

# Defining oppositional defiant disorder

Richard Rowe,<sup>1</sup> Barbara Maughan,<sup>1</sup> E. Jane Costello,<sup>2</sup> and Adrian Angold<sup>2</sup>

<sup>1</sup>MRC Social Genetic and Developmental Psychiatry Centre, Institute of Psychiatry, London, UK; <sup>2</sup>Developmental Epidemiology Center, Department of Psychiatry and Behavioral Sciences, Duke University, Durham, NC, USA

**Background:** ICD-10 and DSM-IV include similar criterial symptom lists for conduct disorder (CD) and oppositional defiant disorder (ODD), but while DSM-IV treats each list separately, ICD-10 considers them jointly. One consequence is that ICD-10 identifies a group of children with ODD subtype who do not receive a diagnosis under DSM-IV. **Methods:** We examined the characteristics of this group of children using the Great Smoky Mountains Study of children in the community aged 9–16. This study provided child and parent reports of symptoms and psychosocial impairment assessed with standardised diagnostic interviews. **Results:** Children who received an ICD-10 diagnosis but not a DSM-IV diagnosis showed broadly similar levels of psychiatric comorbidity, delinquent activity and psychosocial impairment to those who met DSM-IV criteria in both cross-sectional and longitudinal analyses. **Conclusions:** These results indicate that DSM-IV excludes from diagnosis children who receive an ICD-10 diagnosis of CD (ODD sub-type), and who are substantially disturbed. Methods of redressing this situation are considered. **Keywords:** Oppositional Defiant Disorder, nosology. **Abbreviations:** DSM: Diagnostic and Statistics Manual; CD: Conduct Disorder; ODD: Oppositional Defiant Disorder; ICD: International Classification of Diseases; CAPA: Child and Adolescent Psychiatric Assessment; ICC: intra-class correlation; ADHD: Attention Deficit Hyperactivity Disorder; GSMS: Great Smoky Mountains Study; POR: proportional odds ratio; OR: odds ratio; CI: confidence interval; DBD NoS: Disruptive Behaviour Disorder Not Otherwise Specified.

Oppositional disorder was introduced as a separate diagnosis in DSM-III (American Psychiatric Association, 1980). Initially concerns were expressed over its distinctiveness from normal behaviour on the one hand (Rutter, 1980) and from a mild form of conduct disorder (CD) on the other (Schachar & Wachsmuth, 1990). Progressive tightening of the oppositional defiant disorder (ODD) criteria in DSM-III-R (American Psychiatric Association, 1987) and DSM-IV (American Psychiatric Association, 1994) has clarified the distinction between normal and disordered behaviour, but evidence of the distinctiveness of ODD and CD remains quite limited (Greene et al., 2002; Loeber, Burke, Lahey, Winters, & Zera, 2000; Rowe, Maughan, Pickles, Costello, & Angold, 2002).

The difficulty in specifying the relationship between ODD and CD is reflected in the contrasting nosological approaches taken by the DSM-IV (American Psychiatric Association, 1994) and the ICD-10 Diagnostic Criteria for Research (World Health Organization, 1993) classification schemes. In DSM-IV, CD and ODD are specified as separate disorders with exclusive symptom lists: three of fifteen symptoms are required for a diagnosis of CD, and four of eight symptoms are required for a diagnosis of ODD. The assumption that ODD is, however, a less severe manifestation of CD is built into DSM-IV through the requirement that ODD is not diagnosed in the presence of CD. ICD-10 takes a conceptually similar view, but implements the diagnostic rules rather differently. It includes a symptom list very similar to the combined symptom lists of DSM-IV ODD and DSM-IV CD, but divides this

