Parent’s Mental Health and Child Wellbeing: The Impact of Fathers by Residential Status

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Abstract

The association between parental mental health problems and child wellbeing has rarely been examined in the context of non-traditional families. Using the Fragile Families and Child Wellbeing Study (FFCWS), this analysis exploits the full range of parent relationship types, including married, cohabiting, and non-resident relationships, to examine the effects of having one parent with major depressive disorder (MDE) and/or generalized anxiety disorder (GAD) and two parents with MDE/GAD on child’s behavior problems at age three. We find that maternal mental illness is associated with increased odds of child’s anxious/depressed, attention deficit, and oppositional defiant disorders, regardless of family structure, whereas the effect of paternal psychopathology depends primarily on fathers’ residential status. We find some evidence of a multiplicative effect associated with having two ill parents, but only when fathers are coresident. Overall, the negative impact of dual-parent psychopathology appears to be additive. Among coresident parents, results do not vary by whether parents are married or cohabiting, and among non-coresident parents, they do not differ by the level of father involvement. The findings suggest that mothers’ mental health is ultimately more important than fathers’ for healthy child development.
INTRODUCTION

The effects of parental mental health on child wellbeing are of great interest to researchers. Children with a mentally ill parent are expected to have more problems than children with two healthy parents because of the genetic transmission of mental illness as well as the disruptive impact of such illnesses on children’s home environments (Phares, Duhig, & Watson, 2002). For many years, researchers have focused either on the effects of mothers’ or fathers’ mental health, with both types of studies finding that having an ill parent (either a mother or father) is negatively related to child wellbeing (Downey & Coyne, 1990; Hay & Pawlby, 2003; Minkovitz et al., 2005; Phares & Compas, 1992; Ramchandani, Stein, Evans, & O’Connor, 2005, Marmorstein, Malone, & Iacono, 2004; Merikangas, Prusoff, & Weissman, 1988). More recently, researchers have begun to examine the effects of dual-parent morbidity on children to determine whether mothers matter more than fathers, whether two ill parents produce additive or multiplicative effects, and whether a healthy parent can buffer a child from an unhealthy parent. Although the results from these studies are not entirely consistent, they suggest that maternal mental illness is more detrimental than paternal illness, that having two ill parents is worse than having one ill parent, and that the presence of a healthy mother or father can buffer a child from an unhealthy parent (Beardslee, Versage, & Gladstone, 1998).

Despite the multitude of studies on this topic, the exiting research relies primarily on homogenous samples of married parents, including convenience samples and twin pairs, and thus non-traditional families, such as cohabiting couples, or parents living in separate households, are typically not included in the analyses. Yet the risks associated with parental mental illness are likely to be even greater for children raised in non-traditional families. Adults who suffer from a
mental illness have higher rates of union dissolution than those who are healthy, which means that the prevalence of parental mental illness is greater in non-traditional families (Simon, 2002; Wade & Pevalin, 2004). Moreover, because of matching theory— the idea that people marry or partner with others like themselves—children in non-traditional families have a higher risk than other children of having two parents with a mental illness (DeKlyen, Brooks-Gunn, McLanahan, & Knab, forthcoming; McLeod, 1995; McLeod & Eckberg, 1993; Merikangas, 1982). Given the recent growth of non-traditional families and given the high rates of mental health problems in these families, including dual-parent psychopathology (DeKlyen et al., forthcoming), their omission from previous studies may lead to a serious misunderstanding of the impact of parents’ mental health on children.

The existing research also has several methodological limitations. To accurately assess the unique impact of parents’ mental health status on children and to capture possible multiplicative effects, measures of both parents’ mental health must be entered into statistical models. Studies that examine only one parent’s health status force couple, family, or relationship effects onto individual, or parent-specific, effects. Inconsistency in model specification has also limited researchers’ ability to draw general conclusions about dual parent effects, as some studies attempt to identify purely additive effects associated with having two unhealthy parents, whereas others test for multiplicative effects.

Our research addresses these limitations and extends existing studies in several ways. First we use a nationally representative data set that includes a large sample of new parents in married, cohabiting, and other types of relationships. Because low-income parents and minority parents are over-represented in non-traditional families (McLanahan, 2004; Martin et al., 2005), these data also contain a more racially and economically diverse set of parents than has been
examined in prior studies. Second, because we have mental health measures for both mothers and fathers, we are able to disentangle individual, parent-level effects from relationship-level effects that are often masked in studies based on one parent. And finally, because we have information on contact between non-resident fathers and children, we are able to determine whether the effect of non-resident fathers’ mental illness depends upon the level of fathers’ involvement.

BACKGROUND

Parental Mental Health and Child Wellbeing

Early studies of parental mental health’s effect on child wellbeing focused almost exclusively on mothers, especially those who suffered from some form of depressive disorder. On the whole, results from these studies showed that children of depressed mothers were at higher risk of developing not only a depressive disorder during childhood but also a host of other psychological and behavioral problems throughout the life course (Goodman & Gotlib, 1999; Mowbray et al., 2004; Mufson, Nomura, & Warner, 2002; Murray et al., 1999; Weissman et al., 1987).

Only in the past two decades have researchers placed equal emphasis on the role of fathers’ mental health on children, and consequently the literature on fathers is noticeably smaller than the literature on mothers (Phares & Compass, 1992). These studies show that paternal psychopathology is also detrimental to child wellbeing (Kane & Garber, 2004; Phares, et al., 2002; Ramchandani et al., 2005). Many of these studies also compare the independent effects of maternal and paternal mental health and report that mothers’ mental health status is more influential than fathers’ mental health (see Davies & Windle, 1997; Foley et al., 2001; Ge et al., 1995; Phares et al., 2002 for a review of the literature).
Most recently, a number of studies have examined the effects of dual-parent psychopathology on child wellbeing. These studies indicate that having two parents suffering from mental disorders is more detrimental to child wellbeing than having one ill parent (Beardslee et al., 1998; Berger & Osborne, 2005; Dierker, Merikangas, & Szatmari, 1999), although the conditions under which the unique effects of mothers and fathers are additive or multiplicative are not entirely consistent. One group of studies suggests that the effects of parental mental illness are additive (Brennan et al., 2002; Merikangas et al., 1988; Ohannessian et al., 2005). Marmorstein et al. (2004), for example, find that depressed mothers tend to marry antisocial fathers and that each parent’s mental health has an additive, independent effect on offspring depression and conduct disorder. Another group of studies suggests that having two mentally ill parents conveys a risk of behavior problems and poor outcomes for children above and beyond the sum of the independent effects of parental pathology (see Foley et al., 2001; Merikangas et al., 1988; Mezulis, Hyde, and Clark, 2004). Using a community sample of Australian families, Brennan and colleagues (2002) report a significant interaction between depressed mothers and substance abusing fathers on youth depression. Alone, clinical substance abuse in fathers did not have a significant, negative effect on internalizing behaviors, but in the presence of a depressed mother this type of paternal mental health issue was related to an increase in the odds of depressive disorder in youth. The same was true of maternal and paternal depression, where mothers had a significant, independent effect on youth depression, but fathers did not. However, the interaction of two depressed parents was significantly related to the child’s own depressive disorder.

