José A. López-Villalobos[1]
Jesús M. Andrés-De Llano[2]
Victoria López-Sánchez[3]
Luis Rodríguez-Molinero[4]
Mercedes Garrido-Redondo[4]
María T. Martínez-Rivera[4]
Ana M. Sacristán-Martín[5]

Prevalence of Oppositional Defiant Disorder in a sample of Spanish children between six and sixteen years: teacher's report

[1]Servicio de Psiquiatría. Complejo Asistencial Universitario de Palencia. SACYL
[2]Servicio de Pediatría. Complejo Asistencial Universitario de Palencia. SACYL
[3]Psicóloga
[4]Servicio de Pediatría. Atención Primaria. Valladolid. SACYL
[5]Servicio de Pediatría. Atención Primaria. Palencia. SACYL

Introduction. Our main objective is to study the prevalence of Oppositional Defiant Disorder (ODD) in school children aged 6-16 years of an autonomous region of Spain (Castile and Leon), according to reports from the teachers and to analyze the impact of the disorder on academic performance and school behavior.

Methods. Population study with stratified multistage, proportional and cluster design sample. Sample analyzed: 1,049. Cases were defined according to DSM-IV-TR criteria.

Results. An overall prevalence rate of 4.2% was found, this being significantly higher in males (5.7%) compared to females (2.6%) and in rural (6.8%) than in urban areas (3%). No significant differences by grade or type of school were found. ODD prevalence without considering functional impairment would increase to 5.1%. ODD cases have significantly worse academic outcomes (overall academic performance, reading, math and writing) and entail worse classroom behavior (relationship with peers, respect for rules, organizational skills, academic tasks and disruption of the class).

Conclusions. Based on the prevalence, early onset, persistence of symptoms and social and academic dysfunction of ODD, early diagnosis and preventive intervention are necessary.

Keywords: Prevalence, Oppositional defiant disorder (ODD), Childhood, Adolescence, Teacher

Actas Esp Psiquiatr 2015;43(4):213-20

Prevalencia del Trastorno Negativista Desafiante en una muestra de niños españoles entre seis y dieciséis años: informe del profesor

Introducción. Nuestro objetivo principal es estudiar la prevalencia del Trastorno Negativista Desafiante (TND) en escolares de 6 a 16 años de una Comunidad Autónoma de España (Castilla y León) según informes del profesorado y analizar la repercusión del trastorno en resultados académicos y conducta escolar.

Metodología. Estudio poblacional con diseño muestral polietápico estratificado, proporcional y por conglomerados. Muestra analizada: 1.049. Casos definidos según criterios DSM-IV-TR.

Resultados. La prevalencia de TND es 4,2%. La prevalencia es significativamente superior en sexo masculino (5,7%), respecto al femenino (2,6%) y en zona rural (6,8%) respecto a urbana (3%). No existen diferencias significativas en función del curso o colegio público/privado. La prevalencia de TND sin considerar deterioro funcional aumentaría al 5,1%. Los casos de TND según informes de profesores presentan significativamente peores resultados académicos (resultados globales, lectura, matemáticas y expresión escrita) y peor conducta en clase (relación con compañeros, respeto a normas, destrezas organizativas, realización de tareas académicas e interrupciones de clase).

Conclusiones. En función de la prevalencia, inicio precoz, persistencia de síntomas y disfunción social y escolar del TND, es necesario un diagnóstico temprano e intervención preventiva.

Palabras clave: Prevalencia, Trastorno negativista desafiante (TND), Infancia, Adolescencia, Profesor

Correspondence:
José Antonio López Villalobos
Servicio de Psiquiatría – Complejo Asistencial Universitario de Palencia
Hospital San Telmo
Avenida San Telmo s/n
34004 Palencia (Spain)
E-mail: villalobos@cop.es // jlopezv@saludcastillayleon.es

INTRODUCTION

The main purpose of our study is to analyze prevalences of Oppositional Defiant Disorder (ODD) in Spanish children aged 6 to 16 from a regional community (RC) of Spain (Castile and Leon) based on the teacher's information.

