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## Pilot Trial of a Parenting and Self-Care Intervention for HIV-Positive Mothers: The IMAGE Program

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### Abstract

A pilot study was conducted to assess the effects of the IMAGE pilot intervention (Improving Mothers' parenting Abilities, Growth, and Effectiveness) on mothers living with HIV (MLH). Based on Fisher and Fisher's IMB model (1992), the intervention focused on self-care and parenting behavior skills of MLH that affect maternal, child, and family outcomes. A randomized pretest-posttest two-group design with repeated assessments was used. MLH ( $n = 62$ ) and their children ages 6 - 14 ( $n = 62$ ; total  $N = 124$ ) were recruited for the trial and randomized to the theory-based skills training condition or a standard care control condition. Assessments were conducted at baseline with follow-ups at 3, 6, and 12 months. Maternal, child, and family outcomes were assessed. Results show significant effects of the intervention for improving parenting practices for mothers. The intervention also improved family outcomes, and showed improvements in the parent-child relationship. IMAGE had a positive impact on parenting behaviors, and on maternal, child, and family outcomes. Given MLH can be challenged by their illness and also live in under-resourced environments, IMAGE may be viewed as a viable way to improve quality of life and family outcomes.

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#### Disclosure

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## Keywords

Maternal HIV; Intervention; Parenting Skills; Maternal Outcomes; Child Outcomes; Family Outcomes

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Chronically ill mothers express anxiety about being able to meet their children's needs, and feel unprepared to deal with parenting issues. They also report significantly higher levels of parenting stress, although those with greater parenting involvement and family cohesion have less parenting stress (Altschuler & Dale, 1999; Anderson, 2008). Mothers living with HIV (MLH) report their greatest source of stress is combining the maternal role with the psychological and medical demands of coping with a chronic, life-threatening condition. They also report compromised parenting skills across a variety of parenting domains, and several studies have demonstrated that parental HIV is associated with negative outcomes for children (e.g., Forehand et al., 1998; Murphy & Marelich, 2008). For example, MLH report lower levels of parenting self-efficacy than uninfected women (Dorsey, Klein, Forehand, & Family Health Project Research Group, 1999), less parental monitoring, and poorer mother-child relationships (Kotchick et al., 1997). HIV-related disruptions in parenting predict poor child outcomes unless strong protective factors are in place.

## The IMAGE Intervention

The purpose of this pilot study was to develop and evaluate IMAGE (Improving Mothers' parenting Abilities, Growth, and Effectiveness), a research and model-driven self-care and parenting intervention for MLH. (Complete description of the studies that led to the development of the IMAGE program, and the IMAGE intervention manual, can be obtained from the first author.) The IMB model (information, motivation, and behavioral skills model; Fisher & Fisher, 1992; Fisher, Fisher, Amico, & Harman, 2006) was used to frame the different social-cognitive and behavioral components of the IMAGE intervention. According to the model, interventions should focus on dispersing relevant information, increase personal motivation and social support, and train skills to promote self-efficacy in performing targeted behaviors. It has been used in a wide range of health applications including HIV-infected and at-risk populations (Bryan, Fisher, & Benziger, 2001; Fisher, Fisher, Misovich, Kimble, & Malloy, 1996; Starace, Massa, Amico, & Fisher, 2006).

In IMAGE, we applied the model to the parenting behavior and self-care skills of HIV-positive mothers (see Figure 1) in an individualized intervention so that the intervention skills training could be targeted to the child's age. The IMAGE program addresses inter-related self-care and parenting skills. Findings from the Parents And children Coping Together (PACT) study, designed to longitudinally assess MLH and their well children (e.g., Murphy, Marelich, Heerbeck, & Payne, 2009), indicated the general behavioral skills that needed to be targeted, and it was determined that this information could be covered in four, 75-minute sessions to minimize participant burden while allowing sufficient time to convey information, practice and develops skills, and reinforce attempts at the new skills.

## Current Study

MLH and their children were recruited for a pilot trial of IMAGE, and randomized to the theory-based skills training condition or a standard care control condition. Given the nature of this small demonstration project, analyses focus on the outcomes as power does not allow for a test of the full model. We conducted preliminary analysis for effect sizes and investigated trends in the data for:

- a. parenting practices outcomes, and secondary outcomes of parenting efficacy;
- b. parenting behaviors targeted (e.g., parent-child communication, parental monitoring);
- c. maternal outcomes associated with self-care skills (mental and physical health);
- d. child outcomes of mental health indicators, behavioral problems, self-concept and coping;
- e. family outcomes.

## Method

### Participants

MLH ( $n = 62$ ) were recruited through HIV/AIDS service organizations in Los Angeles County and surrounding areas; 54% of MLH screened were eligible. Inclusion criteria were: mother diagnosed HIV+, spoke English or Spanish, and had a well 6 - 14 year-old child living with her. Mothers who participated in our past studies were excluded from participation.

