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1 **Running Head: Parental psychopathology, temperament and ODD**

2 **Parental psychopathology levels as a moderator of temperament**  
3 **and oppositional defiant disorder symptoms**

4 **in preschoolers**

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1 **Abstract**

2 Oppositional Defiant Disorder (ODD) is among the most prevalent disorders in preschoolers. It has been linked to  
3 temperament, since characteristics such as elevated surgency and negative affect, as well as low levels of effortful  
4 control, contribute to the development of this disorder. Evidence also indicates that parental psychopathology can  
5 accentuate temperamental traits. Our aim was to assess whether the levels of psychopathology of mothers and  
6 fathers acts as a moderator of the relationship between temperament and ODD symptoms in preschoolers, both  
7 cross-sectionally at ages 3, 4 and 5, and longitudinally between ages 3 and 5. The sample included 550 children  
8 evaluated at ages 3, 4 and 5 through questionnaires and a semi-structured diagnostic interview with parents. Parents  
9 also answered a questionnaire about their own psychopathology. The results indicated that negative affect and  
10 effortful control are associated with higher levels of ODD symptoms in preschoolers. At child age 5, higher levels of  
11 paternal depression and anxiety increased the effect of low effortful control on ODD. High levels of negative affect  
12 and low levels of effortful control at age 3 were statistical predictors of ODD levels at age 5, and this relationship  
13 was also moderated by paternal anxiety and depression. The results have important clinical implications for the  
14 proper orientation of interventions, suggesting that interventions should integrate the paternal caregiver in the  
15 treatment.

16 **Keywords:** Oppositional defiant disorder · parental psychopathology · preschool · temperament

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1 Parental psychopathology, temperament  
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#### 4 **1 Introduction**

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7 **2** Oppositional Defiant Disorder (ODD) is among the most prevalent disorders in childhood with rates  
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9 **3** varying between 6.9% and 13.4% in preschoolers (Ezpeleta, de la Osa, & Doménech, 2014; Lavigne, Lebailly,  
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11 **4** Hopkins, Gouze, & Binns, 2009). It is described as a persistent pattern of anger and irritability, along with  
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13 **5** oppositional, defiant and hostile behavior toward adults and authority figures (American Psychiatric Association,  
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15 **6** 2013). The symptoms of ODD include behaviors such as acting out of spite or revenge, blaming others for the  
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17 **7** consequences of one's actions or problems, presenting deficits in self-control, and displaying patterns of behavior  
18  
19 **8** characterized by emotional instability (Burke, Rowe, & Boylan, 2014; Melegari et al., 2015).  
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22 **9** Individual differences in behavior patterns, emotional reactivity and self-regulation have been identified as  
23  
24 **10** some of the earliest biological differences emerging in children, factors that explain why people may respond  
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26 **11** differently to the same stimulus (Derryberry & Rothbart, 1997; Rothbart & Posner, 2006). The concept of  
27  
28 **12** temperament refers to the individual differences already manifest in the period between infancy and early school  
29  
30 **13** years (Stringaris, Maughan, & Goodman, 2010).  
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33 **14** There is a general consensus among previous studies regarding the stability of temperament throughout the  
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35 **15** lifespan, with support from genetic and biological models (Buss & Plomin, 1975; Derryberry & Rothbart, 1997;  
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37 **16** Goldsmith & Campos, 1982; Thomas & Chess, 1977). However, the expression and development of temperament  
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39 **17** can be mitigated, intensified or modified according to interactions with the environment (Rothbart & Bates, 2006;  
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41 **18** Thomas & Chess, 1977).  
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1 Parental psychopathology, temperament and ODD

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19 Rothbart, Ahadi, Hershey and Fisher (2001) proposed a three-part model of temperament, involving  
20 surgency (positive emotionality and extraversion), negative affect (high levels of negative emotions) and effortful  
21 control (planning and self-regulation of behavior). Evidence suggests that the individual dimensions of temperament  
22 proposed in this model may differentially contribute to the risk for ODD in young children (Lavigne, Gouze,  
23 Hopkins, Bryant, & LeBailly, 2012; Stringaris & Goodman, 2009). For instance, studies on preschoolers suggest  
24 that children with high levels of negative affect and low levels of effortful control are at risk for temperamental  
25 difficulties. In particular, they would have trouble regulating intense emotional reactivity (Stringaris et al., 2010), as  
26 well as modulating behavior and attention in a flexible and adaptive way (Crawford, Schrock, & Woodruff-Borden,  
27 2011; Nigg, 2006), all of which would increase the risk of displaying more externalizing symptoms (Rothbart &  
Bates, 2006), such as ODD symptoms (Lavigne et al., 2012) or behavioral problems (Dougherty et al., 2011;  
Eisenberg et al., 2009). Researchers have also found associations between high surgency and symptoms of defiance  
(Lavigne et al., 2012; Martel, Gremillion, & Roberts, 2012; Stringaris et al., 2010).

