

A comparison of pure and comorbid CD/ODD and depression

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Background: We studied the symptomatology of conduct/oppositional defiant disorder and major depression/dysthymic disorder in 'pure' and comorbid presentations. **Method:** The sample comprised 382 children of 8 to 17 years of age attending for psychiatric outpatient consultation. Ninety-two had depressive disorders without conduct disorders, 165 conduct disorder or oppositional defiant disorder without depressive disorders and 125 had both. **Results:** In general, there were few differences in the distributions of the symptoms of shared disorders between the pure and the comorbid groups. Comorbidity accentuated depressive and emotional symptoms and functional impairment. After controlling for the presence of other disorders and severity of symptoms, comorbid children were more globally impaired than the pure conduct group and more impaired than the pure depressive group in school, the home, and in relationships with other people. **Conclusions:** The clinical presentations of 'pure' and comorbid depressive and conduct disorders are similar. Differences found in phenomenology and in functional impairment between the groups have implications for treatment planning and for nosology. **Keywords:** Conduct disorder, oppositional defiant disorder, major depression, dysthymic disorder, comorbidity, functional impairment. **Abbreviations:** MDD/DD: major depression or dysthymia; CD/ODD: conduct or oppositional defiant disorders; SAD: separation anxiety disorder; GAD: generalized anxiety disorder; ADHD: attention deficit hyperactivity disorder.

Depressive and conduct disorders co-occur far more frequently than would be expected by chance, and this relationship is not just a methodological artifact (Bird, Gould, & Staghezza, 1993), or the result of overlapping diagnostic criteria (Biederman, Faraone, Mick, & Lelon, 1995). In a meta-analysis of the comorbidity of child and adolescent psychopathology in community samples, Angold, Costello, and Erkanli (1999) reported that the median odds ratio between conduct disorder and depression was 6.6 (95% CI: 4.4 to 11.0). For convenience and simplicity of presentation, in our discussion of this issue we will refer to 'pure' depression and conduct disorders, as indicating the presence of symptoms meeting criteria for one disorder, but not the other, regardless of other possible comorbidities.

There are still uncertainties about the nosological status of comorbid conduct and depressive disorders. The ICD-10 (World Health Organization, 1992, 1993) posits the existence of a diagnostic category of mixed disorder of emotion and conduct where depressive conduct disorder is an independent category. The DSM-IV requires that those meeting criteria for both disorders should receive two diagnoses. Angold et al. (1999) have proposed that, in order to classify comorbid disorders in a category different from pure disorders, they must differ from both pure forms. When the differences are restricted to comparisons with only one pure form, the comorbid picture should be considered as a subtype of the other pure disorder. Finally, if the comorbid picture is mostly similar to

both pure disorders (although some minor differences can be allowed), then the allocation of both diagnoses is appropriate.

Some studies in both referred and community samples have examined the differences between the pure depressive and conduct disorders and their comorbid counterparts, considering various components of their clinical pictures. In comparison with pure depression, comorbid children have been found to manifest more irritability (Harrington, Fudge, Rutter, Pickles, & Hill, 1991), more substance abuse, and worse outcomes (Fleming, Boyle, & Offord, 1993), but fewer emotional symptoms (Simic & Fombonne, 2001). The comorbid group, in comparison with pure conduct disorder, has been found to have a higher prevalence of suicide attempts, destruction of property, running away, substance abuse, and worse outcomes (Fleming et al., 1993), but less stealing, destructiveness, fighting/bullying and violent assaults, and similar numbers of emotional symptoms (Simic & Fombonne, 2001). These last authors regard their results as supporting the nosologic category of depressive conduct disorder. In their study the comorbid group differed from the pure groups in the manifestation of both disruptive and depressive symptoms: the comorbid picture was less aggressive than the pure conduct and less severely depressed (although they were more suicidal) than the pure depressive group.

Several studies have focused on the disabilities resulting from pure and comorbid disorders.

Newman, Moffitt, Caspi, and Silva (1998) reported that, compared with pure and non-disordered cases, comorbid cases in the Dunedin Longitudinal Study were more impaired (more chronic course, less social stability, lowest level of educational attainment, greater number of physical illness, more interference in daily life, etc.). Some authors have indicated that comorbid individuals are more globally impaired than the pure groups, have poorer school achievement (Lewinsohn, Rohde, & Seeley, 1995) and lower levels of social competence (Renouf, Kovacs, & Mukerji, 1997). In comparison with pure depression, comorbidity is associated with worse short-term outcomes (degree of recovery and handicap at the time of discharge) (Harrington et al., 1991). On the other hand, some studies have suggested that the pure conduct and comorbid groups have similar outcomes (Fleming et al., 1993; Harrington et al., 1991; Steinhausen & Reitzle, 1996).

