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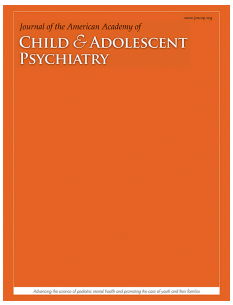

Do Parental Psychiatric Symptoms Predict Outcome in Children With Psychiatric Disorders? A Naturalistic Clinical Study

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

RH = The Effect of Parental Psychopathology

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Editorial
Supplemental Material

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Drs. Wesseldijk, Dieleman, van Steensel, Bartels, Bögels, Middeldorp, and Ms. Bleijenberg report no biomedical financial interests or potential conflicts of interest.

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Abstract

Objective: Parental psychiatric symptoms may negatively affect the outcome of children's psychopathology. Studies have so far mainly showed a negative effect of maternal depression. We studied the associations between a broad range of psychiatric symptoms in mothers as well as fathers with 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 three child and adolescent psychiatric outpatient clinics, and at follow-up (on average 1.7 years later). We tested predictions of child's symptoms scores *at follow-up* by parental symptoms scores *at baseline*, as well as by parental scores *at follow-up* and the child's score 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* were generally not predicted by parental scores at baseline. Mother and father associations were of similar magnitude.

Conclusion: The higher symptom scores at follow-up in children of parents with psychopathology were mainly explained by higher symptom scores at baseline. The continuing parent-offspring associations may be a result of reciprocal effects, i.e., parental symptoms influencing offspring symptoms as well as of offspring symptoms influencing parental symptoms. Still, the results show that these children are at risk for persisting symptoms, possibly indicating the need to treat mothers' and fathers' psychopathology.

Keywords: parental psychopathology, child psychopathology, parent-offspring associations, longitudinal

Introduction

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[1] for an overview of the literature). The next question then is how parental psychiatric symptoms are associated with the outcome of the 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 has also been investigated several times.[5,12-19] A negative association was mostly 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] Broader defined parental mental health, mainly internalizing symptomatology, was also associated to worse treatment outcome of youth total, internalizing, and externalizing problems[20] and of youth outcomes regarding autism spectrum disorder,[21] although no effect on the outcome for anxiety in youth has been observed as well.[16] Far fewer studies investigated parental externalizing problems. Associations with worse outcome were reported between parental ADHD and youth ADHD[22] and between father's substance abuse and youth conduct problems.[7] In addition, father's ADHD appeared to be associated with a smaller decrease in children's behavioral problems, but not 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 for youth anxiety, findings are not entirely consistent. Still, there remain several outstanding issues. The overview above shows that the associations with parental externalizing symptoms are understudied, as well as associations between parent's symptoms and offspring outcome across disorders i.e, the association between parental anxiety on for example offspring ADHD outcome. Moreover, father's symptoms have been less extensively investigated. Several studies did not include fathers at all[2,8,9,11,12,18,20], others

added the small samples of fathers to mother's data.[3,5-7,10,14,16,17,22] And in the studies that did analyze fathers separately, one asked mothers about fathers' substance use[7] and samples of fathers were still smaller and response rates were lower compared to mothers[5,13,15,19,23] As fathers in a clinical population are as affected with 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, the question is how to explain this association. Is the reported association between maternal depression and the outcome of offspring externalizing disorders, for example, due to maternal depression or is it better explained by co-morbid 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 the follow-up. The latter would mean that only concurrent parental and offspring symptoms are related to each other. This has been rarely addressed by earlier studies. Only one study[14] included concurrent parent-offspring correlations for anxiety symptoms at baseline and follow-up and still reported an association with offspring outcome.

The current naturalistic study aimed to address these issues. We analyzed data from 742 mothers and 440 fathers and their 811 children who were all 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 mother's and father's data. The availability of parental and child's measures at both time points allowed to investigate the association between parental psychiatric symptoms and child's symptoms at baseline and at follow-up. Further, correlations within parental symptom scores, i.e., comorbidity, were taken into account.

