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Comparing the characteristics and outcomes of Parent- and Teacher-Reported Oppositional Defiant Disorder: Findings from a national sample

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**Abstract**

**Background:** Parents and teachers often disagree on the presence of Oppositional Defiant Disorder (ODD) in children. It has been argued that ODD should be treated as an informant-specific disorder. This study compared the characteristics of children identified with ODD by parent- and teacher-report. **Methods:** We used the 1999 British Child and Adolescent Mental Health Survey, including more than 10000 observations aged 5-15 years, to investigate symptom profiles, risk factors, comorbidities and three-year outcomes of parent- and teacher-reported ODD. **Results:** Parents and teachers poorly agreed on ODD diagnosis. Parent-reported ODD was more strongly associated with a concurrent anxiety disorder at time1 and a successive diagnosis of ODD at time2. Beyond these differences, parent- and teacher- reported ODD showed similar symptom profiles, risk factors, comorbidities, and outcomes. **Conclusions:** Children identified by parent-report and teacher-report share more similarities than differences in the characteristics of their disorder. This does not support the formation of informant-specific ODD disorders. **Keywords:** Oppositional defiant disorder; nosology; diagnosis

Oppositional Defiant Disorder (ODD) is characterised by defiance, disobedience, and hostile behaviour towards authority figures (American Psychiatric Association, 2013). While the symptom definitions may intuitively be interpreted as normal childhood behaviours, a range of evidence indicates that when presenting at clinical levels they represent serious psychopathology. This includes high rates of concurrent psychiatric comorbidity (Maughan, Rowe, Messer, Goodman, & Meltzer, 2004), substantial child psychosocial impairment and parental burden (Rowe, Maughan, Costello, & Angold, 2005), and poor mental health outcomes (Copeland, Shanahan, Costello, & Angold, 2009; Rowe, Costello, Angold, Copeland, & Maughan, 2010a) and psychosocial functioning (Burke, Rowe, & Boylan, 2014b) in adulthood.

 One explanation for the breadth of negative outcomes for children with ODD is that ODD is heterogeneous, containing sub-dimensions of symptomatology with dissociable prognoses. Irritability symptoms (temper tantrums, touchiness, and anger) have been distinguished from headstrongness symptoms (disobedience, arguments with adults, blaming others and spitefulness/vindictiveness; Burke et al., 2014a; Stringaris, Zavos, Leibenluft, Maughan, & Eley, 2012). Irritability has been associated with internalising outcomes (Evans et al., 2017; Vidal-Ribas, Brotman, Valdivieso, Leibenluft, & Stringaris, 2016) whereas headstrongness has been associated with ADHD, Conduct Disorder, and substance abuse (Stringaris & Goodman, 2009; Rowe et al., 2010a).

 Another potential element in ODD heterogeneity arises from the rater of the child’s psychopathology. Poor inter-rater agreement across all forms of child psychopathology, including social, emotional and behavioural problems has been identified as amongst the “most robust findings in clinical child research”, persisting across age, gender, and cultures (De Los Reyes & Kazdin, 2005, p. 487; D Los Reyes et al., 2015; Achenbach, McConaughy, & Howell, 1987). Exemplifying this general pattern, parent and teacher agreement on the presence of ODD behaviours is uncommon in pre-school and school-age children (Lavigne, Dahl, Gouze, LeBailly, & Hopkins, 2015; Munkvold, Lundervold, Lie, & Manger, 2009; Strickland, Hopkins, & Keenan, 2012). A key question is whether ODD observed only at home or at school reflects a qualitatively different form of disorder, or whether ODD has similar characteristics in home and school contexts. For example, if risk factors differed between home and school contexts then this might indicate different prevention strategies are required, whereas if clinical prognosis differed between contexts this might indicate different intervention priorities.