Enrolled mother/child pairs were interviewed at baseline and 3, 6, and 12-month follow-ups. Approximately half (48%) of enrolled mothers were randomly assigned to receive the 4-session intervention; remaining MLH were assigned to the standard care control condition, which consisted of self-access to psychosocial services typically available in the MLH's treatment clinic/community.

Children's baseline mean age was 11.1 years ( $SD = 2.4$ ); mother's mean age was 39.2 years ( $SD = 8.32$ ), and 32% were married. Racial/ethnicity including both mothers and children ( $N = 124$ ) was 23% African-American/Black, 71% Latino/Hispanic, with 6% non-Hispanic other or mixed; 55% of the mother interviews were conducted in Spanish. Twenty-nine percent of MLH had less than 9 years of education, 34% had 9 - 12 years education, and 37% had some college or a college degree.

Of the 124 participants, 90%, 94%, and 86% completed the 3-month, 6-month, and 12-month follow-ups, respectively, and 3.2% could not be located for any follow-up interview. Reasons for attrition were: illness of the mother, loss of custody of child, inability to locate, and out-of-state or out-of-country move. No associations were found between number of completed follow-up appointments and group assignment (intervention vs. control;  $\chi^2 [3] =$

3.13), mother's age,  $F(3, 58) = 0.08$ , age of child,  $F(3,58) = 1.05$ , or mother's educational level,  $F(3,58) = 0.76$ .

## Procedures

UCLA's IRB approved all procedures. Recruitment sites displayed English and Spanish language flyers/brochures in waiting rooms, distributed them to potentially eligible mothers, and agencies directly referred participants. MLH informed consent and child assent were obtained prior to participation.

Appointments were conducted in the mother's home unless she chose a different location. Mother and child interviews were conducted in separate rooms to ensure confidentiality and administered using a computer-assisted interviewing program on laptops, and were recorded for quality-assurance. MLH interviews typically took 60-75 minutes; child interviews typically took 50 minutes. Spanish-speaking mothers were administered the interviews in Spanish by a bilingual interviewer. All child interviews were in English.

Interviewers were blind to study group assignment, and not involved in the intervention sessions. HIV was never discussed with the children; the project was presented to children as a study of parenting. Immediately after each completed assessment, mothers were paid \$60 cash, and children were allowed to select a retail gift card (e.g., Target or Walmart) worth \$30. The intervention was conducted by a bilingual masters-level research associate. MLH were paid \$50 cash at the completion of each intervention session.

## Intervention

MLH were randomly assigned to the intervention ( $n = 30$ ) or control condition ( $n = 32$ ). Intervention sessions took place within 1 - 3 weeks of the baseline appointment ( $M = 15.6$  days) and were spaced approximately 1 week apart ( $M = 7.6$  days). All (100%) of the mothers assigned to the intervention condition completed the 4 sessions.

Skills targeted in the MLH intervention are those in the center box (Parenting & Self-Care Behavior; see Figure 1.) For each targeted parenting and self-care behavior, the IMAGE intervention: (1) provides relevant information (e.g., for family routines, specifying the positive impact family routines have on child outcomes), (2) aims to increase personal and social motivation (e.g., for health care adherence, discussing how the mother's taking better care of herself is also taking better care of her child and family), and (3) promotes skills and self-efficacy (e.g., for parent-child communication, behavioral practice in session, homework assignments, and follow-up discussions with problem-solving).

IMAGE consisted of four 60-75 minute sessions which had the overarching theme of the MLH's "IMAGE" of themselves as a mother. MLH selected behavioral homework goals at the end of each session tied to the theme of that session. Session 1 addressed children's typical development (including age-appropriate chores, self-care skills, and social development), with a focus on the target child's age. The session then focused on improving mother-child communication, including behavioral practice of communication skills. Session 2 introduced the idea that the mother's physical and mental health can affect their parenting abilities, and, in turn, their children. Mothers were asked to choose a mental health

goal to pursue as homework. Also, the importance of good family practices (i.e., family routines, parental monitoring) was discussed, and MLH were encouraged to review family routines with the child and made plans to strengthen or start new family routines. In Session 3 the importance of self-care was revisited and included discussions of social support; pros/cons and how to approach disclosure (especially to obtain social support); and the importance of healthcare adherence, with problem solving of barriers. Session 4 returned to child-focused topics, with dialogue on child resiliency and assigning age-appropriate chores. Topics related to fostering a positive mother-child relationship (e.g., parental involvement, reinforcement, good communication) are addressed throughout each of the four sessions. A subset of MLH were queried following the intervention to determine their feelings about the program (see Results).