Method

Participants

Data were obtained between April 2010 and December 2016 in three child and adolescent psychiatric outpatient clinics in The Netherlands (GGZ inGeest and UvA Minds in Amsterdam and the Erasmus University Medical Center-Sophia Children's Hospital (EUMC) in Rotterdam) (see[24] for a detailed description of the samples). Parents were asked to report on their own 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 between one to five years later, on average 1.7 years, to complete the same survey assessing their child's and their own psychiatric symptoms. From the 1,771 families with surveys available at baseline, follow-up data were received from 811 families (N girls 303, N boys 508, N mothers 742, N fathers 440) (a family-response rate of 45.8%). Girls were on average 11.9 years (*SD* = 3.5) at baseline and 13.9 years (*SD* = 3.5) at follow-up. Boys were on average 10.9 years (*SD* = 3.0) at baseline and 12.47 years (*SD* = 3.1) at follow-up. The mothers, fathers and children of the families that did not participate in the follow-up measurement showed similar psychiatric symptom scores at baseline compared to the mothers, fathers and children of the families who did participate in the follow-up (Table S1, available online).

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

As this is a naturalistic follow-up study, children as well as parents received treatment as the clinicians and families deemed appropriate. Treatment for children could include parental guidance, cognitive behavioral treatment, mindfulness and medication. Parents could be directed for individual treatment.

Measures

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

Psychiatric symptoms in children and parents were measured with the age-appropriate version of questionnaires belonging to the Achenbach System of Empirically Based Assessment (ASEBA) i.e., the Child Behavior Checklist (CBCL,[27]) and the Adult Self Report (ASR,[28]). In both questionnaires, emotional and behavior problems are rated on a three-point scale (not true, somewhat true, very true). The CBCL depressive, anxiety, attention deficit/hyperactivity (ADHD), oppositional-defiant and conduct problems and the ASR depressive, anxiety, avoidant personality, ADHD, and antisocial personality problems DSM-oriented scales were analyzed, as these scales are more congruent with the terminology used in clinical practice, compared to the empirical scales that can also be calculated. Good validity has been reported.[27,28] The ASR manual provides cut-off scores for "subclinical" and "clinical" scores for each sex indicating whether an individual may have clinically relevant symptoms. The cut-offs for the subclinical and clinical scores reflect the 93rd and 97th percentile in men and women of the general population.

Analyses

We calculated untransformed mean mother's, father's, and child psychiatric symptom scores at baseline and follow-up using SPSS (version 24). We performed t-tests to compare the scores between children whose parents scored below and above the (sub)clinical threshold at baseline. Next, we calculated an effect size (Cohen's *d*) for the mean difference in the child's psychiatric symptom scores at baseline and follow-up for the two groups of children. As psychiatric symptoms in a parent can

influence the ratings of their child's psychiatric symptoms,[29] we repeated these analyses with the ratings of the other parent of the child's psychiatric problems.

We used Mplus to analyse for each of the five DSM oriented scales measured in the child the structural equation model depicted in Figure 1. To make optimal use of the parental data available, the predictions were analyzed for the mother and father ratings separately, i.e., besides the other variables in the model, the child's depression rated by mother was predicted by the mother's own scores on the ASR DSM oriented scales and the child's depression rated by father was predicted by the father's own scores on the ASR DSM oriented scales (β11s in Figure 1). This leaves a total of ten models that were tested, five for the mother's ratings and five 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.) An earlier study has already shown that parental and offspring psychiatric symptoms at baseline are also associated.[1] Therefore, predictions of the child's scores at baseline by the parental scores at baseline were also included in the model (β11s in Figure 1). Overall, the model comprised concurrent associations between parent and offspring symptom scores at baseline and follow-up, as well as 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, and relationship status were not associated with offspring symptoms at follow-up, 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 (coefficients ranged between .08 and .12, $p<.05$) and the more time between baseline and follow-up the higher the child's depressive, anxiety, ADHD and conduct problems (coefficients ranged between .31 and .32, $p<.05$).

