Functional impairment associated with symptoms of oppositional defiant disorder in preschool and early school boys and girls from the general population

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Título: Deterioro funcional asociado a los síntomas del trastorno negativista desafiante en niños y niñas de 3 a 7 años de la población general.
Resumen: Objetivo: Explorar si los síntomas y el diagnóstico de Trastorno Negativista Desafiante (TND), según los criterios diagnósticos DSM-IV, se asocian al mismo nivel de deterioro funcional en niños y niñas de la población general en los primeros años escolares. Método: Se aplicó un cuestionario de cribado a una muestra de 852 escolares de tres a siete años de edad. Un total de 251 familias fueron evaluadas con entrevista diagnóstica y con las medidas de deterioro funcional. Resultados: Los síntomas de TND y el diagnóstico son igualmente prevalentes en los niños y en las niñas, pero las niñas de entre 3 y 5 años presentaron una mayor prevalencia de diagnóstico subumbral de TND. No hubo diferencias significativas entre niños y niñas en el uso de servicios de salud, ni en el tratamiento recibido, ni en la carga familiar asociada a los síntomas o al diagnóstico de TND. Aunque el diagnóstico de TND no se asoció a un mayor deterioro funcional por sexo, los síntomas individuales y el diagnóstico subumbral se asociaban con mayor deterioro funcional en los niños que en las niñas. Conclusión: La "oposicionalidad" pueden estar midiendo variables diferentes en niños y en niñas, y esta posibilidad se debe tener en cuenta para identificar correctamente este problema en cada sexo.
Palabras clave: Deterioro funcional; niños preescolares y escolares; sexo; trastorno negativista desafiante.

Abstract: Objective: To explore whether the symptoms and diagnosis of Oppositional Defiant Disorder (ODD), as defined in the DSM-IV, are equally impairing for girls and boys from the general population in the early school years. Method: A sample of 852 three to seven-year-old schoolchildren were screened out for a double-phase design. A total of 251 families were assessed with a diagnostic interview and with measures of functional impairment. Results: ODD symptoms and diagnosis were equally prevalent in boys and girls, but three- to five-year-old girls had a higher prevalence of subthreshold ODD. There were no significant differences between boys and girls in the impact on use of services, treatment received and family burden associated with ODD symptoms and diagnosis. Although diagnosis of ODD was not associated with higher functional impairment by sex, individual symptoms and subthreshold diagnosis were more impairing for boys than for girls. Conclusion: Oppositionality may be measuring different things for boys and girls, and this possibility must be taken into account with a view to the correct identification of this problem in each sex.
Key words: Functional impairment; oppositional defiant disorder; preschoolers and schoolchildren; sex.

Introduction

Oppositional defiant disorder (ODD) is currently a matter of intense debate. The predictive validity of current definitions (Keenan et al., 2011), the differentiation between normative and pathological behaviours for preschoolers (Moreland & Dumas, 2008) and, specifically, the appropriateness of the definitions of ODD for girls, are topics of ongoing discussion. Research has shown that the developmental course of ODD is different for boys and girls given that the association with conduct disorder (CD) is stronger for boys and the association with emotional disorders is stronger for girls (Rowe, Maughan, Pickles, Costello, & Angold, 2002). It has also been argued that the DSM-IV (American Psychiatric Association, 1994) externalizing disorders criteria underrepresent manifestations in girls, leading to under-identification of disorders in them (Zahn-Waxler, Shirtcliff, & Marceau, 2008). Following this line of thinking, Ohan and Johnston (2005) proposed different female-sensitive ODD symptoms for relational aggression for ages 7 to 14. Keenan, Coyne and Lahey (2008) found, however, that the variance of impairment for girls and boys explained

by this construct was low, and therefore did not warrant its inclusion in the definition of externalizing disorders. Waschbusch and King (2006) identified a group of girls (ages 5 to 12) without a DSM-IV ODD diagnosis who had high ODD scores when sex-specific norms were used, and who were impaired; this group had not been identified or treated. The need for more research on ODD in girls is becoming more widely recognised (Pardini, Frick, & Moffitt, 2010).

The under-identification of children with impairing ODD symptoms is an important clinical topic. Two concepts are used regarding the potential consequences or the impact of the child's psychological symptoms: a) functional impairment, which refers to the consequences for the child's performance of everyday life functions (Üstun & Chatterji, 1997); and b) family burden, which refers to the consequences for family members (Angold et al., 1998). These concepts are especially relevant for treatment access and planning and for the monitoring of outcomes (Kramer et al., 2004). Angold, Costello, Farmer, Burns, and Erkanli (1999) and Angold et al. (1998) reported, on the one hand, that children with functional impairment associated with psychological symptoms were in need of services and should be considered as suffering from a psychiatric disorder, and on the other, that perceived parental burden is a strong predictor of use of mental health services. Identifying the most severely impaired preschoolers is a principal preventive target, given the strong risk of the long-term continuity of psycho-

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logical problems (Reef, van Meurs, Verhulst, & van der Ende, 2010). Sex-specific concerns must be considered in the assessment of impairment, given that parents perceive their children's impairment differently depending on the child's sex (boys displaying higher impairment than girls) (Wille, Bettge, Wittchen, & Ravens-Sieberer, 2008).