into fifteen 'more severe items' (equivalent to the DSM-IV CD symptoms with minor differences in wording), and eight 'less severe items', equivalent to the DSM symptoms of ODD. A diagnosis of CD is made similarly in both systems, with three or more of the 'more severe items' being required in ICD-10. ODD, by contrast, is treated as a subtype of CD in ICD-10, and the diagnosis is made in the presence of a total of four or more symptoms from the full list of 23, but where no more than two come from the list of more severe items. As a result, all children who receive a diagnosis on the DSM-IV scheme also receive an ICD-10 diagnosis, but a number of children who meet ICD-10 criteria for CD (ODD sub-type) would not receive a diagnosis in DSM-IV (Angold & Costello, 2001). This happens with children who have two ODD symptoms and two CD symptoms or three ODD symptoms and either one or two CD symptoms. We refer to this group as a 'gap' group, because they fall in the gap between the CD and ODD diagnoses in DSM-IV. To our knowledge, no data have been published on the characteristics of this group.

We have also previously been concerned about the four-symptom threshold for diagnosing ODD in DSM-IV (Angold & Costello, 1996). We found that children with two and three ODD symptoms involving some psychosocial impairment, such as interference with parental or peer relationships, showed substantial disturbance on measures including psychiatric service use and psychiatric morbidity, measured both contemporaneously and at a one-year follow-up. We (like the DSM-IV field trials, Lahey et al., 1994) found few significant differences

between these 'sub-threshold' cases and children who met full DSM-IV criteria, and suggested the diagnostic criteria should be expanded to include them. As will be apparent, many of these children would be likely to meet criteria under ICD-10.

Further empirical examination of the criteria for diagnosing CD and ODD is warranted by the approach of the DSM-V development process (Kupfer, First, & Reiger, 2002). In this paper we explore the characteristics of children who received an ODD diagnosis by the ICD-10 criteria but not DSM-IV criteria (i.e., the gap group) and compare them with those with no antisocial disorder, DSM-IV CD and DSM-IV ODD. We also examine how far these ICD-10 identified cases would be captured by DSM-IV criteria modified to use a lower ODD symptom threshold.

## Methods

### Sample

Based in a predominantly rural area of the southern United States, the Great Smoky Mountains Study (GSMS) is a longitudinal study of psychiatric disorder in children and adolescents. The accelerated cohort (Schaie, 1965), two-phase sampling design and measures are described in detail elsewhere (Costello et al., 1996). Briefly, a representative sample of 4500 nine-, eleven-, and thirteen-year-olds resident in western North Carolina was selected using a household equal probability design. In the screening phase a parent (usually the mother) completed a questionnaire containing items regarding behavioural disorders from the Child Behaviour Checklist (Achenbach & Edelbrock, 1983). The interview phase included all children scoring above a pre-defined cut-off on this screen (designed to identify the highest scoring 25% of the population), along with a 10% random sample of the remainder. All age-eligible American Indian children from the area were also recruited. Between 80% and 94% of those selected took part at each of 4 annual interviews, providing a dataset containing 4965 observations from 1420 individuals (790 boys, 630 girls).

### Measures

At each wave of assessment, the child and primary caretaker (usually the mother) were separately interviewed using the Child and Adolescent Psychiatric Assessment (CAPA) (Angold & Costello, 2000). The CAPA assesses the child's psychiatric status over the preceding 3 months using DSM-IV criteria. Angold and Costello (1995) reported that kappa reliabilities were .55 for diagnoses of CD, .90 for depression, and .74 for overanxious disorder in a sample of 77 clinically referred children. The intra-class correlation (ICC) for the ODD symptom scale was .5. The standard 'or' rule (Costello et al., 1996; Simonoff et al., 1997), where a symptom is endorsed if either the child or primary caretaker report meets the symptom threshold, was employed to combine reports from the two informants. Psychosocial impairment in 17 areas of the child's

functioning, including home life, school life, and peer relations, was measured using the CAPA. The ICC for overall level of impairment was .76. The primary caregiver also completed the Child and Adolescent Impact Assessment (Angold et al., 1998; Messer, Angold, Costello, & Burns, 1996) which examines whether the child's behavioural and emotional problems impact on the caregiver's life in 24 areas spanning activity restriction, relationship problems with friends and family, and feelings of well-being. The one-week test-retest ICC for overall level of impact was .67.

