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Do Parental Psychiatric Symptoms Predict Outcome in Children With Psychiatric Disorders? A Naturalistic Clinical Study

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Objective: Parental psychiatric symptoms can negatively affect the outcome of children's psychopathology. Studies thus far have mainly shown a negative effect of maternal depression. This study examined the associations between a broad range of psychiatric symptoms in mothers and fathers and the child's outcome.

Method: Internalizing and externalizing psychiatric symptoms were assessed in 742 mothers, 440 fathers, and their 811 children at the first evaluation in 3 child and adolescent psychiatric outpatient clinics and at follow-up (on average 1.7 years later). Predictions of child's symptoms scores were tested at follow-up by parental symptom scores at baseline, parental scores at follow-up, and offspring scores at baseline.

Results: Children whose mother or father scored above the (sub)clinical threshold for psychiatric symptoms at baseline had higher symptom scores at baseline and at follow-up. Offspring follow-up scores were most strongly predicted by offspring baseline scores, in addition to parental psychiatric symptoms at follow-up. Offspring symptom scores at follow-up generally were not predicted by parental scores at baseline. Maternal and paternal associations were of similar magnitude.

Conclusion: Higher symptom scores at follow-up in children of parents with psychopathology were mainly explained by higher symptom scores at baseline. Continuing parent–offspring associations could be a result of reciprocal effects, ie, parental symptoms influencing offspring symptoms and offspring symptoms influencing parental symptoms. Nevertheless, the results show that these children are at risk for persisting symptoms, possibly indicating the need to treat maternal and paternal psychopathology.

Key words: parental psychopathology, child psychopathology, parent–offspring associations, longitudinal

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It has been repeatedly reported that parents whose children are assessed for a psychiatric disorder at a child and adolescent psychiatric outpatient clinic have increased prevalence rates of psychiatric disorders, with estimates up to 68% (see Middeldorp *et al.*[1] for an overview of the literature). The question is, how are parental psychiatric symptoms associated with the outcome of children's psychiatric symptoms?

Multiple clinical studies have shown that parental depression before treatment is associated with poorer outcome in children treated not only for internalizing problems[2-5] but also for externalizing problems,[6-9] including attention-deficit/hyperactivity disorder (ADHD).[10,11] The association between parental anxiety before treatment and the outcome of offspring anxiety also has been investigated several times.[5,12-19] A negative association has mostly been observed.[12-15] However, one longitudinal study did not find an association[16] and some even reported a positive influence of parental anxiety on the outcome of anxiety in the child.[17,18] More broadly defined parental mental health, mainly internalizing symptomatology, also has been associated with worse treatment outcome of youth total, internalizing, and externalizing problems[20] and of youth outcomes for autism spectrum disorder,[21] although no effect on the outcome for anxiety in youth has been observed.[16] Far fewer studies have investigated parental externalizing problems. Associations with worse outcome have been reported between parental ADHD and youth ADHD[22] and between paternal substance abuse and youth conduct problems.[7] In addition, paternal ADHD has been associated with a smaller decrease in children's behavioral problems, but not in ADHD.[23]

Overall, previous studies have indicated that current parental symptoms at the start of treatment are negatively associated with the considered child's outcomes, although findings are not entirely consistent for youth anxiety. Nevertheless, there remain several outstanding issues. This overview shows that associations with parental externalizing symptoms are understudied, as are associations between parental symptoms and offspring outcome across disorders (eg, the association between parental anxiety on offspring ADHD outcome). Moreover, paternal symptoms have been less extensively investigated. Several studies did not include fathers at all,[2,8,9,11,12,18,20] others added small paternal samples to maternal data,[3,5-7,10,14,16,17,22] and in studies that did analyze fathers separately, one asked mothers about paternal substance use[7] and samples of fathers were still smaller and response rates were lower compared with mothers.[5,13,15,19,23] Because fathers in a clinical population are as affected by psychopathology as mothers[24] and their symptoms are evenly associated with offspring symptoms,[25] more focus on the effects on offspring outcome is warranted.

In addition, if an association between parental symptoms before treatment and offspring outcome is found, then the question is how to explain this association. Is the reported association between maternal depression and the outcome of offspring externalizing disorders, for example, caused by maternal depression or is it better explained by comorbid antisocial personality disorder in the mother? The latter can be investigated by also assessing other parental symptoms and analyzing them simultaneously. Another important issue is whether the observed association between parental symptoms at the start of the treatment and offspring outcome is due to a long-term effect of parental psychopathology at baseline or whether it is due to associations with parental symptoms at the time of follow-up. The latter would mean that only concurrent parental and offspring symptoms are related to each other. This has been rarely addressed by previous studies. Only 1 study included concurrent parent–offspring correlations for anxiety symptoms at baseline and follow-up and still reported an association with offspring outcome.[14]

The present naturalistic study aimed to address these issues. We analyzed data from 742 mothers and 440 fathers and their 811 children who were assessed on a broad range of internalizing and externalizing psychiatric symptoms at the time of the child's assessment at a child and adolescent psychiatric outpatient clinic and at follow-up (on average 1.7 years later). Analyses were performed separately for maternal and paternal data. The availability of parental and offspring measures at both time points allowed us to investigate the association between parental psychiatric symptoms and offspring symptoms at baseline and at follow-up. Further, correlations within parental symptom scores (ie, comorbidity) were taken into account.

METHOD

Participants

Data were obtained from April 2010 through December 2016 in 3 child and adolescent psychiatric outpatient clinics in the Netherlands (Geestelijke Gezondheidszorg [GGZ] inGeest and University of Amsterdam [UvA] Minds in Amsterdam and the Erasmus University Medical Center–Sophia Children's Hospital [EUMC] in Rotterdam; see Wesseldijk *et al.*[24] for a detailed description of the samples). Parents were asked to report on their and their child's psychiatric symptoms at the time of the first visit to the child and adolescent psychiatry outpatient clinics. Parents who were not sufficiently fluent in Dutch were excluded from participation. Families were approached 1 to 5 years later (on average 1.7 years) to complete the same survey assessing their child's and their psychiatric symptoms. Of the 1,771 families with surveys available at baseline, follow-up data were received from 811 families (303 girls, 508 boys, mothers, and 440 fathers; family-response rate 45.8%). Girls on average were 11.9 years old (SD 3.5) at baseline and 13.9 years old (SD 3.5) at follow-up. Boys on average were 10.9 years old (SD 3.0) at baseline and 12.47 years old (SD 3.1) at follow-up. The mothers, fathers, and children of families who did not participate in the follow-up measurement showed similar psychiatric symptom scores at baseline compared with the mothers, fathers, and children of families who did participate in the follow-up (Table S1, available online).

Demographic characteristics of the mothers and fathers of the included families are presented in Table 1. Table S2 (available online) presents the demographic characteristics, length of follow-up, and response rate for the 3 different clinics. At UvA Minds, it was part of clinical practice to aske parents to report on their and their child's psychiatric symptoms immediately after the child received treatment, which was on average after 1 year. Families from the GGZ inGeest and EUMC were approached as part of this research project. The time of follow-up differs between GGZ inGeest and EUMC, because the data at baseline were collected earlier in the EUMC. This different approach probably explains the lower response rate in the GGZ inGeest and EUMC. Despite the differences in follow-up time, mean scores at baseline and follow-up did not systematically differ among the different psychiatric outpatient clinics (Table S2, available online).