Because of the differences in response rates and the length of follow-up time between the clinics, we checked whether this could have affected the results. We repeated all the analyses above for the three clinics separately and then tested whether the beta's were significantly different between GGZ inGeest and UvA Minds, between GGZ inGeest and Erasmus and between Uva Minds and Erasmus. None of these tests showed significant differences (Table S3, available online, for the test statistics).

We performed two sensitivity analyses. Since the ratings of the child may be influenced by the parent's psychopathology, we also report the child's symptoms as rated by the other parent, i.e., the child's depression rated by father by the mother's ASR scores at baseline and follow-up (Table S4, available online). Furthermore, as mother's and father's scores are also correlated, a model incorporating the effects of both mothers and fathers simultaneously would have been preferable.[30] This would, however, have led to a smaller sample size for the mother ratings as fewer fathers participated and complete data is a necessity for predictors in a regression model. We performed the five analyses including all mother's and father's 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 (the parental psychiatric symptom scores at baseline and follow-up and the child's symptom score at baseline) and therefore used a *p* value of 0.007, calculated by the software 'matSpD',[31] as the threshold for statistical significance.

Results

Parental and offspring symptom scores at baseline and follow-up

For each psychiatric symptom scale, there is, on average, a decrease in the parental mean scores over time (p<.001, with an average effect size of .28).

Table 2 shows the offspring mean scores at baseline and follow-up for the children whose father or mother scored in the normal range for all DSM oriented scales and for the children whose parent scored above the (sub)clinical threshold at baseline (35.6% of mothers and 33% of fathers for at least one of the scales). Table S6, available online, shows the scores for the children whose parent scores 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 the majority of the offspring symptom scores, regardless of the considered parental scale. This is in line with earlier univariate analyses in a subsample of the current population.[1] At follow-up, offspring symptom scores were mostly only higher for the scales that measured similar symptoms as the scale for which the parent scored above threshold at baseline (Table S6, available online). Since parental psychopathology can influence the parental perception of their child's psychopathology, mean scores were also calculated for the ratings performed by the other parent. This revealed a similar pattern, although the differences between offspring whose parents scored within the normal and in the (sub)clinical range were smaller (Table S4, available online). It also becomes clear from Table S6, available online, that in both groups of children, i.e., children with parents with psychopathology and children with parents without psychopathology, the symptom scores at follow-up were, on average, lower. Both groups showed similar relative improvement, as reflected by the effect sizes (*d)* (Table S7, available online) that varied between .46 and .71 for children with parents with psychopathology and between .30 and .54 for the children with parents without.

Predictions of child's scores at follow-up

Table 3 shows the standardized regression coefficients for each predictor, indicating the effect size, i.e., how many standard deviations 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 (coefficients ranged between .37 and .68).

Further, several parental symptom scores were significantly associated with concurrently measured offspring symptom scores, i.e., parental and offspring scores measured at baseline were associated (coefficients β11s in Figure 1) as well as parental and offspring scores measured at follow-up (coefficients β22s in Figure 1). At baseline, similar to the results of earlier analyses,[1] mother's anxiety symptoms predicted offspring anxiety, oppositional-defiant and conduct problems (coefficients ranged between .19 and .36), and father's anxiety problems predicted depressive, anxiety and oppositional-defiant problems in the child and father's ADHD predicted ADHD symptoms (coefficients ranged between .21 and .41). At follow-up, mother's anxiety symptoms predicted offspring depressive, anxiety and ADHD and mother's ADHD problems predicted offspring anxiety, ADHD and conduct problems (coefficients ranged between .10 and .19). Father's antisocial personality problems at follow-up predicted oppositional-defiant and conduct problems in the child at follow-up (coefficients were .17 and .27). There were fewer significant predictions at follow-up by father's symptoms scores than by mother's scores. This can be explained by the smaller sample size of fathers at follow-up, as the coefficients for father's psychiatric symptoms were mostly of similar magnitude as the coefficients for the mother's psychiatric symptoms.

Parental symptom scores at baseline did not predict offspring scores at follow-up, with the exception of mother's ADHD predicting *lower* ADHD scores in the child (coefficient -.12).

