.5% | | 10.2% | | .073 |
| % Parents < college education | 38.3% | | 85.7% | | .001 |

Intervention to Children

The Early Risers program included five components over 15 months. The summer program included 72 hours of structured activities, delivered over two 3-week periods. Each program day, the children participated in three one-hour enrichment centers: an academic center, a friendship center, and a creative arts center. Free transportation between the program and the children's homes or childcare providers was provided.

Academic center. The academic center was called the “Early Risers Book Club.” Developmentally-appropriate curricula was designed to improve reading skills and increase reading interest. Age-appropriate books from diverse cultures and styles were provided and reading appreciation was emphasized. Instruction in this center was conducted by an elementary teacher.

Friendship center. The friendship center afforded social skills education by using behavioral rehearsal, modeling, coaching, and role-play techniques. The PATHS (Promoting Alternative Thinking Strategies) curriculum (lessons 1 – 24) (Greenberg & Kusche, 1994) was completed. The children were trained in recognizing, understanding, and communicating emotions. Early Risers Family Advocates, who have college degrees in elementary education or social work, delivered this part of the intervention.

Creative arts center. Children were encouraged to engage in visual expression by the use of paints and clay, drama, photography, music and dance, cooking, and nature activities in the center. Moreover, the structured creative arts activities were complemented by recreational activities.

Buddy system. The buddy system was fully integrated with the process of instruction throughout the summer program. Each child with difficulties was matched with a well-adjusted child to learn and play together within the contexts of social skills, reading enrichment, and creative arts sessions. Daily buddy dyads were awarded “Big Deal” stickers when any pair showed exemplary cooperation. Any group filling an outline of a pizza with Big Deal stickers shared in a pizza party.

Behavior management. When children were going through the intervention process, they were divided into small groups of 8 to 12. Each group was equipped with an assistant who

evaluated and responded children's behaviors. The assistant marked a chart green, yellow, or red for each child every 30 minutes to correspond to children's acceptable, unacceptable, or intolerable behaviors, and asked children every hour to recall and classify their behaviors into their assumed colors. There was a reward time at the end of each program day. Children receiving 5 or more greens out of 7 picked their desirable games or activities. Children receiving 3 or 4 greens picked activities excluding gym and playground time. Children receiving less than 3 greens got only paper and crayons or markers. Time-out was used as needed throughout the program. All staff were instructed to deliver effective requests, provide warnings, and carry out time-out. Staff also was trained to identify and praise socially desired behaviors and to choose to ignore small displeasing ones. Notes describing exemplary desired behaviors were brought by children to their parents in order for parents to praise and strengthen such behaviors outside the program.

Intervention to Parents

PEAK (Parents Excited About Kids) family nights. On five nights throughout the following school year, families of both WD and WA children were invited to school to share a meal and other activities. After the meal, parents were given instruction about a topic relevant to parenting; parents got to know each other and shared parenting concerns, thus receiving support from each other. The topics included bullying, media consumption, discipline, etc.

Family support. The family advocate provided family support services to all of the parents of WD children. The family advocate checked in with the family on the child's progress in the program, at home, and at school, and offered encouragement, validation, or suggestions on parenting strategies. Sometimes some families were referred to other agencies in the community.

Measures

Social skills of children. Behavior Assessment System for Children Second Edition (BASC-2-TRS; Reynold & Kamphaus, 2004) was used to measure social skills of children. Social skills are related to how skillfully a child interacts with people around him/her. We used Teacher-Rating Scales rated from 0 (*never*) to 4 (*Almost always*) to show how well a child was adapted to the school environment. The subscale “Social Skills” has 8 items, including items such as “Compliments others”, “Shows interest in others’ ideas”, or “Tries to bring out the best in other people”, and has a reliability (internal consistency) of .93. The first wave of data was collected in spring 2008, before any intervention was given. The rest of the data collection was completed again in fall 2008, spring 2009, fall 2009, and spring 2010. Intervention services ended after the 2009 summer program.

Parent confidence, parent relational frustration, and parent involvement. The Parenting Relationship Questionnaire –C (children) A (adolescents) (PRQ; Kamphaus & Reynolds, 2006) was used to measure parent confidence, parent relational frustration, parent involvement. And all the PRQ items were measured from 0 (*never*) to 3 (*almost always*). Parent confidence refers to the parents’ comfortableness and confidence in making parenting decisions and in carrying out the maternal and paternal function and was measured by the parenting confidence scale including 8 items, e.g., “My child knows the house rules”, “I make good parenting decisions”, and “My child and I agree on most things”, etc. Parent relational frustration assesses the parents’ stress and frustration from failure to effectively manage the behaviors of the child and was measured by the relational frustration scale of 12 items which includes items such as “I lose my temper with my child”, “My child and I argue”, “During the last year, my child has been difficult to take care of”, etc. Parent involvement evaluates the extent to which parent and

the child participate in shared activities along with parent's knowledge of the child's activities. The involvement scale included 8 items, such as "My child and I play games together", "My child and I do arts and crafts together", and "My child and I do things together outdoors", etc. Kamphaus and Reynolds (2006) presented several indicators of strong reliability of the PRQ. The coefficient alphas of parenting confidence, relational frustration, and involvement were .78, .86, and .86, respectively (PRQ; Kamphaus & Reynolds, 2006). The PRQ scales were all T-scored relative to national norms provided by Kamphaus and Reynolds (2006).