Significant interaction effects between maternal and paternal illness may also indicate a buffering effect in which one healthy parent is able to counteract the negative impact associated
with an ill parent. A classic example of buffering is found in the stress and coping literature where, in the presence of stress, social support is activated to reduce the negative impact of stress on an individual’s wellbeing (Gore, 1981; Lin & Ensel, 1989; Wheaton, 1985). Only under conditions of distress does social support operate to improve mental health, and this effect varies only by the amount of support available, not by the amount of stress experienced. In terms of parental mental health’s effect on children, we can equate the presence of an unhealthy mother to stress and a healthy father to social support. Thus, in the presence of an unhealthy mother, a healthy father may buffer children from any deleterious effects associated with maternal illness. Because the literature has focused mostly on the direct impact of maternal psychopathology on child wellbeing, healthy fathers are typically examined as moderators of the association between maternal illness and child wellbeing, although this research is unexpectedly sparse (Conrad & Hammen, 1993). A few studies do find that in households where mothers are depressed, the presence of a healthy father reduces rates of child disorders (Goodman, Brogan, Lynch, & Fielding, 1993; Hammen, 1991; Kahn, Brandt, & Whitaker, 2004).

While the findings from these more recent studies make it clear that in traditional married-parent families having two unhealthy parents is worse for healthy child development than having only one ill parent, they do not make clear whether the dual-parent effect can be characterized as simply additive or multiplicative and whether a healthy parent can buffer a child from the effect of an unhealthy parent. It is difficult to reconcile these inconsistencies for a number of reasons. First, the scope of child and adolescent outcomes examined are so varied as to make direct comparisons across studies difficult. Second, studies vary greatly in the type and specification (i.e., diagnostic or continuous) of the parental mental health problems examined. As Foley and colleagues (2001) note, significant interaction effects between maternal and
paternal psychopathology are typically disorder specific among both parents and children.

Finally, it is not clear how well the findings from existing studies of married-parent psychopathology and child wellbeing apply to non-traditional families.

The Role of Fathers

An important question in the literature on parental mental illness and child wellbeing is whether the additive and multiplicative effects of illness differ according to the parents’ relationship status; that is, whether the parents are married, whether the father lives with the child, and whether the father spends time with the child. Insofar as past studies have focused primarily on married or in a few instances, cohabiting parents, there has not been a great deal of variation in parents’ relationship status or father involvement. There is some suggestion that in families where mothers suffer from depression, fathers increase the amount of time spent in caregiving activities (Hops, Biglan, & Sherman, 1987) and become more positive in their interactions with children (Hossain et al., 1994; Mezulis, Hyde, and Clark, 2004) in order to compensate for the negative effect of unhealthy mothers. In a non-clincal sample of adolescents, Tannenbaum and Forehand (1994) found that the quality of the father-adolescent relationship buffered children from mothers who scored high on the Beck Depression Inventory.

In non-traditional families, including cohabiting parents and parents in which the father lives apart from the child, the effect of fathers’ mental health status on children may be very different. On the one hand, if the father has a serious mental illness, the child may be better off not living with the father. Jaffee and colleagues (2003) found that the impact of fathers’ antisocial behavior on conduct disorder in five-year-old children is much more pronounced when the father lives with the child (see also Berger & Osborne, 2005). On the other hand, if the father is
healthy and the mother is unhealthy, living apart from the child may make it harder for him to protect the child from the damage caused by the mother’s illness.

One way to measure paternal exposure to children is to examine the effects of maternal and paternal mental health across various relationship types and paternal residential status. In the stress and coping literature, the buffering hypothesis suggests that higher levels of support are more effectual at minimizing distress than lower levels (Wheaton, 1983). Similarly, parents who spend more time with their children may be more effective buffers of unhealthy parents than absent parents. For example, healthy fathers in non-traditional families may be less likely to fill a buffering role insofar as they are less likely to live and spend time with their children. However, unhealthy fathers in non-traditional families may also be less likely to have an impact on child wellbeing than coresident, ill fathers.

**The Current Study**

This paper examines the effects of parental mental illness among different family types, using a more demographically heterogenous sample of families. Unlike previous studies, our sample includes more households of minority and low socioeconomic status, as well as a wider range of family types, including both intact and non-intact parental relationships. In addition to differences in the sample, the paper further expands existing research in a number of important ways. First, it assesses the effect of parental living arrangements on child wellbeing in families where mothers, fathers, and both parents suffer from a mental illness. Specifically, the paper examines how residential status of fathers may alter the additive and multiplicative effects of dual-parent psychopathology on child wellbeing. Second, if indeed the effect of paternal illness varies by father’s residential status, the paper further explores whether the impact of dual-parent psychopathology differ within different types of residential- and non-residential-father families.
This allows for an assessment of whether or not the level of father-child contact, among non-resident fathers, modifies the effect of parental mental illness on children. And finally, our paper tests for significant differences in the impact of maternal and paternal illness on child behavior problems.

**Methods**

**Data**

The study uses data from the *Fragile Families and Child Wellbeing Study* (FFCWS), a national longitudinal survey designed to examine the characteristics of unmarried parents, the nature and dynamics of their relationships, and how their children fare. The FFCWS follows a birth cohort of approximately 4,900 children, including 3,712 children born to unmarried parents and 1,186 born to married parents in 20 large American cities. When weights are used, these data are representative of all nonmarital births in cities with populations of 200,000 or more (for more information on the sampling design see Reichman, Teitler, Garfinkel, & McLanahan, 2001).

Maternal baseline interviews were conducted within 48-hours of the child’s birth, and fathers were interviewed as soon thereafter as possible, often in hospital (September 1998 to September 2000). Follow-up interviews were conducted via telephone when the focal child was one- and three-years of age. Following the three-year telephone interview, mothers were asked to participate in an in-home interview designed to assess multiple domains of parenting, the child’s home environment, and mother-child interaction based on both questionnaires and interviewer observations. Approximately 85 percent of the mothers who participated in the telephone interview completed the in-home interview.
Our analysis is restricted to couples for whom information was available on both parents’ mental health (N=3,127). Because not all mothers participated in the In-home portion of the survey, we further restricted our sample to children with valid behavior scale scores (N=2,253 for ADHD; N=2,565 for ODD and N=2,565 for anxious/depressed). Finally, with additional controls in the model, listwise deletion resulted in final samples of 1,933 children for ADHD, 2,495 children for ODD, and 2,493 for anxious/depressed disorder. Note that the sample size is smaller for ADHD scale because these items were not available for all 20 cities in the study.