Because this is a naturalistic follow-up study, children and parents received treatment as the clinicians and families deemed appropriate. Treatment for children could include

TABLE 1 Demographic Characteristics and Psychiatric Symptom Scores of Parents at Baseline and Follow-Up

	Mothers (n = 742)	Fathers (n = 440)
Age at baseline (y), mean (SD)	44.4 (6.1)	47.0 (6.2)
Age at follow-up (y), mean (SD)	46.1 (5.9)	48.5 (6.5)
Education level, n (%)		
Low	71 (9.8)	42 (10.2)
Intermediate	190 (26.1)	90 (21.8)
High	467 (64.1)	281 (68)
Employment status, n (%)		
Yes	604 (82.2)	391 (92.2)
No	131 (17.8)	33 (7.8)
Relationship status, n (%)		
Yes	507 (68.7)	359 (82)
No	231 (31.3)	79 (18)

Note: Education level: low (primary school, lower vocational schooling, and lower secondary schooling), middle (intermediate vocational schooling and intermediate/higher secondary schooling), high (higher vocational schooling, university, and postgraduate). Parents were employed or unemployed (yes or no). Relationship status: together with the biological parent (yes or no).

parental guidance, cognitive behavioral treatment, mindfulness, and medication. Parents could be directed for individual treatment.

Measures

Demographic information regarding the child's age and gender and the parents' education level, employment status, and relationship status were collected in the baseline survey.

Psychiatric symptoms in children and parents were measured with age-appropriate versions of questionnaires published by the Achenbach System of Empirically Based Assessment (ie, the Child Behavior Checklist [CBCL][26] and the Adult Self Report [ASR)].[27] In the 2 questionnaires, emotional and behavior problems are rated on a 3-point scale (not true, somewhat true, or very true). The CBCL depressive, anxiety, ADHD, and oppositional-defiant and conduct problem scales and the ASR depressive, anxiety, avoidant personality, ADHD, and antisocial personality problem *DSM*-oriented scales were analyzed, because these scales are more congruent with the terminology used in clinical practice compared with empirical scales that also can be calculated. Good validity has been reported.[26,27] The ASR manual provides cutoff scores for "subclinical" and "clinical" scores for each gender, indicating whether an individual might have clinically relevant symptoms. The cutoffs for the subclinical and clinical scores reflect the 93rd and 97th percentiles in men and women of the general population.

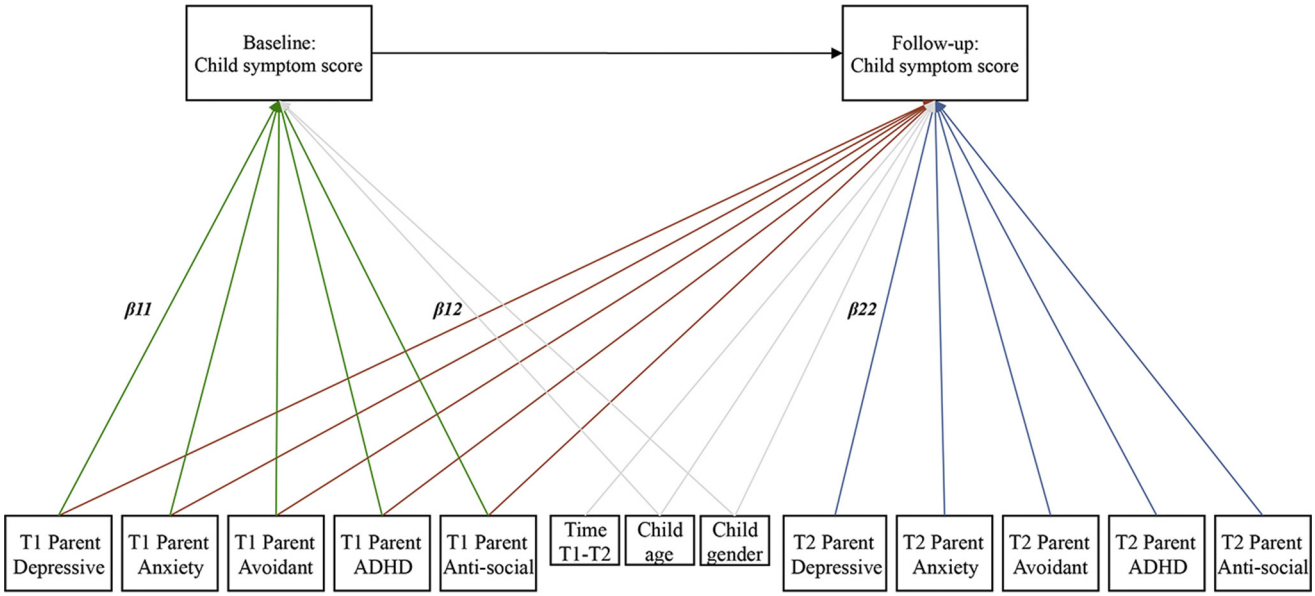
Analyses

We calculated untransformed mean maternal, paternal, and offspring psychiatric symptom scores at baseline and follow-up using SPSS 24 (IBM Corp., Armonk, NY). We performed t tests to compare scores of children whose parents scored below versus above the (sub)clinical threshold at baseline. Next, we calculated an effect size (Cohen d) for the mean difference in offspring psychiatric symptom scores at baseline and follow-up for the 2 groups of children. Because psychiatric symptoms in a parent can influence the ratings of the child's psychiatric symptoms,[28] we repeated these analyses with the other parent's ratings of the child's psychiatric problems.

We used Mplus (https://www.statmodel.com/) to analyze each of the 5 *DSM*-oriented scales measured in the child using the structural equation model depicted in Figure 1. To make optimal use of the parental data available, the predictions were analyzed for the maternal and paternal ratings separately, ie, besides the other variables in the model, the child's depression rated by the mother was predicted by the mother's scores on the ASR *DSM*-oriented scales and the child's depression rated by the father was predicted by the father's scores on the ASR *DSM*-oriented scales (β11s in Figure 1). This leaves a total of 10 models that were tested, 5 for the mother's ratings and 5 for the father's ratings. In each model, the child's psychiatric symptom score at follow-up was predicted by the parental psychiatric symptom scores at baseline (β12s in Figure 1) and follow-up (β22s in Figure 1), and the child's psychiatric symptom score at baseline. A previous study showed that parental and offspring psychiatric symptoms at baseline are associated.[1] Therefore, predictions of the child's scores at baseline by the parental scores at baseline were included in the model (β11s in Figure 1). Overall, the model was composed of concurrent associations between parent and offspring symptom scores at baseline and follow-up and longitudinal associations between parental symptom scores at baseline and offspring scores at follow-up.

