Parent Training: Equivalent Improvement in Externalizing Behavior for Children With and Without Familial Risk

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Abstract

Objective—The Incredible Years® Series (IY®) intervention has demonstrated efficacy for reduction in conduct disorder (CD) symptomatology among clinically-affected youth in multiple randomized controlled trials (RCTs). Since children with family psychiatric histories of antisocial behavior are at markedly elevated risk for enduring symptoms of antisocial behavior (in comparison with their family-history-negative counterparts), we examined whether intervention effects across studies prevail in that subgroup or are relatively restricted to children without inferred risk.

Method—We conducted a re-analysis of 5 RCTs of IY® involving 280 clinically-affected children, 3–8 years of age, for whom family psychiatric history of externalizing behavior among first- and second-degree relatives was ascertained from at least 1 parent.

Results—IY® equally benefitted children with CD with and without family psychiatric histories of externalizing behavior. Both family psychiatric history of externalizing behavior and parental depressive symptomatology predicted higher severity of CD symptomatology at baseline.

Conclusion—The beneficial effects of IY® are evident among children with CD, irrespective of whether their conditions are more or less attributable to inherited susceptibility to enduring antisocial syndromes. A next phase of research should address whether earlier implementation of group-based education for parents of young children at elevated familial risk for antisocial behavior syndromes—prior to the development of disruptive patterns of behavior--would result in

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even more pronounced effects, and thereby constitute cost-effective, targeted preventive intervention for CD.

Keywords

antisocial; children; behavioral; Incredible Years; maltreatment

INTRODUCTION

Externalizing disorders in childhood have long been known to predict life-course--persistent antisocial behavioral disorders, [1,2] which entail massive social costs associated with health and social service provision, law enforcement, and criminal justice.[3,4]

Evidence from social scientific and behavioral genetic research supports additive, [5] interactive, [6–8] and direct effects of stressful life events [9,10] and genetic predisposition [11–14] on childhood conduct disorder (CD). The complexity of gene-environment interaction has informed a "differential susceptibility" model of child development in which genetic differences confer sensitivity to both enriching and toxic aspects of the developmental environment. [15] Ideally, the primary caregiver acts as a protective buffer against environmental toxicity and as a positive moderator of cognitive, emotional, and behavioral susceptibilities [16,17] during sensitive developmental periods. [18] Positive parenting appears to promote adaptive executive-functioning and self-regulation, even in children with an emotionally reactive temperament in infancy. [19]

The central role of the primary caregiver in buffering stress and enriching the developmental environment has informed the creation of evidence-based parenting interventions to prevent and treat childhood conduct problems as early as possible. [20] One of the best-validated and most cost-effective parent-training interventions is the Incredible Years® Series (IY®), which includes a core group-based parent-training component and complementary interventions for teachers and children. Through multiple randomized controlled trials (RCTs)[21–30] and independent replications,[31–37] IY® has been shown to decrease problem behavior in children, improve core parenting skills, enhance positive teaching practices, and consequently interrupt longer-term trajectories of externalizing behavior in a substantial proportion of children for whom the intervention is implemented.[23,26,28]

It is not yet known, however, whether IY® effects (typically assessed over months) might be relatively restricted to the large subset of children whose conduct problems would otherwise resolve naturalistically (i.e., without treatment and over a matter of years), and might conversely be less effective among children with the highest likelihood of life-course--persistent antisocial syndromes. This important subgroup is characterized by high levels of genetic influence that contribute to differential heritability of antisocial behavior observed between childhood and adulthood[14]; inherited influences contribute the highest portion of population-attributable risk for syndromes of antisocial behavior that persist through early adulthood.[14,38] Targeting intensive intervention toward those children who are most likely to exhibit long-term antisocial syndromes is a major public health priority.

In this study we focus on intervention that has succeeded, but we also want to determine whether success is restricted to families with lower levels of intergenerational risk for persistent antisocial development, especially given that the time scale of resolution of childhood-limited antisocial syndromes far exceeds that of most intervention studies. Prior studies of the IY® intervention have shown the impact of the intervention is robust across a wide range of parent and environmental characteristics,[39] but familial liability to antisocial development has never previously been explored. A number of previous studies have explored effects of maternal depression, parental substance abuse, and parental cognitive disabilities on the impact of parenting interventions and child outcome; however, such studies have not systematically explored the extent to which inherited liabilities associated with these disorders – versus environmental modifications brought about by intervention – jointly influence offspring outcome. We are aware of only one study that has directly tested the moderating effect of genetic risk for externalizing behavior on response to parent training intervention in general. In that study, an allelic variation in DRD4 in children was found to moderate the effects of parent-training on child externalizing behavior,[40] underscoring a role of the 7-repeat allele in responsiveness to modification of the environment.