Measures

**Child Wellbeing.** The main dependent variables in the analyses are three measures of child behavior problems—attention deficit disorder (ADHD), oppositional defiant disorder (ODD), and anxious/depressed behavior. The first two measures are considered to be indicators of externalizing behavior and the third measure is considered to be an indicator of internalizing behavior. Anxious/depressed behavior is a subscale taken from the Child Behavior Checklist 2-3 (Achenbach, 1992) and the Achenbach System of Empirically Based Assessment (ASEBA) (Achenbach & Rescorla, 2000). Attention deficit disorder and oppositional defiant disorder are considered diagnostic scales and are also taken from the ASEBA. The six ODD questions are a subset of the aggressive behavior scale (α = 0.77) (e.g., child is defiant, child has angry moods). The ADHD is a stand-alone scale and consists of six items (α = 0.72) (e.g., child cannot sit still, child cannot stand waiting). The anxious/depressed scale consists of eight items (α = 0.64) (e.g., child clings to adults, child is too fearful or anxious). All child behavior measures are mother-reported and taken from the in-home interview. Items within each scale are summed with higher scores indicating more behavior problems. Logistic regression models use a clinical cutoff of T-scores greater than or equal to 63 for each of the three behavior scales. Ordinary least squares
regression models using logged child behavior scale scores corroborate the findings presented here (see Jensen, Brooks-Gunn, and Graber (1999) for a discussion of categorical versus continuous measures of psychopathology in children and adolescents). Percentages of children reaching the diagnostic threshold can be found in Table 1.

[Insert Table 1 about here.]

**Parental Mental Health.** Two psychiatric disorders are used to measure parental mental health. Depression and anxiety are measured using the Composite International Diagnostic Interview Short Form (CIDI-SF) Version 1.0 November 1998, administered at the one-year and three-year follow-ups (see Kessler et al., 1998). Although widely used, some authors have raised questions about the ability of the CIDI to accurately detect clinical cases of depression (Kurdyak & Gnam, 2005) and suggest that it may overestimate prevalence in the general population (Patten, Wang, Beck, & Maxwell, 2005). Scoring followed procedures outlined by the developers of the CIDI-SF to yield 12-month DSM-IV diagnoses of Major Depressive Episode (MDE) and Generalized Anxiety Disorder (GAD) (CIDI-SF Edit Memo, 2002; American Psychiatric Association, 1994; Walters et al., 2002). It is important to remember that these are not lifetime measures of experienced mental illness but instead refer to depression and anxiety events experienced in the previous year. Approximately 20 percent of mothers and 14 percent of fathers meet the diagnostic criteria for MDE while four percent of mothers and three percent of fathers meet the diagnostic criteria for GAD at the three-year interview (see Table 1).

Four indicator variables are constructed for the disorder types—mother ill, father ill, both parents ill (mother ill*father ill), and no ill parents. We use the mental health measures at the three-year follow-up to construct these variables. Mother ill indicates whether mothers suffer from MDE or GAD, while not taking father’s mental health status into account. The same is true
of father ill. These measures can be interpreted as the direct effects of parental illness. Twenty-one percent of families in the analytic sample contain an ill mother while 15 percent of families contain an ill father (see Table 1). Dual-parent psychopathology (i.e., both ill) indicates that both parents experienced at least one of the mental disorders, and no ill parents indicates that neither parent experienced a disorder. Roughly 69 percent of the analytic sample families contain two healthy parents, five percent contain two unhealthy parents.

**Relationship Status.** Four mutually exclusive indicator variables were constructed for each relationship type—married, cohabitating, involved-nonresident father, and not-involved-nonresident father. Mother’s were asked about their marital status, with respect to the father of the child, at the baseline, the one-year, and the three-year interviews. Because we use mental health status measures at the three-year follow-up, we also measure relationship status at this wave of data collection. “Involved-father” families include those in which the parents live apart but the father spent at least one day with his child in the past month. “Non-involved-father” families consist of families in which the parents live apart and the father has not seen the child in the past month. In the analytic sample, 39 percent of families are married, 26 percent are cohabiting, 24 percent have involved fathers and 11 percent have uninvolved fathers at the three-year interview (see Table 1). Overall, 64 percent of fathers are coresident with their children at the three-year follow-up interview.

**Controls.** All models have an assortment of control variables taken from the baseline survey. These include child gender (a dummy variable indicating male) and low birth weight status (a dummy variable indicating birth weight below 2,500 grams). Maternal controls include education (a four category variable indicating less than high school, high school, some college, and college degree and above), race (black, white, Hispanic, other with white being the omitted
category), immigrant status (dummy variable indicating mother was a immigrant to the United States), and prenatal smoking (dummy variable indicating mother smoked before the child was born). Additional controls for father’s education (same categories as mothers) and whether or not his race differs from the mother’s race are also included in the models.

Finally, because we wanted to control for possible bias due to mothers’ reporting of child behavior, we include a measure of child’s temperament, taken from the one-year interview. The scale consists of six maternal-reported items (e.g., child tends to be shy, child reacts strongly when upset) rated on a five-point scale from “not at all like my child” to “very much like my child” ($\alpha = 0.51$). Higher scores indicate better temperament. The temperament measure is moderately and negatively correlated with the three child wellbeing outcomes ($r = -0.16$ for ADHD; $r = -0.19$ for ODD; and $r = -0.27$ for anxious/withdrawn behaviors). Descriptive statistics for these variables are provided in Table 1. 

Analyses

An initial descriptive analysis consists of a contingency table depicting the percentage of each family type (i.e., married, cohabitating, involved-non-resident father, and non-involved-father) that has an ill mother, an ill father, two ill parents, and no ill parents. Significant differences in group means are found using analysis of variance (ANOVA), followed by pairwise tests with Bonferroni corrections for multiple comparisons. We expect resident-father family forms (i.e., married and cohabiting couples) to be the healthiest and we expect non-resident father families (involved-father and non-involved-father) to be the least healthy.