4 Despite the demonstrated biological nature of temperament, environmental factors such as parental  
5 psychopathology create gene-environment interactions that significantly affect the developing temperament  
6 (Burnette, Oshri, Lax, Richards, & Ragbeer, 2012). Since parents not only transmit genetic information, but also  
7 shape the rearing environment (Jaffee, Moffitt, Caspi, & Taylor, 2003), the poor mental health and behavior of  
8 parents has been demonstrated to adversely affect the mental health of children and accentuate traits associated with

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1 a difficult temperament (Childs, Fite, Moore, Lochman, & Pardini, 2014; Weitzman, Rosenthal, & Liu, 2011; Yoo, Adamsons, Robinson, & Sabatelli, 2013). For example, parents with mental health problems such as depression are likely to have a relationship with their children characterized by tough or distant parenting. These parental attitudes may create a cooler rearing environment, which could influence child behavioral problems (Lovejoy, Graczyk, O'Hare, & Neuman, 2000).

2 Researchers have also looked separately at the effect of maternal and paternal psychopathology on child temperament and behavior problems. There is extensive support in the literature for the notion that maternal mental health and child care quality have a significant impact on child development (Goelman, Zdaniuk, Boyce, Armstrong, & Essex, 2014). The evidence suggests that both maternal negative affect and maternal psychopathology may predict increased internalizing and externalizing problems in children, behavior problems in particular (Crawford et al., 2011; Goelman et al., 2014), especially, in children characterized by high surgency or negative affect (Chen, Deater-Deckard, & Bell, 2014). Negative affect and greater negative emotionality of the mother can put children at risk for low self-regulation (Gartstein, Bridgett, Young, Panksepp, & Power, 2013).

3 Mother's psychopathology—in particular depression— may influence children's behavior problems, which may increase or decrease depending on the severity of maternal symptoms (Nicholson, Deboeck, Farris, Boker, & Borkowski, 2011). Maternal depression may also cause children to have a greater negative affect and undergo more



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55 25 general psychopathology (Goodman et al., 2011).

26 Although fathers have been vastly underrepresented in the literature on parent psychopathology and their

27 influence on children, previous research also indicates that paternal psychopathology can have important  
implications for the mental health of the children. Like the mother-child relationship, the father-child relationship may  
affect a child's cognitive and socio-emotional development (Brown, McBride, Bost, & Shin, 2011; Goelman et al.,  
2014). It has been found that more father engagement was related to fewer externalizing problems (Flouri,

4 Midouhas, & Narayanan, 2015). And conversely, fathers' aggressive behavior seems to have an impact on the

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12 5 development of aggressive and hostile behavior in children, increasing the symptoms of ODD (Davies, Sturge-

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14 6 Apple, Cicchetti, Manning, & Vonhold, 2012; Trepal, Granero, & Ezpeleta, 2014).

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16 7 In addition, paternal psychopathology and especially depression has been associated with displays of 17

18 8 greater hostility toward children, and consequently, with increases in child adjustment problems (Reeb, Conger, &

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20 9 Wu, 2010). As a result, paternal depression and anxiety may also be significant predictors of behavior problems and

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22 10 ODD symptoms in preschoolers (Breux, Harvey, & Lugo-Candelas, 2013; Gross, Shaw, Moilanen, Kishion and

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24 Wilson, 2008; Kashdan et al., 2004), and it continues to influence  
emotional and behavioral problems in older

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26 children and adolescents (Davé, Sherr, Senior & Nazareth, 2008;  
Weitzman, Rosenthal & Liu, 2011).

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29 13 Furthermore, considering that maternal and paternal psychopathology may have different consequences in

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31 14 children with a difficult temperament and symptoms of oppositionism, the moderating role of parental

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33 15 psychopathology in the relationship between temperament and the ODD symptoms should be considered.

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35 16 Nevertheless, there is a lack of empirical evidence in this respect. However, there is some evidence that a mother's

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37 17 depression can be a significant moderator of effects in the child's conduct problems, and these children tend to

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39 18 respond better to intervention (Gardner, Hutchings, Bywater, & Whitaker, 2010). Regarding fathers, positive

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41 19 interaction with their children, specifically, their levels of engagement and accessibility can moderate the effect of

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43 20 intervention on the mental health of children with serious emotional disturbances (Bernard, Whitson, & Kaufman,

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45 21 2015).

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47 22 With this in mind, the aim of this study was to determine whether the type and/or severity of paternal or

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49 23 maternal symptomatology (specifically aggression, depression and anxiety) interacts with the relationship between

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51 24 child temperament (surgency, negative affect and effortful control) and the level of ODD in a community sample of

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53 25 preschoolers, both cross-sectionally and longitudinally, between the ages of 3 and 5. Based on research conducted to

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55 26 date, we formulated the following empirical hypotheses: a) levels of surgency, negative affect and effortful control

27 would have an effect on ODD levels in preschoolers, in such a way that higher levels of surgency and negative

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28 affect and low levels of effortful control would be associated with greater ODD; b) Paternal and maternal aggression, depression and anxiety would moderate the relationship between ODD and temperament, in such a way that higher levels of parental aggression, depression and anxiety would be associated with a stronger effect of temperament (high surgency, high negative affect and low effortful control) on ODD symptoms.