Several measurement issues are relevant. The differing perspectives of parents and teachers offer varying strengths and weaknesses for assessing symptoms which may contribute to their clinical utility. For example, parents observe functioning across a broader range of situations than teachers. However, teachers’ interaction with a large number of children may provide a better reference against which to judge abnormal behaviour (Munkvold et al., 2009). This may be particularly pertinent for ODD, as behaviours are defined as symptomatic when they are displayed more frequently than seen in similar aged children (American Psychiatric Association, 2013). Furthermore, individual differences in rater characteristics may systematically influence their reports of child behaviour. For example, the depression-distortion hypothesis suggests that maternal depression promotes a negative bias in mothers’ perceptions of their children’s behavioural and emotional problems, with recent evidence indicating that this effect may be greater in questionnaires than in clinical interviews (Maoz et al., 2014).

Another measurement issue is whether parents and teachers interpret the ODD symptoms similarly so that the same attributes are measured from each perspective. Measurement invariance has been supported across maternal and paternal ratings of ODD behaviours (Burns et al., 2008). Measurement invariance across parent and teacher reports has been explored in pre-school children (Ezpeleta & Penelo, 2015). This study found a consistent factor structure in parent and teacher report in terms of loading pattern (configural invariance) and magnitude (metric invariance) in a three factor model. This implies that the factors identified by parents and teachers had the same meaning and, therefore, that their correlates could be meaningfully compared. The model did not demonstrate full scalar invariance, however. Parents were more likely to endorse 3 of the 8 ODD symptoms given the same latent trait level, meaning that comparing absolute symptom levels between parents and teachers would be problematic. Further work is required to assess measurement invariance across different measurement instruments and age groups.

 In addition to measurement issues, there is evidence that oppositional defiance may be qualitatively different dependent upon manifestation at home or school. For example, Strickland and colleagues (2012) found mother-teacher agreements on the oppositionality of young children were higher when parents were asked to rate the behaviour of their children within the school context. It has also been found that the disruptive behaviour of pre-schoolers when interacting with parents and with unfamiliar examiners in an experimental situation differentially predicts context specific reports of oppositionality (Petitclerc et al., 2015).

 Several studies have contrasted risk factors and outcomes of parent- and teacher-reported ODD symptoms. Teachers are more likely to identify general psychopathology in boys than girls (Collishaw, Goodman, Ford, Rabe-Hesketh, & Pickles, 2009). Our previous work using the British Child and Adolescent Mental Health Survey (BCAMHS; Maughan et al., 2004) found the prevalence of parent-reported ODD was similar in boys and girls. In contrast, teachers identified ODD more commonly in boys than girls. Consistent results have been reported elsewhere (Munkvold et al., 2009; Offord et al., 1996). One possibility is that teachers only notice ODD in the presence of another disorder with a male preponderance, such as ADHD.

 While children for whom ODD is identified by parent or teacher are at elevated risk for other forms of psychopathology as rated by independent informers (Munkvold et al., 2009), many studies provide evidence that parent- and teacher-reported ODD displays qualitative differences in other correlates (Drabick, Gadow, Carlson, & Bromet, 2004; Offord et al., 1996). For example, Offord and colleagues (1996) found ODD was associated with parental depression and family dysfunction when diagnosed on the basis of parent- but not teacher-report. Teacher-reported ODD was associated with single parent family status whereas parent-reported ODD was not. Other work has shown that teacher-reported ODD symptoms in a sample of inner city 6-8 year olds independently predicted parent-reported CD and depression diagnoses 11 months later (Drabick et al., 2011). Similar contrasts between the correlates of parent- and teacher-reported internalising and externalising psychopathology have been reported elsewhere (Collishaw et al., 2009).

 In the present study, we examined whether there were qualitative differences between ODD assessed by different informants. We compared the characteristics of parent- and teacher-reported ODD in the 1999 BCAMHS (Meltzer, Gatward, Goodman, & Ford, 2000), which measures psychiatric disorder using the multi-informant Development and Wellbeing Assessment (DAWBA; Goodman, Ford, Richards, Gatward, & Meltzer, 2000). We examined the overlap of parent- and teacher-reported ODD, expecting to find limited agreement based on previous studies. Next, we compared the symptom profile of parent and teacher ODD, predicting that teacher diagnosis might rely more heavily on the headstrong ODD behaviours that may be more disruptive to classroom situations than irritability symptoms. We also compared cross-sectional associations with well-documented risk factors for psychopathology. We predicted that teacher-reported ODD may be more strongly associated with externalising disorders and risk factors that are more overt in a classroom setting, such as reading difficulties. In contrast, we expected that parent-reported ODD may be more strongly related to family functioning and maternal low mood. Finally, we examined the psychiatric outcomes of parent- and teacher-reported ODD at three-year follow-up.