In phase two of the analysis we use logistic regression to examine the effects of parental mental illness on child wellbeing. The initial model examines additive and multiplicative effects associated with having a mother, a father, and two parents (i.e., mother ill*father ill) suffering from a mental illness by father’s residential status. It includes interaction terms for mother
ill*coresident father, father ill*coresident father, as well as both*coresident father (i.e., mother ill*father ill*coresident father). The next two models group families by parents’ relationship status (i.e., married, cohabiting, involved-father, and non-involved-father) so that we can compare differences in the effect of having a mother, a father, and two parents with a mental illness across relationship types.

By comparing and contrasting the coefficients for each individual parent’s illness status and the interaction of having two ill parents (i.e., mother ill*father ill) we are able to discern (1) if having two parents suffering from a mental illness has an additive effect on child wellbeing and (2) whether dual-parent psychopathology has a multiplicative effect on well being. Additive effects are signified by significant coefficients associated with mother illness and father illness. These represent the independent contributions of each parent’s illness status. Multiplicative effects are indicated by a significant mother ill*father coefficient. Note that the presence of a significant interaction term does not allow us to say whether the additional effect is due to the mother or the father. The results are consistent with both interpretations.

Because we divide our sample into resident-father and non-resident father groups, we can determine if the time fathers spend with their children alters additive and multiplicative effects. For example, we expect that married fathers, who presumably spend the most time with their children, will have the greatest potential to buffer their children from the harmful effects of having an unhealthy mother. Conversely, fathers who have not spent time with their children in the past month and do not have a relationship with the child’s mother should have the least potential to act as a buffer.

Finally, by comparing the coefficients associated with mother’s illness status and father’s illness status we are able to determine which parent has the strongest impact on child well-being.
Consistent with previous findings, we believe that ill mothers will have a stronger negative impact on child behavior problems than will ill fathers.

Results

Table 2 presents the percentage of each family type that falls into the four disorder types. As expected, married and cohabiting families have the healthiest parents, with the largest percentage of two non-disordered parents (75 and 74 percent, respectively). Moreover, married families have the smallest percentage of dual-parent psychopathology at three percent. Involved-father and non-involved father families have a significantly smaller percentage of two healthy parents (60 and 53 percent, respectively) and non-involved father families have a larger percentage of two ill parents than married parent families (nine percent). Obviously, because fewer involved-father and non-involved father families have two healthy parents, more of them are eligible to have a mother, father, or dual-parent diagnosis. The percentages of families with an ill mother or ill father are significantly larger among families without a residential father. Sixteen percent of mothers and 12 percent of fathers in married families suffer from a mental illness. The comparable percentages among involved father families are 27 and 19 and among non-involved father families are 30 and 26. Taken together, these results suggest that concordance on mental disorders is most prevalent in families with a non-resident, non-involved-father. The presence of an ill mother or father is also disproportionately found in non-residential father family types. That said it is also important to note that the majority of all family types contain two healthy parents.

We should point out that response rates for non-resident fathers were much lower than response rates for resident fathers, which means that our sample is probably selective of more healthy fathers. Thus, our estimates for dual parent psychopathology among non-resident
families are likely to be biased downward. Given the amount of data lost to listwise deletion, we used a multiple imputation (MI) procedure to explore the extent of this bias. The MI framework and its implementation has been well-documented elsewhere (Royston, 2005; Rubin, 1987, 1996; Schafer, 1997). Results from the MI analysis reveal that non-responding fathers have worse mental health than fathers who are interviewed at the three-year follow-up survey (results not reported but available upon request). We find an increase in the percentage of fathers who report a major depressive episode (15.64 versus 14.23 percent) as well as those who meet the diagnostic criterion for generalized anxiety disorder (4.25 versus 3.01). The increased prevalence of mental disorders among non-responders has also been found in work using the National Comorbidity Survey (Kessler et al., 1994) and the Epidemiologic Catchment Area Study (Eaton, Anthony, Tepper, & Dryman, 1992).

[Insert Table 2 about here.]

The next stage of the analysis examines the additive and multiplicative effects of having a mother, a father, and two parents with a mental disorder (i.e., mother ill*father ill). A regression model that includes interaction terms for parents’ disorder status and father’s residential status is estimated for each of the three child behavior problems. The omitted group consists of families where both parents are free of mental illness. The first two columns of Table 3 show log odds coefficients and the respective odds ratios associated with anxious/depressed disorder. Having an ill mother is associated with increased odds of meeting the diagnostic threshold (O.R.=2.11, p<0.001). Fathers do not have a significant independent effect on anxious/depressed disorder. Similarly, the interaction of mother’s and father’s illness is not significant. However, when the three mental health variables are interacted with father’s residential status a different pattern emerges. Dual-parent psychopathology is associated with a significant increase in the odds of
children experiencing anxious/depressed disorder when fathers are coresident (O.R.=4.31, p<0.05). The total effect of having two ill parents is then the sum of all the main effects and the interactions, or an odds ratio of 4.71 ($e^{1.46-.10-.53-.03+.75}$).

Subsequent columns of Table 3 present the same model for ADHD and ODD. For both, ill mothers have an independent and negative impact on clinical child behavior problems (O.R.=2.16, p<0.01 for ADHD and O.R.=2.52, p<0.01). Although the odds ratios associated with having an ill father are positive they are not significant. The interaction of mother’s and father’s illnesses is likewise not significant. None of the interactions with father’s residential status are significant. Overall, the results from Table 3 suggest that the effects of parental mental illness on child wellbeing are additive, as evidenced by significant main effects for mothers’ mental health status. Only when fathers are coresident, and only for anxious/depressed disorder, is this effect multiplicative, suggesting that either an additional ill parent exacerbates the effect of one ill parent or that the presence of a healthy parent buffers the deleterious effect associated with one ill parent.

Table 3 also investigates the relative impact of mothers’ and fathers’ mental health on child wellbeing. Post-estimation Wald tests indicated that the association between maternal mental illness and diagnosable child behavior problems is stronger than the association between paternal illness and child behavior problems (indicated with a superscript “a” in the table). This is consistent with much of the existing literature on parental mental health’s effects on child wellbeing.

The last stage of the analysis examines possible additive and multiplicative effects associated with parental mental health among intact and non-intact family groups. Recall that in Table 3 we found that when fathers are coresident, the impact of dual-parent psychopathology on
anxious/depressed disorder is multiplicative. However, these results do not tell us if this same pattern holds for families with different parental relationships within intact and non-intact families. That is, they do not tell us whether, among coresident parents, it matters whether father mothers and fathers are married or cohabiting or, among non-resident parents, it matters whether fathers have regular contact with their children (i.e., involved-father families versus non-involved father families). Tables 4 and 5 present results for resident father and non-resident father families, respectively.

[Insert Tables 4 and 5 about here.]