All DSM-IV ODD and CD symptoms were assessed at each of the first three assessment waves, with the exception that staying out late (CD) was not measured at the first wave, which was conducted before DSM-IV was finalised. At wave four, a version of the CAPA employing screening questions was used, in which three ODD and three CD symptoms (chosen as the most informative in identifying caseness) were asked of all participants. Assessment of the remaining CD and ODD symptoms was completed only if at least one of these screen symptoms was present. For the analyses reported in this paper four exclusive groups were formed. A DSM-IV ODD group met the symptom threshold criteria, had some psychosocial impairment, and did not meet DSM-IV CD criteria. A DSM-IV CD group was formed that met the appropriate symptom and impairment definitions. The gap group consisted of those who met ICD-10 ODD diagnostic criteria but did not fit into either of the DSM-IV groups. These children had a combined CD and ODD symptom count of four or five, but did not have more than two CD symptoms or three ODD symptoms. Psychosocial impairment was also required for membership of this ICD-10 ODD group. A final 'no CD/ODD disorder' group was formed from those who did not fit into any of the other groups (those with other psychiatric disorders were not excluded).

DSM-IV symptoms and diagnoses of other common psychiatric disorders were also assessed using the CAPA. In this paper we use binary variables indicating the presence of attention deficit hyperactivity disorder (ADHD), any anxiety disorder (generalised anxiety disorder, separation anxiety disorder, specific phobia, social phobia, or panic disorder), and any depressive disorder (major depression, dysthymia, or minor depression). Other markers of antisocial behaviour used in the analyses include reports of: substance use, contact with the police (past three months and lifetime), police action (lifetime only), and peer deviance. Children were asked to rate the extent to which they 'hung out with a bad crowd' on a visual analogue scale; responses were dichotomised to identify the 10% most extreme responses. This peer deviance measure was only available from the first three waves of assessment.

### Analyses

The survey models of Stata 7 (StataCorp, 2001) were used for all analyses. These models provide for weighting of observations by the inverse of their sampling probabilities (as required by the two-phase sample design of GSMS), and account for the correlations among the sets of responses from the same individual at different assessments. In this way, unbiased general

population parameter estimates and standard errors were calculated.

Multinomial logistic regression models with diagnostic group status as the outcome variable were used to assess age and sex effects. In all other models group status was treated as a categorical predictor variable. Contemporaneous relationships between group status and the binary measures of psychiatric comorbidity, police involvement, and peer deviance were assessed using logistic regression. Cross-sectional relationships between group status and levels of psychosocial impairment and parental impact were assessed using ordinal logistic regression models. Ordinal logistic regression models calculate proportional odds ratios (POR), which can be interpreted as the increase in the odds of crossing any particular threshold on the dependent variable given a single unit increase in the independent variable.

Each child contributed up to four observations to these cross-sectional analyses. For simplicity we have referred to the child (rather than a child assessment) as the unit of analysis. For the longitudinal analyses binary outcome variables were constructed using data from waves 2 to 4 (waves 2 to 3 for peer deviance). A child was treated as showing the outcome of interest if it occurred in any of the follow-up waves. Group status at wave 1 was used to predict these binary outcome measures using logistic regression models that controlled for prior level of the respective outcome variable.

**Results**

*Prevalence*

One hundred and sixty eight (1.8%) of the children met criteria for DSM-IV ODD and 2.1% (*n* = 179) had DSM-IV CD. In addition, a further group of almost similar size (1.5%, *n* = 122) received a diagnosis of ODD under ICD-10, but did not receive a DSM-IV diagnosis (the gap group). Of these, 55.4% had one CD and three ODD symptoms, 24.3% had two CD and three ODD symptoms and 20.3% had two CD and two ODD symptoms. The DSM-IV CD group (mean age = 13.0 years) was significantly older than the no diagnosis (12.3 years; *t* = 2.3 *p* = .02) and DSM-IV ODD (12.2 years; *t* = 2.1 *p* = .04) groups. The gap group (12.7 years) did not differ significantly in age from any of the other groups. While boys outnumbered girls in all the disordered groups, this sex difference was much larger for CD (74.2% boys, versus 50.2% in the no antisocial disorder group, *t* = 2.7 *p* = .008) than for DSM-IV ODD (57.2% boys, *t* = .9 *p* = .4) or the gap group (59.7% boys, *t* = 1.2 *p* = .2).