**Method**

**Population**

 The BCAMHS was carried out by the Office for National Statistics for the British Department of Health in 1999 on a representative group of children aged 5-15 years from England, Scotland, and Wales. The survey design is described extensively in Ford, Goodman, and Meltzer (2003). In short, the Child Benefit Register was used to develop a sampling frame targeting 12529 children from which 10438 (83%; 5212 boys and 5226 girls) participated in the study.

 The design of the 36-month follow-up is described in Meltzer, Gatward, Corbin, Goodman, and Ford (2003). All children with a disorder at *t*1 and a random third of children without a disorder at *t*1 were targeted; however, children without disorder who had not responded to an 18-month postal follow-up were not contacted. Of 3245 selected for the follow-up, 307 (9%) were ineligible. Eighty-eight per cent of eligible participants provided follow-up data. The response rate was higher from those without a *t*1 disorder (90%) than those with a *t*1 disorder (81%). Longitudinal analyses were adjusted using a sampling weight that accounted for the over-sampling of disordered children at *t*1 and for non-participation at *t*2 associated with age, sex, and *t*1 symptom score (Meltzer et al., 2003).

**Measures**

 The DAWBA (www.dawba.com; Goodman et al., 2000) was used to assess psychiatric disorder at both contacts. Structured data on symptoms and psychosocial impairments were probed through computer-assisted assessment; and interviewers recorded verbatim accounts of symptomatic behaviours in response to open-ended questions. When making multi-informant diagnoses, preliminary codings were formed from a computer algorithm based on symptom and impairment data. Experienced clinicians then reviewed the computer-generated case summaries and either accepted or amended the computer-generated diagnoses. Ford and colleagues (2003) report that the chance-corrected agreement between two clinicians was .86 (SE .04) for the presence of any psychiatric disorder.

 Informant-specific reports of ODD were generated from nine DAWBA items that addressed DSM-IVODD symptoms. One item probed each of the first seven symptoms; however, two items probed spiteful and vindictive behaviour. These items were combined with an or-rule to form a single symptom. Responses were coded on a three-point scale: ‘*no more than others*’, ‘*a little more than others*’, and ‘*a lot more than others*’. Consistent with DSM*-*IV criteria and standard DAWBA algorithms, we formed binary variables to index the absence of behaviour (‘*no more than others*’ and ‘*a little more than others*’) and the presence of behaviour (‘*a lot more than others*’).

Informant-specific diagnoses were endorsed when parent or teacher ODD behaviour counts crossed the diagnostic threshold of four symptoms and where structured information from the interview regarding duration, age of onset, and psychosocial impairment met DSM-IV criteria. There was no clinical review of the generated informant-specific reports. We formed a variable that categorised children as having no ODD, parent-reported ODD only, teacher-reported ODD only, or ODD reported by both parent and teacher.

 Data on demographics and a range of psychosocial risk factors were collected in the parent interview (Meltzer et al., 2000). Neighbourhood socioeconomic characteristics were assessed using the ACORN [A Classification of Residential Neighbourhoods] scheme (see Meltzer et al., 2000). We formed a binary variable identifying approximately 25% of children as living in a ‘striving’ neighbourhood (the most disadvantaged of the broad ACORN categorisations). Ethnic origin was coded as a binary variable to indicate majority (White, 91%) or minority status (Black, Indian, Pakistani, or other, 9%). Family structure was coded as a binary variable to indicate traditional (66%) or non-traditional structure (single parent, 22%; step-parent, 11%). Binary variables also indicated large family (four or more children, 11%), low income (household income less than £200 per week, 24%), and low social class (highest family occupation partly skilled or unskilled or parents have never worked, 22%). Family functioning was assessed using the McMaster Family Assessment Device (Epstein, Baldwin, & Bishop, 1983). We formed a binary variable indexing the unhealthiest functioning 19% of families. A binary variable identified parents who used harsh physical discipline in terms of striking with instruments (2%).