#### 4 Method

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##### 5 *Participants*

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16 6 The sample was obtained as part of a longitudinal study investigating potential risk factors, interactions and  
17 mechanisms underlying the development of psychopathology in early childhood (Ezpeleta, de la Osa, & Doménech,  
18 7 2014). Data was collected from participants using a double-phase design. In the first phase, an initial sample of  
19 20 8 2,283 families of 3-year-old children from Barcelona were randomly contacted from those in the census (N =  
21 22 9 13,578). In total, 1,341 families agreed to participate (58.7%) and 63 children were excluded on account of having  
23 24 10 difficulties understanding or using Spanish or Catalan, or because they presented a pervasive developmental disorder  
25 26 11 or intellectual disability.  
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13 In the second phase, a screening was used to identify children with possible psychological problems.

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<sup>3-4</sup>) (Goodman,

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14 Parents of the  
remaining 1,278 children  
answered the Strengths and  
Difficulties Questionnaire  
(SDQ)

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35 15 1997) and all families of children screening positive (with a raw score  $\geq 4$  on the SDQ<sup>3-4</sup> conduct problems scale,  
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37 16 which corresponds with percentile 90, or with a response option of 2 -certainly true- in any of the 8 DSM-IV ODD  
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39 17 symptoms) were invited to participate ( $n = 522$ ), with 105 families declining. Additionally, of the 756 cases that  
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41 18 screened negative on the SDQ<sup>3-4</sup>, 235 (30%) were selected to continue in the study; 30 of them refused. The final  
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43 19 sample included 622 children with an average age of 3.76 ( $SD = 0.32$ ), of whom 310 were male (49.8%) and 554  
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45 20 identified as Caucasian (89.1%). The left side of Table 1 shows the sociodemographic characteristics of the initial  
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47 21 sample, and the right side shows the prevalence of the most frequent DSM-IV disorders at follow-up.

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50 22 --- Insert Table 1 ---

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52 23 From the initial sample, subjects who possessed complete information for both the diagnostic interview and 53  
54 24 the analyzed questionnaires ( $n = 550$  at 3 years,  $n = 540$  at 4 years, and  $n = 496$  at 5 years) were included in the  
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56 25 statistical analysis. Parents answered about their own psychopathology at first follow-up (mothers:  $n = 599$  and  
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58 26 fathers:  $n = 561$ ). There were no statistically significant differences between subjects included in the final analysis  
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60 and subjects excluded due to incomplete information in terms of sex ( $p = .22$ ), ethnicity ( $p = .09$ ) or socioeconomic  
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62 status ( $p = .24$ ). Table 1 describes the sample of children who were part of the statistical analysis at the first followup.  
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11 4 *Procedure*

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14 5 The study was approved by the ethics committee of the authors' home institution (*Comissió d'Ètica en*

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16 6 *l'Experimentació Animal i Humana, Universitat Autònoma de Barcelona: CEEAH 1385*). The families of children

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18 7 were contacted through recruitment at schools and invited to participate when the children were 3 years old; both

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20 8 parents and teachers were informed in detail about the investigation at the time of recruitment. After obtaining

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22 9 written parental consent, parents were asked to answer the SDQ<sup>3-4</sup> at home and return the completed form to the

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24 10 school. Families who met the selection criteria were contacted by phone to be included in the study, and consenting

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26 11 parents participated in the diagnostic interview (DICA - PPYC) at the child's school. The DICA-PPYC was

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28 12 administered by interviewers previously trained in the use of this diagnostic interview and in the other instruments

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30 13 applied. The intensive training period lasts one week and includes an overview about developmental psychology,

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32 14 children's psychopathology and interviewing skills. Principally, future interviewers conducted practical training with

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34 15 role playing and then, observation and coding of live interviews. The criterion for being ready for the field is to

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36 16 obtain a mean agreement with an expert kappa  $\geq 0.80$  for all the questions in at least eight interviews. The other

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38 17 questionnaires were answered by the parents at home and then returned to be collected at the school.

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41 18 *Measures*

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44 19 *Diagnostic Interview for Children and Adolescents for Parents of Preschool and Young Children (DICA-*

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46 20 *PPYC)* (Reich & Ezpeleta, 2009): The DICA-PPYC is a semi-structured interview used to assess child

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48 21 psychopathology according to DSM-IV-TR criteria (American Psychiatric Association, 2000). It was adapted and

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50 22 validated for the Spanish preschool population, and the Spanish preschool version presents adequate psychometric

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52 23 properties (Ezpeleta, de la Osa, Granero, Domènech, & Reich, 2011). The DICA-PPYC was answered by one

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54 24 (mother or father) or by both parents together, completing a single interview. In this situation they reach an

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25 agreement on the answer that best represents the opinion about the child's behavior. The average administration time

26 is approximately 50 minutes. We used data collected from the DICA-PPYC at child ages 3, 4 and 5. At each follow-

27 up, the number of ODD symptoms was used as a measure of ODD level. Additionally, the following diagnoses

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comorbid with ODD were defined as covariates in the analysis: Attention-deficit/hyperactivity disorder, conduct disorder, depression, separation anxiety, general anxiety, specific phobias and social phobia.