In this study we capitalized upon the availability of RCT data from 5 independent studies in which familial liability to antisocial outcome – as indexed by family psychiatric history – was collected but not analyzed in the ascertainment of intervention effects. Specifically, we re-analyzed IY® RCT data for the purpose of determining whether IY® was as effective among children with higher familial loading for externalizing behavior as for those without. Historic attempts to apply psychosocial interventions to inherited disability syndromes have been successful in improving adaptive functioning [41] but often sobering with respect to resolution of primary symptoms of the disorder (see, for example, [42–43]). We therefore hypothesized that the effects of the intervention would be attenuated in the subgroup with elevated familial risk, controlling for severity of symptomatology at baseline. The ability of the intervention to exert positive effects on symptom burden – even in the context of familial susceptibility – would substantially enhance its relevance as a promising preventive intervention for children at serious risk for enduring antisocial syndromes.

METHOD

Data from 5 RCTs of IY® in which history of parental externalizing behavior was systematically acquired were included in this re-analysis. Inclusion characteristics for the studies are summarized as follows: (a) The child was between 3 and 8 years old *(RCT4–5: between 4 and 7 years old)*; (b) the child had no debilitating physical impairment, intellectual deficit, or history of psychosis and was not receiving any form of psychological treatment at the time of referral; (c) the primary referral problem was child misconduct (e.g., noncompliance, aggression, oppositional behaviors) that had been occurring for at least 6 months; (d) parents had to have reported a clinically significant number of child behavior problems (more than 1 SD above the mean [*RCT 4–5: 2 SD above the mean*] on the Eyberg Child Behavior Inventory [ECBI][20]); (e) *(RCT 4–5 only)* the child met criteria for ODD or CD in accordance with the *DSM-III-R*; and (f) pre- and posttreatment behavioral data was available for all subjects. Intervention participants were included in the analysis irrespective

of their subjective level of engagement in treatment or their improvement in intermediary indices of parenting skill. Detailed information about these samples can be found in the original published reports referenced in Table 1.

The version of the IY curriculum that has emerged as the standard for implementation minimally includes the following elements: 1) the engagement of parents in group-based parenting education; 2) delivery by a certified parent-group leader or facilitator; and 3) use of video vignettes as a key pedagogical method. We note that in the 5 studies, small subsets of children were randomized to conditions that did not contain all 3 elements. We restricted our inclusion of intervention group children to those for whom all three key components were delivered. The 5 samples and our process of inclusion and exclusion in this re-analysis are described in Table 1. We included all of the control subjects described in the original reports.

The purpose of randomizing a sample is to ensure a comparable distribution of participant characteristics that might impact the outcome of treatment. While our combined treatment/ control groups are not strictly randomized insofar as they are drawn from multiple randomized trials, we tested the association of treatment condition with baseline (pretreatment) child and parent characteristics that are known to moderate child externalizing behavior and clinical response to early childhood interventions, namely maternal education, maternal race/ethnicity, child sex, and family history of externalizing problems. T-tests and chi-squared tests revealed no significant differences between the pooled treatment and control groups on these variables. We therefore consider our analytic sample a quasi-randomized sample well-suited to testing our hypotheses.

Sample Description

Table 2 describes demographic characteristics, familial risk, and child externalizing behavior of the sample in which we differentiate children residing in 2-parent households (in which family history of both parents was provided) from those residing in single-parent households (in which only maternal family psychiatric history was reported). T-tests and chi-squared tests revealed no significant differences between treatment and control participants meeting inclusion criteria for this re-analysis, with respect to baseline externalizing behavior scores and parental Beck Depression Inventory (BDI) scores.