 Symptoms of anxiety and depression in the reporting parent were assessed using the 12-item General Health Questionnaire (Goldberg and Williams, 1988). A binary variable identified the most 25% most pathological scores, a threshold corresponding to endorsing three items. Parental educational level was coded with a binary variable identifying those who had not passed any public examinations usually taken on leaving school at age 16 (26%). A binary variable also indexed teenage parenthood (6%).

The British Picture Vocabulary Scale (Dunn, Dunn, Whetton, & Burley, 1997) was used to assess global cognitive ability; and reading ability was assessed with the Word Reading Scale of the British Ability Scale (Elliot, Smith, & McCulloch, 1996). Binary variables indexed children who performed in the lowest quartile on each measure.

**Missing Teacher Data**

 Teacher data was only available for 8382 children (80%) at *t*1. Missing teacher data was related to numerous variables, including: low family income, ethnic minority descent, and parent report of anti-social behaviour disorders (Maughan et al., 2004). All cases with missing teacher data were excluded from analyses to allow comparison between informants.

**Statistical Analysis**

STATA10 (StataCorp, 2007) was used for all analyses. Cohen’s Kappa, κ assessed chance-corrected agreement between parents and teachers at *t*1. Two sample proportion analyses compared the frequency of symptom endorsement between children diagnosed by parent and child report at *t*1. Multinomial logistic regression models predicted informant-specific reports at *t*1 given a range of psychosocial risk factors. Logistic regression was used to predict the presence of concurrent psychiatric disorders at *t*1 from informant-specific reports. Adjustments for weighting, stratification, and clustering were unnecessary to test *t*1 associations, as previous work have shown that design effects are slight in such analyses (Ford et al., 2003).

Logistic regression used informant specific ODD variables at *t*1 to predict the presence of standard DAWBA psychiatric disorders based on multi-informant data at *t*2. Age, sex and the outcome disorder measured at *t*1 were included as covariates (with the exception of ODD at *t*1). In longitudinal analyses, we adjusted descriptive and inferential statistics using the sampling weight described above.

**Ethical Considerations**

 Ethical approval for the BCAMHS was granted from the appropriate multicentre research ethics committee in Great Britain. Informed consent was obtained from children and parents. Parental consent was required before teachers were contacted to provide data.

**Results**

**Cross-Informant Agreement**

 Diagnostic level agreement between parent and teacher at *t*1 was low (κ = .07, SE = .01, *p* < .001). In total, 271 children were diagnosed by parent or teacher report. From these, 143 (52.8%) received a diagnosis from parent only, 118 (43.5%) from teacher only, and 10 (3.7%) were diagnosed by both informants. Those diagnosed by both were not particularly severe cases in terms of symptom count; they had on average 5.3 symptoms (*SD* = 1.34) by parent report compared to 5.6 parent-reported symptoms (*SD* = 1.31) in those diagnosed by parent report only. For teacher-reported symptoms, they had 5.2 symptoms on average (*SD* = 1.31), the same as reported for children diagnosed by teacher only (*SD =* 1.25). Participants diagnosed by both parent and teacher were omitted from subsequent analyses as the sample size was too small to allow meaningful comparisons. In children diagnosed by one reporter, symptoms reported by the other reporter were also elevated. For example, children with parent-reported ODD had significantly more teacher-reported ODD symptoms (*M* = 0.96, *SD* = 0.17) than children without parent-reported ODD (*M* = 0.14, *SD* = 0.72, *t*(8221)=-11.70, *p* < .001). Twenty-two percent of children diagnosed by the parent had two or more symptoms by teacher-report, while 78% had one symptom or fewer.