3 As regards the respondents, at child age 3, 367 (66.7%) mothers, 41 (7.5%) fathers and 142 (25.8%) both  
11 4 parents together, completed an interview. At child age 4, 378 (70.0%) mothers, 42 (7.8%) fathers and 120 (22.2%)  
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13 5 both parents together answered the DICA-PPYC. At child age 5, 370 (74.6%) mothers, 36 (7.3%) fathers and 90 14  
15 6 (18.1%) both parents together answered the interview.  
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18 7 *Adult Self-Report (ASR)* (Achenbach & Rescorla, 2003): The ASR evaluates emotional and behavioral  
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20 8 problems in adults between the ages of 18 and 59. It features 126 items that inquire about the respondent's own  
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22 9 behavior over the past six months, plus some items related to interpersonal relationships, work and educational  
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24 10 matters. The internalizing problems scale combines anxious/depressed, withdrawn/depressed and somatic  
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26 11 complaints syndrome scores and the externalizing problems scale combines rule-breaking behaviors, aggressive  
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28 12 behavior and intrusive syndrome scores. The measurement scale is ordinal, with 3 response options: 0 (not true), 1  
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30 13 (somewhat or sometimes true) and 2 (very true or often true). Mothers and fathers answered this questionnaire when  
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32 14 the children were 3 years old, and for the purpose of this study, symptomatology levels of the anxiety, depression  
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34 15 and aggressiveness (measured through anxious-depressed and aggressive behavior scales) were used for both 35  
36 16 mothers and fathers. The scales demonstrated high internal consistency in the sample: Maternal anxious-depressed,  
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38 17  $\alpha = 0.81$ ; paternal anxious-depressed,  $\alpha = 0.79$ ; maternal aggressive behavior,  $\alpha = 0.80$  and paternal aggressive  
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40 18 behavior,  $\alpha = 0.81$ .

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43 19 *Children's Behavior Questionnaire (CBQ)* (Rothbart et al., 2001): The CBQ is a parent-reported 44

45 20 questionnaire that evaluates the temperament of children between the ages of 3 and 7. It has a 7 option Likert

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47 21 response format, ranging from 1 ("extremely untrue of your child") to 7 ("extremely true of your child"), plus a

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49 22 response choice of "not applicable" when parents have not observed this situation. The items measure 15 dimensions

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51 23 of child temperament, structured in 3 second-order scales: surgency, negative affect and effortful control. The

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53 24 surgency scale includes the dimensions of activity level, high intensity pleasure, impulsivity and approach/positive

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55 25 anticipation. The negative affect scale includes the dimensions of anger/frustration, discomfort, soothability/falling

26 reactivity, sadness, and shyness. The effortful control scale includes attentional focusing, inhibitory control, low

27 intensity pleasure, perceptual sensitivity, and smiling or laughter. This study used the Spanish version, which has

been proven to provide reliable and valid scores to evaluate temperament in preschool children (de la Osa, Granero,

Penelo, Domènech, & Ezpeleta, 2013). There was high internal consistency in the study sample, with values at baseline

equal to  $\alpha = 0.74$  for surgency,  $\alpha = 0.71$  for negative affect and  $\alpha = 0.79$  for effortful control. The responses

4 of parents at child ages 3, 4 and 5 were included in the analysis.

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13 5 *Data Analyses*

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16 6 We used the statistical software SPSS20 for Windows to perform data analysis. Since the data were

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18 7 collected using a double-phase screening design, all analyses were weighted in such a way that each subject was

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## Parental psychopathology, temperament and ODD

assigned an amount equal to the inverse probability of selection in the second phase of sampling. This weighted variable made it possible to generalize the results to the general population of origin. Independent variables included temperament scales (surgency, negative affect and effortful control), parental psychopathology (levels of symptoms in aggressive behavior and anxious-depressed scales), and the interaction of each temperament scale with parental aggressive behavior and parental anxiety or depression. The level of symptoms of the parents was defined with T scores. T score= 50 for normal clinical thresholds, T score= 65 for subclinical and T score= 70 for clinical.

The dependent variable was the ODD level, defined as the total number of symptoms of ODD in the diagnostic interview. Diagnoses in the DICA-PPYC were generated through computerized algorithms entered in EnDat, according to the DSM-IV-TR criteria. This helped to obtain both the diagnosis and the number of established symptoms of ODD, with which we dimensionally worked in this study.

