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DOI

[10.1037/law0000305](https://doi.org/10.1037/law0000305)

Publication date

2021

Document Version

Final published version

Published in

Psychology, Public Policy, and Law

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[Link to publication](#)

Citation for published version (APA):

Alsem, S. C., Menting, A. T. A., De Castro, B. O., & Matthys, W. (2021). Follow-up effects in a parent-training trial for mothers being released from incarceration and their children. *Psychology, Public Policy, and Law*, 27(3), 421–431. <https://doi.org/10.1037/law0000305>

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Follow-Up Effects in a Parent-Training Trial for Mothers Being Released From Incarceration and Their Children

Sophie C. Alsem¹, Ankie T. A. Menting¹, Bram O. De Castro^{1,2}, and Walter Matthys^{1,3}

¹ Developmental Psychology, Utrecht University

² Child Development and Education, University of Amsterdam

³ Department of Psychiatry, University Medical Center Utrecht

Given the at-risk status of children of incarcerated mothers for behavior problems and later delinquency, and the key role of their mothers' parenting behaviors, the need for parent training in this population seems obvious. Although short-term effects of parent training for this population seem promising, sustained intervention effects are unknown. Therefore, we examined follow-up effects of Incredible Years Parent Training enhanced with home visits, on parenting behavior (positive parenting and inconsistent discipline), parenting stress, and disruptive child behavior, in families with mothers being released from incarceration. Mothers of 133 two- to ten-year-old children ($M = 6.4$ years; 51.1% girls) were partially randomly assigned to the intervention group—receiving group sessions and individual home visits—or a no-intervention control group. Mothers participated in eight assessments, including a follow-up assessment 8 months after intervention. Intention-to-treat latent growth analyses showed that inconsistent discipline increased and remained higher at follow-up in the control group, whereas inconsistent discipline among intervention mothers did not increase. In addition, the intervention reduced both parenting stress and children's disruptive behavior, but these effects were not maintained at follow-up. In sum, the intervention had sustained effects on inconsistent discipline, however, direct benefits of the intervention on child behavior were no longer visible at 8-month follow-up. Maintenance of treatment gains seems difficult for previously incarcerated mothers, and therefore ongoing family support is needed for these mothers.

Keywords: disruptive child behavior, follow-up, Incredible Years Parent Training, parenting behavior, parenting stress

Children of incarcerated parents are at risk for delinquency and antisocial behavior concurrently or later (Murray et al., 2012). A meta-analysis showed that children with criminal parents are at increased risk of engaging in criminal behavior themselves (odds ratio = 2.4; Besemer et al., 2017). This risk seems to be even stronger for children of incarcerated mothers than fathers (Besemer et al., 2017; Murray & Farrington, 2008), possibly because of the higher number of guardianship changes as most mothers are primary caregivers prior to incarceration (MacKintosh et al., 2006; Poehlmann, 2005). The increased risk for disruptive behavior and

later delinquency in children may be explained by children's exposure to multiple risk factors in multiple domains, like sociocultural (e.g., broken homes or abuse), biological (e.g., birth complications or substance use), and parenting risks (Bijleveld & Wijkman, 2009). Many risk factors accumulate in families affected by parental incarceration, such as high levels of parenting stress, mother's depressive symptoms, and reduced family income (Loper & Tuerk, 2006; Menting et al., 2017; Murray et al., 2012). Also, less optimal parenting behaviors (i.e., less involvement and poorer monitoring) are found in mothers being released from

This article was published Online First April 22, 2021.

Sophie C. Alsem  <https://orcid.org/0000-0002-6580-2114>

Ankie T. A. Menting  <https://orcid.org/0000-0003-4434-3876>

Bram O. De Castro  <https://orcid.org/0000-0001-5110-6153>

The results of our study were previously presented at the 24th annual meeting of the Society for Prevention Research in June 2016 and as a poster at the Biennial Meeting of the Society for Research in Child Development Conference in March 2019. In addition, pretest and posttest data (but not follow-up data) of the current study were previously used to analyze short-term intervention effects (see Menting et al., 2014). All authors contributed to the study concept and design. Material preparation and data collection were performed by Ankie T. A. Menting and data-analyses by Sophie C. Alsem.

The first draft of the manuscript was written by Sophie C. Alsem, and all authors commented on previous versions of the manuscript. All authors read and approved the final manuscript. The original research project is funded by the Dutch Ministry of Justice & Security, Directorate-General for Sentences and Protection. The funders facilitated recruitment but were not involved in recruitment, randomization, data collection, intervention, or preparation of the manuscript. In addition, the authors declare that they have no conflict of interest other than receiving funding (Bram O. De Castro and Ankie T. A. Menting).

Correspondence concerning this article should be addressed to Sophie C. Alsem, Developmental Psychology, Utrecht University, P.O. BOX 80140, 3508 TC Utrecht, the Netherlands. Email: s.c.alsem@uu.nl

incarceration, compared with mothers from disadvantaged areas without history of incarceration (Menting et al., 2017). These less optimal parenting behaviors are subsequently associated with children's disruptive behavior and delinquency (Hoeve et al., 2009; Shelton et al., 1996). Moreover, the accumulation of several risk factors is related to poor child outcomes and antisocial problems (Dodge et al., 1994). Therefore, it seems essential to help these at-risk children in need of intervention and break the intergenerational transmission of antisocial behavior. Specifically, early intervention seems essential as origins of trajectories of disruptive behavior are found in early childhood (Broidy et al., 2003; Shaw et al., 2005), and antisocial behavior is difficult to treat once fully developed (e.g., Goldstein et al., 2012). Therefore, following these at-risk children over the long term seems necessary. We examined intervention effects in families affected by maternal incarceration by studying eight-month follow-up effects of a parent training program on children's disruptive behavior, parenting behavior, and parenting stress.

