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Life Satisfaction Moderates the Effectiveness of a Play-Based Parenting Intervention in Low-Income Mothers and Toddlers

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Abstract

This multi-method multi-trait study examined moderators and mediators of change in the context of a parenting intervention. Low-income, diverse mothers of toddlers (average age 30 months; $N=186$, 90 girls) participated in a play-based intervention (Child-Oriented Play versus Play-as-Usual) aimed at increasing children's committed compliance and reducing opposition toward their mothers, observed in prohibition contexts, and at reducing mother-rated children's behavior problems 6 months after the intervention. Mothers' subjective sense of life satisfaction and fulfillment during the intervention and objective ratings of psychosocial functioning by clinicians, obtained in a clinical interview were posed as moderators, and mothers' observed power-assertive discipline immediately following the intervention was modeled as a mediator of its impact. We tested moderated mediation using structural equation modeling, with all baseline scores (prior to randomization) controlled. Mothers' subjective sense of life satisfaction moderated the impact of the intervention, but clinicians' ratings did not. For mothers highly satisfied with their lives, participating in Child-Oriented Play group, compared to Play-as-Usual group, led to a reduction in power-assertive discipline which, in turn, led to children's increased compliance and decreased opposition and externalizing problems. There were no effects for mothers who reported low life satisfaction. The study elucidates the causal sequence set in motion by the intervention, demonstrates the moderating role of mothers' subjective life satisfaction, highlights limitations of clinicians' ratings, and informs future prevention and intervention efforts to promote adaptive parenting.

Keywords

parenting intervention; life satisfaction; child outcomes; maternal power assertion; moderated mediation

Developmental psychopathology has increasingly emphasized a rapprochement between intervention science and basic science of development (Cicchetti & Hinshaw, 2002; Silverman & Hinshaw, 2008). Intervention studies allow researchers to isolate and directly manipulate key variables conceptualized as interrupting negative or promoting positive developmental cascades (Masten & Cicchetti, 2010). In contemporary intervention research,

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Conflict of Interest

The authors declare that they have no conflict of interest.

questions have evolved from “is the intervention effective?” or “is a given intervention better than others?” to “for whom, and under what conditions, is the intervention more or less effective (moderators)?” and “what are the mechanisms that account for change (mediators)?” (Kraemer, Wilson, Fairburn, & Agras, 2002). Identifying factors that alter effectiveness of parenting interventions and the parenting processes that lead to positive child outcomes by impacting developmental cascades has far-reaching implications for basic research.

Moderators of Change in Parenting Prevention and Intervention Programs

Multiple integrative review articles, multi-study papers, and meta-analyses reflect significant progress in our understanding of moderators of parenting prevention and intervention programs (Baydar, Reid, & Webster-Stratton, 2003; Beauchaine, Webster-Stratton, & Reid, 2005; Lundahl, Risser, & Lovejoy, 2006; Reyno & McGrath, 2006). Numerous factors that may influence effectiveness of parenting interventions have been studied.

Perhaps most often, dimensions of adversity in parents’ (mostly mothers’) lives and various aspects of their mental health have been implicated as significant moderators. Mothers who experience adverse life circumstances, and who have elevated levels of depression and other emotional problems, often benefit less from parenting programs than mothers who live under less adverse circumstances and are emotionally stable and healthy (e.g., Reyno & McGrath, 2006). The findings, however, are far from consistent; in some studies, stressed and depressed mothers have benefitted as much as (or even more) than other participants (e.g., Baydar et al., 2003; Beauchaine et al., 2005; Theise et al., 2014).

Whereas maternal stress and psychopathology have been widely examined as moderators of parenting interventions, no study has specifically targeted mothers’ subjective well-being. This is a notable gap given that, over the past two decades, researchers have increasingly relied on clinical measures of subjective well-being, quality of life, and life satisfaction to capture a distinct aspect of psychological experience with important implications for treatment outcomes (Frisch, Cornell, Villanueva, & Retzlaff, 1992). As well, many empirically supported treatments for psychopathology, such as *Acceptance and Commitment Therapy* (ACT; Hayes, Strosahl, & Wilson, 2011) emphasize the importance of assessing and promoting vitality and meaning in one’s life, rather than focusing solely on dysfunctional psychological processes.

In particular, degree of life satisfaction may have important implications for intervention outcomes. Life satisfaction, or quality of life, refers to “an individual’s subjective evaluation of the degree to which his or her most important needs, goals, and wishes have been fulfilled” (Frisch et al., 1992, p. 93). Whereas stress, adversity, and psychopathology may pose barriers, life satisfaction may be an inner resource that promotes engagement in interventions. This possibility is supported by a meta-analysis suggesting that individuals high in life satisfaction exhibit greater motivation, engagement, and success in their lives (Lyubomirsky, King, & Diener, 2005). Thus, women who are more satisfied with their lives may be more motivated to make behavioral changes. They may also enjoy greater vitality and life purpose despite concurrent distress or dysfunction. Intervention studies that examine

only distress and adversity as moderators may be incomplete, given that even highly distressed women may still benefit from parenting interventions to the extent that they experience high life satisfaction.