The results of the analyses including mother's and father's psychiatric symptom scores simultaneously were similar, although fewer parent-offspring associations were significant probably because of the smaller sample size (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 given in Table S5, available online, (coefficients ranged between .25 and .35 at baseline and between .17 and .29 at follow-up). These results indicate that the associations found in the former analyses were not explained by resemblance between parents.

Discussion

We examined, in a clinical sample, the associations between mother's and father's psychiatric symptoms with the outcome of the child's psychiatric symptoms. Firstly, 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 (around 34% of the 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 between baseline and follow-up, as expressed in effect size d, was *not* smaller in children whose parents scored above threshold compared to children whose parents scored in the normal range (Table S7, available online). But given their higher scores at baseline, they should have improved even more, to reach the same level as children whose parents score in the normal range. Secondly, our model (Figure 1) showed that child's outcome was not associated with parental psychiatric symptom scores at baseline. The only longitudinal significant prediction from parental symptoms to offspring outcome was higher mother's ADHD symptoms at baseline predicting *lower* ADHD scores in their children at follow-up, but the effect was small. Instead, the child's follow-up scores were for the largest part predicted by the child's symptom score at baseline, in addition to predictions by concurrently measured parental psychiatric symptoms at follow-up, mainly mother's and father's 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 children's symptoms both measured at follow-up. Notably, the associations with mother's and father's symptom scores were of similar magnitude for mothers and fathers, indicating that fathers (improvement in) psychopathology is as important for child's outcome than mothers'. This is in line with the heritability of psychiatric symptoms at childhood[32] and with theories predicting an important role for fathers in

children overcoming psychopathology.[33] 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 may seem in contrast with the previous studies suggesting that poorer outcome in children is associated with parental symptoms at baseline. However, all these studies,[2-8,10-13,15-19-23,]but two,[9,14] did not take into account the associations between parental and children's scores at follow-up. This may explain the discrepancies. One of the two studies that also included an association between parental psychopathology at follow-up with child's scores at follow-up, reported an association between mother's 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 the mother's symptoms at follow-up. They tested the difference in children's externalizing symptoms at follow-up between children whose mothers were not depressed, whose mothers were only depressed at baseline and 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 were also not always incorporated in a similar way as in the current study. Sometimes, a child's change score was analyzed as outcome measure[6,10,22,34] or whether or not 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 may be influenced by spousal resemblance for psychiatric symptoms.[30] A study on the association between mother's depression and childhood conduct problems, for example, showed that this association was partly explained by father's

antisocial personality problems.[35] However, our additional analyses including the mother's and father's symptoms simultaneously in the model showed that spousal resemblance for psychiatric symptoms did not explain the effects as 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 of the parent that also reported on his or her own symptoms. Psychiatric symptoms in the parent, however, can influence the ratings of their child's psychiatric symptoms.[29] Table S4, available online, showed that 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 effeas ct size of .26 compared to an average effect size of .36). Second, although the sample size was large, around 50% of the families were lost to follow-up. Comparison of mothers, fathers and child's symptoms scores at baseline showed no differences between families who did or did not participate at follow-up (Table S1, available online). This suggests that participation is not associated to mother's, father's or offspring psychopathology at baseline. It is still possible that symptoms at follow-up, either of the parents or children, were associated with drop-out.

Our results do not imply anything about the direction of effect. Parents and children could also be exposed to similar adverse events, such as parental unemployment, influencing both parental and offspring psychopathology. Further, it is clear from other studies that parental and offspring symptoms mutually influence each other. It has, for example, been found that a decrease in offspring anxiety symptoms is related to a decrease in mother's anxiety symptoms[14,26] and offspring psychopathology improves when mothers are successfully treated for depression.[36,37]

Still, findings from the present naturalistic study may have important clinical implications. They show that children of parents with psychopathology, which was around 30% of children in this sample,[24] are at risk for continuing higher levels of psychiatric symptoms on the longer term. Relative improvement is not smaller compared to children whose parents score in the normal range, but 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 between unemployment and parents not being together with parental psychopathology, it is clear that in part of the families assessed in child and adolescent psychiatric clinics, there is an accumulation of risk factors that make these families particularly vulnerable. Even in the studies showing improvement in untreated family members after treatment of the proband, the proportion of mothers or children with psychopathology is still high (17.7% of the mothers[2] and ~20% of children[37] at follow-up. It is timely that treatment programs specifically targeted at these high-risk families with multiple affected members are developed and investigated. Given the continuing associations between parental and offspring psychopathology, both in mothers and fathers, adding treatment for the parental symptoms to the treatment of the child warrants further research.