None of the interactions between parents’ mental health status and parents’ relationship status, in the case cohabiting, are significant and thus no differences between married and cohabiting families emerged in the impacts of ill mothers, ill fathers, and two ill parents (these variables are omitted from the models presented in Table 4). For both married and cohabiting families having an ill mother is associated with increased odds of experiencing anxious/depressed disorder (O.R.=1.70, p<0.05), ADHD (O.R.=2.08, p<0.01), and ODD (O.R.=2.31, p<0.01). Father’s illness is not significantly associated with child behavior problems. Again, only for anxious/depressed behavior is the multiplicative impact of mother’s and father’s illnesses significant (O.R.=2.27, p<0.10). Also, for this outcome we see that children in cohabiting families are significantly more likely to suffer a clinically diagnosed behavior problem than are children in married families (O.R.=1.99, p<0.01). Notice that only for ADHD does the negative impact of having an ill mother significantly exceed the impact of having an ill father, however, statistical tests indicated the difference for anxious/depressed disorder was significant at the 0.10 probability level. For ODD, although the odds ratio for
father’s illness is not statistically significant, it is positive, as expected, and does not differ in magnitude from the odds ratio for mother’s illness.

Table 5 presents results for non-resident father families. Again, because no significant differences emerged for involved-father and non-involved father families, interaction terms between parents’ illness status and parents’ relationship status are omitted. For all three behavior problems we see that mothers have a significant independent impact on the odds of experiencing diagnosable disorders among children (anxious depressed O.R.=2.15, p<0.01; ADHD O.R.=2.31, p<0.01; ODD O.R.=2.65, p<0.01). Like resident father families, father’s illness is not significantly associated with child behavior problems. Unlike resident father families, the interaction of mother’s and father’s illnesses is not significant for anxious/depressed disorder; we find no evidence of a multiplicative effect for dual-parent psychopathology, either exacerbating or buffering, in these families. These results are not surprising given that fathers in this sub-sample do not live with their children and have infrequent contact with them.

Despite no significant interactions with parents’ relationship status, we do find a significant main effect for having an involved father. For both ADHD and ODD, children who’s fathers have had contact with them in the past 30 days, but are not coresident, experience lower odds of child behavior problems at the clinical level (O.R.=.62, p<0.05 for both) than children who have had no contact and do not live with their fathers. Interestingly, for ADHD we see that the impact of an ill non-resident father is not statistically different from the impact of an ill mother, despite the fact that the main effect for father’s illness is not itself significant. Recall that the percent of children with diagnosable ADHD, as well as the percent not living with a father, is small and it is likely that these sample issues result in low power to detect significant effect. For anxious/depressed disorder and ODD the impact of a mentally ill mother is
statistically stronger than is the impact of having a mentally ill father. Results from the imputed sample revealed no substantive differences from the results derived from the sample using listwise deletion, and thus in the interest of space are not presented here (but are available upon request).

**Discussion**

Given recent evidence suggesting that assortative mating based on mental health is stronger in non-traditional families (DeKlyen et al., *forthcoming*) and a large existing literature indicating that exposure to two unhealthy parents is detrimental to child wellbeing, this paper sought to examine the association between parental concordance for mental disorders and child behavior problems across different family types, including both intact and non-intact families. Using the Fragile Families and Child Wellbeing Study, we examined the possible additive and multiplicative effects of having an ill mother, an ill father, or two unhealthy parents. This analysis also allowed us to investigate whether the impact parental psychopathology varies by the level of father involvement.

The results support the contention that more stable family structures (i.e., married and cohabiting parents) are healthier than more tenuous family structures, where fathers live apart from and spend less time with their children. The latter families have significantly larger percentages of dual-parent psychopathology than the former. When only one parent suffers from a mental illness, that parent is usually the mother. Because the distribution of mental illness is not uniform across relationship type, and because fathers in some family types spend less time with their children, we expected to find differences in the effects of parents’ mental health based on father’s residential status. Results revealed that when fathers reside with their children, multiplicative effects exist when both parents suffer from major depressive disorder or
generalized anxiety disorder but only for anxious/depressed disorder. For ADHD and ODD ill mothers exert a direct effect on child wellbeing, increasing the odds of a child experiencing these problem behaviors at the clinical level. In most cases, having an ill father resulted in similar increased odds however in no case was this effect significant. Overall, the results suggest that the effects of having two parents suffering from a mental illness is additive.

Because earlier models showed that father’s impact on child behavior problems was moderated by residential status, we also looked at whether there were differences in additive and multiplicative effects between married and cohabiting, and involved-father and non-involved-father families. In only one instance (i.e., for anxious/depressive disorder) did the interaction of two ill parents result in a significant odds ratio, suggesting that either the presence of a second ill parent exacerbated the negative effect of the other ill parent or that the presence of a healthy parent eliminated some or all of the negative effect of an ill partner. Consistent with our hypothesis, this multiplicative effect was limited to residential father family types. Yet no differences were found within the two residential father groups suggesting that the most significant aspect of parents’ relationships, and the impact of their joint mental health for children, is father’s residential status. Fathers are more likely to be protective, or exacerbating, if they live with their children.

In contrast, non-residential fathers had little effect on their children, either as buffers of ill mothers or as exacerbating agents. These results are consistent with work by Jaffee and colleagues (2003) who report that the more time father’s high on antisocial behavior spend with their children, the more the child’s own antisocial behavior increases. Even when maternal antisocial behavior is controlled, the relationship between father’s behavior and child wellbeing remains large and significant leading the authors to conclude that dual-parent psychopathology in
families where fathers are involved in family life puts children at greatest risk for developing behavior problems.

Our results are also consistent with previous research that finds that mothers’ mental health has a stronger effect on child outcomes than fathers’ health (Davies & Windle, 1997; Foley et al., 2001). This is especially true in families where fathers do not live with their children. The one exception to this finding involved a diagnosis of ADHD among involved-father and non-involved father families where the negative impact of ill fathers and ill mothers was not statistically significantly different. This result suggests that ADHD may have a genetic component that impacts children regardless of fathers’ residential status and indeed a number of twin studies corroborate this implication (Biederman & Faraone, 2005; Hudziak et al., 2005). This, of course, is not to deny that fathers have meaningful relationships with their children, or that this relationship has implications for overall wellbeing, both his and his child’s; however, mother-child relationships appear to have a stronger influence on child development.