Parent training programs may be used to break the intergenerational transmission of antisocial behavior, as these programs can prevent escalation of behavior problems in high-risk children by improving parenting behaviors (e.g., enhance positive parenting and improve parental discipline; Gardner et al., 2006; Hutchings et al., 2007; Tremblay & Sutherland, 2017) and effectively decreasing children's disruptive behavior (McCarr et al., 2006), even into adulthood (Sandler et al., 2011). An example of such a parent training program is Incredible Years Parent Training (IYPT), a program developed to prevent and treat young children's behavior problems (Webster-Stratton, 2001). The positive short-term effects of IYPT on child disruptive problem behavior were demonstrated in two meta-analyses (Gardner et al., 2019; Menting et al., 2013), also regarding selective prevention. Hence, IYPT can be applied as a selective prevention intervention for high-risk children, to prevent these children from developing serious behavior problems (Menting et al., 2013).

Although short-term effects of selective prevention intervention have been examined in previous research, relatively few studies have focused on families with incarcerated parents. A recent meta-analysis on thirteen studies showed that several parenting interventions for incarcerated parents were overall moderately more effective than control groups in improving a combination of parenting knowledge and parenting skills postintervention (Armstrong et al., 2018). In addition, a systematic review (Troy et al., 2018) showed that, although parenting attitudes seem to improve, evidence regarding the effectiveness of these programs on actual parenting behavior and children's behavior is limited. More specific for IYPT as selective prevention for incarcerated parents, a trial (Menting et al., 2014) examined short-term effects of IYPT enhanced with home visits (i.e., the Better Start intervention) in families with mothers being released from incarceration (i.e., the current study's sample). Results showed postintervention effects on both parenting behavior, specifically inconsistent discipline, and children's disruptive behavior, with effect sizes ranging from $d = .27$ to $d = .62$ (Menting et al., 2014). Because overall smaller short-term effects of selective prevention were found in other populations (i.e., nondelinquent parents; $d = .13$; Menting et al., 2013), this might suggest that families with incarcerated mothers do benefit more from selective prevention in the short term than other at-risk populations.

Although promising short-term effects of selective prevention for incarcerated parents are found, longer-term intervention effects on children are particularly relevant as the main aim is to prevent intergenerational transmission of antisocial behavior. Longer-term effects of parenting interventions were studied in a recent meta-analysis, indicating that the short-term intervention decrease in children's disruptive behavior was maintained at follow-up (i.e., quadratic curve; Van Aar et al., 2017). However, initial intervention success does not guarantee longer-term effects, as a meta-analysis showed that short-term effects did not predict differences in follow-up effects (Van Aar et al., 2017).

For longer-term effects specifically in families with incarcerated parents, a meta-analysis on only two studies has showed that parenting interventions were not more effective at 6–12 months follow-up than treatment-as-usual or no intervention in improving parenting knowledge and skills (Armstrong et al., 2018). To our knowledge, there is no research on longer-term effects of parenting interventions on child behavior in families with incarcerated parents, or more specific mothers. However, longer-term effects of specifically IYPT as selective prevention intervention may also be relevant. These studies indeed show positive effects of IYPT on parenting behavior, parenting stress, and child behavior. In high-risk families with an incarcerated sibling, the positive effect of IYPT on parenting behavior was maintained at both 8- and 16-month follow-up (Brotman et al., 2008). Likewise, effects on mothers' positive parenting behavior and child disruptive behavior were maintained up to 1 year postintervention in another preventive IYPT study (Reid et al., 2003). Also, sustained effects on positive parenting and parental stress were found in disadvantaged families, as positive short-term results were maintained up to 18 months after intervention (Bywater et al., 2009). These effects were also accompanied by improvements in child disruptive behavior (Bywater et al., 2009). So, these studies support 1- to 2-year postintervention effectiveness of preventive IYPT. Only one study examined the actual long-term effects (5 to 10 years) of selective prevention IYPT but showed no long-term improvement in children's disruptive behavior and parental warmth and supervision (Scott et al., 2014).

Because no studies regarding follow-up effects of parenting programs in families with an incarcerated *mother* are known on specifically parenting behavior, parenting stress, and child behavior, we can only speculate whether the short-term effects will sustain postintervention. Several reasons for possible differences in sustained effects within this population, as compared with other selective prevention, have been proposed. First, families with an incarcerated mother may differ from other families in terms of parent, family, and contextual characteristics (e.g., cognitive distortions, depression, and poverty; Menting et al., 2017). Particularly, low socioeconomic status may make it harder for parents to maintain intervention effects (Leijten et al., 2013). More specifically, chronic stressors in disadvantaged families, such as limited economic resources and neighborhood poverty, may become especially salient at follow-up when parents are thrown back on their own resources to maintain changes (Leijten et al., 2013). Second, recent incarceration itself may disrupt intervention effects if the intervention starts just before or after release from incarceration, because this period may be seen as a particularly stressful period for families (Arditti & Few, 2008). On the other hand, having been incarcerated may provide mothers with unique motivation to

invest in their children's future and learn how to maintain acquired skills. Therefore, more clarity is needed about the sustained effects of parenting intervention for mothers being released from incarceration.

Our aim was to examine 8-month follow-up effects of IYPT, enhanced with home visits, on parenting, parenting stress, and disruptive child behavior in families with mothers being released from incarceration by following up on a previous trial (Menting et al., 2014). Because previous research revealed positive 1-year follow-up effects in high-risk families (Brotman et al., 2008; Bywater et al., 2009), we hypothesized that the intervention would have sustained positive effects on parenting behavior (i.e., positive parenting and inconsistent discipline), parenting stress, and child disruptive behavior.