ODD, according to the DSM-IV-TR criteria,[1] is characterized by the recurrent presence of four or more of the following behaviors: irritability, arguing, defying authority, deliberately annoying others, blaming others for one's errors, being touchy, excessive anger and being spiteful or vindictive. To diagnose the disorder, this behavioral pattern should last at least six months, appear more frequently than that observed in subjects having a similar age and development level and produce significant deterioration of social or academic activity.[1]

Recent investigations state that the ODD symptoms are grouped into two factors. The "irritability/negative affect" factor that predicts future behavior internalizing disorders and the "stubborn/oppositional" factor that predicts future behavioral disorders.[2] Parallelly, based on the symptoms, some authors consider that ODD should be included within emotional regulation disorders.[3]

The recent review of ODD in the DSM-5[4] maintains the same symptoms of the DSM-IV-TR and the same categorical cutoff to consider the disorder. DSM-5 mentions ODD in disruptive impulse control and conduct disorders, including angry/irritable, argumentative/oppositional attitude and vengeful character. A case of ODD in the DSM-IV-TR would usually be considered with the same name in the DSM-5, specifying the seriousness of the disorder based on the extension of the symptoms to one or more environmental contexts.

Children with ODD whose first symptoms generally appear early and are persistent generally make frequent visits to the healthcare clinics in all of the age groups between childhood and adolescents.[5-8]

ODD generally does not appear alone and has comorbidity with attention deficit and hyperactivity disorder, antisocial disorder, anxiety disorder, depressive disorder and learning disorder.[9-11] Different investigations have not only observed comorbidity but that ODD predicts these comorbid disorders and poor psychosocial adjustment.[10,12-14]

Longitudinal studies have observed that children with behavioral problems have a greater likelihood when they become adults of committing criminal acts, drug abuse, suffering anxiety or depression, suicide attempts, having multiple sexual partners, being violent, having children prematurely and difficulties to find someone who recommends them for a job.[15,16]

Because of the repercussions of the disorder on social or interpersonal functioning and its persistence over time, ODD needs to be considered as a problem that is not limited to childhood.

The most cited prevalence in school age children ranges from 2% to 16%.[1] Along the same line, a recent study conducting an extensive review of ODD prevalence, according to information from the parents, shows values between 1.8% to 14.1%[17] and a review of ODD prevalence in different places of the world found a mean combined prevalence of 3.3%.[18]

The ODD prevalence levels within the academic context can be considered from the perspective of reports from the professors adjusted to the DSM-IV-TR criteria, which we have shown in our review in table 1. The data range between

Table 1 Epidemiological studies of the Oppositional Defiant Disorder: Evaluation of the teachers

Author	Age	Prevalence % without deterioration	Prevalence with deterioration %	Male gender	Female gender
Carlson, 1997 [19]	6-9	9		13	5
Breton, 1999 [20]	6-14		2,0		
Gadow, 2002 [21]	5-12	4,1		6,3	1,8
Ersan, 2004 [22]	6-15	4,6		5,1	4,2
Munkvold, 2009 [23]	7-9	1,3		2,2	0,5
Cardo, 2009 [24]	6-11	5,4		7,3	3,1
Emberley, 2011 [25]	12-16	3,77		6,2	1,4
Meisel, 2013 [26]	6-8	5,1		6,8	3,1

1.3% to 9%, reflecting average prevalence rates lower than those observed with identical criteria in the reports of the parents.[17] When the parents are the informers used in the research, the prevalence rate is generally greater than when the data come from the teachers.[27,28]

Parents and teachers are the principal informers for the diagnosis of childhood psychopathology and/or when we study its prevalence from the epidemiological perspective. Some authors suggest that presence or absence of ODD may be better identified by reports from the teachers[29] and in this prevalence study, we have used their perspective as we consider it relevant and clarifying. It is already important since the academic context has great importance in the development of children and it is clarifying because the teachers have a behavior comparison group that parents generally do not have and they have diversified experience in the observation of children.[30] In any event, it is important to provide a clear image of the impact of disruptive behaviors in the academic context.[31]

Following this reflection and review of prevalence studies, we consider that the main objective of our research is to determine ODD prevalence in children age 6 to 16 in a regional community of Spain according to the teachers' reports.