We might, however, erroneously consider comorbid disorder distinct from pure disorders if the former were simply more severe than the latter (Keiley, Lofthouse, Bates, Dodge, & Pettit, 2003). No studies have addressed this possibility directly.

Given the uncertainty regarding the nosological status of mixed depression and conduct disorder, the aim of this paper is to provide data about the clinical presentation of, and functional impairment associated with, conduct/oppositional defiant disorders, major depression/dysthymic disorders and their comorbidity in children from Spain.

Method

Participants

Children participating in the study were recruited from two psychiatric outpatient settings forming part of the public health network in Barcelona (Spain). The original sample was composed of 549 consecutive admissions that represent 91.5% of those invited to participate. The sample relevant to this study included the 382 children between 8 and 17 years of age (mean age = 14.1; SD = 2.4) who were identified as suffering from CD, oppositional defiant disorder (ODD), major depressive disorder (MDD), dysthymia (DD), or both (Table 1). Of the 217 children with depressive disorders, 57.6% ($N = 125$) presented with co-occurring conduct disorder. In children with conduct disorders ($N = 290$), 43.1% presented with co-occurring depression.

Measures

Diagnostic Interview for Children and Adolescent-IV (DICA-IV). The diagnostic status of the children was established with the Diagnostic Interview for Children and Adolescents-IV (DICA-IV; Reich, Leacock, & Shanfeld, 1997) in three versions: for children, adolescents and parents. The DICA-IV is a semi-structured diagnostic interview that covers the most frequent diagnostic categories in children and adolescents, following

Table 1 Description of the sample

| | MDD/DD ¹ | CD/ODD ² | COM ³ |
|---|---------------------|---------------------|------------------|
| Mean age (SD) | 15.1 (2.3) | 13.1 (2.2) | 14.7 (2.2) |
| Females (%) | 69 (75.0) | 42 (25.5) | 77 (61.6) |
| SES ⁴ (%) Upper/ middle upper | 11 (12.0) | 22 (13.3) | 13 (10.4) |
| Middle/lower middle | 60 (65.2) | 83 (50.3) | 81 (64.8) |
| Lower | 21 (22.8) | 60 (36.4) | 31 (24.8) |
| Total | 92 | 165 | 125 |

¹MDD/DD: major depression or dysthymia without conduct or oppositional disorders.

²CD/ODD: conduct or oppositional disorder without depressive disorders.

³COM: comorbid group (MDD/DD and CD/ODD).

⁴Hollingshead (1975).

DSM-IV definitions (American Psychiatric Association, 1994). The DICA has been adapted and validated for the Spanish population with satisfactory psychometric properties (de la Osa, Ezpeleta, Domènech, Navarro, & Losilla, 1996; Ezpeleta et al., 1997). Diagnoses were generated by combining the information from parents and children at the symptom level. That is, a symptom was regarded as being present if the parent or the child reported it. Only current diagnoses were considered for this study. All the raters had a clinical background and knowledge of child development and psychopathology.

Children's Global Assessment Scale (CGAS). The CGAS (Ezpeleta, Granero, & de la Osa, 1999; Shaffer et al., 1983) is a global measure of functional impairment. Scale scores range from 1 (maximum impairment) to 100 (normal functioning). Scores higher than 70 indicate normal adaptation. The lowest CGAS score in the last year from either parents' or children's information was used.

Child and Adolescent Functioning Assessment Scale (CAFAS). The CAFAS records the extent to which a young person's mental health disorder is disruptive of functioning in each of eight psychosocial areas, reported by children and/or parents (Hodges, 1997). It contains the following areas: Role performance at school/work, at home and in the community, Behavior toward others, Mood/emotion, Self-harmful behavior, Substance use, and Thinking. With the extensive information obtained after clinical examination, clinicians are required to rate the lowest level of functioning in each area during the period assessed, taking into account the child's age, sex and social class, as well as the norms for the community in which the child is living. Each scale is scored in 4 levels of impairment (0, no impairment; 10, mild; 20, moderate; and 30, severe). The scale can be used with 7- to 17-year-olds. The psychometric properties of the instrument have been extensively studied by its author (Hodges, 1999) and in the Spanish population (Ezpeleta, Granero, de la Osa, Domènech, & Bonillo, in press).

For the purposes of this study, the higher (worse) of the two scores resulting from the information from the parent or child was used. The resulting score was then dichotomized as (0) mild or no impairment (0 and 10), and (1) moderate and severe (20 and 30).