## Assessment

At baseline and 3, 6, and 12-month follow-ups mothers and children completed different measurement instruments (the subset of which for these present analyses are specified below), but the measures completed were unchanged across assessments. Assessment procedures for both control and intervention groups were identical. Two interviewers would go to the family home together; one to interview the MLH, one to interview the child (in separate rooms).

### Maternal outcomes

**Mental health:** MLH completed three subscales from the Rand Mental Health Inventory (Veit & Ware, 1983): General Positive Affect ( $\alpha = .93$ ), a single item of general Satisfaction, and Depression ( $\alpha = .85$ ). The Generalized Anxiety Disorder Scale-7 (GAD-7; Spitzer, Kroenke, Williams, & Löwe, 2006) was also administered to MLH ( $\alpha = .91$ ).

**Physical health:** MLH completed the Medical Outcome Short Form 36 (Ware & Sherbourne, 1992). Subscales used included Bodily Pain, role limitations due to Physical Health (Role Physical); and Vitality. Alphas were .80, .84 and .92, respectively.

**Parenting practices:** The Alabama Parenting Questionnaire (APQ; Frick, 1991; Shelton, Frick, & Wootton, 1996) Involvement ( $\alpha = .80$ ) and Monitoring ( $\alpha = .68$ ; one item was dropped due to poor reliability) subscales were administered to MLH. MLH also completed two items from the Positive Parenting scale ( $\alpha = .70$ ), and a total scale score was calculated ( $\alpha = .79$ ).

**Parenting efficacy:** MLH completed a Parenting Efficacy Scale modeled after the HIV Self-Efficacy Questionnaire (Shively, Smith, Bormann, & Gifford, 2002;  $\alpha = .91$ ).

### Child outcomes

**Mental health:** Children completed the Children's Depression Inventory (CDI; Kovacs, 1985; Kovacs & Beck, 1977;  $\alpha = .91$ ).

**Behavior problems:** The Child Behavior Checklist (CBCL; Achenbach, 1991; Achenbach & Edelbrock, 1979) was administered to MLH. The Aggressive Behavior subscale was utilized ( $\alpha = .90$ ). The Beck Youth Inventories (Beck, Beck, Jolly, & Steer, 2005) were administered to children, including the Anger and Disruptive Behavior Inventories ( $\alpha$ s = .95 and .93).

**Self concept:** The Piers-Harris Children's Self-Concept Scale was administered (Hughes, 1984; Piers, 1993). The six subscales are: Behavioral Adjustment ( $\alpha = .68$ ), Happiness and Satisfaction ( $\alpha = .70$ ), Intellectual and School Status scale ( $\alpha = .73$ ), Physical Appearance and Attributes scale ( $\alpha = .66$ ), Freedom from Anxiety ( $\alpha = .80$ ), and Popularity scale ( $\alpha = .66$ ).

**Coping:** Children completed the Self-report Coping Survey (Causey & Dubow, 1992). Subscales used in this analysis were: Support-seeking; Self-reliance; and Internalizing. Alphas were .88, .81 and .76, respectively.

### **Family outcomes**

**Family functioning:** The Cohesion subscale from the Family Functioning Scale (Bloom & Naar, 1994) was administered to MLH ( $\alpha = .71$ ).

**Parent-child relationship:** Children completed the Mother-Adolescent General Communication scale (Miller, Forehand, & Kotchick, 1999;  $\alpha = .79$ ). The Parent-Child Communication Scale (adapted from Loeber, Farrington, Stouthamer-Loeber, & van Kammen, 1998) was also administered children ( $\alpha = .77$ ). The Kerns Security Scale (Kerns, Klepac & Cole, 1996; Lieberman, Doyle, & Markiewicz, 1999) was administered to children, assessing Dependability ( $\alpha = .75$ ), Availability ( $\alpha = .70$ ), and total score ( $\alpha = .82$ ).

## **Analyses**

For this randomized pretest-posttest two-group design with repeated assessments, a mixed-model repeated measures was adopted using SAS Proc Mixed (V9.3; Wolfinger & Chang, 1998) with a Kenward-Roger degrees of freedom adjustment (Brown & Prescott, 2006). Simple main effects analyses were utilized evaluating group differences at each time point, which represent the decomposed effects of the overall between-within ANOVA model (Jaccard, 1998; Winer, 1971). Effect sizes are emphasized using  $d$  (Cohen, 1992). Pre-existing group differences at baseline are noted at the .10 significance level; only two of the measures evidenced such differences.

## **Results**

Least square group means and standard errors are noted in Table 1. Table 2 contains the ANOVA model components with inclusion of the simple main effects decomposition and significance tests. Though group main effects are also part of this decomposition, they are not provided as they are not interpreted.