Degree of life satisfaction reported by parents also has direct implications for the effectiveness of outpatient treatment for childhood externalizing behaviors. Kazdin and Wassell (2000) demonstrated that parents with lower levels of life satisfaction perceive more barriers to participating in the outpatient treatment of their children. Specifically, parents perceive treatment as more demanding and less relevant to the extent that they are less satisfied across multiple life domains. Kazdin and Wassell (2000) speculated that parents may be less compliant with treatment, or that other factors at home that are related to low life satisfaction (e.g., interparental conflict) might undermine treatment efficacy. Notably, when a parent is an active agent in the therapeutic process, as in most parenting interventions, we might expect the impact of life satisfaction to be even more pronounced.

Life satisfaction involves subjective, rather than objective, appraisals of what is most important and fulfilling in one's life, defined uniquely by each individual (Crowley & Kazdin, 1998). Therefore, it cannot be accurately assessed by outside observers. We propose that subjectively rated life satisfaction is distinct from clinician-rated psychosocial functioning, a dimension of well-being that is often assessed in clinical research and practice. Clinically significant distress or impairment in functioning is one of the criteria for a DSM diagnosis (e.g., major depressive disorder), and remission of a disorder is defined, in part, by a return to healthy functioning (Frank et al., 1991; Keller, 2003). However, in principle, a clinician might rate someone as functioning quite well despite that person being very dissatisfied with his or her life, or as functioning poorly despite that person's high subjective life satisfaction and fulfillment. We propose that both subjective life satisfaction and clinician-rated psychosocial functioning be examined as potential moderators in parenting interventions because of their potentially distinct implications for outcomes.

Testing Moderated Mediation in Parenting Interventions

Although identifying moderators of change in parenting programs is key for clarifying who will benefit most from these programs, researchers have been urged to combine analyses of moderators and mediators. Recent advances in the statistical testing of moderated mediation can help elucidate what treatments (or their components) work for whom and through what processes (Gardner, Hutchings, Bywater, & Whitaker, 2010; Stoltz, Dekovic, van Londen, Orobio de Castro & Prinz, 2013; Tein, Sandler, MacKinnon, & Wolchik, 2004).

In particular, interventions that directly target mediating processes that promote change in developmental cascades are optimal (Masten & Cicchetti, 2010). Without changes in the mediating processes, developmental cascades will not be impacted. It is vital to examine jointly moderators of change to determine for whom change is occurring, and mediators of change that depict processes involved in developmental cascades. Such a design was implemented in the present study.

The Present Study

We examined mothers' self-reported sense of satisfaction and fulfillment and clinicians' ratings of mothers' functioning as moderators of the effectiveness of an experimental play-based intervention for low-income mothers of toddlers. Children in low-income, stressed families are at elevated risk for noncompliance, defiance, and other externalizing behavior problems, in part because of less adaptive, less child-oriented, and more power-assertive parenting they tend to receive, compared to middle-class families (Belsky, 1984; Bornstein & Bradley, 2003; Duncan, Brooks-Gunn, & Klebanow, 1994; McLoyd, 1998). We targeted mothers' parenting practices, drawing from several well-established parent training programs, such as Special Time (Barkley, 1981), Child's Game (Forehand & McMahon, 1981; McMahon & Forehand, 2003), Parent-Child Interaction Therapy (PCIT; Eyberg & Bussing, 2010), or The Incredible Years (Webster-Stratton & Reid, 2010). The measures of outcomes captured children's cooperation with and opposition to the mothers, and their behavior problems.

The mother-child dyads were randomized into two groups: a Child-Oriented Play group, where mothers were trained in child-oriented play, and an active control Play-as-Usual group, where they were asked to play in the usual manner (for details, see Kochanska, Kim, Boldt, & Nordling, 2013). The key element of child-oriented play is for mothers to allow children to be in charge of the play, be responsive and positive, and to eliminate any behaviors that assume control over the child, especially power assertion, control, criticism, commands, directives, and even teaching or asking questions (McMahon & Forehand, 2003).

We examined reduction in mothers' power assertive control style as the mediating process linking the intervention with child outcomes. Power assertion has been broadly associated with children's poor cooperation and compliance, increased defiance, anger, and externalizing problems (Dodge, Coie, & Lynam, 2006; Gershoff, 2002; Hinshaw et al., 2000; McCord, 1997; Patterson, 1982, 1995). We expected that mothers' less forceful control style, observed during interactions immediately following the intervention, would mediate the effects of the intervention on children's outcomes (increased compliance and reduced opposition toward the mother, and reduced behavior problems) 6 months later.