Data Analysis

First analytic strategy. In this study, we examine the effects of parenting training on parental attitudes over time. Parenting training dosage was recorded at the individual level (Level 2) as a predictor, including parents' PEAK attendance hours and family support attendance hours. Parental attitudes were collected at 5 time points, including parent relational frustration, parenting confidence, and parental involvement. Time was a Level 1 predictor, and teacher-rated social skills of children at 5 time points was a Level 1 covariate. Baseline adjustment scores of children, the effects of the program, and gender were used as Level 2 covariates. Therefore, we adopted multilevel modeling to complete the analysis.

Second analytic strategy. From above analysis, we found the significant relationships between teacher-rated social skills of children and parental attitudes, and the significant effects of group on parental attitudes over time. Thus, we decided to check mediation effects of teacher-rated social skills between program and parental attitudes.

Missing data. The missing data we had were likely not due to the level of parent confidence, frustration, and involvement themselves, but were related to other covariates, such as PEAK attendance and family support attendance of parents or parental disorganization. Thus, the

missing data in this file can be viewed as Missing At Random. In this situation, MLM still produces unbiased estimates, so we do not need a correction for missingness to apply MLM.

RESULTS

Results from First Analytic Strategy

Parent relational frustration. (See Table 3 for the results of the model of Parent Relational Frustration.).

Table 3

Estimates of Fixed Effects on Parent Relational Frustration.

| | Model 1 | | Model 2 | | Model 3 | | Model 4 | | Model 5 | |
|-------------|---------|----------|---------|----------|---------|----------|---------|----------|---------|----------|
| Parameter | Est | <i>p</i> | Est | <i>p</i> | Est | <i>p</i> | Est | <i>p</i> | Est | <i>p</i> |
| Time | -.38 | .08 | .63 | .23 | .44 | .41 | .46 | .40 | .41 | .48 |
| Time *time | | | .24 | .06 | .20 | .12 | .20 | .12 | .21 | .11 |
| Soc. skills | | | | | -.06 | .04* | -.01 | .68 | -.01 | .67 |
| Adjustment | | | | | | | .23 | .00*** | .24 | .00*** |
| Group | | | | | | | .71 | .60 | .45 | .77 |
| Gender | | | | | | | -1.29 | .32 | -.72 | .63 |
| Adj. * time | | | | | | | | | .01 | .64 |
| Grp. * time | | | | | | | | | -.12 | .72 |
| Gnd * time | | | | | | | | | .25 | .44 |

* $p < .05$, *** $p < .001$.

For the unconditional model of parent relational frustration as the dependent variable, the average relational frustration score in this sample was 50.4. Individuals varied significantly in relational frustration score. 95% of the individuals had an average score in the range of 33.5 to

67.3. The ICC (intraclass correlation coefficient) was .715, meaning 71.5% of the variance in frustration scores can be attributed to individual differences.

Next, the Level 1 predictor time was added into the model. In the model that included no test of autocorrelation of time points, time was a significant negative predictor, $p = .035$. Compared with the null model residual of 29.45, the residual in the time model dropped to 27.31 (still unexplained variance at Level 1), which gave us a pseudo R-squared for time of .073, meaning time accounted for 7.3% of the variance in scores within individuals (at Level 1). In the time model that included a test of autocorrelation, there was no significant autocorrelation among the frustration scores across the 5 time points, $p = .137$, but variances did vary considerably across time points, so level 1 covariance structure was changed from autocorrelation to diagonal. Also, time was a marginally significant negative predictor, $p = .083$ (see Table 3); with each increase of one unit of time (6 months), parent relational frustration decreased by .337 points. The -2 Log Likelihood of the time model was 2777.38, the -2 Log Likelihood of the unconditional model was 5010.71, and the difference between them was 2233.33. The difference in degrees of freedom of the two models was $9 - 3 = 6$; the chi-square value was significant ($p < .001$), so the time model was a significantly better-fitting model than the unconditional model. Time had no significant random effects in this model.

Adding time squared to test nonlinear components, we found time squared was marginally significant ($p = .057$). Thus, nonlinear component is necessary. So, it was kept in all subsequent models (See Table 3).

Next, teacher-rated social skills of children at each of the 5 time points was added as a Level 1 covariate. The results showed that it was significant, meaning for every unit of increase in teacher-rated social skills scores, parent relational frustration decreased by .064 points, and it

had no significant random effect. The covariance between the intercept and social skills slope was significant ($p = .050$), estimate = $-.55$, meaning individuals who had greater parent frustration tended to have a stronger negative relationship between teacher-rated social skills scores and frustration. Individuals who had lower frustration tended to have a weaker relationship between their child's social skills and their own frustration. Compared with the time model (2777.38), the -2 Log Likelihood of social skills model was 4514.510. The difference in degrees of freedom was $12 - 9 = 3$, and the chi square value was significant, $p < .001$, so the social skills model was a better-fitting model than the time model.