Linear regression analyses were performed in Mplus to decide which demographic variables needed to be added as covariates in the model. These analyses showed that parental education level, employment status, and relationship status were not associated with offspring symptoms at follow-up and thus were not added. Gender and age of the child and time of follow-up were added to the model. The older the child, the worse the child's depressive, anxiety, and conduct problems at follow-up (coefficient range 0.08–0.12, $p < .05$), and the more time from baseline to follow-up, the higher the child's depressive, anxiety, ADHD, and conduct problems (coefficient range 0.31–0.32, $p < .05$).

FIGURE 1 This Model Was Used Separately for the 5 Different Psychiatric Symptom Scores in the Child (eg, Depressive, Anxiety, Attention-Deficit/Hyperactivity Disorder [ADHD], Oppositional Defiant Disorder and Conduct Problems) Rated by the Mother or Father at Baseline (T1) and Follow-Up (T2)



Note: *Please note color figures are available online.*

Because of differences in response rates and length of follow-up among clinics, we checked whether this could have affected the results. We repeated all the analyses for the 3 clinics separately and then tested whether the β values were significantly different between GGZ inGeest and UvA Minds, between GGZ inGeest and EUMC, and between Uva Minds and EUMC. None of these tests showed significant differences (test statistics are listed in Table S3, available online).

We performed 2 sensitivity analyses. Because the ratings of the child can be influenced by the parent's psychopathology, we also report the child's symptoms as rated by the other parent, ie, the child's depression rated by the father by the mother's ASR scores at baseline and follow-up (Table S4, available online). Furthermore, because maternal and paternal scores also are correlated, a model incorporating the effects of mothers and fathers simultaneously would have been preferable.[29] However, this would have led to a smaller sample for the maternal ratings because fewer fathers participated and complete data are a necessity for predictors in a regression model. We performed the 5 analyses including all maternal and paternal psychiatric symptoms at baseline and follow-up simultaneously as predictors (n = 334 families) to investigate whether associations were not better explained by an association with the symptoms of the other parent (Table S5, available online).

In our main analyses we tested 11 correlated predictors (parental psychiatric symptom scores at baseline and follow-up and offspring symptom score at baseline) and therefore used a p value of .007, calculated by matSpD[30] (https://gump.qimr.edu.au/general/daleN/matSpD/), as the threshold for statistical significance.

RESULTS

Parental and Offspring Symptom Scores at Baseline and Follow-Up

For each psychiatric symptom scale, there was, on average, a decrease in parental mean scores over time ($p < .001$, average effect size 0.28).

Table 2 presents offspring mean scores at baseline and follow-up for children whose father or mother scored in the normal range for all *DSM*-oriented scales and for children whose parent scored above the (sub)clinical threshold at baseline (35.6% of mothers and 33% of fathers for $\geq$1 scale). Table S6 (available online) presents scores for children whose parent scored above the (sub)clinical threshold per parental psychiatric symptom score. In general, offspring symptom scores were significantly higher if the parent scored above threshold. At baseline, this was seen for most offspring symptom scores, regardless of the considered parental scale. This is in line with previous univariate analyses in a subsample of the present population.[1] At

TABLE 2 Offspring Mean (SD) Psychiatric Symptom Scores at Baseline and Follow-Up, Rated by Mothers or Fathers for Children of Parents Whose Maternal or Paternal Psychiatric Symptom Score Was in the Normal or (Sub)Clinical Range at Baseline

	Parental Score Normal on All Scales	Parental Score (Sub)Clinical at Baseline
Mother		
Child score at baseline, n	460	258
Depressive	5.02 (3.88)***	7.00 (4.25)
Anxiety	3.57 (2.76)***	4.23 (2.83)
ADHD	6.01 (3.51)***	7.38 (3.57)
ODD	3.54 (2.64)***	4.52 (2.56)
Conduct	3.10 (3.27)***	4.33 (4.14)
Child score at follow-up, n	464	248
Depressive	3.07 (3.56)***	4.21 (3.54)
Anxiety	2.16 (2.44)***	2.76 (2.52)
ADHD	4.73 (3.30)***	5.65 (3.49)
ODD	2.29 (2.28)*	2.73 (2.29)
Conduct	1.99 (2.88)*	2.59 (3.29)
Father		
Child score at baseline, n	348	188
Depressive	4.01 (3.711)***	6.16 (4.02)
Anxiety	2.87 (2.43)***	4.07 (2.62)
ADHD	5.49 (3.26)***	7.19 (3.32)
ODD	3.03 (2.52)***	4.30 (2.42)
Conduct	2.80 (3.20)***	4.42 (3.80)
Child score at follow-up, n	275	138
Depressive	2.91 (3.57)*	3.62 (3.08)
Anxiety	1.95 (2.30)*	2.52 (2.22)
ADHD	4.16 (3.21)***	5.67 (3.34)
ODD	2.08 (2.16)***	3.07 (2.34)
Conduct	1.73 (2.54)***	2.69 (2.96)

Note: ADHD = attention-deficit/hyperactivity disorder; ODD = oppositional defiant disorder.
*p < .05; ***p < .001.

follow-up, offspring symptom scores were mostly higher only for the scales that measured similar symptoms as the scale for which the parent scored above threshold at baseline (Table S6, available online). Because parental psychopathology can influence the parental perception of the offspring's psychopathology, mean scores also were calculated for ratings performed by the other parent. This showed a similar pattern, although the differences in offspring whose parents scored within the normal versus (sub)clinical range were smaller (Table S4, available online). It also became clear that in both groups of children (ie, children with parents with psychopathology and children with parents without psychopathology), the symptom scores at follow-up were, on average, lower (Table S6, available online). Both groups showed similar relative improvement, as reflected by the effect sizes (*d;* Table S7, available online) that varied from 0.46 to 0.71 for children with parents with psychopathology and from 0.30 to 0.54 for children with parents without psychopathology.

Predictions of Child's Scores at Follow-Up

Table 3 lists the standardized regression coefficients for each predictor, indicating the effect size (ie, how many SDs the child's symptoms score will increase), as estimated in the model shown in Figure 1. The child's psychiatric symptom scores at follow-up were most strongly predicted by the child's psychiatric symptom scores at baseline (coefficient range 0.37–0.68).

Further, several parental symptom scores were significantly associated with concurrently measured offspring symptom scores, ie, parental and offspring scores measured at baseline were associated (coefficients $\beta 11$s in Figure 1), as were parental and offspring scores measured at follow-up (coefficients $\beta 22$s in Figure 1). At baseline, similar to the results of previous analyses,[1] maternal anxiety symptoms predicted offspring anxiety, oppositional-defiant, and conduct problems (coefficient range 0.19–0.36), and paternal anxiety problems predicted depressive, anxiety, and oppositional-defiant problems in the child, and paternal ADHD predicted ADHD symptoms (coefficient range 0.21–0.41). At follow-up, maternal anxiety symptoms predicted offspring depressive, anxiety, and ADHD and maternal ADHD problems predicted offspring anxiety, ADHD, and conduct problems (coefficient range 0.10–0.19). Paternal antisocial personality problems at follow-up predicted oppositional-defiant and conduct problems in the child at follow-up (coefficients 0.17 and 0.27). There were fewer significant predictions at follow-up by paternal symptoms scores than by maternal scores. This can be explained by the smaller sample of fathers at follow-up, because the coefficients for paternal psychiatric symptoms were mostly of similar magnitude as the coefficients for maternal psychiatric symptoms.