Previous studies have almost exclusively focused on the independent impact of fathers’ mental health on children, finding that unhealthy fathers negatively impact child wellbeing (Phares & Compas, 1992; Ramchandani et al., 2005), while only implicitly suggesting that healthy fathers can buffer any negative effects associated with unhealthy mothers. One study that did directly test for the presence of buffering effects suggested that healthy fathers safeguard against negative effects associated with unhealthy mothers (Kahn, Brandt, & Whitaker, 2004). We found little evidence of direct effects associated with fathers and only limited evidence of buffering (or exacerbating) effects by either parent. One possible cause for our discrepant findings is the nature of our sample. Kahn, Brandt, & Whitaker (2004) used a much larger age range of children (three to 12), all of whom lived with both parents. In addition, theses
researchers did not use a diagnostic measure of parental mental health problems in their analyses. The families in the Fragile Families and Child Wellbeing Study are significantly more diverse, both racially and in terms of socioeconomic status, than previous samples used to investigate the association between paternal mental health and child wellbeing. Women head the vast majority of African American households with children, contributing to both their poverty status and lack of a paternal buffer (Jackson, 1999; McLanahan, 1997). Further, a number of studies report that poor, minority mothers are likely to suffer from depression (Hall, Williams, & Greenberg, 1985; Hopkins, Marcus, & Campbell 1984). The diversity in this sample allowed us to examine the effects of healthy and unhealthy fathers across different parent relationship statuses, but may be responsible for findings that are somewhat inconsistent with existing literature. However, this inconsistency should alert researchers to the importance of studying the impact of fathers on children across a wide range of social groups.

We also note that the children in FFCWS are quite young, and despite few buffering and exacerbating effects at this early age, it is possible that at as these children mature into adolescence and adulthood they will experience cumulative benefits from long-term exposure to a healthy parent or, alternatively, cumulative negative consequences from long-term exposure to two ill parents. A number of studies indicate that young children from families where mothers, fathers, or both suffer from mental health problems are themselves more likely to experience mental health problems later in life (Beardslee et al., 1998; Merikangas et al., 1988; Mowbray et al., 2004), although few have followed these children beyond early adulthood. And Goodman and colleagues (1993) suggest that father’s buffering impact accrues as children age and increase their exposure to him. As these children age, the repercussions of childhood exposure to both
healthy and unhealthy parents is likely to more prominently manifest itself in a number of areas of wellbeing, including school performance and educational achievement.

Limitations

Although we do find that parental psychopathology is detrimental for child wellbeing, especially mental illness in mothers, our results may have been even more compelling had we used other mental health measures. We use a diagnostic measure to detect depression and anxiety in parents. Many parents may manifest characteristics of these disorders but not meet the clinical threshold for diagnosis. Undoubtedly, these parents are ill and their health status has an impact on child wellbeing. If true, then we have underestimated the impact of parent mental health on child behavior problems. However, we note that the prevalence rates of both MDD and GAD for men and women in the FFCWS are somewhat higher than those reported by Wang, Berglund, and Kessler (2000) using the same CIDI measures and a nationally representative survey (the Midlife Development in the United States Study, MIDUS) conducted just prior to the beginning of the Fragile Families survey. Because rates of mental illness are negatively associated with socioeconomic status and age, this discrepancy may be attributable to the lower statuses and younger ages of families in FFCWS as compared to MIDUS.

Unfortunately the results presented here, like many studies using maternal ratings of child behavior, may also be affected by shared method variance. If so, then we have potentially inflated the negative impact of maternal mental health on child behavior problems. Some studies indicate mothers’ own psychological problems may negatively influence ratings of her child’s behavior (Chi & Hinshaw, 2002; Najman et al., 2000), while others suggest the amount of bias depends on the nature of the mother’s illness as well as the child behavior in question (Briggs-Gowan, Carter, & Schwab-Stone, 1996; Kroes, Veerman, & De Bruyn, 2003), and yet others
have called into question the very idea of biased maternal reporting (Baumann et al., 2004; Boyle & Pickles, 1997; Richters, 1992). Unhealthy mothers in our sample do report significantly higher symptomatology in their children than do healthy mothers, but when we examined interviewer ratings of child cooperativeness during the In-Home portion of the FFCWS we found that children whom interviewers rated as being in the bottom quartile of cooperativeness (i.e., the least cooperative) were also rated by mothers as having significantly higher scores on each of the three behavior subscales (results not reported). Although not a perfect test, these findings do suggest that mothers’ appraisals of child behavior problems are somewhat accurate. Future work should use investigate the relationship between parental psychopathology and child development using teacher, caretaker, or self-ratings of child behavior problems.

Another avenue of fruitful research is the effect of parent mental health, and especially exposure to unhealthy parents, over time. Data constraints limited our measure of mental health, time spent with unhealthy fathers, and parents’ relationship status to the year prior to measurement of the child outcomes. With newer statistical modeling techniques such as latent growth curve trajectory analysis it is possible to look at how early exposure to unhealthy parents affects child, adolescent, young adult, and adult wellbeing. Further, these models would also be able to capture changes in exposure to unhealthy parents and possible exposure to other buffers, such as extended family, parents’ new partners, and mentors, and examine how they may alter trajectories of healthy development.

**Conclusion**

Assortative mating suggests that “like attracts like,” regardless of whether or not the homogamous trait in question is beneficial or detrimental for wellbeing. This premise can have serious implications for children when parents suffer from a mental illness. Consistent with
existing literature, this study found that maternal psychopathology has an independent, negative effect on child wellbeing. Also consistent with existing literature, we found that the presence of two unhealthy parents is associated with lower levels of child wellbeing, but primarily among families where fathers are coresident. Fathers who spend less time with their children are not only unlikely to have exacerbating effects on child wellbeing, they also are ineffective buffers of maternal illness. Given the large percentage of children in families where parents are not married, research should continue to examine how differential exposure to unhealthy parents, with various forms and levels of severity of mental illness, affects child development.
References


Organization Composite International Diagnostic Interview Short-Form (CIDI-SF).


Najman, J.M., Williams, G.M., Nickles, J., Spence, S., Bor, W., O’Callaghan, M., LeBroque, R.,


Wheaton, B. (1983). Stress, personal coping resources, and psychiatric symptoms: An

Table 1. Descriptive Statistics (means or percentages).