*Correlates*

Table 1 shows cross-sectional associations between the diagnostic groups and a range of measures of comorbid disorders, delinquent activities, psychosocial impairment and parental impact. The left part of the table shows means or proportions on each

**Table 1** Cross-sectional relationships between DSM-IV ODD, DSM-IV CD, and gap groups and measures of psychiatric/psychosocial dysfunction

Correlate <sup>1</sup>	Group characteristics			Comparison of disordered groups and non-disordered children			Comparisons between disordered groups		
	No Antisocial disorder (N = 4496)	DSM-IV ODD (N = 168)	DSM-IV CD (N = 179)	The gap group (N = 122)	DSM-IV ODD vs. no disorder	DSM-IV CD vs. no disorder	Gap group vs. no disorder	DSM-IV ODD vs. Gap group	DSM-IV CD vs. Gap group
Comorbidity									
ADHD	.7	6.2	8.0	4.2	<b>8.4*** (3.4-20.7)</b>	<b>12.9*** (5.7-29.3)</b>	<b>6.5*** (2.6-16.2)</b>	1.5 (7-3.6)	2.0 (7-5.5)
Depression	1.0	14.6	17.1	10.4	<b>18.4*** (7.7-44.1)</b>	<b>20.9*** (8.4-52.0)</b>	<b>11.3*** (3.4-37.7)</b>	1.1 (4-2.9)	1.8 (7-5.1)
Anxiety	2.1	7.3	7.0	13.1	<b>3.7*** (1.8-7.5)</b>	<b>4.3*** (2.1-8.7)</b>	<b>8.1** (2.3-28.2)</b>	1.2 (5-2.6)	.5 (1-2.0)
Substance use	.7	1.3	11.7	1.1	2.5 (4-17.9)	<b>21.3*** (9.2-49.7)</b>	1.9 (5-7.9)	<b>8.5* (1.1-64.1)</b>	<b>11.0** (2.6-45.9)</b>
Delinquency									
Police contact	4.0	9.7	45.7	24.0	<b>2.7** (1.3-5.5)</b>	<b>16.8*** (9.2-30.5)</b>	<b>7.1*** (3.2-15.6)</b>	4 (1-1.0)	2.4 (1.0-5.8)
Police action taken	1.7	3.8	23.5	9.5	2.4 (8-6.7)	<b>13.5*** (6.9-26.4)</b>	<b>5.5** (1.9-15.9)</b>	5.7** (1.9-17.5)	2.5 (8-7.3)
Deviant peers	8.6	16.3	51.8	33.4	2.2 (8-6.0)	<b>8.9*** (4.7-16.8)</b>	<b>4.2** (1.7-10.1)</b>	4.0** (1.7-9.6)	2.1 (8-5.5)
Psychosocial dysfunction									
Functional impairment scale <sup>3</sup>	-	5.2	6.1	4.3	-	-	-	1.3 (8-2.2)	<b>1.9* (1.0-3.7)</b>
Parental impact scale <sup>3</sup>	-	2.3	2.2	1.7	-	-	-	.9 (5-1.6)	1.4 (8-2.6)

\*\*\**p* < .001; \*\**p* < .01; \**p* < .05. <sup>1</sup>Ns vary for each correlate. <sup>2</sup>Bold coefficients indicate *p* < .05. <sup>3</sup>Comparison with the no antisocial disorder group was not made for these variables.