Parental symptom scores at baseline did not predict offspring scores at follow-up, with the exception of maternal ADHD predicting lower ADHD scores in the child (coefficient −0.12).

The results of the analyses including maternal and paternal psychiatric symptom scores simultaneously were similar, although fewer parent–offspring associations were significant probably because of the smaller sample (Table S5, available online), and no parental psychiatric symptoms at baseline predicted the child's outcomes. The standardized regression coefficients for the different regression analyses are presented in Table S5, available online

TABLE 3 Standardized Regression Coefficients (SEs) Obtained in the Model (Figure 1) in Which the Child's Psychiatric Symptom Score at Follow-Up Was Predicted by the Child's Psychiatric Symptom Score at Baseline (T1), Parental Psychiatric Symptoms at Baseline (β12s), and Parental Psychiatric Symptoms at Follow-Up (β22s)

	Child Psychiatric Problems Outcome														
	Depressive			Anxiety			ADHD			Oppositional-Defiant			Conduct		
	β11	β12	β22	β11	β12	β22	β11	β12	β22	β11	β12	β22	β11	β12	β22
Mothers															
Child score at T1	0.44§ (0.03)			0.37§ (0.03)			0.60§ (0.03)			0.54§ (0.03)			0.48§ (0.03)		
Depressive	0.11 (0.06)	−0.06 (0.06)	0.10 (0.06)	−0.07 (0.05)	−0.05 (0.04)	−0.03 (0.04)	0.07 (0.06)	−0.02 (0.05)	0.00 (0.05)	0.01 (0.04)	−0.02 (0.03)	0.05 (0.04)	−0.05 (0.06)	−0.08 (0.05)	−0.02 (0.05)
Anxiety	0.22 (0.08)	−0.09 (0.07)	0.20§ (0.07)	0.36§ (0.06)	0.08 (0.05)	0.19§ (0.03)	−0.02 (0.08)	−0.03 (0.06)	0.18§ (0.04)	0.19§ (0.06)	−0.11 (0.05)	0.08 (0.05)	0.25§ (0.08)	0.02 (0.06)	0.14 (0.06)
Avoidant	0.07 (0.08)	0.05 (0.08)	0.06 (0.08)	0.07 (0.06)	−0.01 (0.05)	0.11 (0.06)	0.01 (0.08)	−0.08 (0.07)	0.09 (0.07)	−0.03 (0.06)	−0.03 (0.05)	0.01 (0.05)	−0.08 (0.08)	−0.13 (0.06)	0.12 (0.07)
ADHD	0.01 (0.05)	−0.06 (0.05)	0.09 (0.05)	−0.01 (0.03)	−0.07 (0.03)	0.10§ (0.03)	0.11 (0.04)	−0.12§ (0.04)	0.19§ (0.04)	0.01 (0.03)	−0.06 (0.03)	0.05 (0.03)	0.01 (0.04)	−0.05 (0.04)	0.13§ (0.04)
Antisocial	0.16 (0.07)	−0.03 (0.06)	0.08 (0.08)	0.04 (0.05)	−0.03 (0.04)	0.06 (0.05)	0.05 (0.07)	0.01 (0.05)	0.05 (0.07)	0.14 (0.05)	0.05 (0.04)	0.11 (0.05)	0.18 (0.07)	0.04 (0.05)	0.07 (0.07)
Fathers															
Child score at T1	0.44§ (0.04)			0.48§ (0.04)			0.68§ (0.04)			0.55§ (0.04)			0.51§ (0.03)		
Depressive	0.07 (0.09)	−0.07 (0.07)	0.16 (0.08)	−0.11 (0.06)	−0.12 (0.05)	0.14 (0.06)	−0.02 (0.08)	0.05 (0.06)	0.00 (0.07)	−0.04 (0.06)	0.04 (0.04)	−0.04 (0.05)	0.04 (0.07)	0.01 (0.05)	−0.06 (0.06)
Anxiety	0.41§ (0.11)	−0.13 (0.09)	0.23 (0.10)	0.38§ (0.07)	−0.02 (0.06)	0.11 (0.07)	0.23 (0.10)	−0.10 (0.08)	0.16 (0.08)	0.21§ (0.07)	−0.04 (0.06)	0.16 (0.06)	0.16 (0.09)	0.05 (0.07)	0.16 (0.07)
Avoidant	0.02 (0.11)	−0.11 (0.09)	0.22 (0.10)	0.08 (0.07)	−0.02 (0.06)	0.05 (0.07)	−0.14 (0.09)	−0.13 (0.08)	0.15 (0.08)	−0.04 (0.07)	−0.10 (0.06)	−0.06 (0.06)	−0.18 (0.09)	−0.09 (0.07)	0.01 (0.07)
ADHD	0.13 (0.07)	−0.11 (0.07)	0.03 (0.07)	0.10 (0.04)	−0.01 (0.04)	−0.01 (0.05)	0.25§ (0.06)	−0.07 (0.05)	0.14 (0.06)	0.06 (0.05)	0.01 (0.04)	0.01 (0.04)	0.12 (0.06)	−0.05 (0.05)	0.03 (0.05)
Antisocial	−0.03 (0.09)	0.09 (0.08)	0.02 (0.07)	−0.03 (0.06)	0.04 (0.05)	0.02 (0.05)	0.02 (0.07)	−0.01 (0.06)	0.08 (0.06)	0.13 (0.06)	−0.05 (0.05)	0.17§ (0.05)	0.14 (0.07)	−0.09 (0.06)	0.27§ (0.06)

Note: *The child's psychiatric symptom score at baseline also was predicted by all parental psychiatric symptom scores at baseline (β11s).*
ADHD = attention-deficit/hyperactivity disorder.
§p < .007.

(coefficient range 0.25–0.35 at baseline and 0.17–0.29 at follow-up). These results indicate that the associations found in the former analyses were not explained by a resemblance between parents.

DISCUSSION

We examined, in a clinical sample, the associations between maternal and paternal psychiatric symptoms with the outcome of the child's psychiatric symptoms. First, the analyses of the mean symptom scores indicate that children referred to psychiatric outpatient clinics whose mothers or fathers scored in the (sub)clinical range at baseline (~34% of parents) have higher symptom scores at baseline and at follow-up than children whose parents scored in the normal range for each scale, although the differences were smaller at follow-up (Table 2). The relative improvement from baseline to follow-up, as expressed in the effect size *d*, was not smaller in children whose parents scored above threshold compared with children whose parents scored in the normal range (Table S7, available online). However, given their higher scores at baseline, they should have improved even more to reach the same level as children whose parents scored in the normal range. Second, our model (Figure 1) showed that offspring outcome was not associated with parental psychiatric symptom scores at baseline. The only longitudinal significant prediction from parental symptoms to offspring outcome was higher maternal ADHD symptoms at baseline predicting lower ADHD scores in offspring at follow-up, but the effect was small. Instead, offspring follow-up scores were for the largest part predicted by the offspring symptom score at baseline, in addition to predictions by concurrently measured parental psychiatric symptoms at follow-up, mainly maternal or paternal anxiety or ADHD.