Then, in Model 4, baseline behavior problems of children, the effects of program, and gender were added as Level 2 covariates. Because these three covariates were Level 2 variables, it is appropriate not to test their random effects but just to test their fixed effects on the Level 1 dependent variable. As indicated in the results, baseline adjustment problems of children was a significant covariate with parent relational frustration, $p < .001$. For every one unit increase in behavior problems, relational frustration increased by $.231$ points. Intercept variance now dropped from 74.04 in the null model to 65.05 (still unexplained variance at Level 2) in the current model, which gave us pseudo R-squared for baseline adjustment scores of $.121$, meaning baseline adjustment scores explained 12.1% of the variance in frustration scores across individuals (at Level 2). Compared with the social skills model, the -2 Restricted Log Likelihood of baseline adjustment model was 4438.198 , and there were 12 degrees of freedom. The chi square value was significant, $p < .001$, indicating the adjustment problems model was a better-fitting model than the social skills model. But there were no group effects or gender effects.

Next, in Model 5, cross-level interaction effects of adjustment behavior problems by time, group by time, and sex by time were added. The results showed all the cross-level interaction effects were non-significant.

Since PEAK attendance and family support attendance of parents were only relevant in the program group, only the cases in the intervention group were selected for the next analysis. Two Level 2 predictors, PEAK attendance and family support hours, and the Level 2 covariate, gender were added to test their effects on parent relational frustration. The results showed all of them were non-significant (see Table 4).

Table 4

Estimates of Fixed Effects of Parent Training on Parent Relational Frustration.

| | Model 1 | | Model 2 | |
|-------------------------------------|---------|----------|---------|----------|
| Parameter | Est | <i>p</i> | Est | <i>p</i> |
| Parent PEAK attendance hours | .39 | .51 | .69 | .33 |
| Parent family service hours | -1.42 | .13 | -1.20 | .26 |
| Parent PEAK attendance hours * time | | | .12 | .44 |
| Parent family service hours * time | | | .09 | .69 |

* $p < .05$, ** $p < .01$ *** $p < .001$.

Finally, cross-level interaction effects of PEAK attendance by time and family support hours by time were checked, but neither had a significant effect on parent relational frustration.

The final equations in the model at each level:

$$L\ 1: Y_{ij} = \beta_{0j} + \beta_{1j}(\text{time}) + \beta_{2j}(\text{social skills}) + \varepsilon_{ij}$$

$$L\ 2: \beta_{0j} = \gamma_{00} + \gamma_{01} (\text{baseline adj prblms}) + \gamma_{02} (\text{Group}) + \gamma_{03} (\text{Gender}) + u_{0j}$$

$$\beta_{1j} = \gamma_{10} + \gamma_{11} (\text{baseline adj prblms}) + \gamma_{12} (\text{Group}) + \gamma_{13} (\text{Gender})$$

$$\beta_{2j} = \gamma_{20}$$

Combined:

$$\begin{aligned} Y_{ij} &= \gamma_{00} + \gamma_{01} (\text{baseline adj prblms}) + \gamma_{02} (\text{Group}) + \gamma_{03} (\text{Gender}) + u_{0j} \\ &+ [\gamma_{10} + \gamma_{11} (\text{baseline adj prblms}) + \gamma_{12} (\text{Group}) + \gamma_{13} (\text{Gender})](\text{time}) + \gamma_{20} (\text{social skills}) + \varepsilon_{ij} \\ &= \gamma_{00} + \gamma_{10} (\text{time}) + \gamma_{20} (\text{social skills}) + \gamma_{01} (\text{baseline adj prblms}) + \gamma_{02} (\text{Group}) + \gamma_{03} \\ &(\text{Gender}) + \gamma_{11} (\text{baseline adj prblms}) * (\text{time}) + \gamma_{12} (\text{Group}) * (\text{time}) + \gamma_{13} (\text{Gender}) * (\text{time}) + u_{0j} + \varepsilon_{ij} \end{aligned}$$

Parenting confidence. See Table 5 for the results of Parenting confidence. For the unconditional model of parent confidence as the dependent variable, the average parent confidence score in this sample was 51.2. Individuals varied significantly in parent confidence score. 95% of the individuals had an average score in the range of 34.9 to 67.5. The ICC was .679, meaning 67.9% of the variance in parent confidence scores can be attributed to individual differences.

First, the Level 1 predictor time was added into the model. In the model with no test of autocorrelation across time, time was a significant positive predictor, $p = .001$. Compared with the residual of 32.63 in the null model, the residual in the time model dropped to 30.24 (still unexplained variance at Level 1), which gave us a pseudo R-squared for time of .073, meaning time accounted for 7.3% of the variance in parenting confidence scores at Level 1.

In the time model allowing for autocorrelation across time, there was a significant autocorrelation among parenting confidence scores over time, $p = .002$, and variances did vary considerably across time points, so Level 1 covariance structure was kept as autocorrelation with

Table 5

Estimates of Fixed Effects on Parenting Confidence.

| | Model 1 | | Model 2 | | Model 3 | | Model 4 | | Model 5 | |
|---------------|---------|----------|---------|----------|---------|----------|---------|----------|---------|----------|
| Parameter | Est | <i>p</i> | Est | <i>p</i> | Est | <i>p</i> | Est | <i>p</i> | Est | <i>p</i> |
| Time | .58 | .00** | .28 | .63 | .67 | .00*** | .64 | .00*** | .21 | .46 |
| Time *time | | | -.07 | .59 | | | | | | |
| Social skills | | | | | .08 | .02* | .06 | .10 | .05 | .17 |
| Adjustment | | | | | | | -.10 | .04* | -.11 | .05* |
| Group | | | | | | | -1.13 | .41 | .66 | .68 |
| Gender | | | | | | | 2.09 | .12 | 2.39 | .13 |
| Adj. * time | | | | | | | | | -.01 | .69 |
| Grp. * time | | | | | | | | | .80 | .03* |
| Gnd * time | | | | | | | | | .10 | .79 |

* $p < .05$, ** $p < .01$ ***, $p < .001$.

heterogeneous variances. Also, time was a significant positive predictor, $p = .001$. With each one unit increase in time, the parenting confidence score increased by .58 points. Intercept variance (the individual level) had now dropped from 68.91 in null model to 62.26. -2 Log Likelihood of time model was 5027.65, -2 Log Likelihood of the unconditional model was 5057.53, and the difference between them was 29.88. The difference in degrees of freedom between the two models was $10-3 = 7$, showing chi-square value was significant ($p < .001$), so the time model was a better-fitting model than the unconditional model. Time had no significant random effects in this model.