measure in each diagnostic group, and for children with no antisocial disorder. The middle section shows odds ratios or proportional odds ratios from models comparing each disordered group with children with no antisocial disorder, while the right-hand block shows results for comparisons between pairs of diagnosed groups. The data allow for two key sets of comparisons. First, contrasts between the gap group and children with no antisocial disorder test whether the gap group shows elevated levels of difficulty by comparison with the majority of children in the study population. Second, contrasts between the gap group and children who meet criteria for DSM-IV ODD and CD test whether the gap group shows comparable levels of difficulty with currently diagnosed groups. In view of the associations noted above, all analyses were controlled for the effects of age and sex.

Beginning with comorbid disorders, the gap group had much higher rates of concurrent ADHD, depression, and anxiety disorders than children with no antisocial diagnosis. As expected, rates of these disorders were also elevated in children with DSM-IV ODD and CD. Adjusted for age and sex there were no significant differences between the gap group and the DSM-IV diagnosed groups in risk for these comorbid disorders. The one exception to this pattern was substance use, which occurred at elevated rates only among youth who met DSM-IV criteria for CD.

The second section of Table 1 shows group contrasts on three other indicators of antisocial tendencies: police contact, police action, and involvement with delinquent peers. The gap group had substantially higher rates of lifetime police contact and police action than the no antisocial disorder group. Their rates fell between the DSM-IV ODD and CD groups on these measures, but were significantly different from neither. A similar pattern emerged on the measure of involvement with delinquent peers.

Finally, Table 1 shows scores on measures of psychosocial impairment and parental impact; because both of these measures depend on the child having clinically significant symptomatology, contrasts were restricted to the diagnosed groups. Mean impairment scores for children in the gap group were well above the minimum score of one required for a diagnosis. Although the gap group had the lowest impairment levels of any of the diagnosed groups, the differences were only significant for the comparison with CD ( $p = .05$ ). The findings for parental impact followed a similar pattern: impact scores were somewhat lower in the gap group than in the DSM-IV disorder categories, but none of these contrasts reached statistical significance.

**Later outcomes**

Rates of disorder, police contact (past three months) and parental impact at any of the Wave 2–4 assess-

**Table 2** Later outcomes for the DSM-IV ODD, DSM-IV CD, and gap groups at wave 1

Outcome at waves 2–4 <sup>1</sup>	Group characteristics			Contrasts between disordered groups and non-disordered children			Contrasts between disordered groups		
	No Anti-social disorder (N = 1113)	DSM-IV ODD (N = 57)	DSM-IV CD (N = 49)	Gap group (N = 37)	DSM-IV ODD vs. no disorder	DSM-IV CD vs. no disorder	Gap group vs. no disorder	DSM-IV ODD vs. DSM-IV CD	DSM-IV CD vs. Gap group
	Percent	Percent	Percent	Percent	ORs (95% CIs) for group comparisons, adjusted for age, sex, and prior level of outcome variable <sup>2</sup>				
Psychiatric disorder									
Any disorder	11.3	64.4	58.4	56.0	<b>14.3*** (5.7–35.8)</b>	<b>6.5** (2.3–18.8)</b>	<b>7.4*** (3.5–15.5)</b>	.5 (.1–1.8)	1.9 (.6–5.9)
DSM-IV CD	2.8	25.5	33.2	20.7	<b>12.1*** (3.5–42.0)</b>	<b>13.3*** (4.6–38.5)</b>	<b>8.9*** (3.4–23.5)</b>	1.1 (.3–4.7)	1.4 (.3–5.6)
DSM-IV ODD	2.6	34.4	15.3	9.3	<b>20.2*** (7.1–57.2)</b>	<b>6.5** (2.2–18.8)</b>	<b>3.8* (1.1–13.5)</b>	.3 (.1–1.1)	<b>5.3* (1.2–23.7)</b>
Depression	3.0	23.1	15.0	7.0	<b>10.7*** (2.8–40.2)</b>	<b>5.1** (1.7–15.3)</b>	2.3 (.5–10.6)	.5 (.1–2.0)	4.7 (.7–30.9)
Anxiety	4.5	9.8	15.9	3.3	2.1 (.7–6.0)	2.8 (.9–8.9)	.3 (.03–2.7)	1.3 (.3–5.3)	7.6 (.7–84.5)
Substance use	2.1	3.4	20.3	31.3	1.7 (.4–7.0)	<b>7.0** (1.8–26.6)</b>	<b>32.5*** (5.7–186.2)</b>	4.0 (.7–22.5)	<b>.1** (.01–.4)</b>
Delinquency									
Police contact	4.4	2.5	19.0	7.8	.6 (.1–2.4)	<b>3.1* (1.0–9.6)</b>	1.6 (.4–6.3)	<b>5.5* (1.0–29.9)</b>	.3 (.1–2.2)
Deviant peers	15.7	34.9	42.9	49.9	<b>2.6* (1.0–6.6)</b>	2.3 (.8–6.6)	<b>4.0** (1.7–9.0)</b>	.9 (.2–3.4)	.7 (.2–2.1)
Psychosocial dysfunction									
Any impairment <sup>3</sup>	–	81.8	70.9	80.5	–	–	–	.6 (.2–2.1)	1.1 (.3–3.3)
Any parental impact <sup>3</sup>	–	62.2	73.5	61.6	–	–	–	1.4 (.5–4.0)	1.1 (.4–3.3)