Given the association between the variables analyzed in this work (ODD symptoms and levels of parental psychopathology) with children's sex (especially at an early age) and the presence of other psychological disorders, to avoid bias in the results, the statistical analyses have been adjusted according to gender and the presence of other comorbid disorders. This is because ODD prevalence is similar in boys and girls at an early age (Ezpeleta, de la Osa, Granero, & Trepato, 2014), but different in older children (Munkvold, Lundervold, & Manger, 2011) and ODD

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12 23 can be comorbid with other disorders (Lavigne et al., 2009).  
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15 24 The data were analyzed using negative binomial regression modeling, an alternative to Poisson regression 55  
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17 25 to count data whose distribution exhibits over-dispersion. The modeling was performed in three blocks: First, the  
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19 26 control or adjustment variables were introduced. Second, we introduced temperament scores as measured by the  
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21 CBQ and levels of parental psychopathology as measured by the ASR. Third, we included the interaction parameters  
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23 of each scale of the CBQ with each scale of the ASR. To assess the relevance of all interaction parameters for each  
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25 individual model, the following procedure was employed: a) when the chunk-test produced a value of  $p > .10$ , step 3  
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27 4 was omitted, and the main effects from step 2 were analyzed; b) when the test for combined interactions produced a  
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29 value of  $p \leq .10$ , indicating the presence of significant interactions, the interactions were analyzed individually to  
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31 determine which were significant, and only those that had  
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33 a significant effect were retained in the model and tested.  
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37 7 Since the objective of this work is to screen for any possible interaction term, rather than testing for a 18  
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39 8 hypothesized specific interaction, the *p-value* to value interaction terms has been fixed at  $p < 0.10$  to avoid low  
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41 statistical power and sensitivity (Kleinbaum, Kupper, Muller, & Nizam, 2013). By simultaneously entering 22  
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43 10 information from the paternal and maternal reports into the ASR, regression models could be obtained that indicated  
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45 the specific contribution of each parent.  
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50 12 The data were analyzed using both cross-sectional and longitudinal analyses. The cross-sectional analysis  
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30 13 obtained independent results for paternal and maternal levels of psychopathology at child age 3, as well as CBQ

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32 14 temperament scores and ODD symptoms at ages 3, 4 and 5. In the longitudinal analysis, predictor variables included

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34 15 child CBQ scores at age 3, as well as the interaction between child temperament and parental levels of

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36 16 psychopathology at that same age; the dependent  
variable was defined as the number of ODD symptoms at child  
age

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41 18 **Results**

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44 19 Table 2 includes the descriptive (mean and standard deviation) for the CBQ and ASR scales. Table 3

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46 20 contains the bivariate correlation matrix for all the measures used. Due to the large sample size, and therefore the

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48 21 high statistical power, many correlations with low effect size were statistically significant, so coefficients with

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50 22 moderate to good effect size were marked. 51

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Insert

Tables

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55 24 The first block of Table 4 contains the negative binomial regression valuing the association between CBQ

25 and ASR scores (defined as independent variables in the model) and the number of ODD symptoms (dependent

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26 variable). The chunk test valuing the set of interaction terms achieved non-significant results ( $p=.842$ ), so all the moderation effects between ASR and CBQ were excluded from the model and main effects were estimated and interpreted. The absence of relevant interaction parameters indicates that parents' psychopathology levels (anxious-depressed and aggressive behavior) do not moderate the potential association between child temperament and ODD

4 levels. At child age 3, high ODD severity levels were related to high scores on the temperamental dimension of

11 negative affect and low scores on the dimension of effortful control. Additionally, the ODD level was higher for

12 5 children whose mothers had higher aggressive behavior scores and whose fathers had higher anxious-depressed

13 6 levels.

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19 8 --- Insert Table 4 ---

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9 The second block in Table 4 corresponds to the association between the CBQ scores (measured at child age

10 4), the ASR scores with the criterion number of ODD symptoms at child age 4. At this age, the block with the

11 interaction parameters also obtained non-significant results ( $p=.859$ ), and it was excluded from the final model. At

12 this age, the highest levels of ODD were registered for children with high negative affect and low effortful control.

13 Regarding parental psychopathology, only maternal aggressive behavior was related to higher levels of ODD

14 symptoms at child age 4.

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35 15 The third block of Table 4 contains the regression for the predictor CBQ scores at child age 5, ASR scores

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16 and the criterion number of ODD symptoms at child age 5. Since a value of  $p=0.79$  was obtained in the chunk test  
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18 for the block of interaction parameters, specific interaction terms were explored to determine which ones achieved  
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20 significant results to be retained in the final model. A statistically significant result was achieved for the term  
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22 effortful control by fathers' anxious-depressed level ( $p=.003$ ) so simple effects were estimated and interpreted for  
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24 the effortful control scale across three paternal anxious-depressed levels (values  $T=50$ ,  $T=65$  and  $T=70$ ,  
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26 corresponding to normal clinical thresholds, subclinical and clinical). The final results showed that at child age 5,  
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28 higher levels of ODD symptoms were detected in children with high scores on the negative affect scale and low  
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30 scores on the scale relating to effortful control. Additionally, the effect of effortful control on ODD severity  
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32 increased as paternal T-scores in anxious-depressed levels increased (as a consequence of the interaction).  
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37 25 The lower block of Table 4 shows the results of the longitudinal analysis, which assessed the association  
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39 26 between child temperament scores at age 3, parental psychopathology levels (also recorded at child age 3),  
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41 and ODD  
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43 27 levels at child age 5. Again, there was a significant interaction between the effortful control scale of  
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45 temperament  
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47 and paternal ASR anxious-depressed scores ( $p=0.040$ ). The final model showed that at child age 5, ODD levels were  
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49 higher for children who at the start of preschool had scored higher on negative affect and lower on effortful control  
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51 (and this effect of temperament on ODD increased according to paternal anxious-depressed levels).  
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111 4 **Discussion**