In Model 2, when we use time squared to test nonlinear components, estimate = $-.071$, $p = .592$, which was not significant. Thus, nonlinear component is not necessary.

Next, in Model 3, teacher rated social skills of children at 5 time points was added as a Level 1 covariate. The results showed that social skills was a significant covariate with parenting confidence, $p = .018$. For each one unit increase in teacher rated social skills of children, parenting confidence increased by $.075$ points. Social skills scores had no significant random effect. The -2 Log Likelihood difference between social skills model and time model was $5027.65 - 4540.06 = 487.59$, the difference in degrees of freedom between them was $11 - 10 = 1$, indicating chi square was significant ($p < .001$). So the social skills model was a better-fitting model than the time model.

Then, in Model 4, baseline behavior problems of children, the effects of the program, and gender as Level 2 covariates were added. As indicated in the results, baseline adjustment problems was a significant negative covariate with parenting confidence, $p = .042$; with each one unit increase in behavior problems, parenting confidence decreased by $.1$ points. Intercept variance had now dropped from 68.91 in the null model to 62.69 (still unexplained variance at Level 2) in the current model, which gave us pseudo R-squared for baseline adjustment scores of $.09$, meaning baseline adjustment scores explained 9% of the variance in confidence scores across individuals (at Level 2). Group was non-significant, $p = .409$, which meant that at the baseline, the control and the program groups were similar on parenting confidence scores. -2 Restricted Log Likelihood of baseline adjustment scores model was 4484.71 , -2 Log Likelihood of social skills model was 4540.06 , and the difference between them was 55.35 . The difference in degrees of freedom between these two models was $13 - 11 = 2$, and the chi square value was

significant ($p < .001$). So this current model was a better-fitting model than the social skills model. But there were no gender effects.

Next, in Model 5, cross-level interaction effects of adjustment problems by time, group by time, and sex by time were added. The results showed there was a significant interaction effect between group and time, $p = .03$, meaning the program did affect parenting confidence over time. The time slope for the control group was .21 (time estimate in this model), which meant with each one unit increase in time, parenting confidence increased by .21 points. The time slope for the program was $.213 + .798 = 1.01$, which meant that with every one unit increase in time, parenting confidence increased by 1.01 points. Restricted Log Likelihood of the cross-level interaction model was 4487.24, -2 Log Likelihood of baseline adjustment scores model was 4484.71, and the difference between them was 2.53. The difference in degrees of freedom between these two models was $16 - 13 = 3$, and the chi square value was nonsignificant ($p = .47$). So this current model was not a better-fitting model than the baseline adjustment model. Pseudo R squared was .089, meaning 8.9% of variance was explained by the final model.

In a separate model using data only from the program group, two Level 2 predictors, PEAK attendance and family support hours, and one Level 2 covariate, gender were added to test their effects on parenting confidence. The results showed all of them were non-significant (See Table 6). Finally, cross-level interaction effects of PEAK attendance by time and family support hours by time were checked, but neither had a significant effect on parenting confidence.

Table 6

Estimates of Fixed Effects of Parent Training on Parenting Confidence.

| Parameter | Model 1 | | Model 2 | |
|-------------------------------------|---------|----------|---------|----------|
| | Est | <i>p</i> | Est | <i>p</i> |
| Parent PEAK attendance hours | -.71 | .25 | -.52 | .51 |
| Parent family service hours | .57 | .56 | .73 | .53 |
| Parent PEAK attendance hours * time | | | .08 | .68 |
| Parent family service hours * time | | | .08 | .79 |

* $p < .05$, ** $p < .01$ ***, $p < .001$.

Parent involvement. See Table 7 for the results of Parental involvement. For the unconditional model of parent involvement as dependent variable, the average parent involvement score in this sample was 53.7. Individuals varied significantly in parent involvement score. 95% of the individuals had an average score in the range of 35.8 to 71.7. The ICC was .67, meaning 67% of the variance in parent involvement score can be attributed to individual differences.

Firstly, the Level 1 predictor time was added. In the model either with no test of autocorrelation across time or with test of autocorrelation across time, time was not a significant predictor. But time had a significant random effect ($p = .032$, and $p = .049$, respectively) in the model with no test of autocorrelation across time and the model with test of autocorrelation across time, meaning slopes varied significantly across individuals in the parental involvement scores; some individuals' scores in parent involvement showed greater change over time than other individuals' scores. Compared with the null model intercept variance of 83.93, the intercept

variance of the time model dropped to 82.4 (still unexplained variance at level 2), showing the random effect of time explained some variances at Level 2.