In 9 to 13-year-old children, ODD is more strongly associated with disability in the family and with peers than conduct disorder, and no sex-by-diagnosis interactions have been reported in relationships with functional impairment (Ezpeleta, Keeler, Erkanli, Costello, & Angold, 2001). Bauermeister et al. (2010), in a sample of 568 six to twelve-year-olds, reported that ODD was associated with higher negative impact on the family in social life, financial burden, school relations, couple relationships, and relationships with siblings. In this study, ODD symptoms were associated with impact on global stress in relation to parenting, regardless of ADHD symptomatology, and no significant sex interactions were observed. Combining information from parents and children obtained in a structured diagnostic interview, boys diagnosed with ODD were significantly more impaired than girls in the domains of school, community and behaviour towards others (Trepat & Ezpeleta, 2011). Masi et al. (2011) reported a strong association between functional impairment and poorer response to psychosocial intervention in children diagnosed with oppositional defiant disorder or conduct disorder. However, few studies have addressed the topic of how symptoms of ODD affect boys and girls early in life. In a sample of 123 psychiatrically referred and 100 paediatric children, mostly African-American, neither sex nor age differences were found in the rate of ODD, but the impact of the disorder on the family was stronger for boys than for girls (Keenan et al., 2007). Furthermore, the same study found a non-significant trend in non-referred girls whereby they were three times more likely than non-referred boys to fulfil an ODD diagnosis. This result could indicate that the same symptoms have different implications for boys and for girls. This aspect needs further exploration in preschoolers.

Further work on the impact and manifestation of ODD in preschoolers and early childhood on unbiased samples of the general population is essential for the advancement of the field and for improving intervention in boys and girls. The goal of the present study is to explore the manifestation of ODD symptoms early in life (ages 3 to 7) and to assess whether the DSM-IV symptoms that define this disorder are equally impairing for girls and for boys from the general population.

Method

Participants

The initial sample consisted of 852 preschool children (aged 3 to 5) and first and second graders (aged 6 to 7) from the general school population (private and public) in Barcelona. Nine schools, representing high, median and low so-

cioeconomic levels were invited to participate. Participants were stratified by socioeconomic levels (Hollingshead, 1975). Five hundred and fifteen families (60.4%) agreed to participate in the first phase of the screening (Figure 1), of whom, 29.3% were of high social status, 54.8% average, and 15.9% low. There were no sex ($p = .731$) or age ($p = .064$) differences between those who agreed to participate and those who did not. The Child Behavior Checklist (CBCL) was used as a screening instrument to ensure inclusion of children with possible psychological problems (screen positive: all the children with CBCL T-scores ≥ 65 on internalizing, externalizing or total; screen negative: randomly selection of at least 40% among CBCL T-scores < 65 on the same scales). Thirty-two cases (6.2%) declined to participate in the second phase of the study. These cases did not differ by sex ($p = .643$) from those who agreed to participate. However, the children whose families accepted were younger (mean age 5.23 vs 5.84; $p = .024$).

The final sample of interest for the present study included 251 children between 3 and 7 years of age (mean age = 5.2; $SD = 1.4$); 53.8% were boys, and 43.1% were at public schools and 56.9% at private schools. Ethnic background distribution was: 95.2% Caucasian, 2.4% Hispanic-American and 2.4% from other groups. The screen positive group was made up of 33 children (66.7% boys; mean total score on CBCL: 67.4 -SD = 6.8). The screen negative group was made up of 218 children (51.8% boys; mean total score on CBCL: 45.5 –SD = 6.9). Mothers took the interview in 74.5% of cases, fathers in 5.2% and the two parents took a single interview together in 20.3% of cases. Children showing mental disability, pervasive developmental disorders or language difficulties were not included in the study.