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14 5           The results indicate that during the preschool period, the temperamental traits of negative affect and  
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16 6           effortful control are cross-sectionally associated with higher levels of symptoms of ODD in children. Furthermore,  
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18 7           this relationship is moderated by levels of paternal depression and anxiety toward the end of the preschool period (at  
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20 8           child age 5). The level of the temperamental traits of negative affect and effortful control at age 3 were statistical  
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22 9           predictors of ODD levels at age 5, and the levels of paternal anxiety and depression moderated the strength of the  
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24 10          relationship. On the other hand, cross-sectional models indicated that maternal psychopathology (specifically,  
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26 11          symptoms of depression, anxiety and aggression) does not moderate the relationship between child temperament and  
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28 12          ODD level.

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31 13           The current study suggests that levels of negative affect and low effortful control directly influence the  
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33 14          development of oppositional defiant disorder in preschoolers, a result that concurs with previous findings from  
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35 15          several authors (Burke et al., 2010; Dougherty et al., 2011; Eisenberg et al., 2009; Lavigne et al., 2012; Martel et al.,  
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37 16          2012; Stringaris et al., 2010; Valiente et al., 2003). Additionally, we arrived at a number of more nuanced  
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39 17          conclusions regarding the influence of parental symptomatology of anxiety, depression and aggressive behavior on  
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41 18          children's ODD symptoms. First, we found that between child ages 3 and 5 there is a differential effect of parental  
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43 19          aggressive and anxious-depressed behavior on children's ODD levels. Specifically, maternal high aggressive  
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45 20          behavior influences the child's ODD level, a result that is consistent with several studies linking maternal negativity

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21 and anger with behavioral problems in children (Chen et al., 2014; Goelman et al., 2014). Our results also coincide  
22 with those reported by authors such as Breaux et al. (2013), Davé et al. (2008), Kashdan et al. (2004), Meadows,  
23 McLanahan, & Brooks-Gunn (2007) and Weitzman et al. (2011), who have argued that children of parents with  
24 depression and anxiety may be more likely to have behavioral problems and develop oppositional defiant disorder.

25 Our findings regarding the specific moderating role of parental psychopathology in the relationship  
26 between child temperament and ODD levels is of particular importance, as it differentially highlights the role of  
27 each parent. Specifically, only paternal symptoms of depression and anxiety moderated the relationship  
between  
child temperament and ODD symptoms, whereas none of the maternal symptoms examined (aggression, depression  
and anxiety) served a moderating role. In light of empirical evidence regarding the impact of maternal  
psychopathology on self-regulation and behavior problems in children (Chen et al., 2014; Crawford et al., 2011;  
4 Gartstein et al., 2013; Goelman et al., 2014), we expected maternal psychopathology to be a significant moderator of  
11 the relationship between child temperament and ODD levels. Nevertheless, in our study, only paternal symptoms of  
12 5 depression and anxiety interacted with the specific temperamental dimension of low effortful control.  
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17 7 These results are in accordance with the findings of several authors, who argue that paternal  
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19 8 psychopathology may have a more serious impact on a child's psychological functioning than maternal  
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21 9 psychopathology (Cimino, Cerniglia, & Paciello, 2014; Lovejoy et al., 2000). One explanation for this phenomenon

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23 10 focuses on the different roles that fathers and mothers play when their children are in preschool. For instance,  
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25 11 research suggests that mothers spend more time with their children than fathers do during infancy, and much of this  
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27 12 time is spent establishing limits. In comparison, fathers spend more time playing with their children, and as a result  
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29 13 experience fewer difficulties and conflicts with the children than mothers (Driscoll & Pianta, 2011; Weaver, Shaw,  
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31 14 Crossan, Dishion, & Wilson, 2014). Particularly toward the end of the preschool period, paternal involvement in  
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33 15 child development intensifies, as fathers become closer to their children, engaging with them and behaving like a  
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35 16 playmate (John, Halliburton, & Humphrey, 2012).  
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38 17 The presence of an involved father can have a major positive impact on a young child. In fact, there is  
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40 18 evidence that this relationship is critical to a child's development, promoting higher self-esteem and self-regulation  
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42 19 (John et al., 2012; Sarkadi, Kristiansson, Oberklaid, & Bremberg, 2008). By contrast, children with little paternal  
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44 20 support would have more difficulty regulating their negative emotions (Hurrell, Hudson, & Schniering, 2015). In  
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46 21 this vein, fathers with symptoms of psychopathology tend to show a reduced response level to their children, which  
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48 22 can be a risk factor for the occurrence of maladaptive behaviors (Elgar, Mills, McGrath, Waschbusch, &  
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50 23 Brownridge, 2007). Depressed fathers in particular present a reduced ability to regulate the emotions of their  
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## Parental psychopathology, temperament and ODD