Method

Design

The current study had two conditions (intervention group and control group) and eight within-subjects assessments. Mothers were randomly assigned in a 2:1 ratio to either the intervention group or the control group (a 2:1 allocation ratio was chosen to ensure sufficient group size within the group sessions.) However, during two of the six recruitment periods there appeared to be too few potential participants to conduct the group training when one third of the mothers would be assigned to the control group. Therefore, randomization was suspended and all participants in these cohorts (24.7% of total participants) were assigned to the intervention group (for more details see Menting et al., 2014).

After an intake interview, the study included eight assessments. Face-to-face assessments took place at the start of the intervention (pretest), after completion of the intervention group sessions (intermediate test, in the 4th month), after the home visits (posttest, in the 7th month), and at follow-up (8 months after the intervention ended). In addition, four intermediate telephone assessments were taken in the 5th, 9th, 11th, and 13th month to obtain optimal information on changes in children's disruptive behavior and to heighten the opportunity to stay in touch with mothers after their incarceration.

Participants

Nationwide screening within all penitentiary institutions in The Netherlands, from June 2007 to April 2010, resulted in 183 mothers who initially seemed to meet the following three inclusion criteria. First, mothers had to be either incarcerated and expecting release within three months or formerly incarcerated and recently released (i.e., not exceeding six months). Moreover, all mothers had to be released from incarceration when the home visits (the second part of the intervention) started. Second, mothers had to be caregivers (with at least weekly contact as coparent) after incarceration for their 2- to 10-year-old children. Third, during the group sessions, mothers had to be able to see their children during at least two weekends per month (e.g., during weekend leaves for incarcerated mothers). If mothers met the criteria regarding more than one child, mothers were invited to provide information about three children maximum.

Of the 183 possibly eligible mothers, contact was established with 129 mothers who actually met these inclusion criteria, and 113 (87.6%) of them chose to participate (for participant flow see Figure 1). For several reasons (i.e., no intake, loss of contact after informed consent, mothers did not fulfill inclusion criteria in retrospect) the final dataset comprised 91 mothers ($M_{\text{age}} = 32.6$ years, $SD = 7.2$) with 133 children (51.1% girls; $M_{\text{age}} = 6.4$ years, $SD = 2.8$ at pretest). After randomization in four recruitment periods, 68 mothers with 97 children were in the intervention group and 23 mothers with 36 children in the control group. Of the 68 mothers being invited to the intervention group, 19 mothers with 31 children did not participate in any intervention sessions (see Figure 1). These mothers were invited to remain in the study, so that we could conduct intention-to-treat analyses and overcome problems with missing data (White et al., 2011). In the intention-to-treat principle, all randomized participants are included in the analyses in the groups to which they were randomized. This method is preferred in randomized trials because these analyses give an unbiased, conservative estimate of treatment effect and allows for the greatest generalizability (Gupta, 2011).

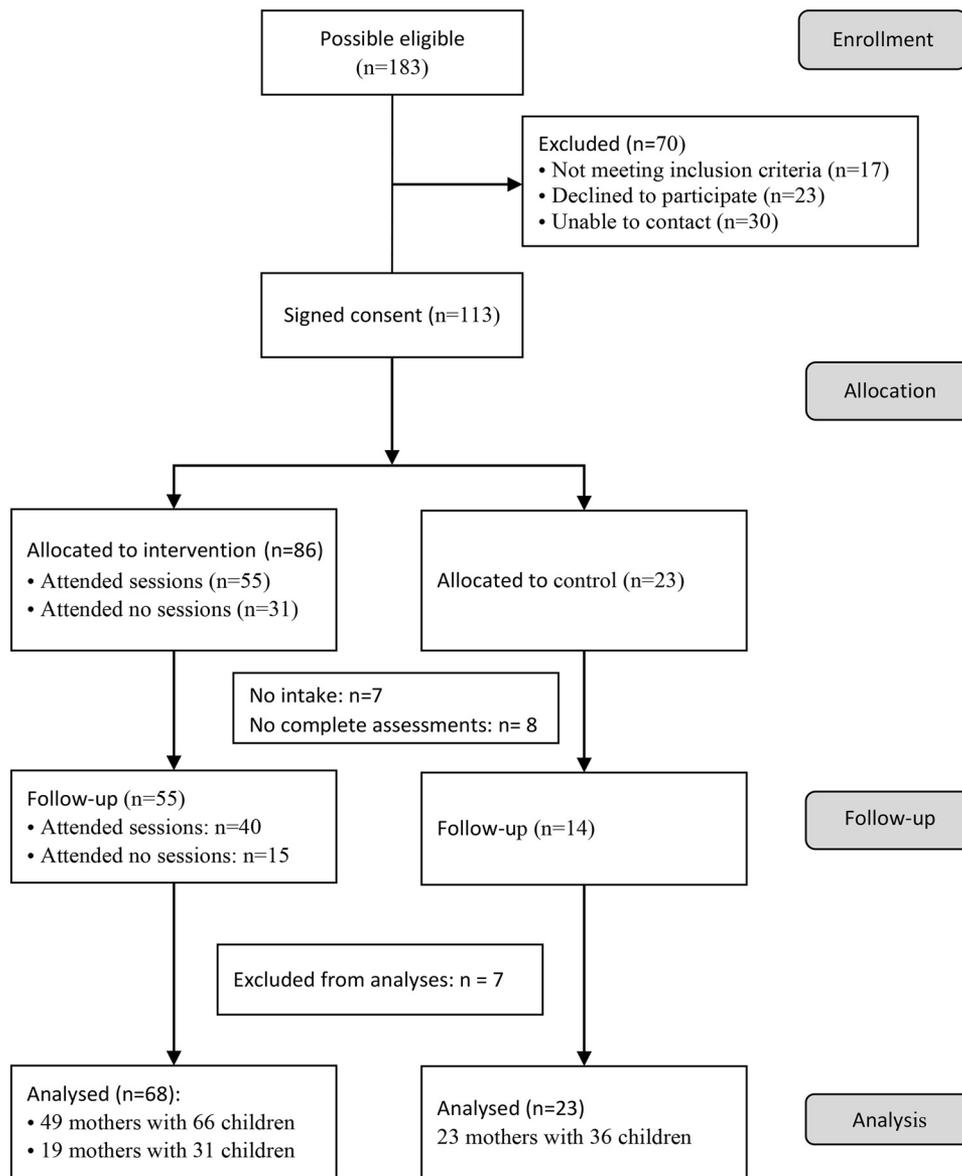
Most mothers were low educated (72.6%): 3.3% did not complete primary education, 47.3% only completed primary education, and 22.0% only completed lower secondary education. A minority of the mothers was native Dutch (22.0%), the other mothers originated mainly from the Caribbean (37.4%) and South America (31.9%). During baseline assessment, mothers reported adverse socioeconomic circumstances: 38.5% reported having no house, 87.5% reported having debts, 27.1% reported having to live on social security benefits, and 46.9% reported having to live without social security or (partner's) income. Further, mothers reported high levels of maternal distress, including depression (Menting et al., 2017). On average, mothers were convicted to a sentence of 11.4 months, and most mothers were convicted of drug-related offenses (59.3%). During the intake interview, 58% of all mothers were already released from the penitentiary and at intermediate test all mothers had been released. At follow-up, the attrition rate was 24.8%. Mothers who dropped out at follow-up did not differ from mothers who remained enrolled in the study on background variables (i.e., child age and gender, ethnicity, and mothers' educational level) or baseline levels of parenting behavior and child disruptive behavior.