Measures

Child Behaviour Checklists

The Child Behaviour Checklist for pre-school (CBCL/1½-5; Achenbach & Rescorla, 2000) and school-age children (CBCL/6-18; Achenbach & Rescorla, 2001) is parent-reported and provides dimensional measures of psychopathology. The CBCL/1½-5 includes a set of 100 items with 3 response options (0: not true, 1: somewhat or sometimes true, 2: very true or often true). Typical scores for internalizing (includes emotionally reactive, anxious/depressed, somatic complains, and withdrawn syndrome scales), externalizing (includes attention problems and aggressive behavior) and total were used for the screening of 3 to 5-year-old children. The CBCL/6-18 contains 113 items with the same response options. Typical scores of internalizing (includes anxious/depressed, withdrawn-depressed and somatic complains syndrome scales), externalizing (includes rule-breaking behavior and aggressive behavior) and total were used for the screening of 6 to7-year-old children. The screening efficiency of the caretaker-report CBCL has been extensively supported (Warnick, Bracken, & Kasl, 2008).
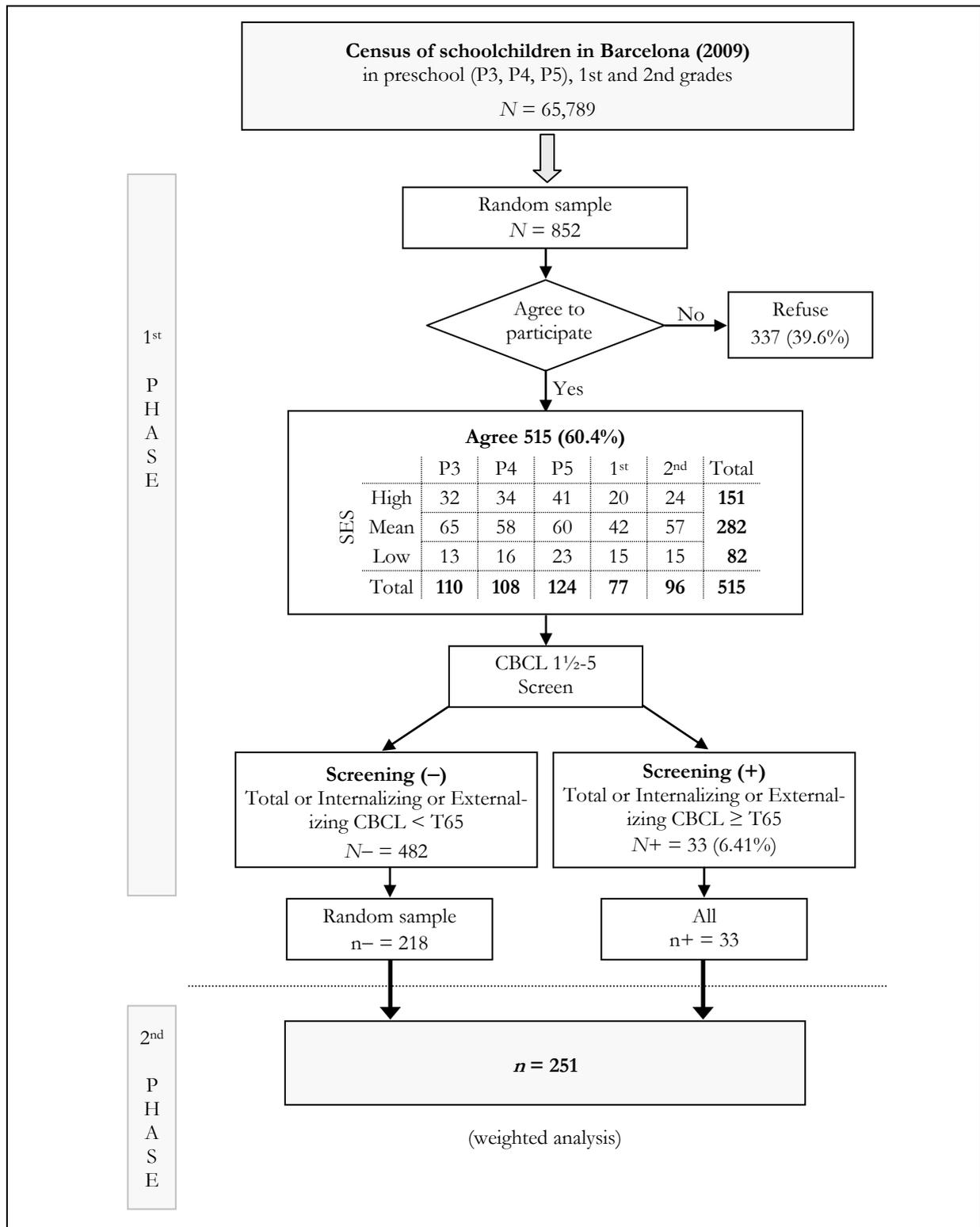
Figure 1. Design of the study.

Diagnostic Interview for Children and Adolescents for Parents of Preschool Children (DICA-PPC)

The DICA-PPC is a computerized semi-structured interview for parents of children aged 3 to 7 that covers common diagnostic categories following the DSM-IV definitions (Ezpeleta, Osa, Granero, Doménech, & Reich, 2011). The present study focuses on the diagnosis of ODD as defined by the DSM-IV. Information about use of services, treatment and family burden is obtained at the end of each disorder. Diagnoses are generated through computerized algorithms written in SPSS. Counts were made of the number of ODD symptoms, and disorders were assessed over the lifetime. Subthreshold ODD was defined as the presence of less than four symptoms and the presence of impairment at home, at school or with others (peers or adults).