children, which could affect the development of child temperament (Lovejoy et al., 2000). In this regard, depressed fathers would display more negative behaviors towards their children and reductions in monitoring, and this overly-permissive behavior would have an impact on child behavioral problems (Childs et al., 2014; Jewell, Krohn, Scott, Carlton, & Meinz, 2008). It is likely that a permissive father would be unable to properly control his child's behavior or prevent possible maladaptive behaviors (Braza et al., 2013). In theory, effortful control should increase during the preschool years (Liang, Zhang, Deng, Song, & Zheng, 2013); at the same time, there is evidence that having a father who is overly permissive and who demonstrates little acceptance or paternal engagement is a risk factor for poor self-regulation and effortful control (Braza et al., 2013; Liang et al., 2013).

The main limitations of the present study lie in the fact that a relatively low number of fathers provided complete responses to the Adult Self-Report compared to the number of mothers, and that all the data analyzed and interpreted was reported only by parents. Moreover, the study possesses a number of strengths: the availability of separate reports for psychopathology measures from fathers and mothers, performing longitudinal tests in a large and representative sample of preschoolers, measuring child psychopathology through diagnostic interview and the statistical control of all the analyses of other comorbid disorders with symptoms that differ from ODD symptoms (that is, the empirical association obtained between temperament, parental symptomatology and ODD levels can be specifically attributed to this diagnostic condition). These contributions in the methodological area involve an improvement compared to previous researches carried out in small-sized sample and with data reported only by

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31 14 mothers. 32

33 15 The results of this study have important implications for the prevention and treatment of ODD symptoms.

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35 16 While much remains to be learned about the early risk factors for oppositional defiant disorder, the present study

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37 17 suggests that evaluating early temperamental traits in children may be an important first step, since the presence of

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39 18 high levels of negative affect and low levels of effortful control may be an early indicator of children at risk for

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41 19 developing ODD levels. Of particular importance is the fact that low effortful control is related to temperamental

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43 symptoms of ODD, as it raises the possibility of early  
intervention for ODD symptoms through the teaching of

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45 effortful control skills, as indicated by Lavigne et al.

(2012).

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48 22 Furthermore, it is important to address the moderating role of paternal symptoms of depression and anxiety,

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50 23 as few studies have focused on the influence of fathers in early child development. According to our findings, a

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52 24 child with low effortful control may be more or less likely to present ODD symptoms depending on whether his

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54 25 father suffers from mild, moderate or severe anxiety or depression. Evidently, this could have a number of

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56 26 consequences at the individual level (for children and for fathers) and at the family level. In terms of clinical

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27 evaluation, it is essential that clinicians integrate the family members of preschoolers who display behavioral or

28 temperamental problems, inquiring in detail into present and past parental mental health. According to our results, it

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10 is very important to know about the father's mental health especially, focusing on the symptoms of depression and anxiety.

3 At the environmental level, it is important to consider that a child with a difficult temperament and  
11 4 symptoms of ODD may have an impact on the emotional state of the father. Evidence suggests that raising a child  
12 with ODD levels is a major challenge for mothers and fathers (Burke, Pardini, & Loeber, 2008), but the fathers,  
13 5 particularly those who are involved in parenting, will face disciplinary obstacles when their children engage in  
14 difficult behaviors (Aviram, Atzaba-poria, Pike, Meiri, & Yerushalmi, 2015). Furthermore, there exists evidence  
15 6 that child behavioral problems may actually affect negative parental emotionality and behavior to a greater extent  
16 than parenting attitudes affect children (Childs et al., 2014; Larsson, Viding, Rijdsdijk, & Plomin, 2008; Pardini, Fite,  
17 7 & Burke, 2008). Future studies will need to consider this child-to-father relationship, as it implies the possibility of a  
18 reciprocal effect of negative behavior and emotionality on mental health for children and fathers.  
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28 12 Finally, it is likely that fathers with higher levels of symptoms of depression and anxiety are probably more  
29 focused on their own difficulties and may be less available for their children. In terms of clinical intervention, then,  
30 13 fathers should be encouraged to address and treat their own symptomatology first, thus enhancing the mental health  
31 of the whole family unit.  
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**References**

Achenbach, T. y Rescorla, L. (2003). *Manual for the ASEBA adult forms & profiles*. Burlington: University of  
3 Vermont, Research Center for Children, Youth, and Families.

11 4 American Psychiatric Association. (2000). *Diagnostic and statistical manual of mental disorders (4th ed., Text*  
12  
13 5 *revised)*. Washington, DC, US.

14  
15  
16 6 American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorder: DSM-5*.

17  
18 7 Washington, Londres : American Psychiatric Association.  
19  
20  
21  
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8 Aviram, I., Atzaba-Poria, N., Pike, A., Meiri, G., & Yerushalmi, B. (2015). Mealtime Dynamics in Child Feeding Disorder : The Role of Child Temperament , Parental Sense of Competence , and Paternal Involvement, *40*(1), 45–54.