All in all, our results indicate that referred children with parents with psychopathology have a poorer outcome than referred children with parents without psychopathology. This is mostly explained by the more severe symptoms at baseline and by associations between parental and offspring symptoms measured at follow-up. Notably, the associations with maternal and paternal symptom scores were of similar magnitude for mothers and fathers, indicating that paternal (improvement in) psychopathology is as important for the child's outcome as maternal psychopathology. This is in line with the heritability of psychiatric symptoms at childhood[31] and with theories predicting an important role for fathers in children overcoming psychopathology.[32] The concurrent parent–offspring associations were less strong at follow-up than at baseline, but this is probably explained by the strong predictions of the child's baseline symptoms on the child's score at follow-up. Future studies should provide further insight into the association between parental ADHD and offspring ADHD over time before it is possible to draw any conclusions about this isolated finding.

Our findings might seem contradictory to previous studies suggesting that poorer outcome in children is associated with parental symptoms at baseline. However, except for 2 studies,[9,14] these studies[2-8,10-13,15-19-23] did not take into account the associations between parental and offspring scores at follow-up. This could explain the discrepancies. One of the 2 studies that also included an association between parental psychopathology at follow-up with offspring scores at follow-up reported an association between maternal anxiety at baseline and higher scores at follow-up in mother-reported child anxiety, but not in clinician-rated child anxiety.[14] The other study used a different method to investigate maternal symptoms at follow-up. The investigators tested the difference in offspring externalizing symptoms at follow-up in children whose mothers were not depressed, children whose mothers were depressed only at baseline, and children whose mothers were depressed at baseline and follow-up.[9] The children in the latter group showed the highest scores, in line with the concurrent associations at follow-up in our model.

Baseline child's symptoms also were not always incorporated in a similar way as in the present study. Sometimes, a child's change score was analyzed as an outcome measure[6,10,22,33] or whether remission of a diagnosis was achieved.[5,13] These analyses did not account for the higher symptom scores at baseline in children whose parents have psychopathology. A quantitative measure of the child's psychiatric symptoms at baseline and follow-up provides the most precise information that should be incorporated in an analysis investigating which variables are further associated with a child's outcome.

Parent–offspring associations for psychopathology can be influenced by spousal resemblance for psychiatric symptoms.[29] A study on the association between maternal depression and childhood conduct problems, for example, showed that this association was explained in part by paternal antisocial personality problems.[34] However, our additional analyses including maternal and paternal symptoms simultaneously in the model showed that spousal resemblance for psychiatric symptoms did not explain the effects found in the separate analyses.

The results should be considered in view of several limitations. First, to analyze the largest possible sample, we used the report on the child's psychopathology by the parent who also reported on his or her symptoms. However, psychiatric symptoms in the parent can influence the ratings of the child's psychiatric symptoms.[28] Similar differences were seen in offspring symptom scores depending on the

other parent scoring below or above the (sub)clinical thresholds, although the differences were smaller (average effect size 0.26 versus 0.36; Table S4, available online). Second, although the sample was large, approximately 50% of families were lost to follow-up. Comparison of maternal, paternal, and offspring symptom scores at baseline showed no differences between families who did and did not participate at follow-up (Table S1, available online). This suggests that participation is not associated to maternal, paternal, or offspring psychopathology at baseline. Parental or offspring symptoms at follow-up could have been associated with dropout.

Our results do not imply anything about the direction of effect. Parents and children also could be exposed to similar adverse events, such as parental unemployment, influencing parental and offspring psychopathology. Further, it is clear from other studies that parental and offspring symptoms mutually influence each other. For example, a decrease in offspring anxiety symptoms has been related to a decrease in maternal anxiety symptoms[14,35] and offspring psychopathology has been found to decrease when mothers are successfully treated for depression.[36,37]

Nevertheless, findings from the present naturalistic study could have important clinical implications. They show that children of parents with psychopathology, which was approximately 30% of children in this sample,[24] are at risk for continuing higher levels of psychiatric symptoms in the longer term. Relative improvement is not smaller compared with children whose parents score in the normal range, but it should be even larger for them to function within the normal range because of the higher scores at baseline. Together with our previous findings of higher spousal resemblance for psychopathology in a clinical sample and the association of unemployment and parents not being together with parental psychopathology, it is clear that in some families assessed in child and adolescent psychiatric clinics, there is an accumulation of risk factors that make these families particularly vulnerable. Even in studies showing improvement in untreated family members after treatment of the proband, the proportion of mothers or children with psychopathology remains high (17.7% of mothers[2] and ~20% of children[37] at follow-up). Treatment programs specifically targeted at these high-risk families with multiple affected members should be developed and investigated. Given the continuing associations between parental (maternal and paternal) and offspring psychopathology, adding treatment for parental symptoms to the treatment of the child warrants further research.

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TABLE S1 Maternal and Paternal Mean (SD) Psychiatric Symptoms Scores on the Adult Self-Report (ASR) and Offspring Psychiatric Scores on the Child Behavior Checklist (CBCL) at Baseline Depending on Whether Parents Participated in Follow-Up

	Mothers		Fathers	
	Baseline Without Follow-Up	**Baseline Score With Follow-Up**	**Baseline Without Follow-Up**	**Baseline Score With Follow-Up**
ASR				
Depressive	5.03 (4.57)	4.70 (4.03)	3.29 (3.35)	3.30 (3.37)
Anxiety	4.30 (2.92)	4.12 (2.54)	3.18 (2.47)	3.18 (2.36)
Avoidant	2.49 (2.49)	2.40 (2.33)	2.13 (2.31)	2.38 (2.42)
ADHD	5.38 (4.38)	5.24 (4.29)	4.69 (4.02)	5.16 (4.11)*
Antisocial	2.43 (2.56)	2.45 (2.45)	2.93 (2.74)	3.11 (2.86)
CBCL				
Depressive	6.03 (4.29)	5.76 (4.16)	4.62 (3.81)	4.77 (3.94)
Anxiety	4.02 (2.83)	3.79 (2.81)	3.33 (2.57)	3.29 (2.56)
ADHD	6.36 (3.63)	6.50 (3.60)	5.54 (3.46)	6.05 (3.37)*
ODD	3.93 (2.65)	3.88 (2.65)	3.51 (2.54)	3.47 (2.55)
Conduct	3.76 (3.78)	3.58 (3.73)	3.17 (3.39)	3.36 (3.49)

Note: *ADHD = attention-deficit/hyperactivity disorder; ODD = oppositional defiant disorder.*
*$p < .05$.