Table 7

Estimates of Fixed Effects on Parental Involvement.

| | Model 1 | | Model 2 | | Model 3 | | Model 4 | | Model 5 | |
|---------------|---------|----------|---------|----------|---------|----------|---------|----------|---------|----------|
| Parameter | Est | <i>p</i> | Est | <i>p</i> | Est | <i>p</i> | Est | <i>p</i> | Est | <i>p</i> |
| Time | -.01 | .97 | -.51 | .37 | .15 | .44 | .10 | .61 | -.28 | .36 |
| Time *time | | | -.13 | .35 | | | | | | |
| Social skills | | | | | .07 | .05* | .06 | .13 | .04 | .29 |
| Adjustment | | | | | | | -.02 | .75 | .01 | .87 |
| Group | | | | | | | -4.69 | .00** | -2.53 | .15 |
| Gender | | | | | | | 1.61 | .27 | .81 | .63 |
| Adj. * time | | | | | | | | | .01 | .34 |
| Grp. * time | | | | | | | | | .96 | .02* |
| Gnd. * time | | | | | | | | | -.36 | .35 |

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

In the time model allowing for autocorrelation across time, there was no significant autocorrelation among involvement scores over time, $p = .761$, but variances did vary considerably across time points, so Level 1 covariance structure was changed from autocorrelation into diagonal. Time was not a significant predictor (See Table 7). Unexplained variance at Level 2 (the individual level) had now dropped from 83.93 in unconditional model to

82.40 in time model. -2 Log Likelihood of time model was 5211.32, -2 Log Likelihood of the unconditional model was 5224.52, and the difference between them was 13.2. The difference in degrees of freedom between the two models was $9 - 3 = 6$, and the chi-square value was significant ($p = .04$), so the time model was a better-fitting model than the unconditional model.

In Model 2, when we used time squared to test nonlinear components, estimate = $-.127$, $p = .352$, which was not significant. Thus, a nonlinear component was not necessary.

Next, in Model 3, teacher rated social skills of children at each of the 5 time points was added as Level 1 covariate. The results showed that it was significant, $p = .045$. For each one unit increase in teacher rated social skills scores of children, parental involvement increased by $.073$ points. Compared with the residual of 41.28 in the null model, the social skills model with no autocorrelation across time had a residual of 39.36 (still unexplained variance at Level 1), which gave us pseudo R squared for teacher rated social skills of children of $.047$, meaning social skills explained 4.7% of the variance in the parent involvement scores at Level 1. But the social skills had no significant random effect. For the social skills model with autocorrelation across time, -2 Log likelihood was 4717.33. For the time model with autocorrelation across time, -2 Log likelihood was 5211.32, and the difference between them was 493.99. The difference in degrees of freedom between them was $11 - 9 = 2$, so the chi square value was significant ($p < .001$). Thus, the social skills model was a better-fitting model than the time model.

Then, in Model 4, baseline behavior problems of children, the effects of the program, and gender as Level 2 covariates were added. As indicated in the results, program was a significant negative covariate with parent involvement, $p = .002$, meaning that at the baseline the program and the control groups in parental involvement scores were considerably different, with parental involvement of less frequency in program group than that in control group by 4.69 points.

Intercept variance at level 2 decreased from 83.93 in the null model to 82.4 in the time model then to 78.36 in the group model, which gave us pseudo R-squared for group of .048, meaning program effects explained 4.8% of the variance in involvement scores across individuals (at level 2). -2 Restricted Log Likelihood of group model was 4654.08, -2 Log Likelihood of time model was 5211.32, and the difference between them was 557.24. The difference in degrees of freedom between these two models was $13-9 = 4$. The chi square value was significant ($p < .001$), indicating the group model was a better-fitting model than the time model. But there were no significant effects of baseline adjustment scores and gender.

Next, in Model 5, cross-level interaction effects of adjustment problems by time, group by time, and sex by time were added. The results showed group by time was a significant positive predictor, $p = .016$, estimate = .96, meaning program did affect parent involvement over time. The slope of parental involvement over time for the control group was -.282 (time estimate), which meant for each one unit increase in time, parental involvement decreased by .282 points. The slope of parental involvement over time for the program group was $-.282 + .96 = .678$, which means with each one unit increase in time, parental involvement increased by .678 points. Restricted Log Likelihood of the cross-level interaction model was 4652.49, -2 Log Likelihood of group model was 4654.08, and the difference between them was 1.59. The difference in degrees of freedom between these two models was $16-13 = 3$, and the chi square value was non-significant ($p = .66$). So this current model was not better-fitting model than the baseline adjustment model. Pseudo R squared was .06, meaning 6% of variance was explained by the final model.

All the cases in the intervention group were selected to test the effects of parenting training. Two Level 2 predictors, PEAK attendance and family support hours, and one Level 2

covariate of gender were added. The results showed all of them were non-significant (See Table 8). Finally, cross-level interaction effects of PEAK attendance by time and family support hours by time were checked, but neither had significant effects on parent involvement.

Table 8

Estimates of Fixed Effects of Parent Training on Parental Involvement.

| | Model | 1 | Model | 2 |
|-------------------------------------|-------|----------|-------|----------|
| Parameter | Est | <i>p</i> | Est | <i>p</i> |
| Parent PEAK attendance hours | -.20 | .74 | -.01 | .99 |
| Parent family service hours | -.72 | .44 | -.38 | .74 |
| Parent PEAK attendance hours * time | | | .08 | .68 |
| Parent family service hours * time | | | .16 | .58 |

* $p < .05$, ** $p < .01$ *** $p < .001$.