Figure 1. This Model was Used Separately for the Five Different Psychiatric Symptom Scores in the Child (eg, Depressive, Anxiety, Attention-Deficit/Hyperactivity Disorder [ADHD], Oppositional Defiant Disorder [ODD] and Conduct Problems) Rated by the Mother or by the Father).

Table 1. Demographic Characteristics and Psychiatric Symptom Scores of the Parents at Baseline and Follow-Up

	Mothers (N=742)	**Fathers (N=440)**
Mean age (SD) at baseline	44.4(6.1)	47.0(6.2)
Mean age (SD) at follow-up	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		
Yes	604(82.2%)	391(92.2%)
No	131(17.8%)	33(7.8%)
Relationship status		
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 post graduate). Parents were employed or unemployed (yes/no). Relationship status: together with the biological parent (yes/no). ADHD = attention deficit/hyperactivity disorder.

Table 2. Means (SDs) of the Child's Psychiatric Symptom Scores at Baseline and Follow-Up, Rated by Mothers (A) or by Fathers (B) for Children of Parents Whose Mother's (A) or Father's (B) 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**
A		
Mother	N=460	N=258
Child baseline:		
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 follow-up:	N=464	N=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)
B		
Father	N=348	N=188
Child baseline:		
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 follow-up:	N=275	N=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<.01; ***p<.001

Table 3. Standardized Regression Coefficients (Standard Errors [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 (Timepoint 1 [T1]), the Parental Psychiatric Symptoms at Baseline (β12s) and the 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															
T1 Child	**.44[§] (.03)**			**.37[§] (.03)**			**.60[§] (.03)**			**.54[§] (.03)**			**.48[§] (.03)**		
Depressive	.11(.06)	-.06(.06)	.10(.06)	-.07(.05)	-.05(.04)	-.03(.04)	.07(.06)	-.02(.05)	.00(.05)	.01(.04)	-.02(.03)	.05(.04)	-.05(.06)	-.08(.05)	-.02(.05)
Anxiety	.22(.08)	-.09(.07)	**.20[§] (.07)**	**.36[§] (.06)**	.08(.05)	**.19[§] (.03)**	-.02(.08)	-.03(.06)	**.18[§] (.04)**	**.19[§] (.06)**	-.11(.05)	.08(.05)	**.25[§] (.08)**	.02(.06)	.14(.06)
Avoidant	.07(.08)	.05(.08)	.06(.08)	.07(.06)	-.01(.05)	.11(.06)	.01(.08)	-.08(.07)	.09(.07)	-.03(.06)	-.03(.05)	.01(.05)	-.08(.08)	-.13(.06)	.12(.07)
ADHD	.01(.05)	-.06(.05)	.09(.05)	-.01(.03)	-.07(.03)	**.10[§] (.03)**	.11(.04)	**-.12[§] (.04)**	**.19[§] (.04)**	.01(.03)	-.06(.03)	.05(.03)	.01(.04)	-.05(.04)	**.13[§] (.04)**
Antisocial	.16(.07)	-.03(.06)	.08(.08)	.04(.05)	-.03(.04)	.06(.05)	.05(.07)	.01(.05)	.05(.07)	.14(.05)	.05(.04)	.11(.05)	.18(.07)	.04(.05)	.07(.07)
Fathers															
T1 Child	**.44[§] (.04)**			**.48[§] (.04)**			**.68[§] (.04)**			**.55[§] (.04)**			**.51[§] (.03)**		
Depressive	.07(.09)	-.07(.07)	.16(.08)	-.11(.06)	-.12(.05)	.14(.06)	-.02(.08)	.05(.06)	.00(.07)	-.04(.06)	.04(.04)	-.04(.05)	.04(.07)	.01(.05)	-.06(.06)
Anxiety	**.41[§] (.11)**	-.13(.09)	.23(.10)	**.38[§] (.07)**	-.02(.06)	.11(.07)	.23(.10)	-.10(.08)	.16(.08)	**.21[§] (.07**)	-.04(.06)	.16(.06)	.16(.09)	.05(.07)	.16(.07)
Avoidant	.02(.11)	-.11(.09)	.22(.10)	.08(.07)	-.02(.06)	.05(.07)	-.14(.09)	-.13(.08)	.15(.08)	-.04(.07)	-.10(.06)	-.06(.06)	-.18(.09)	-.09(.07)	.01(.07)
ADHD	.13(.07)	-.11(.07)	.03(.07)	.10(.04)	-.01(.04)	-.01(.05)	**.25[§] (.06)**	-.07(.05)	.14(.06)	.06(.05)	.01(.04)	.01(.04)	.12(.06)	-.05(.05)	.03(.05)
Antisocial	-.03(.09)	.09(.08)	.02(.07)	-.03(.06)	.04 (.05)	.02(.05)	.02(.07)	-.01(.06)	.08(.06)	.13(.06)	-.05(.05)	**.17[§] (.05)**	.14(.07)	-.09(.06)	**.27[§] (.06)**