Our approach assumed the testing of moderated mediation in a randomized experimental design (Gardner et al., 2010; Stoltz et al., 2013; Tein et al., 2004). We tested the process responsible for positive effects of the intervention (reduced power assertion) in the context of two models of moderators: self-reported level of life satisfaction and fulfillment and the clinician's perception of their psychosocial functioning. Mothers who reported a higher subjective sense of life satisfaction during the intervention period were expected to show a greater reduction in power-assertive control if they were in the Child-Oriented Play group (compared to the control, Play-as-Usual group), relative to mothers who reported lower satisfaction. Reduction in power assertion would, in turn, be associated with positive child outcomes 6 months later. In contrast, we did not anticipate that clinician-rated psychosocial functioning would function as a moderator.

Although power assertion has been implicated in the etiology of both externalizing and internalizing problems (Gershoff, 2002; Barry, Frick, & Grafeman, 2008; McKee et al., 2007), most of empirical research has focused on the former type of problems, with much less known about the latter. We expected to find a significant moderated mediation sequence for children's compliance, opposition, and externalizing problems, but the examination of the effects for internalizing problems was exploratory.

Finally, the intervention examined in the present study was implemented at toddler age, long seen as a key developmental period in terms of emerging parental control. In the second and third years, because of rapidly occurring changes in the child's mobility, language, self and autonomy, and self-regulation, the parent-child relationship undergoes significant transformations. The toddler period is marked by the onset of parental control and demands for compliance, and by the child's emerging broad repertoire of cooperative and resistant responses to parental pressure (Crockenberg & Litman, 1990; Kuczynski, Kochanska, Radke-Yarrow, & Ginius Brown, 1987). How adaptively those processes are negotiated is seen as key for future developmental trajectories; in particular, parental difficulty managing children's noncompliance and children's persistent failure to cooperate forecast future externalizing problems (Belsky, Woodworth, & Crnic, 1996; Campbell, Shaw, & Gilliom, 2000; Shaw, Lacourse & Nagin, 2005; Shaw, Keenan, & Vondra, 1994; Wakschlag, Tolan, & Leventhal, 2010).

Method

Participants

Mothers of young children responded to flyers distributed in eastern Iowa, particularly in venues frequented by low-income families (second-hand stores, Women, Infants, and Children offices, free medical clinics, Head Start locations, mobile homes parks, subsidized housing projects). Four hundred and one women contacted the laboratory. Fifteen percent ($n = 60$) did not meet the eligibility requirements. Eligibility criteria included: Child between the ages of 24-42 months, receiving or eligible for aid from a local, state, or federal government or faith-based agency (or Earned Income Tax Credit), child free of major health problems (only 3 cases were excluded), mother having education beyond college, mother able to speak English during sessions, and biological child of mother. We also limited acceptance to mothers living within approximately 45 miles from our laboratory and those who planned to stay in the area for at least 1 year. Additional women ($n=155$) were not included due to lost contact before or after screening or because women were not interested in participating. Ultimately, 46% of the women who had contacted the laboratory and 51% of those who had been screened for eligibility were enrolled in the study ($N=186$, 90 girls).

On average, mothers were 27.54 years of age ($SD = 4.87$), and children were 30.33 months ($SD = 5.40$). Average annual family income was \$20,385 ($SD = \$13,010$). Approximately 5.4% of mothers did not complete high school, 50% had a high school diploma or GED, 19.4% had an associate degree, and 15.3% had a bachelor's or a technical degree. Over half (54.3%) of mothers were married, 13.4% were cohabitating with their partners, 30.6% were single or divorced, and 1.6% had other arrangements. The sample reflected well US demographics, particularly in the context of Iowa: 10.8% Hispanic, 87.1% not Hispanic,

2.2% “other”; 1.6% American Indian, 1.6% Asian, 14.5% African American, 72.6% White, 7% more than one race, and 2.7% declined to report. After randomization, no differences at $p < .05$ between the two groups were found on the demographic variables. Mothers signed the informed consent forms prior to the study (all procedures had been approved by IRB).

Overview of Design

Each mother-child dyad participated in an approximately 10-month sequence: Pretest, $N = 186$, followed by random assignment to Child-Oriented Play group, $N=94$, or Play-as-Usual group, $N=91$ (one mother dropped before the assignment), intervention (Training Session, Play Sessions and Daily Play over 9-10 weeks), Posttest 1, $N = 168$, and Posttest 2, 6 months after Posttest 1, $N = 162$.¹

The intervention group assignment was conceptualized as the independent variable. Mothers’ self-reported life satisfaction and fulfillment and clinician-rated multi-dimensional psychosocial functioning during intervention, assessed in a lengthy clinical interview at Posttest 1, were the moderator variables. Mothers’ power-assertive discipline, observed at Posttest 1, was the mediator of the long-term child outcomes, measured at Posttest 2 (observed committed compliance and opposition and mother-rated behavior problems). Figure 1 presents the conceptual model.