Procedure

Participation was voluntary for all participants and they were assured of confidentiality. Mothers received a monetary compensation for the travel costs and time spent completing questionnaires. Monetary compensations rose for face-to-face assessments from €20 at pretest to €50 per child at posttest and were for the telephone assessments €5 per child. At follow-up, mothers who participated in all earlier assessments, received €100 (instead of €50) per child. The same assessments were conducted in the intervention and control group. Most questionnaires were completed in interviews to anticipate possible reading difficulties. If children went to school or childcare and mothers consented approach, the children's teachers and childcare staff (blind to allocation status) were asked to complete questionnaires. The study was approved by the Ethics Committee of the Utrecht University Faculty of Social Sciences.

The Better Start intervention included twelve weekly 2-hr group sessions and four 1.5-hr home visits. Six groups of mothers

Figure 1
Participant Flow



received the group sessions in different cities across The Netherlands. During group sessions, the BASIC IYPT (Webster-Stratton, 2001) was delivered. The BASIC IYPT is an evidence-based, manualized group parent training, where parents of young children view videotapes of parent-child interactions in different situations. In collaboration with two group leaders, mothers discuss videos and learn parenting techniques, such as play skills, praise and reward, and handling misbehavior. Home visits were added to the group sessions to practice parenting skills, support mothers to use these skills in difficult individual situations, and to provide individual practical consultation. The added home visits included two topics of the ADVANCE IYPT (Webster-Stratton, 2002): communication and problem solving with adults and children. The

intervention was delivered by four team members with backgrounds in child psychology or within women's penitentiaries, who had received at least a 3-day training. Treatment fidelity was ensured by at least one IYPT certified group leader delivering all group sessions. Group leaders received supervision from accredited IYPT trainers, and group sessions were videotaped and reviewed during weekly meetings to ensure treatment fidelity. Treatment fidelity, as measured by checklists, was satisfactory with group leaders accomplishing 98.1% of the activities.

Parenting groups contained on average nine mothers. The mean attendance of the twelve group sessions was 7.7 sessions ($SD = 3.1$, range 0–12), with six mothers (12.2%) attending one to three sessions and 19 mothers (38.8%) attending 10 to 12 sessions.

Mothers in the intervention group received on average 3.2 ($SD = 1.4$, range 0–4) of four home visits, five mothers (10.2%) received no home visits, and 34 mothers (69.4%) received all four home visits. Families from both groups were allowed to receive usual services, if any.

Measures

Basic Demographics and Family Functioning

A basic demographics and family functioning form was used during the intake interview to assess general background information regarding mothers, children, and family circumstances. To enduringly check criteria fulfillment, amount of contact between mothers and children was assessed repeatedly.

Children's Disruptive Behavior

Children's disruptive behavior was rated by mothers using the Eyberg Child Behavior Inventory (ECBI; Eyberg & Pincus, 1999). This questionnaire measures parents' report of disruptive problem behavior of children ages two to sixteen years. The ECBI consists of 36 items, rated on two scales. The intensity scale measures the intensity or frequency of problem behavior, with items such as "Argues with parents about rules." A score on a 7-point scale is given, ranging from *never* to *always*. The problem scale measures parental tolerance for their child's misbehavior (*yes* or *no*). In the present study, the intensity scale was analyzed. Internal consistencies for this scale were adequate for all eight assessments, with Cronbach's alphas ranging from .87 to .91 (Ponterotto & Ruckdeschel, 2007). The concurrent and discriminant validity of the ECBI are reported to be good (Boggs et al., 1990; Rich & Eyberg, 2001). The average intensity scale scores of our sample were in the normal range, according to the Dutch norms of the ECBI (below 131, 90th percentile; Weeland et al., 2018).