## Maternal Outcomes

For maternal outcomes, findings suggest the intervention had strong effects on parenting practices changes for those in the intervention group compared to the control group, and also affected parenting efficacy and maternal mental health.

For parenting practices, differences are noted between the intervention and control group across the follow-up periods with large effects, indicative of better overall parenting. For the monitoring, involvement, and positive reinforcement, differences are noted at the later time-points with medium to large effects, indicating higher levels of parental monitoring, more involvement, and greater positive reinforcement reported for those in intervention group compared to the control group. Regarding efficacy in parenting, a significant mean difference was noted at 12-month follow-up only, with the intervention group reporting higher levels of parenting efficacy compared to the control group.

For mental health, two of the RAND measures showed differences across follow-up periods with medium effects, with the intervention group reporting greater positive affect compared to the control group. For satisfaction, a similar finding is noted at 6-month follow-up only in the expected direction, with greater satisfaction noted in the intervention group.

## Child Outcomes

For child outcomes, the strongest findings were evident for coping behaviors in the intervention group, with additional effects on child depression and self-concept.

For coping, all three measures showed group differences across the later time-points with medium effects, suggesting the intervention led to better support seeking behaviors, self reliance, and internalizing for those in the intervention group compared to the control group. Regarding mental health, the CDI total score shows lower depression for children in the intervention group compared to the control group at 12-month follow-up. Behavioral adjustment and satisfaction showed differences at 12-month follow-up with a medium effect; those in the intervention reported better behavioral adjustment and satisfaction than those in the control group.

## Family Outcomes

The intervention had an effect on the parent-child relationship, and to a lesser extent family cohesion. Communication showed differences at the 6-month follow-up period with medium effects, with those in the intervention group reporting better communication compared to those in the control group. For dependability and security, differences are noted at 6-month follow-up with medium effects (with some persistence through 12-months), with those in the intervention group reporting greater dependability and security than the control group. For cohesion, a difference was noted at 12-month follow-up suggesting better family cohesion for those in the intervention group, with little change prior.

## Results from Qualitative Debriefing Interviews of a Subset of Intervention MLH

A subset of intervention MLH ( $n = 9$ ) who fulfilled at least three of the four intervention sessions completed a qualitative debriefing. Overall, MLH seemed to feel very strongly that



they had benefitted from the intervention: “I learned a lot from this IMAGE program. I think every mother, not just mothers that are infected—this is a good thing for every mother” (47 year-old Latino/Hispanic mother of 11 year-old girl); “... this taught me to value myself ... take my meds more regularly ... and finally it helped me have a better relationship with my son, to communicate better” (44 year-old Latino/Hispanic mother of 7 year-old boy); “I always like ... that you’re not being told you have to do something, but I liked that it came as tools.” (28 year-old African-American mother of 8 year-old boy); and “Four was about right, because like I said, you had homework and it gave them a time to do that homework that week. Then the next week they came and you was able to discuss about what was the outcome of it ... It kept me wondering ... I wonder what the next one is [going to] be about? ... I felt excited that I knew they [were coming] because it was helping me” (31 year-old African-American mother of 11 year-old girl).

## Discussion

This pilot trial of the IMAGE intervention demonstrated the intervention’s promise: IMAGE had a consistent, positive impact on many of the maternal, child, and family outcomes based on MLH report. Moreover, child reports frequently confirmed maternal reports of the intervention’s impact.

MLH assigned to IMAGE reported significantly better parenting practices (e.g., maternal involvement, use of positive reinforcement) and better perception of their ability to parent effectively (parenting self-efficacy) than control MLH. Growth in communication across time was associated with the intervention, and parental monitoring became significant over time. The child outcomes anticipated to result from better parenting, based on PACT and other research, were also observed in this pilot study. MLH assigned to IMAGE and their children reported less aggression and anger than control children, significantly fewer depressive symptoms, and better coping.

It appears that it took time for MLH to integrate the skills into daily life, as some of the maternal, child, and family outcomes did not evidence changes until later follow-up time points. Changing parenting and self-care behaviors and habits is a challenging process, particularly in the context of illness demands and those associated with the other stressors with which many MLH live (e.g., poverty, stigma). Additionally, it may take time for children to observe and benefit from a parent’s effort to change behavior.

There were limited findings with respect to family outcomes (cohesion and parent-child relationship). Based on effects in the expected positive direction, it is likely that mothers and children need more time for the skills acquired to result in family-level benefits. Change in relationships and confidence in the reliability of that change may take more time than that associated with individual-level variables. We view the significant findings on maternal dependability and effects for security and relationships, all reported by children, as evidence for the IMAGE program’s potential to promote change in families that is recognized by children and, ultimately, reflected in more outcomes.