Columbia Impairment Scale (CIS). The 13-item CIS (Bird et al., 1993) was used to evaluate impairment in interpersonal relations, at school or work, areas of psychopathology and the use of leisure time, over the last year. CIS original response alternatives were changed to three categories: 0 indicating 'no problem', 1 for 'some problem' and 3 for 'a considerable problem'. The higher score resulting from parents and children was used. Good internal consistency and concurrent validity have been demonstrated in the Spanish population (Ezpeleta et al., in press).

Child Behavior Checklists (CBCL). The Child Behavior Checklist (Achenbach & Rescorla, 2001), completed by parents, was used as an additional measure of psychopathology. The CBCL has 113 items with three response options, and covers a variety of behavioral and emotional problems in children and adolescents. It has been adapted and studied in the Spanish population (Sardinero, Pedreira, & Muñiz, 1997).

Procedure

Depressive conduct disorder (F92.0) in the ICD-10 (WHO, 1993) requires that individuals meet criteria for both conduct disorders (F91) and for one of the mood disorders (F30–39). F91 conduct disorder summarizes all the symptoms that DSM-IV lists in CD and ODD separately. The strong relationship between CD and ODD is well known, and the great majority of children with CD also showed ODD features and vice versa (Rowe, Maughan, Pickles, Costello, & Angold, 2002). On the other hand, Kovacs, Feinberg, Crouse-Novak, Paulauskas, and Finkelstein (1984) have pointed out the many similarities between MDD and DD. For these reasons, CD/ODD and MDD/DD were grouped together in this study.

Written consent from parents and oral assent to participate in the study from the children were obtained. Different interviewers simultaneously interviewed the children and the parents. Interviewers (undergraduate psychology students and doctoral students) were trained in the use of all the assessment instruments. All the raters had a clinical background and knowledge of child development and psychopathology. After completing the diagnostic interview, interviewers administered the CGAS, CIS and CAFAS, in that order. The CBCL was given to the parents to be returned at the next appointment. Two hundred and twenty-two parents (58.6%) returned the CBCL filled out. There were no differences in sex ($\chi^2 = .003$, $p = .96$), age ($T = .06$, $p = .96$) and diagnostic group ($\chi^2 = .04$, $p = .98$) between the total sample ($N = 382$) and those with returned CBCLs.

To overcome the argument that both the definitions of the diagnostic groups and the symptom frequencies and impairment assessments were based on ratings by the same interviewers, we also included ratings based on self-report (CIS-child) and questionnaires (CIS-parent, CBCL).

Statistical analysis

Data were analyzed with SPSS 12.0 for Windows. To test whether depressive or conduct symptomatology in

the pure and the comorbid groups was different, the prevalence of each symptom was compared in both groups adjusted by sex and age (potential confounding variables) using logistic regression. The 'adjusted' prevalence in the comorbid group is the prevalence of the symptom that would be observed in the comorbid group if it had the same distribution of sex and age as the pure group (reference group) (Domènech, 2001). For continuous outcomes (means of symptoms, the mean of T scores of functional impairment) multiple regression was used. Interactions with sex were analyzed systematically and, when significant, separate values for boys and girls are provided. Sex, age, number of other additional diagnoses and severity of psychopathology (total score of CBCL) were included as covariates.

CGAS, CIS, and CBCL scores were standardized in our sample by age (8–11 and 12–18) and sex using T-scores to make comparisons more interpretable.

Results

Table 2 presents the rates of symptoms of ODD, CD, MDD and DD in the three groups (pure depression, pure conduct and comorbid). The differences and p values in Table 2 refer to the difference between the symptom-homologous pure group and the comorbid group (i.e., pure CD/ODD vs. comorbid for CD/ODD symptoms, and MDD/DD vs. comorbid for MDD/DD symptoms). There were no significant differences between the pure and comorbid groups in the mean numbers of symptoms of disorders for homologous symptomatology. In general, there were few significant differences in the distributions of individual CD/ODD symptoms between the pure CD/ODD group and the comorbid group. However, children from the comorbid group were more often angry and resentful and set fires more frequently than those of the pure conduct group. On the other hand, they were less likely to have used a weapon.

Comparing the rates of MDD/DD symptoms between the pure MDD/DD group and the comorbid group, sleep disturbances were less frequent in the comorbid group than in those with pure depression. Comorbid girls more frequently presented psychomotor agitation/retardation and comorbid boys less frequently had difficulties with appetite.