 Figure 1 displays the prevalence of ODD items in children diagnosed with an informant-specific diagnosis of ODD at *t*1. Two-sample proportion comparisons revealed that children with parent-reported ODD had higher levels of ‘loses temper’, ‘argues with adults’, and ‘defies adults’ than children with teacher-reported ODD. Teacher-reported ODD involved higher levels of ‘blames others’ than parent-reported ODD. There was no difference between children diagnosed by parent and teacher report in terms of ‘annoys others’, ‘easily annoyed’, ‘often resentful’, and ‘spiteful/vindictive’ symptoms.

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Figure 1. Symptom frequencies in children diagnosed with Oppositional Defiant Disorder by parent and teacher report

**Informant-Specific Risk Factors**

Table 1 displays the relative risk of an informant-specific ODD diagnosis at *t*1 given a range of psychosocial risk factors. Older children and boys were significantly more likely to be diagnosed with ODD by teacher rather than parent. All subsequent analyses included age and sex as covariates. Many psychosocial risk factors were associated with both parent and teacher reports of ODD (e.g., low cognitive ability, poor reading ability, parents limited parental educational qualifications, non-traditional family structure, low income, and living in a striving neighbourhood) but did not differ between the different informant reports. Unhealthy family functioning and maternal depression were associated with ODD by both parent and teacher report, however the association was significantly stronger for parent-reported ODD.

**Informant-Specific Associations**

 **Concurrent comorbid disorders at *t*1.** Table 2 shows the associations of concurrent psychiatric disorders at *t*1 with informant-specific ODD reports. ODD was related to a wide range of psychiatric disorders (i.e., ADHD, depression, and anxiety disorders) when reported by either parent or teacher. Parent-reported ODD was more strongly related to anxiety disorders than teacher-reported ODD.

 **Successive comorbid disorders at *t*2­.** Table 3 shows the ORs of successive psychiatric disorders at *t*2 given informant-specific ODD at *t*1. Both parent and teacher reported ODD predicted future ADHD, CD, depression, and anxiety disorders, at similar levels of strength. However, parent-reported ODD at *t*1 predicted ODD at *t*2 significantly more strongly than teacher-reported ODD.

**Discussion**

We compared parent and teacher reports of ODD to inform discussion on whether ODD is best characterised as an informant-specific disorder (e.g., Drabick et al., 2011; Drabick, Gadow, & Loney, 2007; Offord et al., 1996). The potential utility of informant-specific disorders has been highlighted by evidence that parents and teachers often fail to agree on the presence of psychiatric disorder (Achenbach et al., 1987; De Los Reyes & Kazdin, 2005). Consistently, we found poor agreement between parents and teacher ODD diagnosis. Children identified by both parent and teacher only represented 4% of children meeting ODD criteria from either parent or teacher report. Therefore, most ODD cases (96%) were informant-specific. However, despite the lack of agreement between parent and teacher reporters, the characteristics of children identified as having ODD by either reporter demonstrated striking similarities.

The symptom profile of cases reported by parents and teachers was one area of similarity. There were no significant differences in endorsement of annoying others, easily annoyed, anger, and spitefulness symptoms in parent- and teacher-reported ODD cases. We hypothesised that headstrong symptoms may feature more prominently in teacher-reported ODD due to their classroom salience. However, teacher-reported ODD only featured the headstrong symptom ‘blames others’ more often than parent-reported ODD, and ‘blames others’ was also common in parent-reported ODD. We also found parent reports featured the headstrong symptoms ‘argues with adults’ and ‘defies adults’ more often than teacher reports, but again these behaviours were also common in teacher-reported ODD. Regarding the irritable symptoms, ‘loses temper’ was identified more often in parent-reported ODD than in teacher-reported ODD. Overall, we did not find substantial differences between the symptom profiles of ODD cases reported by parents and teachers.

We also found similarities in many of the risk factors associated with parent- and teacher-reported ODD. Factors such as economic disadvantage, non-traditional family structure, limited parental qualifications, and lower child intellectual functioning were similarly associated with parent- and teacher-reported ODD. Offord and colleagues (1996) found maternal depression and unhealthy family functioning were associated with parent, but not teacher, reports of ODD. This result contributed to their suggestion that ODD is best characterised as an informant-specific phenomenon. We found that although maternal depression and unhealthy family functioning were more strongly associated with parent-reported ODD, both risk factors also showed substantial associations with teacher-reported ODD. The stronger association between maternal depression and parent-reported ODD may reflect a component of depression distortion. The DAWBA involves questionnaire-like responses when initially identifying problem behaviours; therefore, the measure may be more vulnerable to distortion (Maoz et al., 2004).