Note: The child's psychiatric symptom score at baseline was also predicted by all parental psychiatric symptom scores at baseline (β11s). ADHD = attention deficit/hyperactivity disorders.

[§]$p < 0.007$.

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

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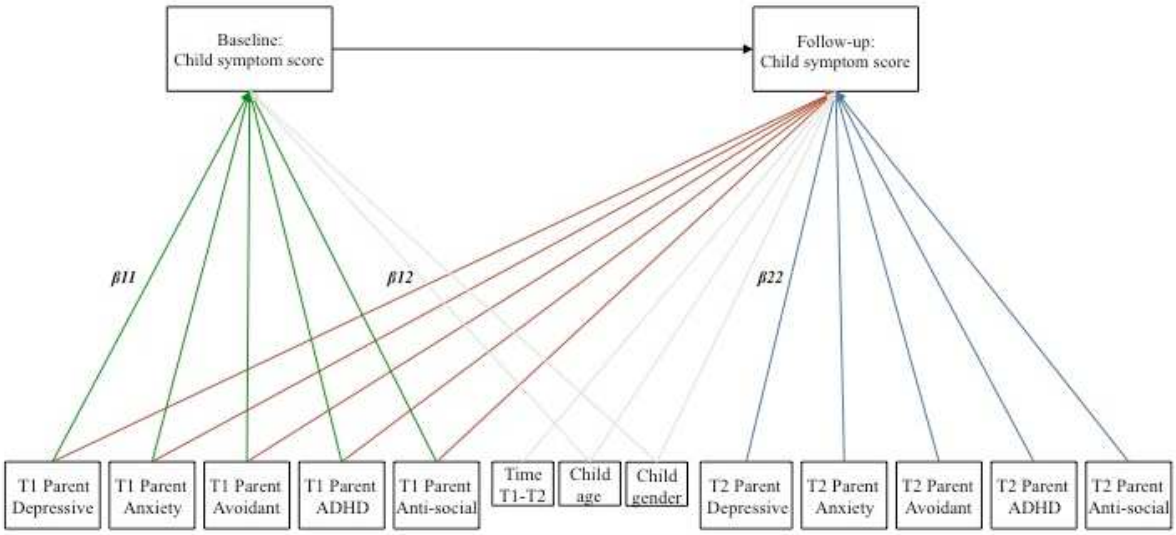