Child Behavior

The externalizing domain T-score from the Achenbach System for Empirically-Based Assessment Child Behavior Checklist (CBCL) was used to characterize child externalizing behavior at baseline and posttreatment.[44]

Family History of Externalizing Disorders

An intake interview with questions about family history was administered to each parent involved in the parent-training intervention. Mothers and fathers were asked about their own and their parents' mental health history. The child's family members were deemed to reflect familial risk if the informant endorsed a history of alcohol problems, drug problems, or incarceration. Studies of twins and families have demonstrated highly overlapping

components of genetic liability for these conditions, which extend generally to antisocial behavior. [45,46] The validity of brief family history methods for ascertaining familial risk for substance use and antisocial disorders has been strongly supported in previous research among populations similar to those comprising the IY® RCTs.[47,48] We coded the child's familial risk for externalizing behavior into 3 categories, across 2 strata: (0) "Absent", i.e. no parent or grandparent with a reported externalizing behavior problem, (1) externalizing problems present in grandparents only, (2) externalizing problems present in parents only, (3) externalizing problems present among parents and grandparents (thus first- and second-degree relatives, suggesting slightly higher continuity/penetrance of intergenerational risk in data acquired from single parent households); the 2 strata were (a) single-biological-parent households (in which family history was only available from a single parent and restricted to that side of the child's family), and (b) 2-biological-parent households.

DATA ANALYSIS

We conducted separate analyses for single-parent and 2-parent households since the former reflected only half of the familial liability information available in the latter.

Univariate—We examined differences between single-bio-mother and 2-bio-parent households with respect to child gender, maternal education, child race or ethnicity, and maternal depression scores derived from the BDI at baseline, and mother-reported externalizing behavior at baseline.

In order to examine the association of the familial risk for externalizing behavior with child externalizing behavior as well as the differential effect of the intervention on change in child externalizing scores, we performed paired t-tests on pre-/posttreatment CBCL mother- and father-reported externalizing T-scores by household type, intervention/control group, and familial risk level (Table 3).

Multivariate—Since familial liability indexed by family history represents only 1 of many domains of influence on behavioral outcome and the impact of intervention, we conducted (separately for pre-intervention and post-intervention data) a set of linear regression analyses that controlled for relevant variables for which data were available, including baseline depressive symptomatology of the parental reporter,[49,50] maternal education, maternal race/ethnicity, and child sex. The results of these preparatory analyses (essentially supporting the appropriateness of inclusion of the variables in the tests of the study's primary hypotheses) are summarized in supplementary tables S1 and S2 (available online).

Next, we proceeded with the test of the study's central hypothesis, using analysis of covariance to test treatment efficacy while controlling for baseline child externalizing behavior, familial risk, and relevant demographic characteristics, separately considering maternal and paternal reports (when available). *P* values reported for these central analyses of the study were not adjusted for number of statistical tests, since they represent the test of the memory hypothesis, and since the other statistical tests reported fundamentally establish the validity of these primary tests. In the 2-bio-parent model, we included the interaction between familial risk and treatment group. Effective sample size (n = 65) prevented

inclusion of the interaction term in the single-bio-parent multivariate model. SAS Proc GLM was used for all multivariate analyses.

Additionally, we sought to characterize the impact of family history on clinically significant treatment response. A child's response to the intervention was considered clinically significant if his or her caregiver reported externalizing behavior above the clinical threshold of 60 before the intervention and below the clinical threshold after the intervention. We used SAS Proc Logistic to model clinically significant response on treatment condition and family history of externalizing problems.

RESULTS

Household Differences

Children in single-bio-mother households were significantly more likely than children in 2-bio-parent households to have a lower level of maternal education (Mantel-Haenszel $\chi^2[1, 280] = 8.44$, $p < .01$). There was no significant difference in the race or ethnicity of children in single-bio-mother and 2-bio-parent households ($\chi^2[1, 280] = 2.65$, $p = .10$). Maternal depression scores were significantly higher in single-bio-mother versus 2-bio-parent households ($t [279] = 2.42$, $p < .05$; Table 2). Mother-reported baseline child externalizing behavior was significantly higher in single-bio-mother than 2-bio-parent households ($t [279] = 2.88$, $p < .01$), as was maternal familial history of externalizing disorders (Mantel-Haenzel $\chi^2[1, 280] = 18.06$, $p < .0001$).

Intervention effects and their interaction with familial risk

Table 3 summarizes the positive responses associated with IY intervention in child externalizing behavior scores which occured irrespective of familial risk group. All 15 household and risk groups who received the intervention showed a significant decrease in child externalizing behavior from baseline to posttreatment with a magnitude of change ranging from 3.1 to 10.5 points. Only 3 of 15 household and risk groups who received no intervention showed a significant decrease in child externalizing behavior.