Also teachers and childcare staff of children were asked to report about children's behavior problems by filling out the (Caregiver-) Teacher Report Form (Achenbach & Rescorla, 2000, 2001). In the present study, we aimed to analyze the aggressive behavior scale. However, at follow-up the response rate was too low (61.7%) to be able to use the data for our proposed analyses (i.e., nonconvergence of the models in Mplus).

Parenting Behavior

Mothers filled out the Alabama Parenting Questionnaire (APQ; Shelton et al., 1996) to assess different aspects of parenting behavior related to children's disruptive behavior problems. The APQ consists of 42 items that are scored on a 5-point scale (ranging from *never* to *always*). In the present study, two of the six scales were analyzed: the positive parenting scale and inconsistent discipline scale, both being measured by six items during all face-to-face assessments. Internal consistencies for the scales were overall adequate, with Cronbach's alphas ranging from .75 to .85 for positive parenting and from .59 to 1.00 for inconsistent discipline (Ponterotto & Ruckdeschel, 2007). The validity, internal consistency, and test-retest reliability of the APQ are found to be good (Dadds et al., 2003). Earlier research has shown that parenting behavior assessed with self-report on the APQ was highly comparable with observational data and that both methods were equally sensitive to change (Hawes & Dadds, 2006).

Parenting Stress

The shortened Dutch version of the Parenting Stress Index (PSI; Abidin, 1983) was filled out by mothers: the Nijmeegse Ouderlijke Stress Index–Verkort (NOSIK; De Brock et al., 1992). This questionnaire consists of 25 items, assessing parents' stress perceptions of caregiving. In the present study, the PSI was assessed during all face-to-face assessments. Internal consistencies were adequate, with Cronbach's alphas ranging from .88 to .91 (Ponterotto & Ruckdeschel, 2007). The validity and test-retest reliability of the shortened PSI are found to be good (Haskett et al., 2006).

Analytic Strategy

Follow-up effects were examined by conducting intention-to-treat analyses, reflecting actual randomization and therefore potential effects of treatment policy. Because children were nested within families, all analyses were controlled for this multilevel structure (intraclass-correlation ranged between .08 and .87). To check for missing data patterns, Little's test was conducted and produced a normed χ^2 (χ^2/df) of 1.12, indicating that data were missing at random (Bollen, 1989). Therefore, default settings for multilevel data in Mplus, maximum likelihood with robust standard errors and chi-square (MLR; Muthén & Muthén, 2007), were used to estimate missing data.

Multigroup latent growth models (LGM) in Mplus 7.3 were used to study differences in change over time between the intervention and control group. LGM analyses were chosen because these analyses possess more power to detect group differences than traditional methods (e.g., repeated measures ANOVA; Fan, 2003). LGM estimates mean growth factors, that is, intercept and change (linear and/or quadratic slope) and takes individual variation into account by estimating variances around the growth factors. Four steps were followed to assess follow-up effects. First, a multigroup LGM model with a linear slope was specified. The factor loading of the follow-up assessment was specified as zero, and factor loadings of the earlier assessments were specified negatively to be able to test differences in follow-up means in the fourth step. Second, quadratic slopes were added, and improvement in model fit was examined by calculating the scaled difference chi-square test statistic (default for MLR estimation; Satorra & Bentler, 2001). If no significant improvement in model fit was found, the most parsimonious model was chosen. In the best fitting model, negative nonsignificant residual variances, causing warnings in Mplus, were fixed to zero for estimation purposes. Third, in this model, changes in the assessed constructs were examined and differences in slope coefficients between the intervention and control group were tested with the Wald test. Fourth, to statistically test differences in means at follow-up, differences in intercepts of the groups were tested with the Wald test (which is equivalent to a mean difference *t*-test). Because no regular Wald test effect size exists, and the intercepts used in this step are based on means and standard deviations at follow-up, those values were used to calculate Cohen's *d* (Cohen, 1988).

The appropriateness of the models was tested with the chi-square test statistic (χ^2), the comparative fit index (CFI), and the root mean square error of approximation (RMSEA). Adequate model fit was obtained when the ratio between the χ^2 test statistic and the degrees of freedom (*df*) was below 3 (fit was not based on

the χ^2 significance value to avoid problems with sample size; Schermelleh-Engel et al., 2003); CFI was above .90, and RMSEA below .10 (Schermelleh-Engel et al., 2003).

Results

Preliminary Analyses

No significant between-group differences were found on background variables and baseline levels. More specifically, at pretest the intervention group and control group did not differ in age of child, $t(131) = 0.14, p = .892$, gender of child, $t(131) = -0.16, p = .875$, ethnicity, $t(131) = 0.48, p = .635$, mothers' educational level, $t(131) = -0.81, p = .417$, and baseline levels of positive parenting, $t(130) = 0.33, p = .739$, inconsistent discipline, $t(130) = 1.22, p = .233$, parenting stress, $t(130) = -0.23, p = .815$, and children's disruptive behavior, $t(130) = -0.26, p = .792$.

Intervention Effects

Descriptive statistics for all face-to-face assessments are shown in Table 1. Table 2 shows the growth factors of the multigroup LGM of the assessed constructs. The change on those constructs for the intervention and control group are presented in Figure 2.