The secondary objectives are the following:

- To determine the differences between persons with ODD and those who do not have this problem based on social demographic variables.
- To determine the differences between persons with ODD and those who do not have this problem in academic results.
- To determine the differences between persons with ODD and those who do not have this problem in overall behavior in class.

METHOD

Participants

The population studied included primary and secondary education students aged 6 to 16 from a regional community of Spain. The sample design was multiple-staged, stratified and proportional by clusters. Geographic distribution included Spanish education centers from the provinces of Valladolid (n=3), Zamora (n=2), Leon (n=2), Burgos (n=2), Salamanca (n=2), Avila (n=2), Palencia (n=2) and Segovia (n=1).

Calculation of sample size was performed using the formula $n = N^* Z_{\alpha}^{2} p^* q / d^2 (N-1) + Z_{\alpha}^{2^*} p^* q$. Total population was 212,567. Sample error of 0.05 was used for expected prevalence of 6% and accuracy ±1.5. Confidence level 95%. With these data, the minimum sample size considered was 959 students (sample fraction % = 0.451), extended to 1,100 in the provision of losses.

The total sample recruited was 1049 participants, broken down into primary education 628 (53.8% male) and secondary 421 (48.45% male). In public school 544 (50.73% male) and in private 505 (52.67% male). From the rural zone 339 (51.62% male) and urban zone 710 (51.69% male).

Mean sample age was 10.9 (SD=3.06), observing 51.6% male (M age=10.77; SD=3.01) and 48.4% female (M age=11.04; SD=3.10).

Instruments

The teachers filled out a questionnaire on ODD that included the DSM-IV-TR items, in accordance with the model included in category B of the Child Symptom Inventory (CSI) of Kenneth D. Gadow and Joyce Sprafkin.[32] In our study, the categorial evaluation was used in which a symptom was considered clinically relevant if it occurred "often" or "very often" (score=1) and it was not considered relevant if the symptom occurred "sometimes" or "never" (score=0). When the number of symptoms is equal to or greater than that required by the DSM-IV-TR in ODD (≥4), the diagnosis was considered as present and on the contrary it was considered absent. This classification was called categorial ODD (C-ODD).

In order to observe ODD dysfunctionality (DSM-IV-TR criteria), the teachers applied the Vanderbilt NICHQ rating scale.[33]

Procedure

A total of 21 school centers were randomly selected and following this another selection was made of 33 primary units and 20 secondary ones, respecting the proportionality on the type of center and sociodemographic zone.

The study included sociodemographic data collection, response of the teachers to the questionnaire on ODD and application of a section of the Vanderbilt NICHQ rating scale[33] that refers to overall academic results and overall behavior.

The overall academic results included four categories evaluated using a Likert type scale ranging between one and five (overall academic results, reading, mathematics and written expression).

Overall behavior included five categories evaluated according to a Likert type scale ranging between one and five (relationship with peers, respecting rules, organizational skills, performance of academic tasks and interruption of the class).

The Likert type scale of overall academic results and overall behavior had the following categories: very inferior to the peers (score 1), inferior to the peers (score 2), similar to the mean of the peers (score 3), superior to the mean of the peers (score 4) and various superior to the mean of the peers (score 5).

Dysfunction of social or academic activity was considered as scores ≤2 in overall academic results or overall behavior.

Case inclusion/exclusion criteria:

- A case was considered ODD when according to the questionnaire responded by the teacher the number of categorial symptoms that persisted for a minimum of six months was equal to or greater than that required by the DSM-IV-TR in ODD (≥4), and dysfunction of the social or academic activity was observed evaluated by at least a score ≤2 in overall behavior and/or overall academic results. This situation was called categorial dysfunctional ODD (CD-ODD).
- It was not considered as a case of CD-ODD when the previously mentioned conditions were not fulfilled.

Ethical and legal subjects

This project has been endorsed by the clinical trials research committee and ethics committee. The parents of the children enrolled in the study accepted and signed an informed consent form.

RESULTS

Main basic results: Prevalence study

CD-ODD prevalence according to the teachers' reports in a regional community of Spain is 4.2%. If we consider C-ODD, this amount increases to 5.1% . This difference is significant [χ^2 (1, n=1049)=863; p=0.000].