Linear regression analysis examining predictors of CBCL – externalizing scores separately at each time point revealed that membership in the treatment group was not significantly associated with a difference in child externalizing behavior at baseline in single-bio-mother or 2-bio-parent households. In 2-bio-parent households (Table S1, available online), combined first- and second-degree familial risk was significantly associated with higher mother- and father-reported CBCL externalizing T-scores at baseline and posttreatment. In 2-bio-parent households, maternal race was associated with higher father-reported externalizing behavior at baseline but not posttreatment. Paternal depression predicted increased father-reported externalizing behavior at baseline and posttreatment. Neither demographic characteristics, familial liability, nor maternal depression predicted differences in child externalizing behavior in single bio-mother households (Table S2, available online). Intervention condition (treatment versus control) consistently predicted post-intervention but not pre-intervention externalizing scores across family and rater type.

Treatment Effects

Analyses of covariance exhibited significant intervention effects in both single-bio-parent and 2-bio-parent households, as shown in Table 4. In two-bio-parent households, familial history of externalizing behavior did not interact with treatment in predicting child externalizing behavioral outcome. Child sex was a significant predictor of change in father-reported externalizing behavior across time. The *magnitude* of reduction in externalizing behavior in each subject group is appreciable from estimations of the influence of treatment on pre- and post-intervention scores presented in Table 3, and is on the order of 1 standard deviation of the mean T-score at baseline (i.e. an effect size of 1).

Categorical Designation of Clinical Affectation

To complement our quantitative analyses, and to contextualize the range of clinical disability in which quantitative shifts occurred, we compared the proportion of children in treatment and control groups who moved from clinical-level affectation to sub-clinical--level affectation during the study period. Among children in 2-bio-parent households who demonstrated clinical-level externalizing behavior at baseline (CBCL externalizing T-score 60), those in the treatment group were respectively 3.4 (by mother report, 95% confidence interval 1.5-7.9) and 3.2 (by father report, 95% confidence interval 1.3-7.5) times more likely than controls to be rated below clinical-level symptomatology by parent report at posttreatment. Children with no family history of externalizing behavior were more likely to cross the clinical threshold as would be expected by virtue of the fact that on average, they were affected less severely at baseline. Children in single-bio-parent households randomized to intervention were 5.1 (95% confidence interval 0.9-28.5) times more likely than those in the control group to cross the threshold from clinical to subclinical affectation; family history of externalizing behavior did not significantly moderate clinically significant response in single-bio-parent households.

DISCUSSION

This study comprises secondary familial risk analyses of a combined meta-analytic sample drawn from 5 RCTs of the IY® parent training intervention to treat conduct problems in children aged 3 to 8. The findings support and extend previously reported findings on the impact of the IY intervention—namely that children with clinical-level externalizing behavior benefit from the intervention. Moreover the present analyses confirm that the treatment effect occurs irrespective of the presence of family history of adult antisocial behavior. This clarification of effect offers hope that children at serious risk based on inherited liability are as likely to benefit from effective parent training as those without such liability. Since life-course--persistent antisocial behavior is strongly influenced by genetic factors, this finding underscores the relevance of successful parent training for children with such profiles of risk, and supports the possibility that judicious implementation of parent training for such children could serve to offset risk incurred by inherited liabilities.

A limitation of our study was that single-parent households were informative only with respect to the parent living in the home; this was an important reason for segregating the sample and examining separately a sample that was more fully informative based on the

family history data collected. The results were highly congruent, whether considering single-parent or dual-parent households. A second limitation is that this analysis was restricted to published RCTs and does not address unpublished results in which this intervention may not have had a positive impact. A third limitation of our study is a lack of follow-up measurement beyond immediate posttreatment. Ideally, parent-training interventions impart change through iterative effects as parents practice new parenting skills and children adapt to positive parenting practices. One year[51] and 2-year[52] outcome studies of the IY® interventions show that treatment effects substantially persist over time, and promising results from recent research on other parent-focused interventions have similarly demonstrated enduring gains over time.[53]

We conclude that the IY intervention, as delivered in multiple RCTs, resulted in significant reductions in externalizing behavior irrespective of whether a child's clinical condition was associated with familial loading for antisocial behavior. The effects observed among clinically affected children age 3 to 8 years additionally inform a rationale for providing such training to parents of children at elevated risk prior to the development of disruptive patterns of behavior. Constantino and colleagues have previously reported that families of infants at elevated risk for antisocial behavior can be successfully engaged in group-based preventive intervention involving parent training.[54] Magnitude of impact of such targeted early parenting education on developmental outcomes is being addressed in a next generation of controlled studies.[55]