Table 3 includes information about the distribution of the symptoms of other disorders typically associated with CD/ODD (i.e., ADHD) and MDD/DD (i.e., separation anxiety disorder (SAD) and generalized anxiety disorder (GAD)). There were no differences between the mean number of internalizing symptoms in the pure depression and the comorbid groups (32.5 and 32.8, respectively; $p = .832$), or between the number of externalizing symptoms in the pure conduct and the comorbid groups (22.9 and 22.5, respectively; $p = .644$). There were few significant differences in the distributions of individual ADHD symptoms between the pure conduct and the comorbid group, or in the distributions of individual

Table 2 Distribution of symptomatology of shared disorders (%)^{1,2}

| Symptoms | Groups | | | Differences/OR | | |
|---|-------------|-------------|-------------|----------------|------|--------|
| | MDD/DD | CD/ODD | Comorbid | Diff. | OR | p |
| Oppositional defiant disorder | | | | | | |
| Mean number of symptoms | 1.9 | 5.8 | 5.7 | .1 | – | .589 |
| 1 Loses temper | 32.4 | 96.6 | 95.8 | .8 | 1.27 | .729 |
| 2 Argues with adults | 25.7 | 90.2 | 86.5 | 3.7 | 1.43 | .384 |
| 3 Actively defies | 12.2 | 69.8 | 64.1 | 5.7 | 1.30 | .357 |
| 4 Deliberately annoys people | 8.4 | 71.0 | 62.5 | 8.5 | 1.47 | .163 |
| 5 Blames others | 22.6 | 75.1 | 70.3 | 4.8 | 1.27 | .394 |
| 6 Touchy | 25.8 | 67.3 | 76.8 | –9.5 | .62 | .107 |
| 7 Angry and resentful | 27.0 | 60.6 | 81.4 | –20.8 | .35 | <.0001 |
| 8 Spiteful or vindictive | 15.5 | 60.7 | 49.5 | 11.3 | 1.57 | .084 |
| Conduct disorder | | | | | | |
| Mean number of symptoms | 1.2 | 3.2 | 3.0 | .2 | | .457 |
| 1 Bullies, threatens | 1.9 | 17.2 | 16.9 | .3 | 1.02 | .958 |
| 2 Initiates physical fights | 8.8 | 38.3 | 34.0 | 4.3 | 1.21 | .519 |
| 3 Uses a weapon | 0 | 10.7 | 2.5 | 8.2 | 4.69 | .022 |
| 4 Physically cruel to people | 1.5 | 12.0 | 9.8 | 2.2 | 1.26 | .597 |
| 5 Physically cruel to animals | 2.9 | 9.0 | 3.6 | 5.4 | 2.63 | .092 |
| 6 Has stolen, confronting a victim | – | – | – | – | – | 1 |
| 7 Forced into sexual activity | – | – | – | – | – | 1 |
| 8 Deliberate fire setting | 3.0 | 5.3 | 12.9 | –7.6 | .38 | .048 |
| 9 Deliberately destroy property | 1.0 | 14.1 | 14.3 | –2 | .98 | .966 |
| 10 Has broken into others' property | 18.2 | 52.1 | 57.9 | –5.8 | .79 | .374 |
| 11 Lies to obtain goods/avoid obligations | 29.7 | 65.5 | 67.5 | –2.0 | .91 | .742 |
| 12 Has stolen without confrontation | 17.3 | 38.5 | 36.9 | 1.6 | 1.07 | .794 |
| 13 Stays out at night | 1.3 | 8.8 | 6.9 | 1.9 | 1.30 | .603 |
| 14 Has run away from home | 0 | 1.0 | 2.0 | –1.0 | .50 | .373 |
| 15 Truant from school | 26.8 | 42.4 | 32.3 | 10.1 | 1.55 | .104 |
| Major depression³ | | | | | | |
| Mean number of symptoms | 6.7 | 2.7 | 7.1 | –4 | | .084 |
| 1 Depressed mood – irritability | 94.1 | 30.0 | 97.6 | –3.5 | .40 | .136 |
| 2 Diminished interest or pleasure | 55.5 | 7.4 | 59.4 | –3.9 | .85 | .585 |
| 3 Weight loss or gain | 64.2 | 19.2 | 67.3 | –3.1 | .87 | .639 |
| 4 Insomnia–hypersomnia | 77.7 | 27.9 | 83.0 | –5.3 | .72 | .329 |
| 5 Psychomotor agitation/retardation | | | | | | |
| Girls | 75.2 | 39.0 | 93.5 | –18.3 | .21 | .004 |
| Boys | 64.0 | 21.8 | 59.3 | 4.7 | 1.22 | .701 |
| 6 Fatigue or loss of energy | 82.1 | 24.2 | 86.7 | –4.6 | .71 | .351 |
| 7 Worthlessness or inappropriate guilt | 73.8 | 22.5 | 76.0 | –2.2 | .89 | .711 |
| 8 Difficulty in concentration –indecisiveness | 94.6 | 94.2 | 96.0 | –1.4 | .73 | .636 |
| 9 Suicidal ideation | 74.1 | 19.1 | 78.9 | –4.8 | .77 | .416 |
| Dysthymic disorder³ | | | | | | |
| Mean number of symptoms | 3.3 | 2.8 | 3.2 | .1 | | .378 |
| 1 Poor appetite or overeating | | | | | | |
| Girls | 12.9 | 0 | 16.2 | –3.3 | .80 | .621 |
| Boys | 30.0 | 0 | 4.1 | 25.9 | 10.4 | .006 |
| 2 Insomnia-hypersomnia | 25.7 | 1.6 | 14.1 | 11.6 | 2.11 | .037 |
| 3 Low energy or fatigue | 87.4 | 91.0 | 90.3 | –2.9 | .75 | .497 |
| 4 Low self-esteem | 86.2 | 88.7 | 88.4 | –2.2 | .82 | .621 |
| 5 Poor concentration or indecisiveness | 23.0 | 1.0 | 22.1 | .9 | 1.05 | .891 |
| 6 Feeling of hopelessness | 93.8 | 91.8 | 95.0 | –1.2 | .79 | .686 |