Adding the quadratic slope to the inconsistent discipline model resulted in a significant improvement in model fit, $\Delta\chi^2(8) = 20.95, p = .007$. This quadratic model had adequate model fit, $\chi^2(7) = 11.43, p = .121, \chi^2/df = 1.63, RMSEA = .098, CFI = .965$. Results showed significant quadratic growth in inconsistent discipline for the control group only, which was significantly different from the quadratic slope of the intervention group, $\chi^2_{\text{wald}}(1) = 7.65, p = .006$. This means that mothers in the intervention group remained stable in inconsistent discipline while the control group showed a curvilinear increase. The control group remained higher in this behavior, as they showed significantly more inconsistent discipline at follow-up than the intervention group, $\chi^2_{\text{wald}}(1) = 4.06, p = .044, d = .47$.

For positive parenting, adding the quadratic slope did not significantly improve model fit, $\Delta\chi^2(8) = 0.75, p = .999$. Therefore, the more parsimonious linear model was chosen. The fit of this growth model was adequate, $\chi^2(10) = 15.21, p = .125, \chi^2/df = 1.52,$

RMSEA = .089, CFI = .979. For both groups, no significant slope coefficient was found, and groups did not differ significantly in slopes, $\chi^2_{\text{wald}}(1) = 0.43, p = .512$, and intercepts at follow-up, $\chi^2_{\text{wald}}(1) = 0.60, p = .440, d = .32$, which means that mothers in both groups remained stable and did not differ in follow-up positive parenting levels.

For parenting stress, model fit improved significantly after adding the quadratic slope, $\Delta\chi^2(8) = 21.60, p = .006$. The fit of this model was adequate, $\chi^2(9) = 17.08, p = .078, \chi^2/df = 1.90, RMSEA = .116, CFI = .936$, and a significant curvilinear decrease in parenting stress was only found for the intervention group. This shows that the control group remained stable in parenting stress whereas the intervention group decreased, which stabilized toward follow-up. However, the quadratic slopes did not significantly differ between the groups, $\chi^2_{\text{wald}}(1) = 0.01, p = .930$, indicating that changes in parenting stress were not different between the groups. Also, no significant difference in intercepts was found, $\chi^2_{\text{wald}}(1) = 0.00, p = .983, d = .05$, indicating that the groups did not differ in follow-up parenting stress levels.

Adding the quadratic slope to the disruptive child behavior model resulted in a significant improvement in model fit, $\Delta\chi^2(8) = 17.18, p = .028$. Despite this, the quadratic model did not fit the data well, $\chi^2(54) = 142.21, p < .001, \chi^2/df = 2.63, RMSEA = .157, CFI = .852$. The poor model fit may be explained by the lack of power (i.e., too small sample size) for a model with eight measurement moments included. Because this does not necessarily imply *no* change in disruptive child behavior, growth parameters were interpreted with caution. Results showed a curvilinear decrease in children's disruptive behavior for the intervention group, whereas the children of the control group mothers remained stable in this behavior. However, the quadratic slopes did not significantly differ between the groups, $\chi^2_{\text{wald}}(1) = 0.49, p = .484$, indicating that changes in children's disruptive behavior were not different between the groups. Although differences in children's disruptive behavior at follow-up seem to be apparent when looking at the mean difference of nine points (see Table 1), intercepts did not significantly differ between the groups, $\chi^2_{\text{wald}}(1) = 0.21, p = .646, d = .35$.

Discussion

The current study was the first to examine follow-up effects of a parent training program on parenting behavior, parenting stress,

Table 1

Means (and Standard Deviations) of the Assessed Constructs for the Control (n = 36) and Intervention Group (n = 91) at the Four Face-to-Face Assessments

Measure	Pretest	Intermediate test	Posttest	Follow-up
Inconsistent discipline				
Control group	14.47 (5.23)	16.89 (4.10)	16.07 (4.03)	15.31 (3.30)
Intervention group	14.21 (3.94)	13.78 (4.00)	13.03 (3.65)	13.64 (3.73)
Positive parenting				
Control group	25.97 (3.35)	26.50 (3.61)	27.15 (2.67)	26.36 (3.58)
Intervention group	25.16 (3.27)	25.03 (3.19)	25.25 (3.51)	25.28 (3.18)
Parenting stress				
Control group	51.86 (19.00)	50.28 (18.44)	44.64 (14.83)	43.77 (3.19)
Intervention group	52.81 (20.87)	48.79 (18.67)	44.81 (16.43)	44.49 (18.34)
Disruptive child behavior				
Control group	103.00 (33.74)	106.48 (29.41)	100.86 (24.58)	100.79 (29.40)
Intervention group	104.67 (29.87)	101.71 (25.86)	93.55 (24.44)	91.21 (25.16)

Note. The four intermediate telephone assessments of disruptive child behavior are not included in this table.

Table 2
Intercept, Growth Factors and Standard Errors (SE) of the Four Latent Growth Curve Models

Measure	Slope (SE)	Quadratic slope (SE)	Intercept at follow-up (SE)
Inconsistent discipline			
Control group	-3.71 ^{*a} (1.77)	-2.73 ^{*b} (1.27)	15.35 ^c (0.71)
Intervention group	1.60 ^a (0.99)	1.33 ^b (0.74)	13.63 ^c (0.48)
Positive parenting			
Control group	0.52 (1.57)	—	26.10 (2.96)
Intervention group	0.11 (0.25)	—	25.27 (0.50)
Parenting stress			
Control group	3.31 (5.67)	6.02 (3.88)	43.95 (2.11)
Intervention group	3.56 (3.90)	6.43 [*] (2.42)	44.01 (2.38)
Disruptive behavior			
Control group	-3.78 (15.71)	2.82 (8.91)	93.01 (8.69)
Intervention group	2.44 (5.74)	9.40 [*] (4.24)	88.80 (2.93)

Note. Coefficients that share the same subscripts differ at $p < .05$. Negative quadratic slope coefficients indicate an increase in the behavior, whereas positive quadratic slope coefficients indicate a decrease. *SE* = standard error.