\*\*\* $p < .001$ ; \*\* $p < .01$ ; \* $p < .05$ . <sup>1</sup>Ns vary slightly for each outcome due to occasional missing data. <sup>2</sup>Bold coefficients indicate  $p < .05$ . <sup>3</sup>Comparison with the no antisocial disorder group was not made for these variables.

ments, and deviant peer relationships at Waves 2–3, are shown in Table 2. Odds ratios for group contrasts in these later outcome measures were adjusted for the presence of the outcome problem/disorder at wave 1, as well as for age and sex.

An antisocial diagnosis at Wave 1 was a strong predictor of subsequent disorder. Over half the children in all diagnosed groups met criteria for at least one DSM-IV disorder during the following three years; children in the gap group were just as likely as those with DSM-IV CD and ODD to show later disorder of some kind. In terms of specific later diagnoses the gap group showed a substantially increased risk for DSM-IV CD, DSM-IV ODD and substance abuse. The DSM-IV CD and ODD groups showed similar rates of these disorders, with the exception that DSM-IV ODD at Wave 1 was a significantly greater risk factor for later DSM-IV ODD, and a significantly smaller risk factor for later substance abuse, than membership of the gap group. Unlike DSM-IV CD and ODD, the gap group did not have any reliably elevated risk for later depression. None of the diagnosed groups differed significantly from the no antisocial disorder group in terms of risk for later anxiety disorders.

Later associations with deviant peers were elevated in the DSM-IV ODD and gap groups, but not among children with CD. Conversely, rates of later police contact were only significantly elevated in the CD group relative to the no antisocial disorder group. All diagnosed groups showed continuing high levels of psychosocial impairment and parental impact at follow-up assessments.

### *The gap group and lowered ODD symptom thresholds*

In an earlier paper we presented evidence that the symptom threshold for DSM-IV ODD may be too strict (Angold & Costello, 1996), and that children with two or three symptoms plus impairment are very similar to those with four or more symptoms in terms of comorbidity and one-year outcome. We examined how far the gap group described here overlapped with children identified on a reduced three-symptom definition of ODD. The overlap was substantial: of the 122 children in the gap group 91 (79.7%) had three ODD symptoms, while children in the gap group made up a weighted 64.8% of the total group of children ( $n = 148$ ) with three ODD symptoms and some impairment.