Preschool and Early Childhood Functional Assessment Scale (PECFAS)

The PECFAS records the extent to which young people's mental health disorders are disruptive of their functioning in role performance at school, at home, in the community, and in behaviour towards others, and who they influence mood/emotion, self-harm and cognition as reported by parents (Hodges, 1995). Total score, which is the sum of the scales, was used for the study. Cronbach's alpha for total score in this study was 0.68. Test-retest agreement was good for binary score (presence-absence) (kappa = .78, p < .001; 95% *CI:* .71-.86) and very good for continuous measure (intra-class correlation coefficient: .90, p < .001, 95% *CI:* 0.87-.92).

Procedure

The project was approved by the ethics review committee of the author's institution. Families were recruited at the schools and written consent was obtained from the parents. All the children from infantile education (3-year-olds) to 2nd grade of primary education (ages 6 to 7) of the schools participating were invited to complete the CBCL at home and to return it at school. Families who agreed to participate and who fulfilled the screening criteria were contacted by telephone and were interviewed at the school by trained interviewers. After the interview, interviewers rated the function-

al impairment measure (PECFAS) considering the symptoms of the interview. Interviewers were trained in the use of the interview and were blind to the screening group. All the interviews were audio-recorded and supervised.

After each interview, interviewers rated the PECFAS.

Statistical analysis

Data were analyzed with SPSS Statistics 17. Confidence intervals of the prevalences were estimated with Wilson's method (Newcombe, 1998). All the analyses were weighted by assigning sampling weights inversely proportional to the probability of participant selection (Figure 1). Robust estimations were carried out to produce unbiased parameter estimates and appropriate standard error generalizable to the original population.

The association of each ODD symptom and ODD DSM-IV dimensions with sex, adjusted for age and comorbidity, was assessed through logistic regressions (for binary symptoms) and negative binomial regressions (for the dimensional scores).

Logistic regressions (for binary criteria) and multiple regressions (for quantitative outcomes) were carried out to determine whether sex was associated with use of services, receiving treatment, family burden and impairment. All models were adjusted for age, comorbidity, and ODD symptoms other than the independent variable. To assess the moderating role of children's sex in the relationship between the presence of symptoms and the outcomes, the interaction of the symptoms with sex was tested.

Results

Prevalence of ODD diagnoses in the sample

The DSM-IV-based prevalence of ODD for the whole sample was 5.6% (Table 1). Adjusting for age and comorbidity, no significant differences appeared in the prevalence for boys (7.9%) and girls (3.21%) (*OR* = 2.4; 95% *CI:* .70-8.4). Adjusting for comorbidity, no significant differences were found in the prevalence for boys and girls at ages 3 to 5 (*OR* = 1.91; 95% *CI:* .40-9.2), or in the comparisons for ages 6 to 7 (*OR* = 3.5; 95% *CI:* .40-30.8).

Table 1. Prevalence of ODD in the sample. Se han centrado todos los números de las columnas para aproximarlos y centrarlos con los encabezados.

	N (Weighted prevalence %; 95% CI)			
	Full Diagnosis		Subthresold	
DSM-IV-TR				
Whole sample *N* = 244	16	(5.6; 3.4 ÷ 9.3)	26	(9.6; 6.5 ÷ 13.9)
Ages 3,4,5 Boys (*N* = 81)	6	(5.9; 2.5 ÷ 13.4)	5	(5.3; 2.1 ÷ 12.5)
Girls (*N* = 77)	3	(3.4; 1.1 ÷ 10.1)	13	(15.0; 8.7 ÷ 24.5)
Ages 6,7 Boys (*N* = 49)	6	(11.3; 5.0 ÷ 23.4)	7	(13.6; 6.5 ÷ 26.1)
Girls (*N* = 37)	1	(2.7; 0.49 ÷ 13.5)	1	(2.7; 0.51 ÷ 13.5)

CI : Confidence Interval.

The prevalence of subthreshold ODD for the whole sample was 9.6%. Adjusting for age and comorbidity, no significant differences appeared in the prevalence for boys (8.3%) and girls (10.9%) ($OR = .72$; 95% CI: .30-1.7). Adjusting for comorbidity, there were significant differences in the prevalence for boys and girls at ages 3 to 5 ($OR = .31$; 95% CI: .10-.98) (more girls having subthreshold disorders). No statistical differences appeared in the comparisons for ages 6 to 7 ($OR = 4.8$; 95% CI: .57-40.5).

Prevalence of the symptoms by sex and age

The first part of Table 2 shows the prevalence of each ODD symptom and its association with sex adjusted for age, other ODD symptoms and comorbidity. There were no significant differences in prevalence of the symptoms between boys and girls.

The second part of Table 2 shows the weighted means for number of symptoms. Negative binomial regressions adjusted for age and comorbidity indicated that there were no significant sex differences in mean number of ODD symptoms.

Table 2. Prevalence of the Symptoms and Sex Association. Se han centrado numerous y encabezados.