The cases of CD-ODD show a mean age of 11.23 years (SD=3.04) and include 70.4% males (M age =11.23; SD=2.87) and 29.6% females (M age =11.23; SD=3.53). Cases of C-ODD show a mean age of 11.26 years (SD=2.96) and include 66% males (M age =11; SD=2.80) and 34% females (M age =11.78; SD=3.28).

ODD/gender distribution

The prevalence of ODD can be seen in Tables 2 and 3 based on functional alteration and gender. CD-ODD Prevalence in males (5.7%) is greater than in women (2.6%), observing significant differences based on gender [χ^2 (1, n=1049)=6.49; p=0.001]. C-ODD prevalence in males is

Table 2 Prevalence of the categorical and dysfunctional oppositional defiant disorder (PROFESSORS)

Factor	CD-ODD [a] Prevalence		Prevalence [b] 95% CI	[c] OR (95% CI)
	n /N	(%)		
Total	44/1049	(4.2)	2.9-5.4	
Gender				
Male	31/542	(5.7)	4.1-7.3	2.3 (1.2-4.4)
Female	13/507	(2.6)	1.4-3.8	0.4 (0.2-0.8)
Education level				
Primary	25/628	(4.0)	2.7-5.3	0.9 (0.5-1.6)
Secondary	19/421	(4.5)	2.8-6.2	1.1 (0.6-2.1)
Zone				
Urban	21/710	(3.0)	1.7-4.3	0.4 (0.2-0.7)
Rural	23/339	(6.8)	2.4-9.5	2.4 (1.3-4.4)
School Type				
Private	19/505	(3.8)	2. -5.5	0.8 (0.4-1.5)
Public	25/544	(4.6)	2.8-6.4	1.2 (0.7-2.2)

[a] CD-ODD: Categorical and dysfunctional oppositional defiant disorder; [b] 95% CI: 95% confidence interval; [c] OR: Odds ratio.

Table 3 Prevalence of categorical oppositional defiant disorder (PROFESSORS)

Factor	C-ODD [a] Prevalence n /N	C-ODD [a] Prevalence (%)	Prevalence [b] 95% CI	[c] OR (95% CI)
Total	53/1049	(5.1)	3.8-6.4	
Gender				
Male	35/542	(6.5)	4.8-8.2	1.8 (1.1-3.3)
Female	18/507	(3.6)	2.2-5.0	0.5 (0.3-0.9)
Education level				
Primary	30/628	(4.8)	3.4–6.2	0.8 (0.5-1.5)
Secondary	23/421	(5.5)	3.7–7.3	1.1 (0.6-2.0)
Zone				
Urban	24/710	(3.4)	2.3-5.0	0.4 (0.2-0.6)
Rural	29/339	(8.6)	6.0-12.0	2.6 (1.5-4.7)
School Type				
Private	19/505	(3.8)	2.4-5.8	0.6 (0.3-1.0)
Public	34/544	(6.3)	4.5-8.6	1.7 (0.9-3.0)

[a] C-ODD: Categorical Oppositional Defiant Disorder; [b] 95% CI: 95% confidence interval; [c] OR: Odds ratio.

greater (6.5%) than in women (3.6%), observing significant differences based on gender [χ^2 (1, n=1049)=4.61; p=0.032].

The differences in prevalence in favor of the male are greater when there is more dysfunction of social or academic activity. Male to female gender ratio ranges from 1.81:1 in C-ODD and 2.19:1 in CD-ODD.

ODD / education level distribution

CD-ODD prevalence in primary education is 4% and in secondary education 4.5%, significant differences not being observed. The C-ODD prevalence rate in primary education is 4.8% and in secondary education 5.5%, significant differences not being observed. More cases were observed in the male, with a rate of 3.16:1 in primary education and 1.71:1 in secondary education.

ODD / sociodemographic zone distribution

CD-ODD prevalence in the urban area is 3% and in the rural area 6.8%, significant differences being observed [χ^2 (1, n=1049)=8.36; p=0.004]. C-ODD prevalence in the urban area is 3.4% and the rural one 8.6%, with significant differences [χ^2 (1, n=1049)=12.80; p=0.000].