## **Discussion**

Although ICD-10 and DSM-IV include similar symptom lists for the diagnoses of CD and ODD, they differ in the ways those symptoms are combined. Our analyses suggest that the impact of these differences is far from trivial. In the GSMS dataset

DSM-IV criteria identified 3.9% of 9–16-year-olds as showing an antisocial disorder; under the ICD-10 approach that figure rose by over a third, to 5.4%. As we have seen, the additional children identified by ICD-10 – the gap group – had much more in common with children who received DSM-IV diagnoses than with those who did not. At individual study contacts they were indistinguishable from children with DSM-IV ODD in levels of comorbidity with other common disorders, in rates of psychosocial impairment and parental impact, and in risks of police contact and affiliation with deviant peers. Cross-sectional contrasts with CD highlighted only two areas of difference: children with DSM-IV CD had higher rates of associated substance use than those in the gap group, and they also had elevated levels of impairment. A similar picture emerged from follow-up analyses. Children in the gap group showed just as high levels of persisting risk for later psychiatric disorders, delinquent involvement and parental impact as those in the DSM-IV diagnosed groups, with only two exceptions: they were less likely to go on to have full DSM-IV ODD, and more likely to go on to have problems with substance use, than children with DSM-IV ODD.

Taken together, our findings suggest that DSM-IV excludes from diagnosis a group of children with substantial difficulties, who warrant both clinical and research recognition. Clinically, many of them may be assigned to the Disruptive Behaviour Disorder not otherwise specified (DBD NOS) category. In research studies, however, where most diagnoses are assigned on the basis of computer algorithms, the difficulty of operationalising NOS categories inevitably means that many of these children will be missed. This in turn implies that prevalence estimates based on this system will have underestimated the rates of disruptive behavioural disorders, and that studies of risk factors may have been compromised by including children with genuine disruptive disorders in control groups. When the DSM is strictly implemented using standardised assessment procedures it has been found that substantial proportions of children referred to child psychiatric clinics do not meet criteria for any well-defined diagnosis (i.e., they fall into the ill-defined catch-all NOS groupings (Angold, Costello, Farmer, Burns, & Erkanli, 1999)). Using the ICD-10 approach would reduce the size of these problems of under-diagnosis.

As an alternative strategy, we looked at whether reducing the symptom threshold for an ODD diagnosis within the DSM framework, as suggested by Angold and Costello (1996), would provide an equally satisfactory means of tackling this problem. Reducing the threshold to three symptoms meant that the majority of children in the gap group would receive an ODD diagnosis. Reducing the threshold to two symptoms automatically assigns a diagnosis to all the children in the gap group, because all had at least two ODD symptoms by definition.

Both approaches succeed in bringing a group of children and adolescents with significant current and ongoing psychological and behavioural difficulties into a well-defined diagnostic category, whereas they are now consigned by DSM-IV to the essentially undefined category DBD NOS. That does not mean, however, that both approaches are equally satisfactory as a means of solving the gap problem. The ICD-10 approach avoids the gap entirely. Using the DSM-IV approach and reducing the number of symptoms required for a diagnosis of ODD to three simply creates a new gap group of individuals with a total of three or more CD/ODD symptoms, of which only one or two are from the ODD list, while fewer than three are from the CD list. We must conclude, therefore, that, given the overall explicit and implicit approach to the relationship between CD and ODD taken by both the ICD-10 and DSM-IV, the ICD-10 rules for defining ODD are to be preferred.

Broadly speaking, ODD is viewed by both the DSM-IV and ICD-10 as an early, mild form of CD. That being the case, it makes sense to combine symptoms from the ODD and CD lists to provide a diagnostic home for the gap group. Loeber et al. (1994) proposed a more explicitly developmental model, distinguishing three levels of disruptive behaviour disorder (modified ODD, an intermediate CD category including less severe aggressive and non-aggressive behaviours, and 'advanced' CD). This was valuable in identifying boys with serious and stable disruptive behaviours, and also performed slightly better than DSM-III-R in identifying boys with ODD who were most likely to progress to CD. On the other hand, if ODD and CD are *not* always best conceived of as being developmentally linked in this way, then such combinations may not make as much sense. Consider, for example, the relationship between major depression and generalised anxiety disorder. These are regarded as being separate conditions despite being highly comorbid, sharing symptoms in common, having similar genetic liabilities, and predicting one another over time, though the anxiety typically has an earlier onset than the depression. The relationship between these two disorders is treated as comorbidity rather than developmental heterogeneity, and the DSM-IV experimental category Mixed anxiety-depressive disorder even suggests that certain combined forms may be a different disorder from either of the 'pure' forms.