		N (weighted prevalence %)			Weighted comparison by sex	
	Boys (*N* = 135)		Girls (*N* = 116)		OR^1	95% *CI (OR)*
Loses temper	29	(18.2)	30	(23.3)	0.69	0.29; 1.65
Argues with adults	20	(13.6)	25	(19.7)	0.57	0.21; 1.54
Defies	17	(12.0)	17	(14.0)	0.75	0.26; 2.22
Annoys others	8	(5.2)	4	(3.1)	1.20	0.26; 5.49
Blames others	25	(17.7)	13	(10.3)	1.91	0.80; 4.56
Easily annoyed	18	(12.4)	11	(8.0)	1.04	0.36; 3.00
Angry and resentful	11	(7.2)	3	(2.2)	4.64	0.84; 25.7
Spiteful or vindictive	4	(1.9)	1	(0.4)	4.36	0.15; 129
DSM-IV diagnosis	12	(7.5)	4	(3.1)	2.40	0.69; 8.32
	Weighted mean (*SD*)				^2MD	95% *CI (MD)*
Number DSM-IV symptoms	0.88	(1.59)	0.81	(1.30)	0.031	-0.34; 0.28

[1] Logistic Regression adjusted for age, comorbidity and other ODD symptoms.
[2] Mean differences in negative binomial regression adjusted for age and comorbidity.

Association of symptoms with use of services, treatment and family burden by sex

Table 3 shows the prevalence of use of services, treatment and family burden related to ODD in boys and girls when the ODD symptoms or the diagnosis were present, as well as the mean scores on the total number of symptoms and dimensions. The results of the binary logistic regression analyzing the association of sex with these outcomes (controlling for age, comorbidity and other ODD symptoms) showed no significant interaction of sex by symptom. No significant associations between sex and use of services, treatment or family burden appeared when each specific ODD symptom, subthreshold definition or diagnosis was present. Neither use of services, treatment or family burden were associated with sex when there was a high mean number of symptoms.

Association of symptoms with impairment by sex

Table 3 shows the mean PECFAS total score for boys and girls who presented each ODD symptom or the diagnosis and mean of total numbers of symptoms. The multiple regressions analyzing the specific contribution of each symptom (independent variable) to the PECFAS total score (dependent variable) by sex (adjusted for the covariates age, comorbidity and other ODD symptoms) indicated that boys increased their score on impairment in the presence of each

ODD symptom, showed a higher number of ODD symptoms, and were identified as subthreshold diagnosis with higher risk.

The presence of the diagnosis did not have a different effect on impairment in boys and girls. There was a significant interaction between sex and the symptom *annoys others* ($p < .001$): although both single effects were statistically significant, when the symptom was present the difference in the PECFAS total score between boys and girls was higher than when the symptom was absent (25.4 vs. 4.1).

Discussion

The purpose of the study was to assess whether the symptoms and diagnosis of the current categorical definition of ODD were equally impairing for girls and for boys from the general population in the early school years. Results showed a similar presentation of the symptoms and diagnosis in the two sexes, but a stronger association of the symptoms with impairment in boys.

Prevalence of ODD between 3 and 7-year-olds was 5.5 in this population. This value is close to those reported by Egger et al. (2006) but lower than other reports in the general population with similar but not exactly the same age range (Bufferd, Dougherty, Carlson, & Klein, 2011; Keenan, et al., 2007; Lavigne, Lebailly, Hopkins, Gouze, & Binns, 2009) that used DSM-IV definitions and parents as inform-

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ants. In addition, it is necessary to recognise subthreshold cases, that is, cases without the full symptomatology but with impairment, because they are also in need of services and are at risk of developing the full-syndrome disorder (Shankman et al., 2009). Therefore, along with the prevalence of the diagnosis, there were an additional 9.6% corre-

sponding to subthreshold cases that had difficulties in functioning related to oppositionality. These numbers certainly situate this problem as one of the most prevalent among those with onset at an early age. Several works have shown that these children might benefit from parent-directed interventions (Robles & Romero, 2011).

Table 3. Association of ODD symptoms and sex with Use of services, Treatment, Family Burden and PECFAS score (*N* = 251). Idem