Caveats to the study include: (a) inflated Type I error due to the number of comparisons (although effect sizes associated with the significant effects are medium-to-large), (b) outcomes were only evaluated for the IMAGE IMB model due to the pilot nature of the study, and (c) study participants were from Los Angeles County and surrounding areas, and were primarily Latino and African-American - findings may not generalize fully to different geographic areas or other groups.

IMAGE shows preliminary promise, and has important public health implications. First, it appears that the health and well being of MLH can be improved, saving significant costs to the health care and mental health care systems. Secondly—and just as importantly—children’s well-being can be improved, which may lead to significant public health savings down the road, if they are less likely to have mental health problems or to engage in problem behaviors. These families are challenged by the MLH’s illness, live in under-resourced environment, and the mothers lack parenting and self-care skills. IMAGE is a potential approach to improve quality of life and the parent-children relationship to improve both mother and child long-term outcomes.

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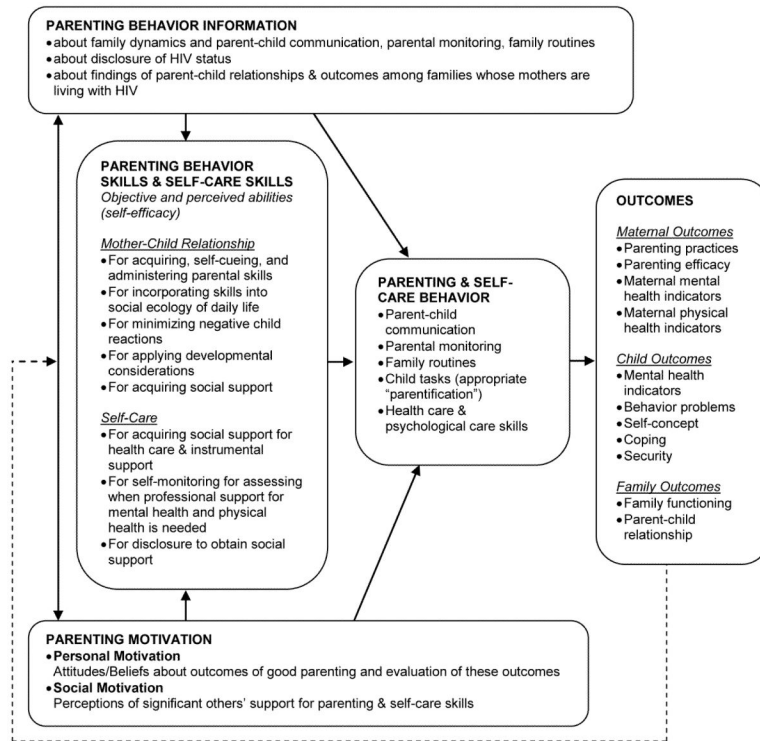
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**Figure 1.**

IMAGE IMB Model

NOTE: Model adapted directly from Fisher, Fisher, Amico, & Harman, 2006.

Least Squares Means and Standard Errors for Maternal, Child, and Family Outcomes by Control and Experimental Groups

Table 1

Outcomes	<i>M (SE)</i>			
	Baseline	3-Month Follow-Up	6-Month Follow-Up	12-Month Follow-Up
Maternal Outcomes				
<i>Mental Health</i>				
RAND General Positive Affect				
Control	44.06 (2.07)	40.79 (2.16)	44.71 (2.12)	42.36 (2.13)
Intervention	48.17 (2.14)	46.38 (2.27)	50.07 (2.16)	49.01 (2.10)
RAND Satisfaction				
Control	4.09 (0.24)	4.20 (0.27)	4.36 (0.22)	4.57 (0.24)
Intervention	4.50 (0.24)	4.53 (0.28)	4.95 (0.23)	4.68 (0.24)
RAND Depression				
Control	12.00 (0.89)	14.21 (0.96)	12.91 (0.82)	12.95 (0.90)
Intervention	12.77 (0.92)	12.27 (1.01)	11.61 (0.84)	11.47 (0.88)
General Anxiety (GAD)				
Control	6.69 (0.89)	6.37 (0.85)	6.90 (0.90)	5.48 (0.93)
Intervention	4.20 (0.92)	4.81 (0.90)	3.19 (0.92)	4.46 (0.92)
<i>Physical Health</i>				
MOS Freedom from Pain				
Control	7.03 (0.48)	6.88 (0.46)	7.45 (0.44)	7.49 (0.49)
Intervention	7.67 (0.50)	8.35 (0.49)	8.08 (0.45)	7.35 (0.48)
MOS Role Physical				
Control	2.50 (0.31)	2.35 (0.30)	2.82 (0.30)	2.67 (0.33)
Intervention	2.07 (0.32)	2.72 (0.32)	2.84 (0.31)	2.64 (0.32)
MOS Vitality				
Control	15.44 (0.84)	14.49 (0.93)	15.06 (0.84)	14.48 (0.90)
Intervention	15.47 (0.87)	15.97 (0.97)	16.04 (0.86)	16.18 (0.87)
<i>Parenting Practices</i>				
APQ Parenting Total				
Control	89.75 (1.52)	88.15 (1.37)	86.63 (1.56)	85.70 (1.49)