Procedures

Pretest, Posttest 1, and Posttest 2—Those were 3-hour-long sessions in a naturalistically furnished laboratory, with largely parallel scripts that encompassed multiple contexts, e.g., play, snack, mother busy. The laboratory contained a low shelf with attractive toys, off limits to the child. Mothers were asked to prevent children from touching them.

Intervention—During the Training Session, in Child-Oriented Play group, a staff member taught the mother play techniques drawn from Child's Game, a component of a well-known parent training program (McMahon & Forehand, 2003). Child's Game involves focusing positive attention on the child and/or allowing the child to direct the play as often as possible (the specific techniques included attending, following child lead, and dispensing positives/rewards). Techniques that shift control to the mother, particularly all forms of power-assertive discipline, criticism, or negative influence and discipline, but also questions, commands, and teaching, are discouraged. Training was achieved by using a handout, video, and modeling. Further, a staff member practiced with mothers and provided feedback. Following the Training Session, mothers and children took part in 8 half-hour videotaped Play Sessions (four in laboratory and four in home, one every 7-10 days, during which they played according to the training received). Mothers in the Child-Oriented Play group also received substantive feedback, based on the notes taken by the staff member who conducted the session. The staff member commented on the mother's use of each technique, being specific and supportive, pointed out room for improvement, and invited questions. Mothers

¹Notably, 18 mothers were lost to attrition from Pretest to Posttest 1, and only 6 mothers from Posttest 1 to Posttest 2. There were no significant differences between women who participated in Posttest 1 versus those who were lost to attrition with regard to demographic variables, ts ranged from -0.73 to 1.91 , ns , and χ^2s ranged from 0.02 to 12.48 , ns . Further, rates of return at Posttest 1 or Posttest 2 were not different across the intervention groups, $\chi^2(1) = 1.80$, ns , and $\chi^2(1) < 1$.

were also instructed to play daily with their children for 20 min in the instructed manner throughout the 3 months of treatment (mothers kept track of daily play in diaries we provided).

Mothers in Play-as-Usual group also took part in a Training Session, and were instructed to play with their children in the usual manner (i.e., “play with whatever you want, in whatever way you want”). Then, they also participated in 8 half-hour videotaped Play Sessions during which they played in the usual manner, and they received non-substantive feedback to assure parallel rhythm (e.g., “He seemed to really enjoy the trucks,” “She liked the animals”). The mothers also played daily with their children for 20 min during the 3 months of treatment, in their usual manner, and kept track in the diaries.

Fidelity and integrity—Extensive fidelity procedures were deployed (for more information, see Kochanska et al., 2013). All observational data were produced by individuals blind to the mothers’ group assignments. The clinical interviews were conducted by clinical psychology Ph.D. students, blind to all data about the mothers. The coders of Pretest and Posttests 1 and 2, and the interviewers never saw the Training Session or any Play Sessions, the only contexts that contained clues to group assignment, and had no access to assignment information.

Measures

The Moderator Variables, Posttest 1: Mothers’ Self-Reported and Clinician-Rated Multidimensional Life Satisfaction and Psychosocial Functioning During Intervention

The *Longitudinal Interview Follow-Up Evaluation* (LIFE; Keller et al., 1987) was administered immediately following Posttest 1 to assess self-rated life satisfaction and clinician-rated psychosocial functioning of mothers during the intervention. The LIFE is a semi-structured longitudinal interview that assesses functioning and adjustment across a variety of life domains including work, volunteer activities, household responsibilities, recreation, student work, and interpersonal relationships with family and friends. LIFE has been used over 1100 times in published studies. In its initial validation study, interviewers used it very reliably (most subscales, ICC > .70; Keller et al., 1987).

Self-rated life satisfaction and fulfillment—Mothers were asked to consider each of the 3 months of the intervention period when answering a series of open-ended questions regarding functioning in each of those areas. Then, they were asked to consider, again for each month, their overall satisfaction with life in those various domains, including degree of gratification and enjoyment using a Likert scale ranging from 1 (only transient problems, generally satisfied with all aspects of life, minor dissatisfaction in perhaps one area, overall quite content with self, job, family, friends, activities, and finances) to 5 (no satisfaction derived from anything, no desire to carry out the smallest of tasks or to be with others). Ratings across the 3 months were strongly correlated (r_s .64 to .82, dfs 145-150), and were averaged into the self-rated score of overall life satisfaction and fulfillment during the intervention. Scores were reversed such that high scores correspond to greater life satisfaction (5=very high, 1=very poor).

Clinician-rated multi-dimensional psychosocial functioning—The interviewer provided a rating of the mother's overall psychosocial functioning for each of the 3 months during the intervention using a parallel Likert scale (1=*very good*, to 5=*very poor*). These ratings are based, in part, on women's reports, but also take into account everything the interviewer knows about level of functioning across the various life domains discussed during the interview. Those ratings were also strongly correlated across the 3 months of the intervention (r_s .73 to .92, dfs 146-150), and were averaged into the clinician-rated score of overall psychosocial functioning during the intervention. Scores were reversed as well, such that high scores correspond to better psychosocial functioning (5 = *very good*, 1 = *very poor*). All interviews were audiotaped, and interrater reliability was assessed for a random sample of 20% of the interviews (including scores from all eight interviewers). For this subset of interviews, a second set of scores was obtained by a second (different) coder. Interrater reliability (ICC) was .72. The mothers' subjective ratings and the clinicians' ratings moderately correlated (see Table 1).