As we showed previously (Maughan et al., 2004), boys and older children were more likely to be identified by teachers. Teachers may be less sensitive to oppositionality in girls and subsequently underestimate the prevalence of ODD in females. We did not, however, find support for our hypothesis that risk factors more overt in the classroom environment (e.g., poor reading ability) may be more strongly associated with teacher-reported ODD.

Similarly, we found substantial overlaps in the comorbid psychopathology experienced by children diagnosed by parent and teacher report. Both groups were at similarly elevated risk for ADHD, depressive, and anxiety disorders. This did not support our hypothesis that teacher-reported ODD would be more strongly associated with externalising disorders due to their classroom prominence. We did, however, find parent-reported ODD was more strongly linked to anxiety; and there was a similar, albeit non-significant trend for depressive disorders.

In terms of clinical outcome, the likelihood of anxiety, depressive and conduct disorders at *t*2 were all substantially increased in children with parent- or teacher-reported ODD. Only teacher-reported ODD predicted *t*2 ADHD. However, parent-reported ODD fell just short of significance, and the difference between parent and teacher reports in prediction of later ADHDwas non-significant. Parent reported ODD at *t*1 was a much stronger predictor of ODD at *t*2. In interpreting this result, it must be considered that the same parent is likely to contribute diagnostic information at *t*1 and *t*2, whereas the teacher informant is likely to have changed between baseline and follow-up. In this case, measurement error is likely to be correlated at *t*1 and *t*2 for parent-report but not teacher-; this could inflate the homotypic continuity in parent-reported ODD.

Our results must be interpreted in the context of several limitations. First, the informant-specific diagnostic variables we formed at *t*1 were based only on structural diagnostic information without clinical review, as employed in multi-informant DAWBA assessments. Second, when testing clinical outcomes, it would be ideal to use diagnostic variables at *t*2 that were based on entirely independent reporters from the diagnostic variables at *t*1. However, we were limited to using the multi-informant DSM-IV diagnostic variables collected by the DAWBA at *t*2. Third, BCAMHS offers a nationally representative sample which reflects the ethnic profile of the United Kingdom. Further research assessing informant-specific reports of ODD in other cultures will be valuable. Fourth, as we capitalised on the DAWBA’s strength in generating categorical diagnoses, further research focussing on dimensional measures of oppositionality will provide important complementary findings. Despite these limitations, our results confirm many findings in the literature (e.g., De Los Reyes & Kazdin, 2005; Maughan et al., 2004; Rowe et al., 2005; Stringaris & Goodman, 2009), which gives confidence that our new findings will be replicable.

**Conclusion**

We compared children diagnosed with ODD by parents and teachers to examine whether ODD is best characterised as an informant-specific phenomenon. We found parents and teachers often failed to agree on which children have ODD, indicating that few children meet diagnostic criteria in both home and school settings. However, despite different individuals being diagnosed by parent and teachers, the characteristics of the identified children showed striking similarities in terms of symptom profiles, risk factors, comorbidities, and psychiatric outcomes. It remains possible that other characteristics that were not measured here might indicate important differences between parent- and teacher-reported ODD. These might include, for example, genetic effects, neural correlates and treatment response. These are issues that will need to be addressed in future research, as will issues regarding the most appropriate method to combine information from different reporters (Martel, Markon & Smith, 2017). However, the measures that were available here have the potential to indicate important differences between subtypes of antisocial behaviour, as shown in our previous work (Rowe et al., 2010b). Comparison on these measures do not support the position that ODD should be specified as an informant-specific disorder. Instead our results indicate that the characteristics of ODD in the context of parent and sibling relationships (as predominantly observed by parents) are similar to the characteristics of ODD observed in the context of peers and educators (as observed by teachers).