Supplementary material

Table S1. Means and SDs of the Maternal and Paternal Psychiatric Symptoms Scores of the Adult Self Report (ASR) and of Their Child's Psychiatric Scores of the Child Behavior Checklist (CBCL) at Baseline Depending on Whether or not Parents Participated in the 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 the 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%
Mean age (SD) at baseline	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 between baseline and follow-up	1.06 (.55)	1.9 (.49)	4.63 (.47)	1.06 (.64)	1.85 (.55)	4.73 (.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						
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 (5.9%0
Relationship status						
Yes	358 (67.7%)	71 (65.1%)	78 (78%)	271 (81.4%)	38 (86.4%)	43 (86%)
No	171 (32.3%)	38 (34.9%0	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

* $p < 0.05$ compared to UvA Minds sample; ** $p < 0.01$

Table S3. The Log-Likelihood (-2LL) for the Models With Separate Beta's per Clinic (Free) and With the Beta's Constrained to be Equal Between Either the GGZ inGeest and the Erasmus Sample, the GGZ ingest and the Uva Minds Sample, and the Erasmus and Uva Minds sample.

	GGZ inGeest - Erasmus				**GGZ inGeest - Uva Minds**				**Erasmus- Uva Minds**			
	-2LL		diff -2LL	*p*	-2LL		diff -2LL	*p*	-2LL		diff -2LL	*p*
	Free (49)	Equal (28)			Free (49)	Equal (28)			Free (49)	Equal (28)		
Mothers												
Depressive	925,386	933,072	-7,686	.99	3097,505	3105,206	-7,701	.99	3116,092	3129,172	-13,08	.91
Anxiety	817,642	828,261	-10,619	.97	2676,71	2687,614	-10,904	.96	2733,391	2753,428	-20,037	.52
ADHD	882,815	892,971	-10,156	.98	2950,656	2962,954	-12,298	.93	3000,155	3013,467	-13,312	.89
ODD	733,594	746	-12,406	.93	2624,706	2642,277	-17,571	.68	2601,387	2618,656	-17,269	.69
Conduct	905,907	916,956	-11,049	.96	2939,536	2950,533	-10,997	.96	2979,786	2995,974	-16,188	.76
Fathers												
Depressive	386,044	412,755	-26,711	.18	1823,787	1839,052	-15,265	.81	1838,172	1867,247	-29,075	.11
Anxiety	313,361	336,411	-23,05	.34	1550,682	1561,687	-11,005	.96	1565,339	1590,702	-25,363	.23
ADHD	381,682	393,039	-11,357	.96	1705,056	1717,036	-11,98	.94	1745,432	1763,761	-18,329	.63
ODD	296,357	319,633	-23,276	.33	1529,121	1540,765	-11,644	.95	1520,544	1533,775	-13,231	.90
Conduct	340,725	355,231	-14,506	.85	1666,252	1687,714	-21,462	.43	1678,948	1696,398	-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 a degrees of freedom of 21 (49-28). ADHD = attention-deficit/hyperactivity disorder; ODD = oppositional defiant disorder