The Mediator Variable, Posttest 1: Mother's Observed Power-Assertive Discipline

Observed contexts, coding, and data aggregation—The mother-child dyad was observed for 45 min in several paradigms in the room with the off-limits toys (e.g., snack, free time, mother busy). All control encounters involving the prohibition were coded. Procedures involved in the process of establishing reliable coding of observational data encompassed consensus coding, blind coding, and coders' multiple realignments. Those reliability procedures were based on approximately 20% of cases. First, coders identified all episodes of control (starting when the child's attention turned to the prohibited toys, until the child reoriented away from them). Reliability for episodic coding was high (ICCs ranged from .85 to .99). Then, another team coded, for every 30-s segment within those episodes, the mother's overall control style. Only codes reflecting power assertion were used here: assertive control (matter-of-fact, firm, decisive control style), and forceful, negative control (negative, angry, threatening, harsh control style). Reliability, kappa, was .84. Also for each 30-s segment, the mother's physical power-assertive strategies were coded: assertive physical control (firmly holding child, taking a toy away, blocking access to toys), and forceful, negative physical control (handling child roughly, spanking, yanking toys away). Reliability, (kappas) ranged from .78 to .86.

The instances of each code were tallied, divided by the number of coded segments, and standardized. The two standardized scores for the overall control style were averaged, and the two standardized scores for physical power-assertive strategies were averaged, and finally thus produced two scores that were averaged into the mother's power-assertive discipline score.

The Long-term Outcome Variables, Posttest 2: Children's Observed Response to Maternal Control (Committed Compliance, Opposition) and Mother-Rated Behavior Problems

Children's response to maternal control—Mother-child dyads were again observed in the laboratory for 45 min, in prohibition control encounters that involved the off-limits toys. Child behavior was coded for each 30-s segment within the episodes (by another team) when the child oriented toward the prohibited toys. In the current report, we focus on

committed compliance and opposition (overt resistance, defiance). Committed compliance was coded as self-regulated, eager adherence to maternal prohibition; the child complied without the need for maternal sustained control, and indicated that she or he wholeheartedly endorsed the prohibition, for example, by pointing to the toys, shaking head, and/or saying “no-no toys”, “don’t touch”, “the pretties, look only” (Kochanska & Aksan, 1995). Overt resistance was coded when the child openly refused to comply, said “No”, argued, and/or insisted on playing with the toys. Defiance was coded when resistance was accompanied by poorly controlled anger, temper tantrum, screaming, kicking or throwing toys, hitting mother, whining, or deliberately playing with the toys. Reliability, kappa, was .87. All instances of each behavior were tallied, divided by the number of the 30-sec segments, and standardized. Overt resistance and defiance correlated, $r(160) = .26, p = .001$, and thus were averaged into an opposition score.

Children's mother-rated children's behavior problems—Mothers completed two well-established instruments, *Infant–Toddler Social and Emotional Assessment* (ITSEA; Carter, Briggs-Gowan, Jones, & Little, 2003) and *Early Childhood Inventory* (ECI-4, Gadow & Sprafkin, 1997, 2000). Each instrument produced measure of the child's externalizing and internalizing behavior problems.

In ITSEA, mothers rated each item as 0 (*not true/rarely*), 1 (*somewhat true/sometimes*), or 2 (*very true/often*). The overall score for the Externalizing Domain (24 items; Cronbach's $\alpha = .87$) encompassed the means of the scales of Impulsivity, Aggression/Defiance, and Peer Aggression. The overall score for Internalizing Domain (30 items; Cronbach's $\alpha = .79$) encompassed the means of the scales of Depression/Withdrawal, General Anxiety, Separation Distress, and Inhibition to Novelty.

In ECI-4, most items are rated as 0 (*never*), 1 (*sometimes*), 2 (*often*), or 3 (*very often*). We created an externalizing behavior problems score (the sum of items targeting Oppositional Defiant Disorder and Conduct Disorder, 18 items; Cronbach's $\alpha = .89$) and an internalizing behavior problems score (the sum of 39 items targeting Separation Anxiety, Specific Phobia, Obsessive-Compulsive Disorder, Tics Disorder, General Anxiety Disorder, Depression, Adjustment Disorder, Social Phobia, and Posttraumatic Stress Disorder; Cronbach's $\alpha = .89$).