¹Groups compared are shown in bold, significant differences in italic.

²Proportions adjusted by sex and age.

³In the assessment of major depression and dysthymia, duration specified by DSM-IV is considered.

SAD and GAD symptoms between the pure depression and comorbid groups. The only significant exceptions were that the pure conduct group did not listen more frequently, and were more easily distracted than the comorbid group, and SAD physical complaints were more frequent in the comorbid group than in the pure depressions.

Figure 1 shows the profiles of the CBCL syndrome scales in the three groups. The comorbid group

differed from the pure depressives in 8 of the 11 scales: it had higher anxiety/depression (49.0 vs. 52.7; $p = .037$), social (46.3 vs. 52.4; $p < .0004$), thought (47.1 vs. 51.7; $p = .010$) and attention problems (43.7 vs. 51.1; $p < .0001$), rule-breaking (43.8 vs. 52.5; $p < .0001$), aggressive behavior (42.0 vs. 52.8; $p < .0001$), externalizing symptoms (41.9 vs. 53.0; $p < .0001$), and more total problems (44.8 vs. 53.0; $p < .0001$). The comorbid group only

Table 3 Distribution of symptomatology (%) of non-shared disorders¹

| Symptoms | MDD/DD | CD/ODD | Comorbid | CD/ODD vs. COM | |
|-------------------------------------|--------|--------|----------|----------------|------|
| | | | | OR | P |
| ADHD | | | | | |
| Mean number of symptoms | 8.3 | 11.6 | 11.1 | | |
| 1 Careless mistakes | 61.7 | 79.8 | 76.4 | 1.22 | 1.22 |
| 2 Difficulty sustaining attention | 61.9 | 83.5 | 74.6 | 1.73 | 1.73 |
| 3 Does not listen | 51.8 | 71.5 | 59.2 | 1.73 | 1.73 |
| 4 Does not follow instructions | 47.7 | 76.8 | 74.5 | 1.13 | 1.13 |
| 5 Difficulty in organizing tasks | 57.5 | 81.0 | 80.4 | 1.04 | 1.04 |
| 6 Avoid sustained attention | 45.5 | 69.4 | 68.5 | 1.04 | 1.04 |
| 7 Loses things | 44.8 | 52.7 | 51.2 | 1.07 | 1.07 |
| 8 Easily distracted | 60.9 | 82.5 | 70.8 | 1.95 | 1.95 |
| 9 Forgetful | 39.7 | 60.9 | 55.2 | 1.27 | 1.27 |
| 10 Fidgets | 55.8 | 75.6 | 71.3 | 1.25 | 1.25 |
| 11 Leaves seat | 49.0 | 63.5 | 58.5 | 1.24 | 1.24 |
| 12 Runs about | 42.1 | 56.8 | 55.2 | 1.07 | 1.07 |
| 13 Difficulty in being quiet | 34.1 | 40.2 | 45.6 | .80 | .80 |
| 14 Is on the go | 36.6 | 51.5 | 53.6 | .74 | .74 |
| 15 Talks excessively | 37.4 | 64.9 | 61.7 | 1.15 | 1.15 |
| 16 Blurts out answers | 27.1 | 49.7 | 46.4 | 1.14 | 1.14 |
| 17 Difficulty awaiting turn | 30.7 | 47.3 | 53.6 | .78 | .78 |
| 18 Interrupts or intrudes | 46.1 | 55.0 | 52.8 | 1.09 | 1.09 |
| Separation anxiety disorder | | | | | |
| Mean number of symptoms | 1.8 | 1.4 | 2.2 | | .186 |
| 1 Excessive distress if separated | 16.9 | 18.5 | 22.4 | .70 | .320 |
| 2 Worry about losing attachment | 42.0 | 30.4 | 38.0 | 1.18 | .559 |
| 3 Excessive worry about separation | 17.5 | 18.0 | 28.9 | .52 | .054 |
| 4 Reluctance to go to school | | | | | |
| Girls | 20.9 | 20.5 | 14.5 | 1.68 | .247 |
| Boys | 19.1 | 7.0 | 25.5 | .73 | .593 |
| 5 Reluctant to be alone | 20.6 | 19.7 | 29.3 | .63 | .154 |
| 6 Reluctance to sleep alone | 38.5 | 28.3 | 43.1 | .83 | .504 |
| 7 Nightmares | 11.0 | 8.0 | 16.7 | .62 | .232 |
| 8 Physical complaints | 9.1 | 7.1 | 20.3 | .39 | .027 |
| Generalized anxiety disorder | | | | | |
| Mean number of symptoms | 3.8 | 2.9 | 3.9 | | .694 |
| 1 Restlessness | 71.0 | 70.2 | 75.4 | .80 | .476 |
| 2 Easily fatigued | 50.9 | 50.0 | 58.4 | .74 | .276 |
| 3 Difficulty concentrating | 71.5 | 22.1 | 59.4 | 1.71 | .074 |
| 4 Irritability | 71.1 | 70.3 | 77.8 | .70 | .263 |
| 5 Muscle tension | 53.8 | 58.6 | 66.6 | .58 | .060 |
| 6 Sleep disturbance | 61.7 | 18.2 | 51.2 | 1.54 | .130 |