<table>
<thead>
<tr>
<th></th>
<th>Analytic Sample</th>
<th>Anxious/Depressed, ODD Sample</th>
<th>ADHD Sample</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Mental Health</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Mother</em>: Depression</td>
<td>20.05</td>
<td>21.56</td>
<td>20.74</td>
</tr>
<tr>
<td>Anxiety</td>
<td>4.35</td>
<td>4.77</td>
<td>4.19</td>
</tr>
<tr>
<td><em>Father</em>: Depression</td>
<td>14.23</td>
<td>13.55</td>
<td>12.88</td>
</tr>
<tr>
<td>Anxiety</td>
<td>3.01</td>
<td>3.17</td>
<td>2.79</td>
</tr>
<tr>
<td><strong>Disorder Type</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Neither Parent Ill</td>
<td>68.76</td>
<td>67.98</td>
<td>69.32</td>
</tr>
<tr>
<td>Both Parents Ill</td>
<td>4.83</td>
<td>4.89</td>
<td>4.40</td>
</tr>
<tr>
<td>Mother Ill</td>
<td>21.01</td>
<td>22.57</td>
<td>21.52</td>
</tr>
<tr>
<td>Father Ill</td>
<td>15.06</td>
<td>14.35</td>
<td>13.55</td>
</tr>
<tr>
<td><strong>Relationship Type</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Married</td>
<td>38.79</td>
<td>38.23</td>
<td>38.13</td>
</tr>
<tr>
<td>Cohabiting</td>
<td>25.90</td>
<td>25.85</td>
<td>26.28</td>
</tr>
<tr>
<td>Involved–father</td>
<td>24.02</td>
<td>24.45</td>
<td>24.73</td>
</tr>
<tr>
<td>Non-involved-father</td>
<td>11.29</td>
<td>10.98</td>
<td>10.40</td>
</tr>
<tr>
<td><strong>Child Behavior Problems</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ADHD (clinical diagnosis)</td>
<td>13.80</td>
<td>13.63</td>
<td>11.80</td>
</tr>
<tr>
<td>ODD (clinical diagnosis)</td>
<td>10.11</td>
<td>9.94</td>
<td>9.62</td>
</tr>
<tr>
<td>Anxious (clinical diagnosis)</td>
<td>8.65</td>
<td>8.62</td>
<td>7.87</td>
</tr>
<tr>
<td><strong>Controls</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Mother</em>: Age (14 – 46)</td>
<td>25.53</td>
<td>25.39</td>
<td>25.38</td>
</tr>
<tr>
<td>Black</td>
<td>45.83</td>
<td>46.25</td>
<td>46.77</td>
</tr>
<tr>
<td>White</td>
<td>24.18</td>
<td>24.37</td>
<td>25.76</td>
</tr>
<tr>
<td>Hispanic</td>
<td>25.55</td>
<td>25.09</td>
<td>23.33</td>
</tr>
<tr>
<td>Other</td>
<td>4.19</td>
<td>3.97</td>
<td>3.83</td>
</tr>
<tr>
<td>Education (1-4)</td>
<td>2.20</td>
<td>2.20</td>
<td>2.24</td>
</tr>
<tr>
<td>Immigrant Status</td>
<td>15.25</td>
<td>14.07</td>
<td>12.08</td>
</tr>
<tr>
<td>Prenatal Smoking</td>
<td>18.68</td>
<td>18.56</td>
<td>19.17</td>
</tr>
<tr>
<td><strong>Father</strong>: Age (15 – 67)</td>
<td>28.06</td>
<td>27.87</td>
<td>27.77</td>
</tr>
<tr>
<td>Race Different from Mother</td>
<td>23.23</td>
<td>22.40</td>
<td>14.59</td>
</tr>
<tr>
<td>Education (1-4)</td>
<td>2.18</td>
<td>2.17</td>
<td>2.18</td>
</tr>
<tr>
<td>Coresident</td>
<td>64.46</td>
<td>63.85</td>
<td>64.20</td>
</tr>
<tr>
<td><strong>Child</strong>: Male</td>
<td>52.13</td>
<td>52.55</td>
<td>52.72</td>
</tr>
<tr>
<td>Low Birth Weight</td>
<td>9.18</td>
<td>9.02</td>
<td>9.42</td>
</tr>
<tr>
<td>Temperament (5 - 30)</td>
<td>20.51</td>
<td>20.46</td>
<td>20.64</td>
</tr>
<tr>
<td>N</td>
<td>3,127</td>
<td>2,495</td>
<td>1,933</td>
</tr>
</tbody>
</table>

Note: Observed range is indicated in parenthesis if variable is not a dichotomous indicator or percentage. The analytic sample is used for the contingency table depicting the percentages of families falling into each combination of relationship and disorder types. The child behavior sample is used in subsequent regression analyses for each of the child wellbeing models. Because sample size differed only for ADHD behaviors this sample received its own column.
Table 2. Percent of families by relationship status and disorder status.

<table>
<thead>
<tr>
<th>Disorder Status</th>
<th>Relationship Status</th>
<th>Married</th>
<th>Cohabitating</th>
<th>Involved Father</th>
<th>Non-Involved Father</th>
</tr>
</thead>
<tbody>
<tr>
<td>Both Ill</td>
<td></td>
<td>3.46</td>
<td>4.81</td>
<td>5.33</td>
<td>8.50&lt;sup&gt;ab&lt;/sup&gt;</td>
</tr>
<tr>
<td>Neither Ill</td>
<td></td>
<td>75.43</td>
<td>73.83</td>
<td>59.79&lt;sup&gt;ab&lt;/sup&gt;</td>
<td>53.26&lt;sup&gt;ab&lt;/sup&gt;</td>
</tr>
<tr>
<td>Mother Ill</td>
<td></td>
<td>16.41</td>
<td>18.52</td>
<td>27.03&lt;sup&gt;ab&lt;/sup&gt;</td>
<td>29.75&lt;sup&gt;ab&lt;/sup&gt;</td>
</tr>
<tr>
<td>Father Ill</td>
<td></td>
<td>11.62</td>
<td>12.47</td>
<td>18.51&lt;sup&gt;ab&lt;/sup&gt;</td>
<td>25.50&lt;sup&gt;abc&lt;/sup&gt;</td>
</tr>
<tr>
<td>N</td>
<td></td>
<td>1,213</td>
<td>810</td>
<td>751</td>
<td>353</td>
</tr>
</tbody>
</table>

Notes: Overall N=3,127.

<sup>a</sup> Different than married at p < 0.05.

<sup>b</sup> Different than cohabitating at p < 0.05.

<sup>c</sup> Different than involved at p < 0.05.
Table 3. Logistic Regression of Parental Mental Illness and Family Living Arrangements on Child Behavior Problems at Age Three.