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

Acknowledgments

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Table 1

Data Included and Excluded in the Analytic Sample by Original Trial and Treatment Condition

Original Samples		Analytic Sample (n)			
Trial	**Conditions**	**Tx**	**Cx**	**Excl.**	**Reason excluded**
RCT1[22–23,26]	**PT**	27			
	GD			23	No video modeling
	IT			27	Self-administered
	WLC		28		
RCT2[30]	**IT + CONSULT**			16	Self-administered
	IT			17	Self-administered
	WLC		13		
RCT3[24]	**PT + ENHANCE**	37			
	PT	41			
RCT4[25]	**CT**			25	No parent training
	PT	35			
	CT+PT	24			
	WLC		15		
RCT5[27]	**CT**			30	No parent training
	PT	25			
	PT+TT	24			
	CT+TT			23	No parent training
	PT+CT+TT	24			
	WLC		27		
	TOTAL	237	83	161	

Note: CONSULT=two individual therapist consultations; CT=child training; Cx = control group; ENHANCE=couple's counseling enhancement delivered after posttreatment measure; GD=group discussion (no video); IT=individually self-administered video training; PT=videotape group parent training with therapist; TT=teacher training; Tx = treatment group; WLC=waitlist control.

Table 2

Baseline Demographic and Risk Characteristics by Treatment Condition and Household Type

	Two bio-parent households		Single bio-mother households	
	Control (*n*=58)	Treatment (*n*=157)	Control (*n*=15)	Treatment (*n*=50)
Child's sex				
Female	22.4 (13)	19.8 (31)	26.7 (4)	26.0 (13)
Male	77.6 (45)	80.3 (126)	73.3 (11)	74.0 (39)
Maternal education				
4-year college or more	55.2 (32)	49.7 (78)	33.3 (5)	26.0 (13)
Some college	31.0 (18)	29.3 (46)	46.7 (7)	44.0 (22)
HS diploma only	13.8 (8)	20.4 (32)	20.0 (3)	30.0 (15)
Without HS diploma	0.0 (0)	0.6 (1)	0.0 (0)	0.0 (0)
Maternal race				
Caucasian	93.1 (54)	95.5 (150)	93.3 (14)	88.0 (44)
Hispanic	1.7 (1)	2.6 (4)	6.7 (1)	4.0 (2)
Black	0.0 (0)	0.0 (0)	0.0 (0)	4.0 (2)
Asian	3.5 (2)	0.6 (1)	0.0 (0)	0.0 (0)
Native American	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)
Pacific Islander	0.0 (0)	0.0 (0)	0.0 (0)	0.0 (0)
Other/mixed race	1.7 (1)	1.3 (2)	0.0 (0)	4.0 (2)
Mother Depression at Baseline (BDI)	7.0±0.8 (58)	7.8±0.4 (155)	12.3±1.9 (15)	9.9±1.3 (50)
Father Depression at Baseline (BDI)	5.1±0.6 (56)	5.2±0.4 (46)	n/a	n/a

Note: BDI = Beck Depression Inventory; HS = high school

Table 3

Change in Mother- and Father-Reported Child Externalizing Behavior by Intervention Group and Degree of Familial Risk