ODD / school type distribution

CD-ODD prevalence in private school is 3.8% and in the public one 4.6%, significant differences not being observed.

C-ODD prevalence in private school is 3.8% and pubic school 6.3%, with no significant differences being observed.

Analysis of the CD-ODD cases shows significant differences based on gender according to type of school [χ^2 (1, n=44)=5.811; p=0.016]. In the private schools, more cases of the male gender were observed (ratio 8.5:1) than in the public schools (ratio 1.27:1).

ODD distribution / academic and overall behavior results

The use of the Vanderbilt rating scale showed significant differences in average ranges (Mann-Whitney U test) where the CD-ODD cases showed, in comparison to those without this condition, worse overall academic results (U=12116; p=0.000) and lower results in reading (U=14636; p=0.000), mathematics (U=13157; p=0.000) and written expression (U=11349; p=0.000).

The same questionnaire showed that CD-ODD cases had worse overall behavior in the classroom (U=5078; p=0.000);

and worse relationship with peers (U=6754; p=0.000), less respect for standard and rules (U=5072; p=0.000), more interruption of the class (U=8044; p=0.000), less organizational skills (U=9695; p=0.000) and more problematic behavior regarding doing tasks (U=10987; p=0.000).

Significant differences with the same tendency in C-ODD were observed.

CONCLUSIONS

The ODD prevalence rate mentioned most among school-aged children ranges from 2% - 16%.[1] Different dimensions can explain this variability: determination of the sample, clinical and/or psychometric strategy, informers, cutoff used for the scales, age of the children and including of deterioration in the definition of the disorder.[26] Generically, lower prevalence levels are observed in general population samples than in clinical samples, in studies using structured diagnostic interviews compared with those only using psychometric examination and in studies considering the existence of social/academic dysfunction versus those that do not. In turn, the subject of the raters plays a role in the sense that when the informers are the teachers, there are lower levels of ODD than when they are the parents.[26]

Our study on ODD prevalence contemplates a wide age range and is conducted with the general population. The informers are the teachers and the dysfunction within the definition of the disorder is considered. This combination of circumstances should lead to lower levels of prevalence that we comment on in the following.

The CD-ODD prevalence observed in our research according to the reports of the teachers in a regional community of Spain is 4.2%. If we only consider the categorial criterion of the DSM-IV-TR (C-ODD) the level would increase to 5.1%. Our results show that the prevalence is reduced when dysfunctionality is considered as an epidemiological criterion for ODD within the academic context.

The prevalence of the group of studies we have considered in the introduction as they adapt to the DSM-IV-TR criteria according to the reports of the teachers and have an age margin that includes that of our research shows levels between 1.3% and 9% as the only ODD study considering dysfunctionality indicates a 2% prevalence.[20] Our data, considering dysfunctionality, are above this latter prevalence level. There are few studies on ODD prevalence considering the report of the teachers alone[31] and those that also consider dysfunctionality are practically nonexistent.

The prevalence of CD-ODD in our study in the male gender (5.7%) is significantly greater than that of the female gender (2.6%). All of the references provided in table 1 indicate higher prevalence of the male gender and the same occurs within the clinical context.[6,25,28] In general, the scientific literature observes that when the informers are the teachers, behavioral disorders show clearer differences in favor of the male gender.[26-28,31]

In regards to the age factor, the CD-ODD prevalence rate according to the reports of the teachers reflected in our study for primary education (4%) is less than that observed in secondary education (4.5%), no significant differences being observed. Our data do not seem to coincide with the scientific studies that have observed that ODD occurs less frequently in adolescence.[18,34] The persistence of deterioration in the young adult age makes it possible to consider ODD as a disorder not limited to childhood.[16]

The ODD analyzed in our article does not decrease with age, which makes us think about the need for early preventive interventions that decrease its repercussion in regards to morbidity and dysfunctionality.

When the education cycles are considered, no significant differences are observed based on gender in the cases of CD-ODD, although there is greater frequency in the male gender in both education cycles and to a greater degree in primary education. This circumstance is consistent with studies that mention less differences by gender in adolescence.[35]

Our data reflect that CD-ODD prevalence is significantly greater in the rural area than in the urban one and does not show significant differences in regards to the type of public or private center.