ITSEA Externalizing Domain scores ($M=0.54, SD=0.27$) and ECI-4 externalizing behavior problems scores ($M=6.39, SD=5.83$) correlated, $r(160) = .74, p < .001$, and were standardized and averaged into an overall externalizing behavior problems score. Likewise, the internalizing problems scores in ITSEA ($M=0.48, SD=0.24$) and ECI-4 ($M=10.98, SD=8.55$) correlated, $r(160) = .62, p < .001$, and were standardized and averaged into an overall internalizing behavior problems score.

The Covariates (Pretest Scores)

At Pretest, we obtained scores of the mediator variable (the mother's observed power-assertive discipline) and long-term outcome variables (committed compliance, opposition, and overall externalizing and internalizing behavior problems scores). The latter included ITSEA only (Externalizing Domain, Cronbach's $\alpha = .88$; Internalizing Domain, Cronbach's

$\alpha = .81$), because ECI-4 targets older ages. Those Pretest scores were used as covariates in all analyses (McGowan, Nix, Murphy, Bierman, & Conduct Problems Prevention Research Group, 2010; Rausch, Maxwell, & Kelley, 2003), a strong control strategy given robust correlations between the pretest and future scores, with r s for mother's power-assertive discipline, .50, children's committed compliance, .65, opposition, .51, externalizing behavior problems, .64, internalizing behavior problems, .59, dfs 160-166, $ps < .001$.

Results

Descriptive statistics and intercorrelations are reported in Table 1.

The conceptual model was tested using Mplus (Muthén & Muthén, 2010). Missing data due to attrition were addressed via FIML, considered superior to other methods (Enders & Bandalos, 2001). A direct effect and first stage model (Preacher, Rucker, and Hayes, 2007) was applied. Scores of self-reported life satisfaction during the intervention were examined as a moderator of the link between the intervention group assignment and maternal power-assertive discipline (Posttest 1); maternal power-assertive discipline was modeled as a mediator of the link between group assignment and each of the four child outcomes (Figure 1). Child gender, the Pretest scores for the mediator (power assertion) and the Pretest scores for the child outcomes were also included in the model as covariates. The same model was tested with clinician-rated psychosocial functioning examined as the moderator.

A bootstrap approach (Shrout & Bolger, 2002), which maximizes power while minimizing Type I error rate, was implemented. Bootstrapping provides an empirical approximation of sampling distributions of indirect effects to produce confidence intervals (CI) of estimates. If zero does not fall within the CI, one can conclude that an indirect effect is different from zero. We performed a nonparametric resampling method (bias-corrected bootstrap) with 1000 resamples drawn to derive the 95% CIs for the indirect effects of the group assignment on outcomes through power assertion at different levels of the moderators.

Multiple indices were used to assess global model fit. The Chi-square to degrees of freedom ratio (χ^2/df ; Wheaton, Muthén, Alwin, & Summers, 1977), the Comparative Fit Index (CFI; Bentler, 1990), the Tucker-Lewis Index (TLI; Tucker & Lewis, 1973), the Root Mean Square Error of Approximation (RMSEA; Browne & Cudeck, 1992), and the Standard Root Mean Residual (SRMR; Hu & Bentler, 1995) are reported. Once a model was deemed to fit the data adequately, parameter estimates were interpreted.

Mothers' Self-Reported Maternal Life Satisfaction as a Moderator

Mothers' self-reported life satisfaction during the intervention was the moderator in the first model (Figure 2). Estimation of this moderated mediation model yielded satisfactory fit, $\chi^2(14) = 15.13$, $p = .370$, $\chi^2/df = 1.08$, CFI = .998, TLI = .991, RMSEA = .021. Proportion of variance explained by the model included 51% for committed compliance, 38% for opposition, 47% for externalizing symptoms, and 36% for internalizing symptoms. The interaction between group assignment and maternal life satisfaction predicting maternal power assertion was significant, $\beta = -.26$, $p = .017$. Indirect effects of the intervention group assignment on each of the outcome variables through power assertion at 1 SD above the

mean of the moderator (i.e., high levels of life satisfaction) were present for committed compliance, 95% CI [.03 to .32], opposition, 95% CI [−.33 to −.03], and externalizing symptoms, 95% CI [−.24 to −.01]; however, the indirect effect was not present for internalizing symptoms, 95% CI [−.21 to .01].

Clinician-Rated Maternal Psychosocial Functioning as a Moderator

The same model was tested with clinician-rated maternal psychosocial functioning as the moderator (Figure 3). Estimation of this model yielded satisfactory fit, $\chi^2(14) = 15.68$, $p = .333$, $\chi^2/df = 1.12$, CFI = .997, TLI = .987, RMSEA = .025. Proportion of variance explained by the model included 52% for child committed compliance, 40% for opposition, 47% for child externalizing symptoms, and 42% for child internalizing symptoms. However, the interaction between group assignment and maternal life satisfaction was *not* significant, $\beta = -.04$, $p = .57$.