**Key Points**

* Parents and teachers often disagree on the presence of ODD in children.
* Disagreement could reflect differences in the psychopathology of children identified with ODD by parent- and teacher-report.
* We found low levels of agreement between parent and teacher regarding the presence of ODD.
* Children identified by parents were more likely to have a concurrent anxiety disorder and pervasive ODD at 3-year follow-up.
* Symptom profiles, risk factors, comorbidities, and outcomes associated with parent- and teacher-reported ODD were similar.
* Similarities between parent- and teacher-reported ODD do not support characterising ODD as an informant-specific disorder.

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| Table 1 Informant-specific diagnoses of ODD at *t*1 predicted by risk factors. |
|  | Rate (%)1 |  | RRRs (and 95% CIs)2 |
| Risk Factor | No ODD(*n3* = 8109) | Parent reported ODD(*n*3 = 143) | Teacher reported ODD(*n3* = 118) |  | Parent ODD vs.No ODD | Teacher ODD vs.No ODD | Parent ODD vs.Teacher ODD |
|  |  |  |  |  |  |  |  |
| ***Child characteristics*** |  |  |  |  |  |  |  |
| Age | 9.7 | 10.0 | 10.8 |  | 1.0 (1.0-1.1) | **1.1\*\*\* (1.1-1.2)** | **0.9\* (0.8-1.0)** |
| Male | 49.0 | 57.3 | 82.2 |  | **1.4\* (1.0-2.0)** | **4.8\*\*\* (3.0-7.7)** | **0.3\*\*\* (0.2-0.5)** |
| Low cognitive ability | 23.2 | 41.3 | 50.9 |  | **2.3\*\*\* (1.6-3.4)** | **3.5\*\*\* (2.4-5.2)** | 0.7 (0.4-1.1) |
| Poor reading ability | 24.0 | 46.7 | 52.4 |  | **2.8\*\*\* (1.9-4.0)** | **3.4\*\*\* (2.3-5.1)** | 0.8 (0.5-1.4) |
|  |  |  |  |  |  |  |  |
| ***Parent characteristics*** |  |  |  |  |  |  |  |
| Limited qualifications  | 24.3 | 38.5 | 48.7 |  | **2.0\*\*\* (1.4-2.7)** | **2.9\*\*\* (2.0-4.2)** | 0.7 (0.4-1.1) |
| Teenage parent | 5.5 | 6.4 | 12.1 |  | 1.2 (0.6-2.4) | **2.5\*\* (1.4-4.4)** | 0.5 (0.2-1.2) |
| Maternal depression | 23.9 | 59.9 | 38.5 |  | **4.7\*\*\* (3.4-6.6)** | **1.9\*\* (1.3-2.8)** | **2.4\*\* (1.5-4.0)** |
|  |  |  |  |  |  |  |  |
| ***Family characteristics*** |  |  |  |  |  |  |  |
| Ethnic minority | 7.7 | 5.6 | 10.2 |  | 0.7 (0.3-1.5) | 1.4 (0.8-2.5) | 0.5 (0.2-1.3) |
| Nontraditional family | 31.5 | 57.3 | 55.6 |  | **2.9\*\*\* (2.1-4.1)** | **2.7\*\*\* (1.9-3.9)** | 1.1 (0.7-1.8) |
| Large family | 10.0 | 20.3 | 13.6 |  | **2.3\*\*\* (1.5-3.5)** | 1.5 (0.9-2.6) | 1.5 (0.8-3.0) |
| Unhealthy functioning  | 17.7 | 51.4 | 30.8 |  | **4.9\*\*\* (3.5-6.8)** | **1.9\*\* (1.3-2.9)** | **2.5\*\*\* (1.5-4.2)** |
| Harsh discipline | 1.4 | 3.5 | 3.4 |  | **2.5\* (1.0-6.3)** | 2.2 (0.8-6.1) | 1.1 (0.3-4.4) |
|  |  |  |  |  |  |  |  |
| ***Socioeconomic status*** |  |  |  |  |  |  |  |
| Striving neighborhood | 23.7 | 38.7 | 33.9 |  | **2.0\*\*\* (1.4-2.9)** | **1.7\*\* (1.1-2.5)** | 1.2 (0.7-2.0) |
| Low income | 21.9 | 40.7 | 41.6 |  | **2.5\*\*\* (1.8-3.5)** | **2.7\*\*\* (1.8-3.9)** | 0.9 (0.6-1.6) |
| Low social class | 20.8 | 35.2 | 28.7 |  | **2.1\*\*\* (1.5-3.0)** | **1.6\* (1.1-2.4)** | 1.3 (0.8-2.2) |
| *Note.* RRR: relative risk ratio; CI: confidence interval. Bold figures indicate statistically significant findings: \* *p* < .05; \*\* *p* < .01; \*\*\* *p* < .001.1All numbers correspond to percentages, with the exception of age given in mean number of years. 2Accounts for age and sex.  |