¹Proportions adjusted by sex and age.

differed from the pure conduct group in that it had a higher score on anxiety/depression (48.6 vs. 52.7; $p = .006$), somatic complaints (48.7 vs. 51.7; $p = .050$) and internalizing (52.9 vs. 48.1; $p = .002$).

Table 4 concerns functional impairment. The comorbid group was more impaired than the pure conduct group on all global measures (CGAS, CAFAS, CIS), psychopathology, mood, and self-harm. Pure conduct problem boys had more problems than comorbid boys on the CIS school scale. The comorbid group was more impaired than the pure depressive group in school, home, relationships with others, and global CAFAS scores.

The comorbid group included a greater proportion of boys than the pure depression group ($p = .04$) and a greater proportion of girls than the pure conduct group ($p < .0001$). There were no significant differences in SES comparisons.

Comorbid children were .42 years younger than pure depressive children ($p = .167$) and 1.5 years older than pure conduct children ($p < .0001$) (Table 1).

Of the 125 children in the comorbid group, 21 (16.8%) met criteria for depression earlier than they did for disruptive behavior disorders; in 16 (12.8%) the disorders appeared simultaneously, and in 88 (70.4%) the disruptive behavior disorder preceded depression. There were no significant differences in the distributions of the symptoms, functional impairment, or CBCL scores resulting from the order of presentation of the disorders. Pure disorders had longer durations than comorbid disorders. We provide the median duration of disorder because the distribution was positively skewed. The median duration of depressive disorder was 16 weeks in the pure depression group and 10 weeks in the

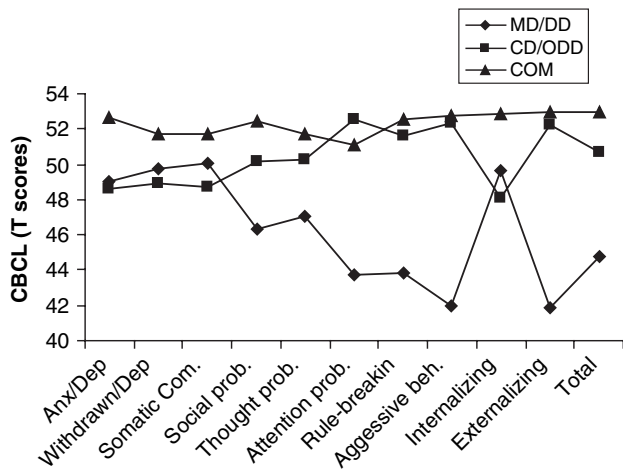


Figure 1 Profile of CBCL standardized mean scores in the groups

comorbid group ($p = .04$). For pure conduct disorders, median values were 3.6 years for pure conduct group and 2.8 years for comorbid group ($p = .01$). Mean age at onset of depression was 12.9 (SD = 5.8) in the pure depression group and 12.3 (SD = 4.8) in the comorbid group ($p = .44$). Mean age of onset of conduct disorders was 8.6 (SD = 3.1) in the pure conduct group and 10.6 (SD = 3.2) in the comorbid ($p < .0001$).