Discussion

Intervention science has implications for basic research in developmental psychopathology by isolating and manipulating key variables that alter developmental cascades and child adjustment. Scholars in developmental psychopathology have been strongly urged to investigate moderators and mediators of change in parenting prevention and intervention programs to clarify for whom interventions are effective, and to identify the specific mediating processes accounting for the effects (Gardner et al., 2010; Cicchetti & Hinshaw, 2002; Stoltz et al., 2013; Tein et al., 2004). The failure to consider potential moderators often obscures effects of interventions. Indeed, this was the case in the present study: For many constructs, there were no overall group differences attributable to the intervention and, for other constructs, the effects were modest (Kochanska et al., 2013).

We have tested moderated mediation to elucidate for whom the intervention worked and what mechanism, or process, was responsible for its impact. We examined mothers' self-reported life satisfaction and fulfillment, along with clinicians' ratings of mothers' psychosocial functioning, as moderators of change in an experimental play-based intervention for low-income mothers and toddlers. We also examined a reduction in mothers' power assertion as a mediator linking the intervention with better child outcomes 6 months later.

As anticipated, mothers' subjective sense of life satisfaction and fulfillment significantly moderated the impact of the intervention on their power assertion. The overall moderated mediation model had an excellent fit to the data. Mothers who were relatively satisfied with their lives significantly reduced their use of power assertion upon the completion of the intervention in the Child-Oriented Play group (compared to those in the Play-as-Usual group) which, in turn, was associated with fewer child externalizing symptoms 6 months later. In contrast, for mothers who reported relative unhappiness with and lack of fulfillment in their lives, the completion of the child-oriented play intervention did not influence their use of power assertion, and for those mothers, we found no evidence of the causal sequence leading to improved child outcomes.

Remarkably, the significant findings were for the mother-reported life satisfaction measures, but not for the clinicians' judgments. For the latter, the model, though an adequate fit to the data, failed to produce significant main or moderating effects. The findings reveal a key difference between subjective reports of psychological well-being versus traditional clinicians' reports that weigh strongly the presence of psychopathology, perhaps elucidating a reason for inconsistencies in extant research that has examined mothers' mental health as a moderator of effectiveness of parenting interventions (e.g., Baydar et al., 2003; Beauchaine et al., 2005). Conceptually, these findings dovetail with the recent developments in psychotherapy, such as ACT (Hayes et al, 2011), which implement treatment components aimed at promoting vitality, meaning, and purpose in one's life.

The results also have implications for understanding one potential process set in motion by the parenting intervention and leading to improved child outcomes. We elucidate the impact of changes in mothers' power assertive control style on developmental cascades leading to externalizing problems during early childhood. Our findings are consistent with the emerging literature. For example, Hanisch, Hautmann, Plück, Eichelberger, and Döpfner (2014) demonstrated a similar effect using mother-reported negative parenting.

The present study has several strengths: a randomized experimental design with a strong active control group, controlling for the baseline Pretest scores, a multi-method, multi-trait approach, with a strong emphasis on observational data, and a focus on low-income families, often seen as at high risk for harsh parenting and elevated children's noncompliance and behavior problems. The timing of the intervention is also notable. The toddler period has been long considered key for the onset of discipline, shifting parental expectations, the emergence of compliance and noncompliance, and the developmental significance of cooperation and opposition for future trajectories. Toddler and early preschool years are key for future problematic trajectories (Carter et al., 2003; Keenan & Shaw, 2003; Wakschlag et al., 2005). Masten and Cicchetti (2010) emphasize the importance of early interventions, suggesting a "higher return in investment" due to altering dysfunctional mediating processes in early stages of developmental cascades.

The present study had several limitations. First, it focused exclusively on mothers. Increasingly, fathers have been recognized as important in children's adjustment, particularly in the context of fathers' increased involvement as caregivers (Cabrera, Tamis-LeMonda, Bradley, Hofferth, & Lamb, 2000; Pleck, 2010). As well, interest has been growing in non-resident fathers as continuing caregivers, given the growing number of female-headed and divorced families (Williams & Kelly, 2005). Second, the repertoire of mothers' adjustment would have been strengthened by having parallel measures of psychosocial functioning and life satisfaction self-reported by mothers and rated by clinicians. Unfortunately, the structure of the LIFE interview does not include such parallel scores. Third, outcomes were assessed approximately 6 months after the intervention; a longer-term follow-up (e.g., several years later) would be critical to determine the long-term impact of altered parenting processes on child outcomes. The latter is indeed one of our current research goals. Fourth, children were not screened for elevated behavior problems, and thus, although considered at risk due to adverse demographic circumstances, they did not represent a clinical sample. Consequently, the study is appropriately viewed as preventative.