TABLE S2 Demographic Characteristics and Psychiatric Symptom Scores of Parents at Baseline and Follow-Up per Clinic

	Mothers			Fathers		
	UvA Minds	**GGZ inGeest**	**Erasmus**	**UvA Minds**	**GGZ inGeest**	**Erasmus**
Family response rate, %	60.6	34.06	31.4	60.6	34.06	31.4
Age (y) at baseline, mean (SD)	45.32 (5.63)	43.97 (6.59)	39.67 (6.11)	47.57 (5.91)	48.86 (7.28)	42.54 (5.21)
Time from baseline to follow-up	1.06 (0.55)	1.9 (0.49)	4.63 (0.47)	1.06 (0.64)	1.85 (0.55)	4.73 (0.55)
Education level, n (%)						
Low	38 (6.8)	14 (12.5)	26 (22.8)	55 (12.1)	9 (11.4)	23 (23)
Intermediate	127 (22.6)	30 (26.8)	44 (38.6)	97 (21.4)	18 (22.8)	36 (36)
High	396 (70.6)	68 (60.7)	44 (38.6)	302 (66.5)	52 (65.8)	41 (41)
Employment status, n (%)						
Yes	465 (81.6)	91 (81.3)	104 (91.2)	426 (91)	68 (85)	96 (94.1)
No	105 (18.4)	21 (18.8)	10 (8.8)	42 (9)	12 (15)	6 (5.90)
Relationship status, n (%)						
Yes	358 (67.7)	71 (65.1)	78 (78)	271 (81.4)	38 (86.4)	43 (86)
No	171 (32.3)	38 (34.90)	22 (22)	62 (18.6)	6 (13.6)	7 (14)

	Baseline	**Follow-Up**	**Baseline**	**Follow-Up**	**Baseline**	**Follow-Up**	**Baseline**	**Follow-Up**	**Baseline**	**Follow-Up**	**Baseline**	**Follow-Up**
Depressive	4.74 (4.02)	3.62 (3.59)	5.31 (4.97)	4.68* (4.74)	4.74 (4.30)	3.75 (3.95)	3.33 (3.36)	2.70 (3.29)	3.13 (3.29)	2.95 (3.27)	3.35 (3.43)	2.24 (2.38)
Anxiety	4.16 (2.64)	3.27 (2.56)	4.40 (3.10)	3.70 (3.07)	4.16 (2.60)	3.42 (2.52)	3.14 (2.41)	2.36 (2.35)	3.07 (2.28)	2.53 (2.01)	3.35 (2.54)	2.55 (2.23)
Avoidant	2.23 (2.24)	1.81 (2.11)	2.52 (2.64)	2.34 (2.68)	2.92 (2.53)	2.43** (2.37)	2.33 (2.39)	1.88 (2.24)	1.94 (2.27)	1.93* (2.22)	2.35 (2.38)	2.10 (2.17)
ADHD	5.52 (4.47)	4.39 (3.94)	5.11 (4.25)	4.64 (4.15)	5.02 (4.07)	3.93 (3.69)	5.26 (4.14)	4.22 (3.82)	4.23 (4.10)	4.35** (3.46)	4.68 (3.76)	3.08* (2.52)
Antisocial	2.52 (2.63)	1.77 (1.95)	2.54 (2.61)	1.66 (2.07)	2.11 (2.01)	1.07** (1.58)	3.21 (2.86)	2.60 (2.91)	3.13 (3.11)	2.15 (2.73)	2.44 (2.26)	1.43** (1.60)

Note: *ADHD = attention-deficit/hyperactivity disorder; GGZ = Geestelijke Gezondheidszorg; UvA = University of Amsterdam.*

*$p < .05$ compared with UvA Minds sample; **$p < .01$.

TABLE S3 Log-Likelihood (−2LL) for Models With Separate Beta Values per Clinic (Free) and With Beta Values Constrained to be Equal in the Geestelijke Gezondheidszorg (GGZ) inGeest and Erasmus University Medical Center (EUMC) Sample, the GGZ inGeest and University of Amsterdam (UvA) Minds Sample, and the EUMC and UvA Minds Sample

	GGZ inGeest vs. EUMC				GGZ inGeest vs. UvA Minds				EUMC vs. UvA Minds			
	−2LL				−2LL				−2LL			
	Free (49)	Equal (28)	diff −2LL	*p*	Free (49)	Equal (28)	diff −2LL	*p*	Free (49)	Equal (28)	diff −2LL	*p*
Mothers												
Depressive	925,386	933,072	−7,686	.99	3,097.505	3,105.206	−7,701	.99	3,116.092	3,129.172	−13,08	.91
Anxiety	817,642	828,261	−10,619	.97	2,676.71	2,687.614	−10,904	.96	2,733.391	2,753.428	−20,037	.52
ADHD	882,815	892,971	−10,156	.98	2,950.656	2,962.954	−12,298	.93	3,000.155	3,013.467	−13,312	.89
ODD	733,594	746	−12,406	.93	2,624.706	2,642.277	−17,571	.68	2,601.387	2,618.656	−17,269	.69
Conduct	905,907	916,956	−11,049	.96	2,939.536	2,950.533	−10,997	.96	2,979.786	2,995.974	−16,188	.76
Fathers												
Depressive	386,044	412,755	−26,711	.18	1,823.787	1,839.052	−15,265	.81	1,838.172	1,867.247	−29,075	.11
Anxiety	313,361	336,411	−23,05	.34	1,550.682	1,561.687	−11,005	.96	1,565.339	1,590.702	−25,363	.23
ADHD	381,682	393,039	−11,357	.96	1,705.056	1,717.036	−11,98	.94	1,745.432	1,763.761	−18,329	.63
ODD	296,357	319,633	−23,276	.33	1,529.121	1,540.765	−11,644	.95	1,520.544	1,533.775	−13,231	.90
Conduct	340,725	355,231	−14,506	.85	1,666.252	1,687.714	−21,462	.43	1,678.948	1,696.398	−17,45	.68

***Note**: Significance testing was based on the likelihood ratio test, where the negative log-likelihood (−2LL) of the constrained model is subtracted from the −2LL of the free model with degrees of freedom of 21 (49-28). ADHD = attention-deficit/hyperactivity disorder; ODD = oppositional defiant disorder.*

TABLE S4 Offspring Mean (SD) Psychiatric Symptom Scores at Baseline and Follow-Up for Children of Parents Whose Maternal or Paternal Psychiatric Symptom Score Was in the Normal or (Sub)Clinical Range at Baseline