As for estimates of covariance parameter on parental involvement, time variance was found to be significant when its p value was divided by 2, that is, $p = .049^*$ ($*p < .05$).

Summary of findings. The findings above indicated that group (program) had an effect on parent confidence and involvement, but not on parents' relational frustration (See Figure 1 and Figure 2). We can see with time passing by, the parenting confidence in program increased more from baseline to time 4 than that in control, and parental involvement in program increased from baseline to time 4 while that in control decreased over time.

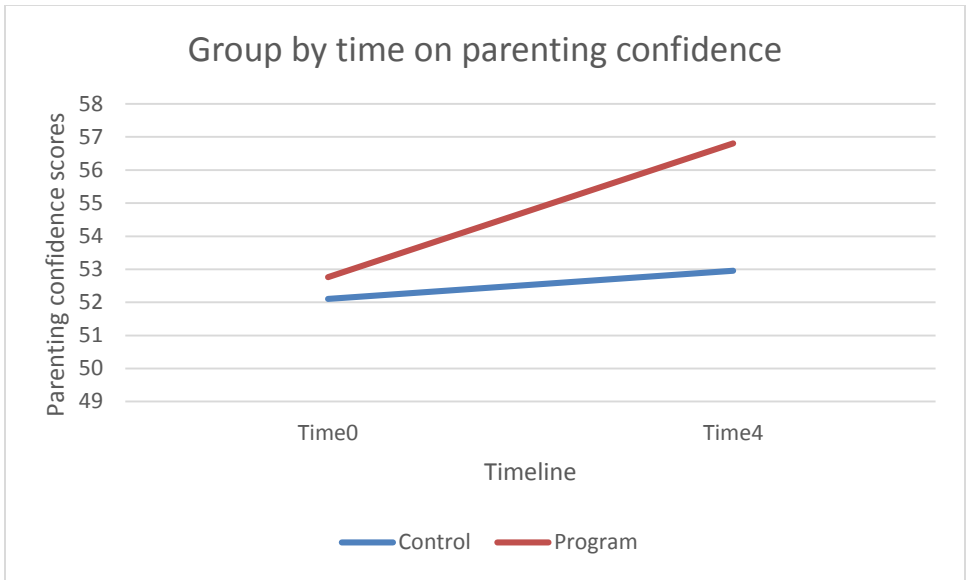


Figure 1. Parenting Confidence by Group from Time 0 to Time 4.

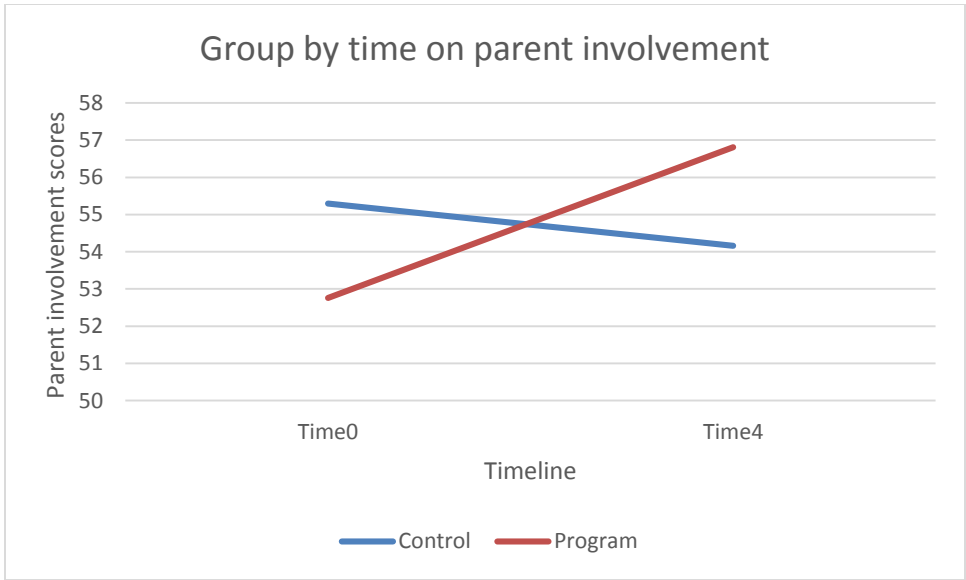


Figure 2. Parent Involvement by Group from Time 0 to Time 4.

However, the number of hours spent in parenting training had no effects on parental emotion and cognitions over time (See Table 4, Table 6, and Table 8). Teacher rated social skills

of children were found to have significant fixed effects on the parent well-being and involvement over time (See Table 3, Table 5, and Table 7).