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

and children's disruptive behavior in families with mothers being released from incarceration. Results showed that inconsistent discipline increased and remained higher at follow-up among control mothers, whereas this parenting behavior did not increase among intervention mothers. This suggests that the intervention prevents an increase in maternal inconsistent discipline, a risk factor for the development of antisocial and delinquent behavior in children. This in line with the preventive purpose of the program. In contrast, no effects on positive parenting were found. In addition, although decreases in both parenting stress and children's disruptive behavior were found for the intervention group only, no differences between the control and intervention group were found at follow-up.

The possible prevention of an increase in inconsistent discipline by enhanced IYPT is in line with previous research in high-risk families with a convicted sibling, which also indicated that the positive effect of IYPT on parenting behaviors (i.e., harsh parenting and responsive parenting) was maintained at follow-up (Brotman et al., 2008). This particular follow-up effect might be helpful in breaking the intergenerational transmission of antisocial behavior, as children of parents who are more consistent in discipline are found to show less delinquency than children of parents who are less consistent (Hoeve et al., 2009).

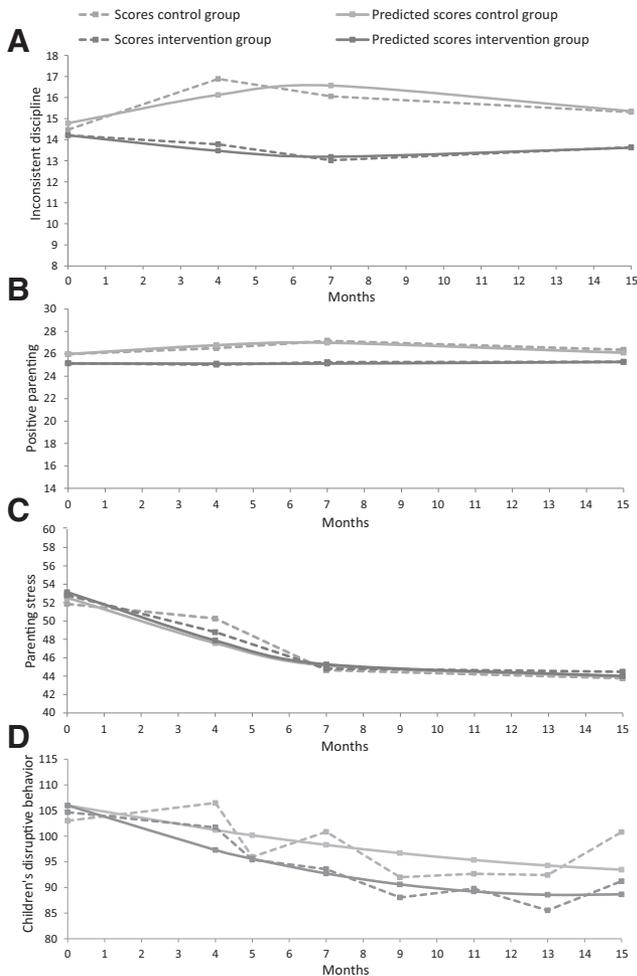
Further, as expected, only intervention mothers decreased in levels of parenting stress and only their children decreased in disruptive behavior. However, these decreases were not maintained at follow-up as no between-group differences were found in follow-up levels in intention-to-treat analyses. This is in contrast to previous research showing that the effects of IYPT on parenting stress and children's disruptive behavior sustained up to one year postintervention (Bywater et al., 2009). This discrepancy may be either attributable to an inability to detect an effect with intention-to-treat analyses in a modestly sized sample or to the actual absence of a follow-up effect. For child behavior, descriptive data at follow-up suggest that there might actually be a modest effect on child behavior ($d = .35$), comparable with the mean follow-up effect of parent training programs in the literature ($d = .21$; Lundahl et al., 2006). However, our modest sample size may have been too small to detect such a small effect. By analyzing basic latent growth

models we used the best method possible to analyze this modest sample size, because these analyses possess more power to detect group differences than traditional methods (e.g., repeated measures ANOVA; Fan, 2003). Moreover, although it seems hard to maintain decreases, the initial decrease in parenting stress in our results might suggest that it is possible to reduce parenting stress in this population—albeit temporarily—which is in contrast to a review regarding institution-based parenting programs (Tremblay & Sutherland, 2017). This seems promising in this at-risk population with high initial levels of parent stress (Loper & Tuerk, 2006). On the other hand, it might be that parenting stress levels dissipated naturally in the months after incarceration for both the intervention and control group. The initial heightened stress levels in families just after release from incarceration (Arditti & Few, 2008) may have decreased over time as parents and children accommodated to their new circumstances.

Alternatively, as families affected by maternal incarceration face multiple challenges and risk factors (e.g., Murray & Farrington, 2008), other factors may have prevailed over mother and child outcomes after the intervention ended. More specifically, the mothers in our sample are found to have very low socioeconomic status (see also Menting et al., 2017), whereas parents with relatively high educational levels participate in most other studies (see e.g., Posthumus et al., 2012). Although a recent meta-analysis showed equal short-term benefits of Incredible Years for disadvantaged and advantaged families (Gardner et al., 2019), low socioeconomic status has been shown to make it relatively hard for these parents to maintain intervention effects, because of their limited resources (Leijten et al., 2013).