	Use of services[a]			Treatments[a]			Family burden[a]			PECFAS: total score[a]		
	Boys	Girls	[1]*OR*	Boys	Girls	[1]*OR*	Boys	Girls	[1]*OR*	Boys	Girls	[2]*Mean diff.*
	(%)		(95% CI)	(%)		(95% CI)	(%)		(95% CI)	Mean		(95% CI)
Loses temper	54.2	32.1	1.6 (0.91;2.9)	57.1	75.0	1.0 (0.09;11.1)	60.0	52.2	1.2 (0.40;3.8)	41.5	26.9	**5.9 (2.2;9.6)**
Argues with adults	55.6	37.5	1.6 (0.91;3.0)	50.0	75.0	1.1 (0.11;11.5)	68.8	57.9	1.4 (0.40;4.3)	45.2	28.3	**6.0 (2.2;9.7)**
Defies	60.0	41.2	1.5 (0.90;2.8)	66.7	50.0	1.1 (0.12;10.7)	80.0	70.6	2.2 (0.56;8.3)	45.2	34.1	**5.6 (1.9;9.3)**
Annoys others	57.1	75.0	1.5 (0.87; 2.7)	50.0	66.7	.94 (0.10;9.34)	100	50.0	1.1 (0.34;3.5)	53.4	33.9	[Pr]**25.4 (5.7;45.2)** [Ab]**4.1 (0.14;8.0)**
Blames others	50.0	23.1	1.5 (0.86;2.7)	57.1	0	1.1 (0.09;12.4)	68.8	66.7	0.88 (0.27;2.8)	28.3	15.1	**5.2 (1.3;9.0)**
Easily annoyed	50.0	33.3	1.5 (0.86;2.8)	60.0	50.0	1.1 (0.12;10.2)	46.7	57.1	1.2 (0.39;3.7)	40.1	23.7	**4.5 (0.66;8.4)**
Angry/resentful	60.0	100	1.4 (0.84;2.7)	33.3	100	1.2 (0.10;10.5)	75.0	100	1.1 (0.33;3.1)	50.9	42.6	**4.4 (0.57;8.3)**
Spiteful/vindictive	100	0	1.5 (0.86;2.7)	50.0	0	1.1 (0.12;11.2)	100	0	1.1 (0.37;3.3)	58.9	10.0	**4.9 (0.97;8.8)**
DSM ODD diagnosis	80.0	50.0	1.5 (0.82;2.6)	50.0	100	0.81 (.15;4.6)	90.0	100	0.66 (0.26;1.7)	59.5	48.4	3.4 (-0.58;7.3)
DSM ODD subthreshold	45.5	46.2	1.6 (0.90;2.8)	100	40.0	3.5 (0.39;30.7)	80.0	78.6	1.6 (0.55;4.6)	47.9	29.8	**5.7 (1.6;9.8)**
	Mean		[1]*OR*	*Mean*		[1]*OR*	*Mean*		[1]*OR*	*Mean*		[2]*Mean diff.*
ODD: DSM symptoms	1.43	1.22	1.5 (0.86;2.7)	3.71	3.53	0.83 (0.12;5.5)	3.92	3.26	1.1 (0.33;3.8)	1.49	1.37	**4.5 (0.95;8.1)**

[a] Distribution when the symptom is present.
[Pr] Single effect when the symptom is present (significant interaction sex*symptom). [Ab] Single effect when the symptom is absent (significant interaction sex*symptom).
[1]Logistic or multiple regression including age, comorbidity, interaction symptom by sex (and symptoms other than those studied).
[2]Multiple regression including age, comorbidity, interaction symptom by sex (and symptoms other than those studied).
Weighted analysis. In bold: significant OR/B parameter (.05 level).

The interest of this study was focused mainly on sex differences, given that few studies have explored this issue in very young children from the general population. The results indicate that the prevalence of ODD is higher in boys than in girls from ages 3 to 7, but the differences are not statistically significant. Furthermore, three times more 3 to 5-year-old girls were identified as subthreshold cases, which highlights the difficulty for identifying girls. Regarding the symptoms, the results show that prevalence and number of symptoms are similar in boys and in girls (although there were, in general, more indicators in boys).

Use of services, treatments received and family burden associated with the ODD symptoms and with the diagnosis did not differ between boys and girls. However, the presence of symptoms is associated with higher impairment in boys than in girls. This is especially important given that this work addresses a sample of the general population where the symptoms, as expected, are more prevalent than an actual diagnosis. Even in subthreshold conditions, boys had impairment scores 18 to 21 points higher than girls. Keenan et al. (2007) also found that ODD symptoms had a greater impact on the families of boys than of girls. The greater impairment associated with symptoms in boys means that the symptoms have different implications in each sex and that girls need more confirmation (a full diagnosis) in order for caregivers to consider the difficulties in their daily life (given that the differences are less marked, and non-significant when a diagnosis is present). It could be hypothesized that the more severe impact in boys explains the association with

more comorbidity with externalizing disorders or with more severe symptoms (Zahn-Waxler, et al., 2008); however, the analyses were controlled for comorbidity and there were no differences in the number of symptoms, which could be interpreted as measures of severity. Caregivers might also be showing different attitudes towards the symptoms of boys and girls, and in this line, Chavez, Shrout, Alegría, Lapatin and Canino (2010) have reported that females are rated by parents as less in need of medication than males when the two are described with exactly the same problems. Alternatively, caregivers' reports might be influenced by gender norms regarding oppositionality, and these norm-based biases may lead parents to over-report (or take more notice of) the oppositionality of girls because they are inconsistent with norms. Therefore, girls might reach thresholds more quickly when actual impairment is not as high. Furthermore, it has been documented that greater parental attention to negative emotions is found for boys compared to girls (Chaplin, Cole, & Zahn-Waxler, 2005), and this might lead to more attention being paid to their consequences, resulting in higher impairment scores in boys. Finally, oppositionality might be measuring different things in boys and girls, as suggested by evidence from the Great Smoky Mountains Study, where ODD was more likely to progress to CD in boys but to internalizing disorder in girls (Rowe, Costello, Angold, Copeland, & Maughan, 2010; Rowe, et al., 2002).