The CD-ODD cases according to reports of the teacher show significantly worse overall academic results as well as inferior results in reading, mathematics, written expression than those who do not have this disorder. These results are similar to those observed in a prevalence study, with the same design, in which the informers were the parents.[17] Our results are consistent with their frequent comorbidity with learning disorders[1,9,10] and with the DSM-IV-TR requirements[1] of the presence of significant deterioration of social or academic activity. However, the reality is that we can diagnose ODD without the presence of deterioration of academic activity and it seems that the academic repercussion occurs more frequently than that found in the persons without this disorder. Based on our study's design, we could not control if the problems of academic performance were a cause or consequence of ODD, although it seems it would be well to adapt a preventive attitude regarding this academic problem.

Within this setting and in a clinical context, some scientific publications reflect an association between the disorder and academic problems.[6,36]

The CD-ODD cases according to the reports of the teachers show significantly worse overall behavior in the

classroom as well as a worse relationship with their peers, less organizational skills and more problematic behavior to do tasks. These results are similar to those observed in a prevalence study, with the same design in which the informers were the parents.[17]

Within this context, we believe it is important to adopt a preventive-based attitude in regards to the relationships with their peer group that children with CD-ODD have and when facing maladjusted behaviors within the academic setting.

Having completed the arguments of our discussion, we wish to briefly consider ODD prevalence based on whether the informers are the parents or the teachers. In general, the prevalence levels are greater when the informers are the parents,[26] who tend to evaluate more symptoms of ODD and to perceive its severity with greater intensity.[27] The fact that existence of a very low agreement between the evaluation of parents and teachers is also constant.[27] The explanations about these differences in variability can be found within the contextual specificity of the behavior that conditions the relationship between the child and adult,[37] the measurement errors in the instruments and in the prospective differences inherent to the characteristics and tendencies of the evaluators.[38] From the clinical point of view, it is common to find discrepancies in the evaluations of parents and teachers depending on the characteristics and demands occurring in each context. The academic context is generally more structured and predictable, with a tendency to decrease the presence of behavior alterations in the setting in which this situation is penalized consistently and alternative behaviors are stimulated. In turn, the teachers have a comparison group for the behaviors that the parents generally do not have and they have diversified experience in the observation of the children.[30] This can favorably influence the fact that they observe problematic behaviors less frequently.

In summary, our study indicates that the prevalence of ODD in a Spanish regional community according to the reports of the teachers is 4.2% and that this has a significant influence on the academic performance and school behavior. Based on our results and the knowledge that ODD at three years is the second highest level of prevalence in the general Spanish population[39] and that the longitudinal studies show persistent involvement over time in physical or mental health, academic and social dimensions,[12,16,40] we need to be attentive to its early diagnosis and preventive intervention. Providing treatment in an early development stage aimed at reducing the ODD symptoms should be a key priority for the public health and educator planners.

ACKNOWLEDGEMENT

This research was performed within the project to study the prevalence of Oppositional Defiant Disorder (GRS 595/B/11) subsidized by the Regional Health Authority of Castilla y León; the project (2011/02) was subsidized by the Foundation Ernesto Sánchez Villares.