Table S4. Means (SDs) of the Child's Psychiatric Symptom Scores at Baseline and Follow-Up for Children of Parents Whose Mother's (A) or Father's (B) 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**
A						
Mother score - Child score father rated	N=339	N= 68	N = 31	N = 29	N = 72	N = 42
Child baseline:						
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 follow-up:	N= 278	N = 45	N = 24	N = 25	N = 51	N = 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)
B						
Father score – Child score mother rated	N=390	N=71	N=35	N=67	N=73	N=47
Child baseline:						
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 follow-up:	N=393	N = 70	N = 35	N = 63	N = 73	N = 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 with Table S7 is that the 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 Standard Error (SE) of the Analyses Including Both the 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 at baseline	**.39[§] (.05)**			**.32[§] (.04)**			**.55[§] (.04)**			**.52[§] (.04)**			**.43[§] (.04)**		
Mothers															
Depressive	.16 (.09)	-.17 (.08)	.10 (.08)	.05 (.07)	-.10 (.05)	-.06 (.06)	-.01 (.09)	-.02 (.07)	-.00 (.07)	-.00 (.06)	.01 (.05)	.03 (.05)	-.08 (.08)	-.08 (.06)	.01 (.06)
Anxiety	.10 (.12)	-.17 (.11)	**.29[§] (.11)**	**.25[§] (.09)**	.01 (.08)	**.28[§] (.07)**	-.08 (.12)	-.04 (.09)	.15 (.09)	.10 (.08)	-.17 (.06)	.15 (.06)	.12 (.10)	-.00 (.08)	.12 (.07)
Avoidant	.06 (.11)	.06 (.11)	.07 (.12)	.03 (.08)	.06 (.07)	.11 (.08)	-.02 (.11)	-.03 (.09)	.01 (.10)	-.05 (.08)	-.04 (.06)	-.00 (.07)	-.08 (.10)	-.05 (.08)	.01 (.09)
ADHD	-.03 (.07)	.00 (.08)	.11 (.07)	-.12 (.05)	-.05 (.05)	**.17[§] (.05)**	.14 (.07)	-.07 (.06)	**.19[§] (.06)**	.04 (.05)	-.07 (.05)	.06 (.05)	.06 (.06)	-.07 (.05)	.10 (.05)
Antisocial	.17 (.10)	-.10 (.09)	.08 (.11)	.18 (.07)	-.07 (.06)	.04 (.08)	.06 (.10)	-.06 (.07)	.00 (.09)	.10 (.07)	-.04 (.05)	.11 (.07)	.11 (.08)	-.03 (.06)	.13 (.08)
Fathers		.09 (.09)			.01 (.06)			.16 (.07)			.08 (.05)			.09 (.06)	
Depressive	-.11 (.10)	-.15 (.11)	-.06 (.10)	-.08 (.07)	-.08 (.08)	.02 (.07)	.06 (.10)	-.19 (.09)	-.02 (.08)	-.02 (.07)	.02 (.07)	-.01 (.06)	.05 (.08)	-.08 (.08)	-.03 (.07)
Anxiety	**.35[§] (.12)**	-.12 (.11)	.21 (.12)	.18 (.09)	.01 (.07)	.06 (.08)	.05 (.12)	-.08 (.09)	-.01 (.10)	.20 (.08)	-.11 (.06)	-.03 (.07)	.16 (.10)	-.05 (.08)	.02 (.08)
Avoidant	-.03 (.11)	-.01 (.08)	.02 (.13)	-.01 (.08)	-.01 (.05)	-.06 (.09)	-.23 (.11)	.06 (.06)	-.05 (.10)	-.14 (.08)	.05 (.04)	.04 (.07)	-.19 (.09)	-.02 (.06)	-.05 (.09)
ADHD	.02 (.08)	.10 (.09)	.01 (.09)	.02 (.06)	.06 (.06)	.06 (.06)	.16 (.07)	-.00 (.07)	.07 (.07)	.04 (.05)	-.12 (.05)	-.07 (.05)	.00 (.06)	-.15 (.06)	.04 (.06)
Antisocial	-.00 (.07)		-.07 (.09)	-.08 (.07)		-.01 (.06)	.04 (.09)		.06 (.07)	.10 (.06)		**.21[§] (.05)**	.14 (.08)		**.25[§] (.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 was also predicted by all parental psychiatric symptom scores at baseline (β11s). ADHD = attention deficit/hyperactivity disorders.

[§] $p < 0.007$.

Table S6. Means (SDs) of the Child's Psychiatric Symptom Scores at Baseline and Follow-Up, Rated by Mothers (A) or by Fathers (B) for Children of Parents Whose Mother's (A) or Father's (B) 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**
A						
Mother	N=460	N= 95	N = 43	N = 42	N = 91	N = 54
Child baseline:						
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 follow-up:	N = 464	N = 93	N = 41	N = 43	N = 83	N = 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)
B						
Father	N = 348	N=67	N = 32	N = 62	N = 67	N = 45
Child baseline:						
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 follow-up:	N = 275	N = 51	N = 25	N = 53	N = 51	N = 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. Means (SDs) of the Child's Psychiatric Symptom Scores at Baseline and at Follow-Up for Children Whose Mother or Father Scored in the Normal Range or in the (Sub)Clinical Range on at Least One of the Syndrome Scales 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	N = 464		N= 258	N = 248		N = 348	N = 275		N = 188	N = 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