This is one of the few studies that reports on the impact of DSM-IV ODD diagnoses and symptoms for this age range (3 to 7) in a European sample of the general popula-

tion. These results support those of previous research that pointed out the difficulties for identifying oppositional girls (Ohan & Johnston, 2005; Waschbusch & King, 2006), and highlight the need to consider this limitation when diagnosing girls.

A positive aspect of this study was the use of an interviewer-based structured diagnostic interview, which permitted clarification as regards the quality of the manifestations of the behaviours. However, on interpreting the results, some limitations should be taken into consideration. Given that we did not speak with the teachers, the actual rates of oppositionality could be higher (Munkvold, Lundervold, Lie, & Manger, 2009). In the first phase of the study, there was 39.6% of rejection. There were no sex or age differences between those who agreed to participate and those who did not, but fewer older children (6 to 7-year-olds) and families from low socioeconomic levels participated in the study, and this could have led to bias. Finally, all the prevalences were evaluated with 95% confidence interval to include the variability depending on sample size. Although all the analyses were weighted, splitting the sample by sex and age for some analyses may have reduced the power of the tests for comparisons between groups.

References

Achenbach, T. M., & Rescorla, L. A. (2000). *Manual for the ASEBA preschool-age forms & Profiles.* Burlington, VT: University of Vermont, Research Center for Children, Youth & Families.

Achenbach, T. M., & Rescorla, L. A. (2001). *Manual for the ASEBA school-age forms & Profiles.* Burlington, VT: University of Vermont, Research Center for Children, Youth & Families.

American Psychiatric Association. (1994). *DSM-IV Diagnostic and statistical manual of mental disorders* (4th ed.). Washington, DC: Author.

Angold, A., Costello, E. J., Farmer, E., Burns, B. J., & Erkanli, A. (1999). Impaired but undiagnosed. *Journal of the American Academy of Child and Adolescent Psychiatry, 38,* 129-137.

Angold, A., Messer, S. C., Stangl, D., Farmer, E., Costello, E. J., & Burns, B. J. (1998). Perceived parental burden and service use for child and adolescent psychiatric disorders. *American Journal of Public Health, 88,* 75-80.

Bauermeister, J. J., Puente, A., Martínez, J. V., Cumba, E., Scandar, R. O., & Bauermeister, J. A. (2010). Parent perceived impact of spaniard boys' and girls' inattention, hyperactivity, and oppositional defiant behaviors on family life. *Journal of Attention Disorders, 14,* 247-255.

Bufferd, S. J., Dougherty, L. R., Carlson, G. A., & Klein, D. N. (2011). Parent-reported mental health in preschoolers: Findings using a diagnostic interview. *Comprehensive Psychiatry, 52,* 359-369.

Chaplin, T. M., Cole, P. M., & Zahn-Waxler, C. (2005). Parental Socialization of emotion expression: Gender differences and relations to child adjustment. *Emotion, 5*(1), 80-88.

Chavez, L. M., Shrout, P. E., Alegría, M., Lapatin, S., & Canino, G. (2010). Ethnic Differences in Perceived Impairment and Need for Care. *Journal of Abnormal Child Psychology, 38,* 1165-1177.

Egger, H. L., Erkanli, A., Keeler, G., Potts, E., Walter, B., & Angold, A. (2006). Test-Retest Reliability of the Preschool Age Psychiatric Assessment (PAPA). *Journal of the American Academy of Child and Adolescent Psychiatry, 45,* 538-549.

Ezpeleta, L., Keeler, G., Erkanli, A., Costello, E. J., & Angold, A. (2001). Epidemiology of psychiatric incapacity in children and adolescents. *Journal of Child Psychology and Psychiatry, 42,* 901-914.

Ezpeleta, L., Osa, N. de la, Granero, R., Doménech, J. M., & Reich, W. (2011). The Diagnostic Interview for Children and Adolescents for Parents of Preschool Children. *Psychiatry Research, 190,* 137-144.

Hodges, K. (1995). *Preschool and Early Childhood Functional Assessment Scale.* Ypsilanti: Eastern Michigan University.

Hollingshead, A. B. (1975). *Four factor index of social status.* New Haven, CT: Unpublished manuscript, Yale University, Department of Sociology.

Keenan, K., Boeldt, D., Chen, D., Coyne, C., Donald, R., Duax, J., Hart, K., Perrott, J., Strickland, J., Danis, B., Hill, C., Davis, S., Kampani, S. & Humphries, M. (2011). Predictive validity of DSM-IV oppositional defiant and conduct disorders in clinically referred preschoolers. *Journal of Child Psychology and Psychiatry, 52,* 47-55.

Keenan, K., Coyne, C., & Lahey, B. B. (2008). Should relational aggression be included in DSM-V. *Journal of the American Academy of Child and Adolescent Psychiatry, 47,* 86-93.