	Parental Score Normal on All Scales	Parental Score (Sub)Clinical at Baseline				
		Depressive	Anxiety	Avoidant	ADHD	Antisocial
Mother score—child score rated by father						
Child score at baseline, n	339	68	31	29	72	42
Depressive	4.38 (3.96)	6.29 (4.17)***	6.48 (4.88)**	6.38 (3.00)**	5.06 (3.65)	5.60 (4.59)
Anxiety	3.18 (2.61)	3.72 (2.44)	4.36 (2.69)*	4.44 (2.57)*	2.91 (2.14)	3.31 (2.82)
ADHD	5.91 (3.29)	6.31 (3.35)	5.81 (3.68)	6.14 (3.58)	6.65 (3.79)	6.31 (3.35)
ODD	3.33 (2.55)	3.78 (2.44)	3.06 (2.29)	3.93 (2.05)	3.50 (2.79)	4.07 (2.44)
Conduct	3.09 (3.49)	3.93 (3.38)	3.26 (3.07)	3.31 (3.13)	4.17 (4.17)*	3.91 (3.50)
Child score at follow-up, n	278	45	24	25	51	36
Depressive	2.92 (3.54)	3.89 (3.54)	2.95 (3.37)	4.00 (2.80)	3.65 (3.33)	3.86 (3.68)
Anxiety	2.02 (2.21)	2.38 (2.10)	2.33 (2.01)	3.08 (2.81)*	2.20 (2.33)	2.97 (2.62)*
ADHD	4.42 (3.38)	5.39 (3.03)	4.33 (3.21)	5.32 (3.22)	5.33 (3.19)	5.64 (3.21)*
ODD	2.27 (2.19)	2.84 (2.44)	1.75 (1.78)	3.28 (2.48)*	2.61 (2.47)	3.25 (2.88)*
Conduct	1.90 (2.59)	2.49 (3.27)	1.67 (1.74)	3.20 (3.86)*	2.88 (3.40)*	2.69 (3.40)
Father score—child score rated by mother						
Child score at baseline, n	390	71	35	67	73	47
Depressive	5.32 (3.97)	6.56 (3.88)*	7.37 (3.87)**	6.43 (4.24)*	6.33 (3.67)*	6.38 (4.11)
Anxiety	3.76 (2.82)	3.92 (2.58)	4.43 (2.69)	4.11 (2.83)	3.84 (2.66)	3.66 (2.48)
ADHD	6.39 (3.66)	7.04 (3.59)	7.02 (3.06)	6.30 (3.38)	7.48 (3.46)*	7.26 (3.48)
ODD	3.75 (2.70)	4.32 (2.55)	4.26 (2.42)	3.73 (2.19)	4.14 (2.62)	4.77 (2.41)*
Conduct	3.44 (3.85)	3.73 (3.28)	3.11 (2.18)	3.15 (3.43)	3.73 (3.73)	4.81 (3.55)*
Child score at follow-up, n	393	70	35	63	73	45
Depressive	3.24 (3.66)	4.03 (3.31)	3.66 (3.11)	3.40 (3.19)	3.53 (3.19)	4.76 (3.43)**
Anxiety	2.22 (2.42)	2.73 (2.43)	2.43 (1.85)	2.25 (2.19)	2.55 (2.26)	2.60 (2.23)
ADHD	4.77 (3.36)	6.33 (3.44)***	5.26 (2.90)	4.98 (3.30)	6.51 (3.75)***	6.47 (3.07)***
ODD	2.33 (2.33)	2.93 (2.45)*	2.66 (2.17)	2.30 (1.97)	2.71 (2.27)	3.58 (2.38)***
Conduct	2.04 (2.94)	2.41 (2.98)	1.71 (2.61)	2.03 (3.29)	2.36 (3.58)	3.40 (3.92)**

Note: *The difference from Table S6 is that offspring symptoms are assessed by the other parent. ADHD = attention-deficit/hyperactivity disorder; ODD = oppositional-defiant disorder.*
*p < .05; **p < .01; ***p < .001.

TABLE S5 Standardized Regression Coefficients (SEs) of Analyses Including Maternal and Paternal Psychiatric Symptoms Simultaneously (n = 334 Families)

	Child Psychiatric Problems Outcome														
	Depressive			Anxiety			ADHD			Oppositional-Defiant			Conduct		
	β11	β12	β22	β11	β12	β22	β11	β12	β22	β11	β12	β22	β11	β12	β22
Child score at baseline	0.39§ (0.05)			0.32§ (0.04)			0.55§ (0.04)			0.52§ (0.04)			0.43§ (0.04)		
Mothers															
Depressive	0.16 (0.09)	−0.17 (0.08)	0.10 (0.08)	0.05 (0.07)	−0.10 (0.05)	−0.06 (0.06)	−0.01 (0.09)	−0.02 (0.07)	−0.00 (0.07)	−0.00 (0.06)	0.01 (0.05)	0.03 (0.05)	−0.08 (0.08)	−0.08 (0.06)	0.01 (0.06)
Anxiety	0.10 (0.12)	−0.17 (0.11)	0.29§ (0.11)	0.25§ (0.09)	0.01 (0.08)	0.28§ (0.07)	−0.08 (0.12)	−0.04 (0.09)	0.15 (0.09)	0.10 (0.08)	−0.17 (0.06)	0.15 (0.06)	0.12 (0.10)	−0.00 (0.08)	0.12 (0.07)
Avoidant	0.06 (0.11)	0.06 (0.11)	0.07 (0.12)	0.03 (0.08)	0.06 (0.07)	0.11 (0.08)	−0.02 (0.11)	−0.03 (0.09)	0.01 (0.10)	−0.05 (0.08)	−0.04 (0.06)	−0.00 (0.07)	−0.08 (0.10)	−0.05 (0.08)	0.01 (0.09)
ADHD	−0.03 (0.07)	0.00 (0.08)	0.11 (0.07)	−0.12 (0.05)	−0.05 (0.05)	0.17§ (0.05)	0.14 (0.07)	−0.07 (0.06)	0.19§ (0.06)	0.04 (0.05)	−0.07 (0.05)	0.06 (0.05)	0.06 (0.06)	−0.07 (0.05)	0.10 (0.05)
Antisocial	0.17 (0.10)	−0.10 (0.09)	0.08 (0.11)	0.18 (0.07)	−0.07 (0.06)	0.04 (0.08)	0.06 (0.10)	−0.06 (0.07)	0.00 (0.09)	0.10 (0.07)	−0.04 (0.05)	0.11 (0.07)	0.11 (0.08)	−0.03 (0.06)	0.13 (0.08)
Fathers															
Depressive	−0.11 (0.10)	0.09 (0.09)	−0.06 (0.10)	−0.08 (0.07)	0.01 (0.06)	0.02 (0.07)	0.06 (0.10)	0.16 (0.07)	−0.02 (0.08)	−0.02 (0.07)	0.08 (0.05)	−0.01 (0.06)	0.05 (0.08)	0.09 (0.06)	−0.03 (0.07)
Anxiety	0.35§ (0.12)	−0.15 (0.11)	0.21 (0.12)	0.18 (0.09)	−0.08 (0.08)	0.06 (0.08)	0.05 (0.12)	−0.19 (0.09)	−0.01 (0.10)	0.20 (0.08)	0.02 (0.07)	−0.03 (0.07)	0.16 (0.10)	−0.08 (0.08)	0.02 (0.08)
Avoidant	−0.03 (0.11)	−0.12 (0.11)	0.02 (0.13)	−0.01 (0.08)	0.01 (0.07)	−0.06 (0.09)	−0.23 (0.11)	−0.08 (0.09)	−0.05 (0.10)	−0.14 (0.08)	−0.11 (0.06)	0.04 (0.07)	−0.19 (0.09)	−0.05 (0.08)	−0.05 (0.09)
ADHD	0.02 (0.08)	−0.01 (0.08)	0.01 (0.09)	0.02 (0.06)	−0.01 (0.05)	0.06 (0.06)	0.16 (0.07)	0.06 (0.06)	0.07 (0.07)	0.04 (0.05)	0.05 (0.04)	−0.07 (0.05)	0.00 (0.06)	−0.02 (0.06)	0.04 (0.06)
Antisocial	−0.00 (0.07)	0.10 (0.09)	−0.07 (0.09)	−0.08 (0.07)	0.06 (0.06)	−0.01 (0.06)	0.04 (0.09)	−0.00 (0.07)	0.06 (0.07)	0.10 (0.06)	−0.12 (0.05)	0.21§ (0.05)	0.14 (0.08)	−0.15 (0.06)	0.25§ (0.06)

Note: *The child's psychiatric symptom score at follow-up was predicted by the child's psychiatric symptom score at baseline, the parental psychiatric symptoms at baseline (β12s), and the parental psychiatric symptoms at follow-up (β22s). The child's psychiatric symptom score at baseline also was predicted by all parental psychiatric symptom scores at baseline (β11s). ADHD = attention-deficit/hyperactivity disorder.*

§$p < .007$.