Discussion

We found few differences between depressive and conduct/oppositional disorder groups in the manifestations of pure and comorbid disorders in Spanish

children, suggesting that comorbid depressive-conduct disorder is not a different disorder from either conduct disorder or depressive disorders.

However, some differences existed (see Table 5). Comorbid children differed from the pure conduct group in that the former were more frequently angry and resentful, used weapons less frequently and set more fires, were less distracted, had more severe somatic complaints and anxiety, and were more globally functionally impaired. On the other hand, comorbid children, in comparison with the pure depressive group, had fewer sleep problems, more psychomotor symptoms (girls), fewer difficulties with appetite (boys), more somatic complaints, higher severity of anxiety symptoms and more functional impairment at school, home and in the relationships with others. Overall, the co-occurrence of conduct and depressive disorders accentuated emotional symptoms and functional impairment. These findings contradict Simic and Fombonne’s (2001) conclusion that conduct disorder in the comorbid group was less severe than pure conduct disorder. In terms of intensity (CBCL) there were no differences in externalizing dimensions between these two groups and, in terms of frequency, children in the comorbid group were different only in that they used weapons less frequently, but set fires more frequently.

The analysis of the mean number of symptoms present in the groups showed the same trends: the disorders manifested with similar numbers of symptoms regardless of whether they were present alone or comorbidly. However, anxiety/depression CBCL scores were higher in the comorbid group than in the pure depressive or CD/ODD groups. Associ-

Table 4 Functional impairment in the groups

| DSM-IV DICA-IV diagnosis | MDD/DD | CD/ODD | Comorbid | MDD/DD vs. COM | | CD/ODD vs. COM | |
|---|--------|--------|----------|----------------|-------|----------------|--------|
| | | | | OR | P | OR | P |
| CGAS T score (mean) ¹ | 48.0 | 51.9 | 46.1 | | .285 | | .0001 |
| CAFAS (%) ^{1,2,3} | | | | | | | |
| School | 44.2 | 75.1 | 66.7 | .40 | .037 | 1.51 | .301 |
| Home | 5.7 | 49.4 | 44.6 | .08 | .0001 | 1.21 | .597 |
| Community | 0 | 4.6 | 3.3 | - | - | 1.42 | .663 |
| Behavior toward others | 6.0 | 30.5 | 31.2 | .14 | .013 | .97 | .927 |
| Mood/emotion | 98.3 | 53.0 | 93.1 | 4.33 | .056 | .08 | <.0001 |
| Self-harm | 46.8 | 9.9 | 37.2 | 1.48 | .400 | .19 | .002 |
| Substance use | 1.8 | .7 | 5.5 | .31 | .179 | .13 | .062 |
| Thinking | 12.0 | 5.5 | 4.9 | 2.63 | .243 | 1.13 | .880 |
| Total 8 (mean) | 65.1 | 69.6 | 79.8 | | .003 | | .017 |
| CIS T score (mean) ¹ | | | | | | | |
| Psychopathology | 50.9 | 49.9 | 53.8 | | .096 | | .006 |
| Relationships | 47.9 | 50.1 | 52.8 | | .005 | | .054 |
| School | | | | | | | |
| Girls | 45.5 | 53.3 | 52.4 | | .026 | | .617 |
| Boys | 40.5 | 52.6 | 47.6 | | .021 | | .008 |
| Leisure | 54.6 | 48.9 | 51.7 | | .126 | | .061 |
| Total | 50.7 | 50.5 | 53.1 | | .133 | | .044 |

¹Adjusted by other additional disorders and total CBCL score.

²Adjusted by sex and age.

³Percent of subjects with high-moderate impairment.