There is evidence to suggest that a similar situation may pertain in the relationship between ODD and CD. Although some findings suggest that they are components of the same underlying disorder (e.g., Eaves et al., 2000), other evidence highlights potentially important distinctions between the two diagnoses. For example, Maughan, Rowe, Messer, Goodman, and Meltzer (2004) found that ODD was associated with higher levels of comorbidity than CD in a nationally representative British sample, and

followed quite different developmental trends, and we have reported in previous analyses of the GSMS dataset (Rowe et al., 2002) that by no means all children with ODD progress to CD. Parsing the heterogeneity in antisocial behaviour in childhood remains a major challenge for psychiatric nosology. In such a situation, there are considerable advantages in *enhancing* rather than obscuring the separation between ODD and CD in order to enable and encourage comparative research.

One final issue remains to be considered. Although our analyses have focused on diagnostic categories, there has been considerable debate about whether disruptive behaviours (like many other forms of psychopathology) are better construed as continua. In relation to disruptive behaviours it has already been shown, for example, that psychosocial impairment increases uniformly with the number of CD and ODD symptoms (Pickles et al., 2001), and that liability to involvement in delinquent behaviours is normally distributed, suggesting that the skewed nature of many scale scores is largely an artefact of measurement (van den Oord, Pickles, & Waldman, 2003). As we have argued elsewhere (Pickles & Angold, 2003), while further evidence on these issues is accumulating it may be useful for researchers to take a flexible approach as causes, correlates and outcomes may differ in whether they relate to children's difficulties in a dimensional or categorical way. Under these circumstances, however, it also makes sense to impose as few arbitrary cut-points as possible when – as in relation to decisions on treatment needs – categorical groupings are clearly required (Sonuga-Barke, 1998). Indeed, the data we have presented document the substantial problem arising from separating the CD/ODD list into two and then imposing a separate cut-point on each. Categorical models will also form the basis for forthcoming revisions to the diagnostic nosologies (DSM-V and ICD-11). Without pre-empting conclusions on broader debates on the underlying form of disruptive behaviours, our analyses were designed to address the most appropriate categorical definition for a diagnosis of ODD where – in situations such as these – a dichotomous model is advantageous.

In conclusion, then, we suggest that, if the DSM-V continues with the same broad conceptualisations of CD and ODD as DSM-IV and ICD-10, the rules for diagnosing ODD should continue to set the threshold at four symptoms, but allow them to come from the whole CD/ODD list, rather than demanding that all four come from the ODD list. Of course, if three or more CD symptoms are present then the diagnosis of CD will continue to be given, as it is now. However, we believe that there is evidence that CD and ODD are sufficiently different from one another to be regarded as fully separate disorders. If they are to be so treated, then the threshold for the diagnosis of

ODD should be reduced to three symptoms from the ODD list.

## Acknowledgements

This project was supported by Grants MH-48085 and MH-57761 from the National Institute of Mental Health, Bethesda, MD. Richard Rowe and Barbara Maughan were supported by Medical Research Council program grant G9901475.

## Correspondence to

Richard Rowe, MRC Social Genetic and Developmental Psychiatry Centre, Institute of Psychiatry, Box P046, De Crespigny Park, London, SE5 8AF, UK; Tel: +44 (0)20 7848 0486; Fax: +44 (0)20 7848 0866; Email: r.rowe@iop.kcl.ac.uk

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Manuscript accepted 29 September 2004