<i>Outcomes</i>	<i>M (SE)</i>			
	<b>Baseline</b>	<b>3-Month Follow-Up</b>	<b>6-Month Follow-Up</b>	<b>12-Month Follow-Up</b>
Intervention	93.03 (1.57)	91.68 (1.44)	93.08 (1.59)	92.94 (1.48)
APQ Monitoring				
Control	41.78 (0.70)	41.31 (0.67)	41.56 (0.65)	40.78 (0.77)
Intervention	42.10 (0.72)	42.50 (0.71)	43.23 (0.66)	43.01 (0.76)
APQ Parenting Involvement				
Control	38.78 (1.15)	37.80 (1.01)	36.57 (1.07)	36.51 (1.01)
Intervention	41.40 (1.18)	39.89 (1.06)	40.51 (1.09)	40.50 (1.00)
APQ Positive Reinforcement				
Control	9.19 (0.19)	9.02 (0.22)	8.45 (0.20)	8.61 (0.22)
Intervention	9.52 (0.20)	9.22 (0.23)	9.35 (0.21)	9.38 (0.22)
<i>Parenting Efficacy</i>				
Control	351.16 (12.28)	349.30 (9.82)	347.76 (8.22)	334.20 (9.86)
Intervention	347.63 (12.68)	356.89 (10.26)	367.05 (8.33)	367.88 (9.61)
<b>Child Outcomes</b>				
<i>Mental Health</i>				
CDI Total				
Control	7.38 (1.05)	5.17 (0.77)	4.32 (0.80)	5.40 (0.77)
Intervention	5.50 (1.08)	4.21 (0.80)	3.91 (0.80)	2.82 (0.75)
<i>Behavior Problems</i>				
CBCL Aggressive Behavior				
Control	10.72 (1.17)	10.13 (1.13)	8.46 (1.09)	8.45 (1.00)
Intervention	6.47 (1.21)	5.49 (1.18)	5.77 (1.12)	4.68 (1.00)
Beck Anger				
Control	14.75 (2.27)	12.77 (2.03)	11.19 (2.14)	8.87 (1.80)
Intervention	12.17 (2.34)	8.84 (2.11)	8.85 (2.17)	6.00 (1.74)
Beck Disruptive Behavior				
Control	5.88 (1.35)	4.37 (1.04)	4.35 (1.08)	3.79 (0.88)
Intervention	3.47 (1.39)	3.46 (1.08)	3.40 (1.10)	1.80 (0.88)
<i>Self-Concept (Piers-Harris)</i>				
Behavioral Adjustment				

<i>Outcomes</i>	<i>M (SE)</i>			
	<b>Baseline</b>	<b>3-Month Follow-Up</b>	<b>6-Month Follow-Up</b>	<b>12-Month Follow-Up</b>
Control	13.69 (0.35)	14.16 (0.25)	14.23 (0.27)	14.36 (0.22)
Intervention	14.43 (0.36)	14.60 (0.26)	14.80 (0.27)	14.90 (0.21)
<i>Satisfaction</i>				
Control	8.66 (0.30)	8.95 (0.27)	9.09 (0.20)	9.34 (0.16)
Intervention	9.00 (0.30)	9.40 (0.29)	9.46 (0.20)	9.73 (0.16)
<i>Intellectual and School Status</i>				
Control	13.19 (0.50)	13.98 (0.44)	14.19 (0.50)	14.42 (0.41)
Intervention	13.77 (0.52)	14.75 (0.46)	14.68 (0.51)	15.13 (0.41)
<i>Physical Appearance</i>				
Control	10.25 (0.40)	10.75 (0.40)	10.86 (0.40)	11.28 (0.35)
Intervention	10.27 (0.42)	10.87 (0.42)	11.09 (0.41)	11.33 (0.35)
<i>Freedom from Anxiety</i>				
Control	10.16 (0.53)	11.43 (0.41)	11.57 (0.44)	12.03 (0.38)
Intervention	11.23 (0.55)	11.79 (0.43)	12.05 (0.45)	12.58 (0.37)
<i>Popularity</i>				
Control	8.19 (0.40)	8.47 (0.36)	8.95 (0.37)	9.53 (0.30)
Intervention	8.20 (0.42)	8.96 (0.38)	8.99 (0.37)	9.08 (0.29)
<i>Coping</i>				
<i>Support Seeking</i>				
Control	25.03 (1.51)	24.12 (1.33)	24.38 (1.45)	22.66 (1.72)
Intervention	27.73 (1.56)	28.22 (1.39)	28.24 (1.47)	25.71 (1.67)
<i>Self Reliance</i>				
Control	28.03 (1.28)	26.33 (1.42)	24.51 (1.23)	24.85 (1.58)
Intervention	29.27 (1.32)	29.18 (1.49)	28.62 (1.24)	28.15 (1.52)
<i>Internalizing</i>				
Control	15.72 (1.13)	14.47 (0.97)	13.83 (0.94)	14.05 (0.85)
Intervention	14.67 (1.17)	13.94 (1.01)	13.94 (0.95)	11.06 (0.82)