Table 5 Summary of the differences between comorbid and pure disorders

| COMORBIDITY vs. pure depression | COMORBIDITY vs. pure conduct |
|---|--|
| Symptoms | |
| ↓ Less sleep problems | ↑ Angry and resentful |
| Girls: ↑ Psychomotor agitation/retardation | ↑ Fire setting |
| Boys: ↓ Difficulties appetite | ↓ Weapon use |
| Associated symptoms | |
| ↑ Somatic complaints | ↑ Somatic complaints |
| | ↑ Anxiety symptoms |
| | ↓ Do not listen |
| | ↓ Distracted |
| CBCL | |
| ↑ Anxiety | ↑ Anxiety |
| ↑ Social problems | ↑ Somatic complaints |
| ↑ Thought problems | ↑ Internalizing |
| ↑ Attention problems | |
| ↑ Rule breaking | |
| ↑ Aggressive behavior | |
| ↑ Externalizing | |
| ↑ Total score | |
| Functional impairment | |
| ↑ Impairment in school, at home and behavior towards others | ↑ Global impairment |
| | Boys: ↓ less impaired at school (when questionnaires used) |
| Demographic characteristics | |
| ↑ Boys | ↑ More girls |
| | Older |
| Duration | |
| ↓ Median of duration of depression | ↓ Median of duration of conduct disorder |
| Age at onset | |
| | Conduct disorder starts at an older age |

ated symptomatology (ADHD or SAD, GAD) did not present with different patterns in the pure and comorbid groups, providing further support for the idea that comorbid conduct problems and depression do not constitute a disorder separate from either pure conduct problems or pure depression.

There were also some differences in the patterns of functional impairment associated with the three groups. These differences were not caused simply by the presence of more symptoms or greater severity of those symptoms. Rather, the association of conduct and depressive disorder had a specific effect on impairing functioning.

Using three different methods for assessing functional impairment, the comorbid group was more globally impaired than the pure conduct group, as other studies have also shown (Bird et al., 1993; Fombonne, Wostear, Cooper, Harrington, & Rutter, 2001a, 2001b). The differences in functional impairment between the pure depressive and the comorbid groups appeared, mainly, in three specific areas of functioning (the comorbid were more impaired in school, home and relationships), whereas those between the pure conduct and the comorbid

groups were more global. Although the various functional impairment measures were quite consistent in the direction of the differences and in the areas of impairment affected, their total scores proved less consistent in identifying differences between the pure depression and comorbid groups. In this case, global measures rated by clinicians (CGAS) and questionnaires (CIS) did not show differences; meanwhile the multidimensional instrument (CA-FAS) showed significantly more functional impairment in the comorbid than in the pure depressive group. Another discrepancy emerged when parents and children reported, through questionnaires, on school impairment. Here a sex effect emerged that indicated that comorbid boys were more incapacitated than purely behaviorally disturbed boys.

In terms of sex ratios, the comorbid group followed the patterns expected for the individual disorders in that it contained a higher proportion of girls (characteristic of depression) than the pure conduct group, and more boys (characteristic of conduct disorders) than the pure depressive group. Biederman et al. (1995) found that depression typically followed the onset of other comorbid conditions. The same was true in our sample. In 70% of the comorbid children conduct disorder came first. Nevertheless, we also found that the phenomenology of the disorders remained constant, regardless of the sequence of presentation. However, when they co-occurred, both the depression and conduct disorders were of shorter duration than their pure counterparts, and the conduct problems were of later onset.

In evaluating these findings, we should note three limitations of the study. Firstly, it is based on a mental health specialty clinical population, and we must recognize that data from clinical samples may provide a biased picture, but are valuable in generating hypotheses for continuing research. Secondly, age at onset of the disorders was assessed retrospectively and could be subject to memory bias. Thirdly, this aspect of the analysis generated small groups, so we had little power to detect anything but large differences. However, it is worth bearing in mind that small differences would hardly constitute strong grounds for deciding that the comorbid group belonged in a separate diagnostic category.

The results of the present study have a variety of practical implications. First, they have implications for the treatment of children with comorbid conduct and depressive disorder, who besides the standard treatment for their conduct and depressive symptoms are also likely to need a comprehensive plan for ameliorating their particularly disturbed global functioning in daily life. Furthermore, because the sequence of presentation of comorbid disorder indicates that the picture starts with conduct disorders, children with conduct disorders serve as a target group for the prevention of depressive disorders.

These data also have implications for nosology. We found that comorbid disorders did not differ

dramatically from either pure depression or pure conduct problems. There were some differences, but these did not amount to much, and were not concentrated in one disorder. Consequently, following Angold et al.'s (1999) suggestions, we conclude that when the criteria for both disorders are met, both diagnoses should be given. Neither do these data suggest that it is appropriate to regard comorbid CD and depression as being just a special case of CD any more than it is appropriate to regard it as being a special case of depression (a position that has not been regarded as tenable since the demise of the idea of 'masked depression' (Angold, 1988; Carlson & Cantwell, 1980; Cytryn & McKnew, 1972)). So the DSM-IV convention of assigning two diagnoses when depression and CD are comorbid is supported here.

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