*3*Ns vary slightly for each risk factor due to occasional missing data.

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| **Table 2** Concurrent comorbid disorders predicted by informant-specific ODD diagnosis. |
|  | Rate (%) |  | OR (and 95% CIs)1 |
| Disorder | No ODD(*n* = 8109) | Parent reported ODD(*n* = 143) | Teacher reported ODD(*n* = 118) |  | Parent ODD vs.No ODD | Teacher ODD vs.No ODD | Parent ODD vs.Teacher ODD |
| ADHD | 1.7 | 23.8 | 24.6 |  | **17.8\*\*\* (11.5-27.4)** | **14.2\*\*\* (8.9-22.5)** | 1.3 (0.7-2.3) |
| Depression | 0.6 | 6.3 | 3.4 |  | **10.5\*\*\* (5.0-22.3)** | **4.2\*\* (1.5-12.2)** | 2.5 (0.7-8.6) |
| Anxiety | 3.2 | 19.6 | 8.5 |  | **7.4\*\*\* (4.8-11.5)** | **2.9\*\* (1.5-5.6)** | **2.6\* (1.2-5.6)** |

*Note.* ADHD: attention deficit/hyperactivity disorder; OR: odds ratio; CI; confidence interval. Bold figures indicate statistically significant findings: \* *p* < .05; \*\* *p* < .01; \*\*\* *p* < .001. 1 Accounts for age, sex, and concurrent comorbid disorder.

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|  | **Table 3** Successive comorbid disorders predicted by informant-specific ODD diagnosis. |
|  | Rate (%) |  |  | OR (and 95% CIs)1 |
| Disorder | No ODD(*n* = 1983) | Parent reported ODD(*n* = 85) | Teacher reported ODD(*n* = 72) |  | Parent ODD vs.No ODD | Teacher ODD vs.No ODD | Parent ODD vs.Teacher ODD |
| ADHD | 2.4 | 16.5 | 15.3 |  | 3.3 (1.0-10.7) | **4.7\* (1.3-16.5)** | 0.7 (0.1-3.3) |
| Depression | 2.1 | 8.2 | 6.9 |  | **4.1\*\* (1.6-10.9)** | **4.0\* (1.3-11.7)** | 1.1 (0.3-4.0) |
| Anxiety | 4.5 | 18.8 | 11.1 |  | **4.4\*\*\* (2.2-8.6)** | **3.5\*\* (1.5-8.1)** | 1.2 (0.4-3.5) |
| ODD | 2.5 | 27.1 | 8.3 |  | **19.2\*\*\* (10.7-34.2)** | **4.1\*\* (1.6-10.3)** | **5.5\*\* (1.9-15.7)** |
| CD | 2.7 | 12.9 | 16.7 |  | **2.9\* (1.2-6.9)** | **4.3\*\* (1.7-10.7)** | 0.7 (0.2-2.1) |
|  | *Note.* ADHD: attention deficit/hyperactivity disorder; ODD: Oppositional Defiant Disorder; CD: Conduct Disorder; OR: odds ratio; CI; confidence interval. Bold figures indicate statistically significant findings: \* *p* < .05; \*\* *p* < .01; \*\*\* *p* < .001. 1 Accounts for age, sex, and concurrent comorbid disorder. |