BIBLIOGRAFIA

1. American Psychiatric Association. Manual diagnóstico y estadístico de los trastornos mentales. Barcelona: Masson; 2002.
2. Boylan K. The Many Faces of Oppositional Defiant Disorder. J Can Acad Child Adolesc Psychiatry. 2014;23(1):8-9.
3. Cavanagh M, Quinn D, Duncan D, Graham T, Balbuena L. Oppositional Defiant Disorder Is Better Conceptualized as a Disorder of Emotional Regulation. J Atten Disord. 2014; 30 [Epub ahead of print].
4. American Psychiatric Association. Diagnostic and Statistical Manual of Mental Disorders DSM 5. Arlington, VA: American Psychiatric Association; 2013.
5. Ercan ES, Kandulu R, Uslu E, Ardic UA, Yazici KU, Basay BK, et al. Prevalence and diagnostic stability of ADHD and ODD in Turkish children: a 4-year longitudinal study. Child Adolesc Psychiatry Ment Health. 2013;7(30):1-10.
6. López-Villalobos JA, Andrés-De Llano J, Sánchez-Azón MI, Sanguino-Andrés R, Alberola-López S. Disruptive behavior disorders: Multidimensional analysis. International Journal of Clinical Health Psychology. 2012;12:405-17.
7. López-Villalobos JA, Serrano I, Delgado J. Attention Deficit Hyperactivity Disorder: a predictive model of comorbidity with behaviour disorder. Psychology in Spain. 2005; 9: 63-74.
8. Lavigne JV, Cicchetti C, Gibbons RD, Binns HJ, Larsen L, DeVito C. Oppositional defiant disorder with onset in preschool years: longitudinal stability and pathways to other disorders. J Am Acad Child Adolesc Psychiatry. 2001;40:1393-400.
9. Boylan K, Vaillancourt T, Boyle M, Szatmari P. Comorbidity of internalizing disorders in children with oppositional defiant disorder. Eur Child Adolesc Psychiatry. 2007;16:484–94.
10. Pardini DA, Fite PJ. Symptoms of Conduct Disorder, Oppositional Defiant Disorder, Attention-Deficit/Hyperactivity Disorder, and Callous-Unemotional Traits as Unique Predictors of Psychosocial Maladjustment in Boys: Advancing an Evidence Base for DSM-V. J Am Acad Child Adolesc Psychiatry. 2010;49(11):1134-44.
11. Whelan YM, Stringaris A, Maughan B, Barker ED. Developmental Continuity of Oppositional Defiant Disorder Subdimensions at Ages 8, 10, and 13 Years and Their Distinct Psychiatric Outcomes at Age 16 Years. J Am Acad Child Adolesc Psychiatry. 2013;52(9):961-9.
12. Boden JM, Fergusson DM, Horwood LJ. Risk Factors for Conduct Disorder and Oppositional/Defiant Disorder: Evidence from a New Zealand Birth Cohort. J Am Acad Child Adolesc Psychiatry. 2010;49:1125-33.
13. Loeber R, Burke JD, Pardini DA. Perspectives on oppositional defiant disorder, conduct disorder, and psychopathic features. J Child Psychol Psychiatry. 2009;50:133–42.
14. Nock MK, Kazdin AE, Hiripi E, Kessler RC. Lifetime prevalence, correlates and persistence of oppositional defiant disorder: results from the National Comorbidity Survey Replication. J Child Psychol Psychiatry. 2007;48:703-13.
15. Rey JM, Domínguez MD. Trastorno negativista desafiante y trastorno de conducta. En: Soutullo C, Mardomingo MJ, eds. Manual de psiquiatría del niño y del adolescente. Madrid: Editorial Médica Panamericana; 2010. p. 79-93.
16. Burke JD, Rowe R, Boylan K. Functional outcomes of child and adolescent oppositional defiant disorder symptoms in young adult men. J Child Psychol Psychiatry. 2014;55(3):264-72.
17. López-Villalobos JA, Andrés-De Llano JM, Rodríguez-Molinero L,