## Family Outcomes

*Family Functioning*

Cohesion



<i>Outcomes</i>	<i>M (SE)</i>				
	<b>Baseline</b>	<b>3-Month Follow-Up</b>	<b>6-Month Follow-Up</b>	<b>12-Month Follow-Up</b>	
Control	16.66 (0.45)	17.04 (0.42)	16.95 (0.47)	16.73 (0.43)	
Intervention	17.37 (0.47)	17.18 (0.44)	17.35 (0.48)	17.81 (0.42)	
<i>Parent-Child Relationship</i>					
<i>Miller Communication</i>					
Control	27.41 (0.85)	28.06 (0.84)	27.24 (0.94)	27.52 (0.96)	
Intervention	28.23 (0.87)	28.60 (0.87)	30.07 (0.95)	29.44 (0.94)	
<i>Loeber Communication</i>					
Control	38.09 (1.09)	37.33 (1.13)	36.98 (1.24)	37.95 (1.28)	
Intervention	38.10 (1.12)	39.05 (1.17)	40.04 (1.25)	39.31 (1.26)	
<i>Kern Dependability</i>					
Control	28.09 (0.94)	28.37 (0.89)	28.38 (0.85)	29.24 (0.87)	
Intervention	29.47 (0.97)	30.45 (0.94)	31.20 (0.86)	31.52 (0.86)	
<i>Kern Security</i>					
Control	48.38 (1.42)	48.93 (1.34)	49.20 (1.25)	49.75 (1.40)	
Intervention	49.77 (1.46)	50.48 (1.41)	52.17 (1.26)	52.89 (1.39)	
<i>Kern Availability</i>					
Control	20.28 (0.63)	20.60 (0.67)	20.81 (0.59)	20.46 (0.64)	
Intervention	20.30 (0.65)	20.06 (0.71)	20.97 (0.59)	21.36 (0.63)	

Simple Main Effects Repeated Measures ANOVA Results: Maternal, Child, and Family Outcomes by Control and Intervention Groups within Time

Table 2

	Simple Main Effects of Group Within Time, F (df1, df2), d			
	Baseline	3-Month	6-Month	12-Month
<i>Maternal Outcomes</i>				
<i>Mental Health</i>				
RAND General Positive affect	1.90 (1, 60), .36	3.18 <sup>+</sup> (1, 58.8), .47	3.12 <sup>+</sup> (1, 58.6), .46	4.94 <sup>*</sup> (1, 55.8), .60
RAND Satisfaction	1.44 (1, 60), .31	.72 (1, 56.4), .23	3.44 <sup>+</sup> (1, 57.6), .49	.12 (1, 54.3), .09
RAND Depression	0.36 (1, 60), .16	1.94 (1, 58.5), .36	1.21 (1, 58.6), .29	1.40 (1, 55), .32
General Anxiety (GAD)	3.75 <sup>*</sup> (1, 60), .50	1.60 (1, 58.9), .33	8.39 <sup>**</sup> (1, 58.9), .76	.61 (1, 56.5), .21
<i>Physical Health</i>				
MOS Freedom from Pain	0.84 (1, 60), .24	4.74 <sup>*</sup> (1, 58.4), .57	0.98 (1, 59.2), .26	0.04 (1, 55.7), .05
MOS Role Physical	0.92 (1, 60), .25	0.70 (1, 54.5), .23	0.00 (1, 56.9), .00	0.00 (1, 55.9), .00
MOS Vitality	0.00 (1, 60), .00	1.21 (1, 57.2), .29	0.66 (1, 59.2), .21	1.85 (1, 55.1), .37
<i>Parenting Practices</i>				
APQ Total	2.25 (1, 60), .39	3.17 <sup>+</sup> (1, 59.3), .46	8.40 <sup>**</sup> (1, 59.7), .75	11.88 <sup>**</sup> (1, 59.8), .81
APQ Monitoring	.10 (1, 60), .08	1.50 (1, 57), .32	3.25 <sup>+</sup> (1, 59.6), .47	4.24 <sup>*</sup> (1, 59), .54
APQ Involvement	2.53 (1, 60), .41	2.03 (1, 59.6), .37	6.58 <sup>**</sup> (1, 59.1), .67	7.91 <sup>**</sup> (1, 59), .73
APQ Positive Reinforcement	1.58 (1, 60), .33	.41 (1, 61.1), .16	9.67 <sup>**</sup> (1, 60.5), .80	6.20 <sup>**</sup> (1, 58.7), .65
<i>Parenting Efficacy</i>	.04 (1, 54.7), .05	.29 (1, 54.7), .15	2.72 (1, 58.3), .43	5.98 <sup>**</sup> (1, 57.3), .65
<i>Child Outcomes</i>				
<i>Mental Health</i>				
CDI Total	1.56 (1, 60), .32	0.75 (1, 56.4), .23	0.13 (1, 57.10), .10	5.79 <sup>**</sup> (1, 56.6), .64
<i>Behavior Problems</i>				
CBCL Aggressive Behavior	6.41 <sup>**</sup> (1, 60), .65	8.05 <sup>**</sup> (1, 58.1), .74	2.99 <sup>+</sup> (1, 59.2), .45	7.18 <sup>**</sup> (1, 59.2), .70
Beck Anger	0.63 (1, 60), .21	1.80 (1, 53.1), .37	0.60 (1, 56.6), .21	1.31 (1, 54.8), .31
Beck Disruptive Behavior	1.54 (1, 60), .32	0.37 (1, 46.8), .18	0.38 (1, 60.5), .16	2.54 (1, 61.7), .41
<i>Self-Concept (Piers-Harris)</i>				
Behavioral Adjustment	2.17 (1, 60), .38	1.48 (1, 56.4), .32	2.24 (1, 59.7), .39	3.17 <sup>+</sup> (1, 58), .47