<table>
<thead>
<tr>
<th></th>
<th>Anxious/Depressed β (SE β) eβ</th>
<th>ADHD β (SE β) eβ</th>
<th>ODD β (SE β) eβ</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mother Ill</td>
<td>.75 (.22)*** 2.11</td>
<td>.77 (.19)*** 2.16</td>
<td>.92 (.17)*** 2.52</td>
</tr>
<tr>
<td>Father Ill</td>
<td>-.03 (.32)a .97</td>
<td>.21 (.26)a 1.24</td>
<td>.16 (.27)a 1.17</td>
</tr>
<tr>
<td>Mother*Father Ill</td>
<td>-.53 (.52) .59</td>
<td>-.08 (.42) .92</td>
<td>.32 (.38) 1.37</td>
</tr>
<tr>
<td>Father Coresident</td>
<td>-.10 (.17) .90</td>
<td>-.20 (.17) .82</td>
<td>-.09 (.16) .92</td>
</tr>
<tr>
<td>Interactions</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mother*Coresident</td>
<td>-.31 (.30) .74</td>
<td>ns</td>
<td>ns</td>
</tr>
<tr>
<td>Father*Coresident</td>
<td>-.12 (.46) .88</td>
<td>ns</td>
<td>ns</td>
</tr>
<tr>
<td>Both*Coresident</td>
<td>1.46 (.70)** 4.31</td>
<td>ns</td>
<td>ns</td>
</tr>
<tr>
<td>Constant</td>
<td>-.00 (.39) -</td>
<td>-1.35 (.46)***</td>
<td>-1.51 (.40)***</td>
</tr>
<tr>
<td>N</td>
<td>2,493</td>
<td>1,933</td>
<td>2,495</td>
</tr>
<tr>
<td>χ²</td>
<td>214.57***</td>
<td>66.48***</td>
<td>96.18***</td>
</tr>
<tr>
<td>Pseudo-R²</td>
<td>.11</td>
<td>.06</td>
<td>.06</td>
</tr>
</tbody>
</table>

Note: Anxious/depressed models control for child gender and mother’s education, race, immigrant status, and temperament ratings at one-year. ADHD models control for child’s gender and low birth weight status; mother’s race and temperament ratings at one-year; and father’s education and race. ODD models control for child’s gender and mother’s race and temperament ratings at one-year. eβ = exponentiated β (odds ratio). ns Indicates parental illness status interactions with father’s residential status are not significant and not included in the model shown.
a Significantly different from Mother Ill at p < 0.05.
* p < 0.10 ** p < 0.05 *** p < 0.01
Table 4. Logistic Regression of Parental Mental Illness and Parents’ Relationship Status (Married and Cohabitating) on Child Behavior Problems at Age Three.

<table>
<thead>
<tr>
<th></th>
<th>Internalizing</th>
<th></th>
<th>Externalizing</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Anxious/Depressed</td>
<td></td>
<td>ADHD</td>
<td></td>
</tr>
<tr>
<td></td>
<td>( \beta ) (SE ( \beta ))</td>
<td>( e^\beta )</td>
<td>( \beta ) (SE ( \beta ))</td>
<td>( e^\beta )</td>
</tr>
<tr>
<td>Mother Ill</td>
<td>.53 (.21)**</td>
<td>1.70</td>
<td>.73 (.27)**</td>
<td>2.08</td>
</tr>
<tr>
<td>Father Ill</td>
<td>-.07 (.33)</td>
<td>.93</td>
<td>-.18 (.41)*a</td>
<td>.83</td>
</tr>
<tr>
<td>Mother*Father Ill</td>
<td>.82 (.48)*</td>
<td>2.27</td>
<td>.46 (.63)</td>
<td>1.59</td>
</tr>
<tr>
<td>Cohabitating</td>
<td>.69 (.17)**a</td>
<td>1.99</td>
<td>.06 (.25)</td>
<td>1.06</td>
</tr>
<tr>
<td>Constant</td>
<td>-1.25 (.47)**</td>
<td>-</td>
<td>-2.04 (.64)**</td>
<td>-</td>
</tr>
<tr>
<td>N</td>
<td>1,597</td>
<td></td>
<td>1,245</td>
<td></td>
</tr>
<tr>
<td>( \chi^2 )</td>
<td>130.41***</td>
<td></td>
<td>36.74***</td>
<td></td>
</tr>
<tr>
<td>Pseudo-R(^2)</td>
<td>.13</td>
<td></td>
<td>.05</td>
<td></td>
</tr>
</tbody>
</table>

Note: Anxious/depressed models control for child gender and mother’s education, race, immigrant status, and temperament ratings at one-year. ADHD models control for child’s gender and low birth weight status; mother’s race and temperament ratings at one-year; and father’s education and race. ODD models control for child’s gender and mother’s race and temperament ratings at one-year. \( e^\beta \) = exponentiated \( \beta \) (odds ratio). Sample includes only children from married or cohabiting families.

a Significantly different from Mother Ill at \( p < 0.05 \).
* \( p < 0.10 \)  ** \( p < 0.05 \)  *** \( p < 0.01 \)
Table 5. Logistic Regression of Parental Mental Illness and Parents’ Relationship Status (Involved Father and Non-Involved-Father) on Child Behavior Problems at Age Three.

<table>
<thead>
<tr>
<th></th>
<th>Internalizing</th>
<th></th>
<th>Externalizing</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Anxious/Depressed</td>
<td>ADHD</td>
<td>ODD</td>
<td></td>
</tr>
<tr>
<td></td>
<td>β (SE β)</td>
<td>e^β</td>
<td>β (SE β)</td>
<td>e^β</td>
</tr>
<tr>
<td>Mother Ill</td>
<td>.76 (.21)***</td>
<td>2.15</td>
<td>.83 (.27)***</td>
<td>2.31</td>
</tr>
<tr>
<td>Father Ill</td>
<td>-.03 (.32)^a</td>
<td>.97</td>
<td>.55 (.37)</td>
<td>1.72</td>
</tr>
<tr>
<td>Mother*Father Ill</td>
<td>-.60 (.53)</td>
<td>.55</td>
<td>-.71 (.59)</td>
<td>.49</td>
</tr>
<tr>
<td>Involved Father</td>
<td>-.12 (.20)</td>
<td>.88</td>
<td>-.48 (.25)**</td>
<td>.62</td>
</tr>
<tr>
<td>Constant</td>
<td>-.68 (.55)</td>
<td>-</td>
<td>-.39 (.71)</td>
<td>-</td>
</tr>
</tbody>
</table>

N 883 679 884

χ^2 47.06*** 33.13*** 42.11***
Pseudo-R^2 .06 .07 .07

Note: Anxious/depressed models control for child gender and mother’s education, race, immigrant status, and temperament ratings at one-year. ADHD models control for child’s gender and low birth weight status; mother’s race and temperament ratings at one-year; and father’s education and race. ODD models control for child’s gender and mother’s race and temperament ratings at one-year. e^β = exponentiated β (odds ratio). Sample includes only children from non-resident involved father and non-resident, non-involved-father families.

^a Significantly different from Mother Ill at p < 0.05.
* p < 0.10  ** p < 0.05  *** p < 0.01