Results from Second Analytic Strategy

For parent relational frustration (Table 9), mediation analysis results showed though

Table 9

Regression Results for the Mediating Effects of Social Skills on the Relation between Group and Parent Relational Frustration

| Model | B | Std. Error | β |
|------------------------------------|------|------------|----------|
| Model 1: Relational Frustration t4 | | | |
| Group | .79 | 1.39 | .04 |
| Baseline Adjustment Problem | .09 | .05 | .12* |
| Relational Frustration t0 | .69 | .07 | .67**** |
| Model 2: Social Skills | | | |
| Group | 3.49 | 1.41 | .18* |
| Baseline Adjustment Problem | -.39 | .05 | -.59**** |
| Relational Frustration t0 | .20 | .07 | .21** |
| Model 3: Relational Frustration t4 | | | |
| Group | 1.38 | 1.42 | .07 |
| Baseline Adjustment Problem | .03 | .06 | .04 |
| Relational Frustration t0 | .72 | .07 | .69**** |
| Social Skills | -.16 | .08 | -.14* |

* $p < .05$, ** $p < .01$, **** $p < .001$

baseline adjustment and baseline parent relational frustration were significant covariates, the total effect (Path C in Model 1) was not significant. Path A (in Model 2) from group to the mediator (time 2 social skills) and Path B (in Model 3, including predictor) from the mediator to the outcome were both significant. Therefore, there was a significant indirect effect of the program on relational frustration, through child social skills.

For parenting confidence (Table 10), mediation analysis showed the total effect (Path C in Model 1) was non-significant. Baseline adjustment was not a significant covariate, though baseline parenting confidence was significant. Although Path A (in Model 2) from group to the mediator was significant, Path B from the mediator to the outcome (in Model 3, including predictor) was non-significant. Thus, social skills did not mediate the effects of the program on parenting confidence.

For parental involvement (Table 11), mediation analysis showed the total effect (Path C in Model 1) was non-significant. Baseline adjustment was not a significant covariate, though baseline parental involvement was significant. Path A (in Model 2) from group to the mediator and Path B (in Model 3, including predictor) from the mediator to the outcome were both significant. Thus, group had an indirect effect on parental involvement through child social skills.

Table 10

Regression Results for the Mediating Effects of Social Skills on the Relation between Group and Parenting Confidence

| Model | B | Std. Error | β |
|----------------------------------|------|------------|---------|
| Model 1: Parenting Confidence t4 | | | |
| Group | 1.45 | 1.48 | .07 |
| Baseline Adjustment Problem | -.04 | .05 | -.06 |
| Parenting Confidence t0 | .70 | .08 | .66*** |
| Model 2: Social Skills | | | |
| Group | 3.18 | 1.41 | .17* |
| Baseline Adjustment Problem | -.37 | .05 | -.51*** |
| Parenting Confidence t0 | -.19 | .07 | -.19* |
| Model 3: Parenting Confidence t4 | | | |
| Group | 1.41 | 1.48 | .07 |
| Baseline Adjustment Problem | -.01 | .06 | -.02 |
| Parenting Confidence t0 | .69 | .08 | .67*** |
| Social Skills | .07 | .08 | .06 |

* $p < .05$, ** $p < .01$, *** $p < .001$

Table 11

Regression Results for the Mediating Effects of Social Skills on the Relation between Group and Parental Involvement

| Model | B | Std. Error | β |
|----------------------------------|------|------------|---------|
| Model 1: Parental Involvement t4 | | | |
| Group | .71 | 1.74 | .03 |
| Baseline Adjustment Problem | .07 | .06 | .08 |
| Parental Involvement t0 | .66 | .07 | .68*** |
| Model 2: Social Skills | | | |
| Group | 3.32 | 1.48 | .17* |
| Baseline Adjustment Problem | -.34 | .05 | -.51*** |
| Parental Involvement t0 | .003 | .06 | .003 |
| Model 3: Parental Involvement t4 | | | |
| Group | -.10 | 1.75 | -.004 |
| Baseline Adjustment Problem | .14 | .07 | .17* |
| Parental Involvement t0 | .64 | .07 | .66*** |
| Social Skills | .21 | .09 | .18* |

* $p < .05$, ** $p < .01$, *** $p < .001$

Based on the findings above, we concluded that social skills is a mediator between group effects and parent relational frustration or parental involvement change over time (See Figure 3.).

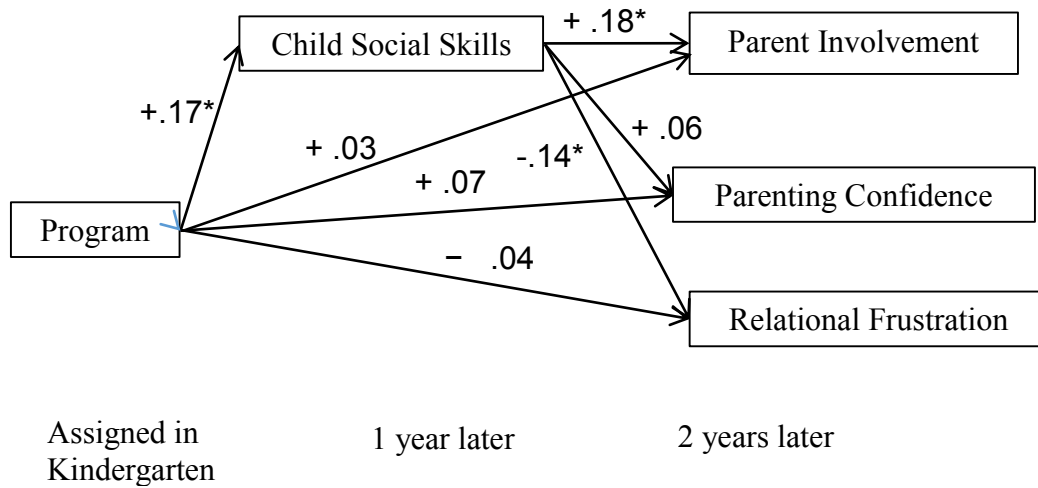


Figure 3. Child Social Skills Mediates Program’s Effects on Parents’ Well-Being and Parental Involvement.