Keenan, K., Wakschlag, L. S., Danis, B., Hill, C., Humphries, M., Duax, J., & Donald, R. (2007). Further evidence of the reliability and validity of DSM-IV ODD and CD in preschool children. *Journal of the American Academy of Child and Adolescent Psychiatry, 46,* 457-468.

Kramer, T. L., Phillips, S. D., Hargis, M. B., Miller, T. L., Burns, B. J., & Robbins, J. M. (2004). Disagreement between parent and adolescent reports of functional impairment. *Journal of Child Psychology and Psychiatry, 45,* 248-259.

Lavigne, J. V., Lebailly, S. A., Hopkins, J., Gouze, K. R., & Binns, H. J. (2009). The prevalence of ADHD, ODD, depression, and anxiety in a community sample of 4-year-olds. *Journal of Clinical Child and Adolescent Psychology, 38,* 315-328.

Masi, G., Manfredi, A., Milone, A., Muratori, F., Muratori, P., Polidori, L., & Ruglioni, L. (2011). Predictors of nonresponse to psychosocial treatment in children and adolescents with disruptive behavior disorders. *Journal of Child and Adolescent Psychopharmacology, 21,* 51-55.

Moreland, A. D., & Dumas, J. E. (2008). Categorical and dimensional approaches to the measurement of disruptive behavior in the preschool years: A meta-analysis. *Clinical Psychology Review, 28,* 1059-1070.

Munkvold, L., Lundervold, A., Lie, S. A., & Manger, T. (2009). Should there be separate parent and teacher-based categories of ODD? Evidence from a general population. *Journal of Child Psychology and Psychiatry, 50,* 1264-1272.

Newcombe, R. G. (1998). Two-sided confidence intervals for a single proportion: comparison of seven methods. *Statistics in Medicine, 17,* 857-872.

Ohan, J. L., & Johnston, C. (2005). Gender appropriateness of symptom criteria for Attention-Deficit/Hyperactivity Disorder, Oppositional-Defiant Disorder and Conduct Disorder. *Child Psychiatry and Human Development, 35,* 359-381.

Pardini, D. A., Frick, P. J., & Moffitt, T. E. (2010). Building an evidence base for DSM-5 conceptualizations of oppositional defiant disorder and conduct disorder: Introduction to the special section. *Journal of Abnormal Psychology, 119,* 683-688.

Reef, J., van Meurs, I., Verhulst, F. C., & van der Ende, J. (2010). Children's problems predict adults' DSM-IV disorders across 24 years. *Journal of the American Academy of Child and Adolescent Psychiatry, 49,* 1117-1124.

Robles, Z., & Romero, E. (2011). Programas de entrenamiento para padres de niños con problemas de conducta: una revisión de su eficacia. *Anales de psicología, 27,* 86-101.

Rowe, R., Costello, E. J., Angold, A., Copeland, W. E., & Maughan, B. (2010). Developmental pathways in oppositional defiant disorder and conduct disorder. *Journal of Abnormal Psychology, 119,* 726-738.

Rowe, R., Maughan, B., Pickles, A., Costello, E. J., & Angold, A. (2002). The relationship between DSM-IV oppositional defiant disorder and conduct disorder: Findings from the Great Smoky Mountain Study. *Journal of Child Psychology and Psychiatry, 43,* 365-373.

Shankman, S. A., Lewinsohn, P. M., Klein, D. N., Small, J. W., Seeley, J. R., & Altman, S. E. (2009). Subthreshold conditions as precursors for full syndrome disorders: A 15-year longitudinal study of multiple diagnostic classes. *Journal of Child Psychology and Psychiatry, 50,* 1485-1494.

Trepat, E., & Ezpeleta, L. (2011). Sex differences in oppositional defiant disorder. *Psicothema, 23*, 666-671

Üstun, B., & Chatterji, S. (1997). Editorial: Measuring functioning and disability-a common framework. *International Journal of Methods in Psychiatric Research, 7*, 79-83.

Warnick, E. M., Bracken, M. B., & Kasl, S. (2008). Screening efficiency of the Child Behavior Checklist and Strengths and Difficulties Questionnaire: A systematic review. *Child and Adolescent Mental Health, 13*, 140-147.

Waschbusch, D., & King, S. (2006). Should sex-specific norms be used to assess Attention-Deficit/Hyperactivity Disorder or Oppositional Defiant Disorder? *Journal of Consulting and Clinical Psychology, 74*, 179-185.

Wille, N., Bettge, S., Wittchen, H. U., & Ravens-Sieberer, U. (2008). How impaired are children and adolescents by mental health problems? Results of the BELLA study. *European Child and Adolescent Psychiatry, 17*(1), 42-51.

Zahn-Waxler, C., Shirtcliff, E. A., & Marceau, K. (2008). Disorders of childhood and adolescence: Gender and psychopathology. *Annual Review of Clinical Psychology, 4*, 275-303.