Garrido-Redondo M, Sacristán-Martín AM, Martínez-Rivera MT, et al. Prevalencia del trastorno negativista desafiante en España. Rev Psiquiatr Salud Ment (Barc.). 2014;7(2):80-7.
18. Canino G, Polanczyk G, Bauermeister J, Rohde L, y Frick P. Does the prevalence of CD and ODD vary across cultures? Soc Psychiatry Psychiatr Epidemiol. 2010;45:695–704.
19. Carlson CL, Tamm L, Gaub M. Gender differences in children with ADHD, ODD, and co-occurring ADHD/ ODD identified in a school population. J Am Acad Child Adolesc Psychiatry. 1997;36:1706-14.
20. Breton JJ, Bergeron L, Valla JP, Berthiaume C, Gaudet N, Lambert J, et al. Quebec child mental health survey: prevalence of DSM-III-R mental health disorders. J Child Psychol Psychiatry. 1999;40:375–84.
21. Gadow KD, Sprafkin J. Child Symptom Inventory 4, Screening and norms manual. Stony Brook, NY: Checkmate Plus; 2002.
22. Ersan EE, Dogan O, Dogan S, Sümer H. The distributions of symptoms of attention deficit disorder and oppositional defiant disorder in school age in Turkey. Eur Child Adolesc Psychiatry. 2004;13:354-61.
23. Munkvold L, Lundervold A, Lie SA, Manger T. Should there be separate parent and teacher-based categories of ODD? Evidence from a general population. J Child Psychol Psychiatry. 2009;50:1264-77.
24. Cardo E, Meisel V, García-Banda G, Palmer C, Ruitort L, Bernad M, et al. Trastorno negativista desafiante: aspectos relacionados con el sexo y el evaluador. Rev Neurol. 2009;48:S17-S21.
25. Emberley E, Pelegrina M. Prevalencia, sintomatología y distribución del trastorno negativista desafiante. Psicothema. 2011;23:215-20.
26. Meisel V, Servera M, Cardo E, García-Banda G. Prevalence of oppositional defiant disorder in a sample of Spanish schoolchildren. Span J Psychol. 2013;16:1-9.
27. Angulo R, Jané MC, Bonillo A, Viñas F, Corcoll A, González, et al. Evaluación de la sintomatología negativista desafiante en niños de seis a ocho años: concordancia entre padres y maestros. Psicothema. 2010;22(3):455-9.
28. Munkvold L, Lundervold A, Manger T. Oppositional Defiant Disorder -Gender Differences in Co-occurring Symptoms of Mental Health Problems in a General Population of Children. J Abnorm Child Psychol. 2011;39:577-87.
29. Owens J, Hoza B. Diagnostic utility of DSM-IV-TR symptoms in the prediction of DSM-IV-TR ADHD subtypes and ODD. J Atten Disord. 2003;7:11- 27.
30. Saudino KJ, Ronald A, Plomin R. The etiology of behavior problems in 7-year-old twins: substantial genetic influence and negligible shared environmental influence for parent ratings and ratings by the same and different teachers. J Abnorm Child Psychol. 2005;33:113-30.
31. Maughan B, Rowe R, Messer J, Goodman R, Meltzer H. Conduct disorder and oppositional defiant disorder in a national sample: developmental epidemiology. J Child Psychol Psychiatry. 2004;45:609-21.
32. Gadow KD, Sprafkin J. Child Symptom Inventory 4, Norms manual. Stony Brook, NY: Checkmate Plus; 1997.
33. Wolraich ML, Lambert EW, Doffing MA, Bickman L, Simmons T, Worley K. Psychometric properties of the Vanderbilt ADHD diagnostic parent rating scale in a referred population. J Pediatr Psychol. 2003;28:559-68.
34. Burke JD, Loeber R, Birmaher B. Oppositional defiant disorder and conduct disorder: a review of the past 10 years, part II. J Am Acad Child Adolesc Psychiatry. 2002;41:1275–93.
35. Neuman RJ, Sitdhiraksa N, Reich W, Ji TH, Joyner CA, Sun LW, et al. Estimation of prevalence of DSM-IV and latent class-defined ADHD subtypes in a population-based sample of child and adolescent twins. Twin Res Hum Genet. 2005;8:392-401.
36. Murray J, Farrington DP. Risk Factors for Conduct Disorder and Delinquency: Key Findings From Longitudinal Studies. Canadian Journal of Psychiatry. 2010;55:633-42.
37. De Los Reyes A, Henry DB, Tolan PH, Wakschlag LS. Linking informant discrepancies to observed variations in young children´s disruptive behavior. J Abnorm Child Psychol, 2009;37:637–52.
38. Drabick DA, Bubier J, Chen D, Price J, Lanza I. Source-specific oppositional defiant disorder among inner-city children: Prospective prediction and moderation. J Clin Child Adolesc Psicol. 2011;40:23-35.
39. Ezpeleta L, de la Osa N, Doménech JM. Prevalence of DSM-IV disorders, comorbidity and impairment in 3-year-old Spanish preschoolers. Soc Psychiatry Psychiatr Epidemiol. 2014;49(1):145-55.
40. Copeland WE, Shanahan L, Costello EJ, Angold A. Childhood and adolescent psychiatric disorders as predictors of young adult disorders. Arch Gen Psychiatry. 2009;66:764-72.