Besides a lower socioeconomic status, also higher levels of cognitive distortions and depressive symptoms are found in (formerly) incarcerated mothers than disadvantaged mothers (Menting et al., 2017). Because these factors are directly related to children's disruptive behavior problems (Lovejoy et al., 2000), intervention effects may be overruled by these other risk factors after the intervention ended. Future research should investigate more precisely under which circumstances (i.e., contextual factors) sustained, fade-out and sleeper effects occur (Van Aar et al., 2017) and whether the persistent patterns in high-risk families can be broken

Figure 2
Changes in Inconsistent Discipline (A), Positive Parenting (B), Parenting Stress (C), and Children's Disruptive Behavior (D) by Group



Note. Scores reflect mean scores. Predicted scores reflect estimated scores based on the specified slopes.

down by, for example, more ongoing family support (e.g., addressing financial problems and neighborhood challenges). Further, to overcome problems with randomization, future research could study a complete individual parent training (instead of only individual home visits), which has found to be suitable as well for disadvantaged families (Lundahl et al., 2006).

Further, no between-group differences in positive parenting levels at follow-up were found, and both groups showed stability in their levels of positive parenting across assessments. These findings were unexpected, given earlier research showing effects of IYPT on positive parenting up to at least one year postintervention (Bywater et al., 2009; Reid et al., 2003). One possible explanation for this unexpected finding might be that improvements in positive parenting behavior are more difficult to maintain postintervention than decreases in negative parenting behavior (such as inconsistent discipline; see Posthumus et al., 2012). Alternatively, there might have been a ceiling effect in the positive parenting measure; at

baseline, mothers from both groups scored on average 25, whereas the maximum score for positive parenting was 30. Because adequate parenting may buffer the negative effects of risk factors in children (De Clercq et al., 2008), the reported high levels of positive parenting might be beneficial for these children. Nonetheless, self-reports may be not the most valid measure to assess positive parenting behavior of these mothers. More specifically, it can be reasoned that mothers provided socially desirable answers, as positive parenting behaviors (e.g., praise your child) are well-known as good parenting. Positive parenting might be more validly assessed with observations than self-reports. Previous studies used observations to assess positive parenting (Bywater et al., 2009; Reid et al., 2003), which may also explain the discrepancy between results of the current study and previous research.

Our study has several strengths. First, a large percentage of the hard-to-reach population of incarcerated mothers was retained until follow-up, as only 2% of the participants dropped-out the current study after the intervention ended. Second, recommended conservative intention-to-treat analyses were conducted, to avoid possible biases in the results (White et al., 2011) and to provide information about the potential effects of treatment policy. Not including the mothers who attended no sessions may result in serious selection bias, because this group is usually a nonrandom subset of the total sample (White et al., 2011). Third, the multigroup latent growth analyses allowed us not only to examine differences in mean levels but provided us a comprehensive picture as we were also able to examine differences in trajectories between the intervention and control group. Finally, both negative and positive parenting behaviors were assessed in this study, to identify a broad range of influencing factors for at-risk children.

The results of the current study are subject to limitations. First, the present study relied solely on mother reports and these may have been biased. However, conducting valid observations of child behavior was not feasible in the current study, as some mothers were still incarcerated at pretest. Children were only incidentally in the penitentiary institutions with their mothers, and even when they were there for one or two hours, children's behavior would have been not representative of their daily behavior due to the highly unusual setting and the discontinuity in the daily interactions with their mother. To prevent this bias, teacher data of child behavior was also collected. However, at follow-up the teacher response rate was too low to be able to use the data. Although mother's self-reports of their parenting behavior might have been biased, and although observational methods are more objective than self-reports, earlier research has shown that parenting behavior assessed with self-report on the APQ was highly comparable to observational data and both methods were equally sensitive to change (Hawes & Dadds, 2006). Moreover, a meta-analysis of parenting interventions showed comparable effect sizes for parent-reported and observational measures (Menting et al., 2013). Second, the small control group can be considered a limitation in the present study as this decreased statistical power (Stull, 2008). Because the current study targeted a hard-to-reach population and used extensive nationwide screening which resulted in a relatively high consent rate, the sample size was as large as was feasible at time of recruitment. Nevertheless, investigating follow-up effects with more statistical power is warranted. Third, an obvious limitation is that we could not randomize two of the six recruitment periods. This pragmatic approach may have diminished statistical

power and might have hampered equality between groups. However, continuation of the intervention was considered more important than control group size, because we promised potential participants a 2:1 chance on participation, and some mothers would not be eligible for a new recruitment period, because their release from incarceration would then have been more than six months ago. Furthermore, these two recruitment periods were not systematically different from other waves, as the lower number of participants was due to a smaller number of mothers ending their incarceration, rather than, for example, changes in approach or lower consent rates. Moreover, in our analyses we tried to prevent erroneous conclusions attributable to group differences by examining whether slopes and intercepts differed between intervention and control group, irrespective of preintervention or postintervention differences. In addition, we conducted conservative intention-to-treat analyses, and more equality between groups may be assumed in these analyses.

In conclusion, the present study shows that mothers being released from incarceration who participated in a parent training program were more consistent in parental discipline at follow-up than control group mothers. This suggests that some intervention effects can be maintained in at-risk families. On the other hand, no follow-up effects on positive parenting, parenting stress, and disruptive child behavior were found. This is in line with other studies that have shown that maintenance of treatment gains is difficult for disadvantaged families, suggesting that ongoing family support is needed for these families (Leijten et al., 2013; Troy et al., 2018). However, given the link between parental inconsistent discipline and later delinquency in their children (e.g., Hoeve et al., 2009), the possible preventive effect on inconsistent discipline found in our study still suggests that improving parenting through parent training might be crucial to break the intergenerational transmission of antisocial behavior.

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Received October 8, 2020

Revision received February 3, 2021

Accepted February 3, 2021 ■