| | Mother-reported CBCL externalizing | | | | | | | | | Father-reported CBCL externalizing | | | | | | | | |
| | Baseline | | | Posttreatment | | | Change | | | Baseline | | | Posttreatment | | | Change | | |
	n	mean	SD	n	mean	SD	mean	paired t	p	n	mean	SD	n	mean	SD	mean	paired t	p
INTERVENTION GROUP																		
Two-parent households																		
NO first or second degree risk	48	64.6	7.4	48	56.8	8.8	7.8	7.3	<.0001	46	63.1	7.6	46	54.9	8.2	8.2	7	<.0001
Presence of externalizing disorder in any first- or second-degree relative	108	67.5	8.1	108	60.1	9.8	7.5	10.5	<.0001	93	64.9	8.5	93	58.6	9.8	6.3	7.3	<.0001
First-and second-degree risk	44	69.8	6.4	44	62.7	7.7	7.1	7.2	<.0001	36	67.4	7.1	36	60.7	8	6.8	4.4	<.001
First-degree risk only	13	68.8	8.5	13	61.8	11.3	7.1	3.1	<.05	10	64.3	13.7	10	58.8	14	5.5	5.9	<.001
Second-degree risk only	51	65.3	8.8	51	57.3	10.4	7.9	7.1	<.0001	47	63.1	7.7	47	57	9.9	6	5	<.0001
Single Mother																		
NO first or second degree risk	18	68.4	8.6	18	60.7	9.9	7.7	3.1	<.01									
Presence of externalizing disorder in any first- or second-degree relative	32	70.2	7.1	32	60.5	7.2	9.7	7.2	<.0001									
First- and second-degree risk	14	70.6	7.3	14	58.9	6.8	11.8	5.5	<.001									
First-degree risk only	5	75.2	6.6	5	72	8.8	13	6	<.01									
Second-degree risk only	13	68.8	7.7	13	62.8	8.1	6.1	3.2	<.01									
CONTROL GROUP																		
Two-parent households																		
NO first-or second-degree risk	18	64.4	7.9	18	62.7	8.2	1.7	1.2	ns	17	64.9	9.1	17	62.7	7.5	2.2	1.9	ns
Presence of externalizing disorder in any first- or second-degree relative	40	68.6	8.6	40	64.7	8.7	3.9	4.5	<.0001	36	65.8	8.5	36	63	8.7	2.8	2.2	<.05
First- and second-degree risk	11	69.5	10.2	11	66.1	8.7	3.4	2.1	ns	10	67.9	8.6	10	65.3	8.9	2.6	1.4	ns
First-degree risk only	4	61	12.3	4	55.5	8.2	5.5	1.3	ns	4	65.8	7.6	4	60.5	11.6	5.3	1.6	ns
Second-degree risk only	25	69.4	6.8	25	65.5	8.3	3.9	3.7	<.01	22	64.8	8.8	22	62.4	8.3	2.4	1.4	ns
Single Mother																		
NO first-or second-degree risk	6	66.5	6.7	6	64	5.4	2.5	1.9	ns									
Presence of externalizing disorder in any first- or second-degree relative	9	75.3	5.1	9	71.1	8.9	4.2	1.9	ns									

| | Mother-reported CBCL externalizing | | | | | | | | | Father-reported CBCL externalizing | | | | | | | | |
| | Baseline | | | Posttreatment | | | Change | | | Baseline | | | Posttreatment | | | Change | | |
INTERVENTION GROUP	n	mean	SD	n	mean	SD	mean	paired t	p	n	mean	SD	n	mean	SD	mean	paired t	p
First and second-degree risk	5	75.2	6.6	5	72	8.8	3.2	1.3	ns									
First-degree risk only	1	79	---	1	70	---	9	---	---									
Second-degree risk only	3	74.3	2.9	3	70	12.5	4.3	0.7	ns									

Note: CBCL = Child Behavior Checklist; ns = not significant.

Table 4

Analysis of Covariance: Analysis of Treatment Effect on Child Externalizing Behavior by Household Type and Mother/Father Report, Controlling for Baseline Child Externalizing Behavior, Familial Risk, and Relevant Demographic Characteristics

| | DF | Two-bio-parent households | | | | Single-bio-mother households | |
| | | Maternal Report | | Paternal Report | | Maternal Report | |
		F Value	Pr > F[a]	F Value	Pr > F[a]	F Value	Pr > F[a]
Baseline CBCL externalizing behavior	1	149.15	<.0001	94.90	<.0001	16.54	<.001
Treatment	1	7.48	<.01	7.84	<.01	8.91	<.01
Family history of externalizing disorders	3	0.40	ns	0.19	ns	0.84	ns
Treatment * Family hx of externalizing disorders	3	0.83	ns	0.60	ns	---	---
Child's sex	1	0.06	ns	4.03	<.05	2.22	ns
Maternal Education	2	0.07	ns	1.35	ns	0.71	ns
Maternal Race	1	0.26	ns	0.53	ns	0.76	ns
Reporter Depression at Baseline	1	0.39	ns	2.75	ns	0.01	ns

Note: CBCL = Child Behavior Checklist; DF = degree of freedom; hx = history; NS = not significant.

[a] Pr>F p value; the probability of obtaining the F value if the null hypothesis is true.