DISCUSSION

This paper examined whether parenting training in the Early Risers Conduct Disorder Prevention Program had effects on parent emotions and cognitions over time, and whether child social skills mediated the effects of the program on parent emotions and cognitions over time. The data from the program and the control groups for 5 time points over 2 years were analyzed to assess the effects of time, child social skills, baseline adjustment problems, gender, and parenting training, that is, a range of predictors and covariates both within and across persons, and the interaction effects between Level 2 predictors and covariates and time.

Implications

The overall Early Risers program had significant positive effects on parenting confidence and involvement. It also had an indirect effect in lowering parents' relational frustration by first increasing their children's social skills. However, the evidence suggests that the parenting training by itself had no significant effects on parent emotions and cognitions over time. This result is inconsistent with research on parenting training's positive effects on parents' well-being. For example, Kane, Wood, and Barlow (2007) used meta-ethnographic methods to choose and evaluate studies about parenting training, and found parenting training makes parents more confident and less stressed in parenting, such that parental psychosocial health improved. A meta-analysis of group-based parenting programs (Barlow, Coren, & Stewart-Brown, 2002) also found parenting intervention in 15 studies out of 17 studies analyzed contributes to parents' decreased depression, stress, and increased self-esteem. One possible reason for the lack of effects of parenting training on the outcomes in the current study could be that the low number of hours of training was not sufficient to positively influence the development of parents' well-being. The current study offered 10 total hours of PEAK (Parents Excited About Kids), and

around 55% of the families attended 4 hours or more; for the family support, a median of 1 hour of services and a range of 0.25 to 3.25 hours over the year was provided. Thus, the parenting training dosage was not high. For the parenting interventions in the research of Barlow et al.(2002), such as the study of Irvine, Biglan, Smolkowski, Metzler, and Ary (1999), the parenting intervention was 12 weekly sessions, each 90 minutes to 2 hours long; moreover, each parent was provided two \$10 to attend to 4 of the first and the last 6 sessions, respectively, and an extra \$10 to attend 10 of the 12 sessions, thus ensuring much higher parenting training dosage and leading to significantly decreased parenting depression and increased parenting confidence.

The second research question was to examine whether child social skills mediated the program's effects on parental outcomes. Consistent with the theory of Bell (1968), we found children did have effects on parents during their socialization process. When the children in the program acquired better social skills, their parents' relational frustration decreased and their involvement with their children increased. Therefore, just as Grusec, Goodnow, & Kuczynski (2000) pointed out, parents and children reciprocally interact with each other and children actively contribute to parenting process. Also consistent with recent research (Cole, LeDonne, & Tan, 2013) that described mothers' emotions as linked to children's emotions, the program improved children's social skills, which in turn was linked to positive parents' well-being and parental involvement, indicating bidirectional transaction effects between parents and child.

Strengths and Limitations

One of the strengths of the study is the application of longitudinal design, which helps to sort out the causal relationships between variables based on the temporal order. In this case, we use Level 1 time predictor, Level 1 teacher-rated social skills covariate, Level 2 PEAK attendance and family support attendance predictors, and Level 2 baseline adjustment scores,

group, and gender covariates to predict parental attitude over time. We need to consider whether changing parental attitudes could cause changing teacher-rated social skills of children since both are Level 1 variables and happened at the same time at 5 time points. However, it is not very likely that parenting attitude would affect social skills of children at school since both variables were in different environments and measured by different sources. Moreover, it is not likely that parental attitudes over time would lead to the first wave of adjustment problems of students, program effects, or parenting training, since baseline adjustment problems of students was measured, program effects happened, or parenting training took place before parenting attitudes changed over time. Thus, reciprocal causations were not likely to exist in this case.

Another strength is multiple informants. We collected information from teachers, parents, and children themselves. Merrell (1999) and Offord et al. (1996) stated that multiple reporters can decrease errors in assessment of behaviors. And Kraemer et al. (2003) pointed out that multiple informants may provide information about different parts of a true score variance in statistical analysis. Thus, both parents and teachers as informants usually contribute to the validity of the research.

Limitations in the study should also be addressed. The sample population was largely homogeneous, being significantly Caucasian, urban, and public school students and their parents, from low to middle class. Thus, further research with a diversified population will be necessary to see whether there is an outcome difference.

Another limitation is that the data of parental emotions and involvement were from parents' self-report rather than the third party, therefore the objectivity of the data could not be fully warranted. However, it is usually difficult to find an observer or the third party to report more accurate parental involvement than parents themselves do. Multi-informants, including

teachers will serve best for the accuracy of the data, such as parental involvement in school setting, rather than general parental involvement.

Suggestions

This study found children's social skill mediated the program's effects on parents' emotion and well-being and highlighted bidirectional effects between parents and children. In future intervention with parents and children, it will be important for educators and policy makers to consider the bidirectional effects when examining ways to improve relationships between parents and children. That is, on one hand, improving parenting is important for child's development, and on the other hand, improving children's development really matters for parents' well-being and involvement. Moreover, the study also found parenting training used in this intervention program had no effects on parents' emotions and well-being. Therefore, it will also be important for future intervention to consider to use parenting training dosage sufficient to reach positive effects on parents' emotions and well-being and further on children's well-being.

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