A final limitation was that maternal power assertion was generally infrequent. This is typical, and well-known, challenge in observational research, particularly with children who are in a normative range of behavior problems. Scholars adopt various approaches to this issue (see, for example, Joosena, Mesman, Bakermans-Kranenburg, & van IJzendoorn, 2012). By combining all types of parental pressure, coded at the level of an overall judgment and at the level of recording specific physical strategies, and employing short (30s) coded segments during actual episodes of maternal control, we were able to achieve relatively reasonable distributions of parental power or pressure. Admittedly, this approach is not perfect. In this study, as in all our previous studies, power assertion consisted mostly of firm, decisive, assertive control, with occasional angry, physical pressure. Perhaps increasing observation times even further, particularly under conditions of some stress and a salient, emotionally charged conflict between the mother and the child, would allow for a more robust measurement of power assertion. We note, however, that the findings were nevertheless consistent with our expectations, with our past work with community samples, and with extant research that involved mothers and toddlers at a higher risk (e.g., Sitnick et al, 2014).

The study has several clinical implications. Kazdin and Wassell (2000) proposed that parental characteristics causing barriers to treatment for child maladjustment need to be routinely accounted for in intervention studies, noting that these characteristics may exert an unfavorable influence on multiple aspects of the treatment process (e.g., attendance, attrition). Indeed, they proposed that it may be insufficient, and premature, to focus on child dysfunction in the presence of certain parental characteristics. Concurrent efforts should be made to ensure that the family is fully engaged and invested in treatment before focusing on the presenting problem (i.e., child psychopathology). When the parent is directly involved in the treatment process, as in parenting interventions, consideration of parental characteristics is especially vital. In the present study, by examining moderators of change, we identified maternal life satisfaction as an important parental characteristic having implications for the effectiveness of a parenting intervention.

Given the relative importance of subjective life satisfaction and fulfillment, effectiveness of parenting interventions might be strengthened by simultaneously targeting mothers' life satisfaction. This might be accomplished by referring mothers reporting low life satisfaction to individual-based interventions that promote healthy functioning and well-being. Such interventions need not be formal psychotherapy but rather might include psychoeducation aimed at helping parents lead more rich and meaningful lives. Alternatively, maternal life satisfaction could be routinely targeted along with parenting as part of a play-based intervention. As previously discussed, one of the unique elements of ACT (Hayes et al., 2011) is the inclusion of treatment components that are aimed at promoting vitality and meaning in one's life. Clients are asked to identify values associated with multiple life domains (e.g., family, career, education, recreation, community, health), and to choose and enact behaviors that are consistent with those values. Incorporation of values exploration and identification of committed actions might help to promote life satisfaction, enhancing the effectiveness of the intervention. Perhaps it would be useful to emphasize values associated with parenting. Asking a mother what kind of a parent she wants to be (e.g., attentive, responsive, patient), and helping her to identify how participating in child-oriented

play might be consistent with her parenting values would likely promote her productive and sustained engagement.

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Figure 1.
Conceptual model tested in the present study.

Figure 2.

Model examining self-reported maternal life satisfaction as a moderator of the link between intervention group assignment and maternal power-assertive discipline, and maternal power as mediator of the link between group assignment and child outcomes. Standardized coefficients are reported. Significant paths are represented by solid lines and non-significant paths are represented by dashed lines. Confidence intervals (CIs) are provided for estimates of indirect effects of group assignment on each outcome through maternal power assertion at 1 SD above the mean on maternal life satisfaction (i.e., high satisfaction).

Figure 3.

Model examining clinician's rating of maternal psychosocial functioning as a moderator of the link between intervention group assignment and maternal power-assertive discipline, and maternal power as a mediator of the link between group assignment and child outcomes. Standardized coefficients are reported. Significant paths are represented by solid lines and non-significant paths are represented by dashed lines. Confidence intervals (CIs) are provided for estimates of indirect effects of group assignment on each outcome through maternal power at 1 SD above the mean on maternal psychosocial functioning (i.e., high functioning).

Table 1

Correlations and Descriptive Statistics

	1	2	3	4	5	6	7	8
1. Intervention Group Assignment	-							
2. Maternal Power-Assertive Discipline ^a (Posttest 1)	-.13	-						
3. Child Committed Compliance (Posttest 2)	.06	-.48**	-					
4. Child Opposition ^a (Posttest 2)	-.05	.43**	-.78**	-				
5. Child Externalizing Behaviors ^a (Posttest 2)	-.08	.28**	-.35**	.33**	-			
6. Child Internalizing Behaviors ^a (Posttest 2)	.05	.08	-.08	.05	.37**	-		
7. Maternal Life Satisfaction ^b (During Intervention)	.01	-.06	.13	-.07	-.37**	-.11	-	
8. Maternal Psychosocial Functioning ^c (During Intervention)	.18*	-.10	-.03	.05	-.15	-.22**	.46**	-
M		0.00	0.80	0.00	0.00	0.00	3.86	3.64
SD		0.76	0.19	0.79	0.93	0.90	0.79	0.80
N	185	168	162	162	162	162	157	157

^aComposite of constituent standardized scores.^bSelf-rated by mothers, LIFE.^cClinician-rated, LIFE.* $p < .05$.** $p < .01$.