Simple Main Effects of Group Within Time, F (df1, df2), d				
	Baseline	3-Month	6-Month	12-Month
Satisfaction	0.66 (1, 60), .21	1.27 (1, 55.2), .30	1.70 (1, 53.5), .36	2.89 <sup>+</sup> (1, 52.7), .47
Intellectual and School Status	0.65 (1, 60), .21	1.47 (1, 59), .32	1.47 (1, 59.7), .31	1.48 (1, 60), .31
Physical Appearance	0.00 (1, 60), .00	0.05 (1, 58), .06	0.17 (1, 57.6), .11	0.01 (1, 56.7), .03
Freedom from Anxiety	2.01 (1, 60), .37	0.37 (1, 58.2), .16	0.57 (1, 57.1), .20	1.10 (1, 57.1), .28
Popularity	0.00 (1, 60), .00	0.86 (1, 58.7), .24	0.00 (1, 58.3), .00	1.15 (1, 59), .28
<i>Coping</i>				
Support Seeking	1.55 (1, 60), .32	4.53 <sup>*</sup> (1, 58.6), .56	3.50 <sup>+</sup> (1, 58.6), .49	1.61 (1, 54.6), .34
Self Reliance	0.45 (1, 60), .17	1.92 (1, 55.9), .37	5.52 <sup>*</sup> (1, 57.2), .62	2.27 (1, 56.2), .40
Internalizing	0.42 (1, 60), .17	0.14 (1, 56), .10	0.01 (1, 59.1), .03	6.44 <sup>**</sup> (1, 55.8), .68
Family Outcomes				
<i>Family Functioning</i>				
Cohesion	1.20 (1, 60), .28	.06 (1, 58.6), .06	.35 (1, 60.1), .15	3.31 <sup>+</sup> (1, 56), .49
<i>Parent-Child Relationship</i>				
Miller Communication	0.46 (1, 60), .18	0.20 (1, 58), .12	4.50 <sup>*</sup> (1, 58.6), .55	2.04 (1, 58.5), .37
Loeber Communication	0.00 (1, 60), .00	1.12 (1, 57), .28	3.04 <sup>+</sup> (1, 57), .46	0.58 (1, 57), .20
Kern Dependability	1.04 (1, 60), .26	2.56 (1, 56.9), .42	5.48 <sup>*</sup> (1, 56.5), .62	3.48 <sup>+</sup> (1, 57.1), .49
Kern Security	.47 (1, 60), .18	.63 (1, 59), .21	2.81 <sup>+</sup> (1, 58.2), .44	2.53 (1, 58.8), .42
Kern Availability	0.00 (1, 60), .00	.31 (1, 59.6), .14	.04 (1, 58.6), .05	1.02 (1, 60.1), .26

Note: Group main effects which are part of the decomposed ANOVA models for simple main effects testing are not provided for readability purposes.

<sup>+</sup>  $p < .10$ ;

<sup>\*</sup>  $p < /=.05$ ;

<sup>\*\*</sup>  $p < /=.01$