TABLE S6 Offspring Mean (SD) Psychiatric Symptom Scores at Baseline and Follow-Up, Rated by Mothers or Fathers for Children of Parents Whose Maternal or Paternal Psychiatric Symptom Score Was in the Normal or (Sub)Clinical Range at Baseline

	Parental Score Normal on All Scales	Parental Score (Sub)Clinical at Baseline				
		Depressive	Anxiety	Avoidant	ADHD	Antisocial
Mother						
Child score at baseline, n	460	95	43	42	91	54
Depressive	5.02 (3.88)	7.72 (4.55)***	7.98 (4.83)***	8.24 (4.54)***	7.25 (3.96)***	8 (4.20)***
Anxiety	3.57 (2.76)	4.64 (2.82)***	5.61 (2.74)***	5.31 (3.01)***	4.31 (2.84)*	4.54 (2.89)*
ADHD	6.01 (3.51)	7.24 (3.35)**	6.37 (3.70)	7.48 (3.62)*	7.71 (3.58)***	7.33 (3.55)**
ODD	3.54 (2.64)	4.54 (2.27)***	4.33 (2.46)	4.60 (2.37)*	4.45 (2.55)**	4.74 (2.66)**
Conduct	3.10 (3.27)	4.16 (4.06)**	4.14 (4.41)	4.12 (3.36)	4.43 (4.31)***	4.67 (4.07)***
Child score at follow-up, n	464	93	41	43	83	44
Depressive	3.07 (3.56)	4.82 (3.61)***	4.78 (3.99)*	5.65 (3.92)***	4.16 (3.87)	4.93 (3.96)*
Anxiety	2.16 (2.44)	3.08 (2.70)**	3.78 (3.05)***	3.93 (3.00)***	2.57 (2.53)	3.02 (2.50)
ADHD	4.73 (3.30)	5.57 (3.36)	4.59 (3.26)	5.93 (3.84)	6.17 (3.98)***	5.43 (3.10)
ODD	2.29 (2.28)	2.73 (1.98)	2.33 (1.97)	3.20 (2.29)*	2.64 (2.38)	3.02 (2.57)
Conduct	1.99 (2.88)	2.15 (2.60)	1.98 (2.38)	2.56 (2.90)	2.99 (3.81)**	2.98 (2.94)
Father						
Child score at baseline, n	348	67	32	62	67	45
Depressive	4.01 (3.711)	7.09 (4.21)***	8.16 (4.10)***	6.13 (4.09)***	6.63 (4.18)***	6.02 (3.67)***
Anxiety	2.87 (2.43)	4.25 (2.53)***	5.06 (2.38)***	4.31 (2.47)***	4.46 (2.77)***	3.98 (2.07)**
ADHD	5.49 (3.26)	7.45 (3.15)***	7.66 (2.54)***	7.07 (3.35)***	7.93 (2.85)***	7.64 (2.96)***
ODD	3.03 (2.52)	4.24 (2.34)***	4.38 (2.31)**	3.81 (2.13)*	4.19 (2.52)***	4.89 (2.23)***
Conduct	2.80 (3.20)	4.28 (3.51)***	3.81 (3.08)	3.84 (3.55)*	4.46 (3.60)***	6.38 (4.54)***
Child score at follow-up, n	275	51	25	53	51	32
Depressive	2.91 (3.57)	4.61 (3.54)***	4.28 (3.41)	4.36 (3.75)**	4.20 (3.70)*	3.78 (2.34)
Anxiety	1.95 (2.30)	2.71 (2.18)	2.88 (2.24)	2.71 (2.31)	2.88 (2.35)*	2.44 (1.97)
ADHD	4.16 (3.21)	6.31 (3.14)***	6.16 (2.98)*	5.57 (3.18)*	6.24 (3.39)***	5.84 (2.84)*
ODD	2.08 (2.16)	3.20 (2.19)**	3.24 (2.39)	2.77 (2.06)	2.98 (2.24)	3.59 (2.24)**
Conduct	1.73 (2.54)	3.02 (3.08)**	2.58 (2.14)	2.09 (2.20)	2.16 (2.28)	3.56 (3.47)**

Note: *ADHD = attention-deficit/hyperactivity disorder; ODD = oppositional defiant disorder.*
*p < .05; **p < .01; ***p < .001.

TABLE S7 Offspring Mean (SD) Psychiatric Symptom Scores at Baseline and Follow-Up for Children Whose Mother or Father Scored in the Normal Range or in the (Sub)Clinical Range on at Least 1 Syndrome Scale at Baseline

	Mother's Psychiatric Score						Father's Psychiatric Score					
	Normal			(Sub)Clinical			Normal			(Sub)Clinical		
	Baseline	Follow-Up	*d*	Baseline	Follow-Up	*d*	Baseline	Follow-Up	*d*	Baseline	Follow-Up	*d*
Child score, n	460	464		258	248		348	275		188	138	
Depressive	5.02 (3.88)	3.07 (3.56)	0.52	7.00 (4.25)	4.21 (3.54)	0.71	4.02 (3.71)	2.91 (3.57)	0.30	6.16 (4.02)	3.62 (3.08)	0.71
Anxiety	3.57 (2.76)	2.16 (2.44)	0.54	4.22 (2.84)	2.76 (2.52)	0.54	2.87 (2.43)	1.95 (2.30)	0.39	4.07 (2.63)	2.52 (2.22)	0.64
ADHD	6.01 (3.51)	4.73 (3.30)	0.38	7.38 (3.58)	5.65 (3.49)	0.49	5.49 (3.26)	4.16 (3.21)	0.34	7.19 (3.32)	5.67 (3.33)	0.46
ODD	3.54 (2.64)	2.29 (2.28)	0.51	4.52 (2.56)	2.73 (2.30)	0.74	3.03 (2.52)	2.08 (2.16)	0.41	4.30 (2.42)	3.07 (2.35)	0.52
Conduct	3.10 (3.27)	1.99 (2.88)	0.36	4.33 (4.14)	2.59 (3.29)	0.47	2.80 (3.20)	1.73 (2.54)	0.37	4.41 (3.80)	2.69 (2.96)	0.50

Note: *The effect size (d) for the mean difference at baseline and follow-up is given by whether the parents scored in the normal or (sub)clinical range. ADHD = attention-deficit/hyperactivity disorder; ODD = oppositional defiant disorder.*