11 Bernard, S. N., Whitson, M., & Kaufman, J. (2015). The Moderating Effect of Positive Father Engagement and Accessibility on a School-Based System of Care Intervention for Mental Health Outcomes of Children. *Journal of Child and Family Studies*, *24*(10), 2923–2933. doi:10.1007/s10826-014-0096-0 33

14 Braza, P., Carreras, R., Muñoz, J. M., Braza, F., Azurmendi, A., Pascual-Sagastizábal, E., Cardas, J. & Sánchez-Martín, J. R. (2013). Negative Maternal and Paternal Parenting Styles as Predictors of Children’s Behavioral Problems: Moderating Effects of the Child's Sex. *Journal of Child and Family Studies*, 1–10. doi:10.1007/s10826-013-9893-0

18 Breaux, R. P., Harvey, E. A., & Lugo-Candelas, C. I. (2013). The Role of Parent Psychopathology in the Development of Preschool Children with Behavior Problems. *Journal of Clinical Child & Adolescent Psychology*, *43*(5), 777–790. doi:10.1080/15374416.2013.836451

21 Brown, G. L., McBride, B. A., Bost, K. K., & Shin, N. (2011). Parental involvement, child temperament, and parents’ work hours: Differential relations for mothers and fathers. *Journal of Applied Developmental Psychology*

1 Parental psychopathology, temperament and ODD

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*Psychology*, 32(6), 313–322. doi:10.1016/j.appdev.2011.08.004

24 Burke, J. D., Hipwell, A. E., & Loeber, R. (2010). Dimensions of Oppositional Defiant Disorder as Predictors of Depression and Conduct Disorder in Preadolescent Girls. *Journal of the American Academy of Child & Adolescent Psychiatry*, 49(5), 484–492. doi:10.1016/j.jaac.2010.01.016

2 Burke, J. D., Pardini, D. A., & Loeber, R. (2008). Reciprocal Relationships between Parenting Behavior and Disruptive Psychopathology from Childhood through Adolescence. *Journal of Abnormal Child Psychology*, 36(5), 679–692. doi:10.1007/s10802-008-9219-7

11 4  
12  
13  
14 5  
15  
16 6  
17  
18 7  
19

Burke, J. D., Rowe, R., & Boylan, K. (2014). Functional Outcomes of Child and Adolescent Oppositional Defiant Disorder Symptoms in Young Adult Men. *Journal of Child Psychology and Psychiatry*, 53(3), 264–272. doi:doi:10.1111/jcpp.12150

20 Burke, J. D., Waldman, I., & Lahey, B. B. (2010). Predictive validity of childhood oppositional defiant disorder and

21 8  
22  
23 9 conduct disorder: implications for the DSM-V. *Journal of Abnormal Psychology*, 119, 739–751.

24  
25 10 doi:10.1037/a0019708

26  
27 11 Burnette, M. L., Oshri, A., Lax, R., Richards, D., & Ragbeer, S. N. (2012). Pathways from harsh parenting to  
28

56  
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58  
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## 1 Parental psychopathology, temperament and ODD

2  
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4  
5  
6  
7  
8  
9  
1029 12 adolescent antisocial behavior: a multidomain test of gender moderation. *Development and Psychopathology*, 30

31 13 24(3), 857–70. doi:10.1017/S0954579412000417

32  
3334 14 Buss, A. H., & Plomin, R. (1975). *A temperament theory of personality development*. New York: Wiley. (Wiley.).

35

36 15 New York.

37  
38

39 16 Chen, N., Deater-Deckard, K., &amp; Bell, M. A. (2014). The Role of Temperament by Family Environment Interactions

40

41 17 in Child Maladjustment. *Journal of Abnormal Child Psychology*, 42, 1251–1262. doi:10.1007/s10802-014-

42

43 18 9872-y

44  
45

46 19 Childs, A. W., Fite, P. J., Moore, T. M., Lochman, J. E., &amp; Pardini, D. A. (2014). Bidirectional associations between

47

48 20 parenting behavior and child callous-unemotional traits: does parental depression moderate this link? *Journal*

49

50 21 *of Abnormal Child Psychology*, 42(7), 1141–51. doi:10.1007/s10802-014-9856-y 51

52 Cimino, S., Cerniglia, L., &amp; Paciello, M. (2014).

Mothers with Depression, Anxiety or Eating

Disorders: Outcomes

53

22

54 on Their Children and the Role of Paternal

Psychological Profiles. *Child Psychiatry & Human**Development*,

55

23

24 228–236. doi:10.1007/s10578-014-0462-6

56  
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1 Parental psychopathology, temperament and ODD

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5  
6  
7  
8  
9  
10

25 Crawford, N. A, Schrock, M., & Woodruff-Borden, J. (2011). Child internalizing symptoms: contributions of child temperament, maternal negative affect, and family functioning. *Child Psychiatry and Human Development*,

42(1), 53–64. doi:10.1007/s10578-010-0202-5

3 Davé, S., Sherr, L., Senior, R., & Nazareth, I. (2008). Associations between paternal depression and behaviour

11 4 problems in children of 4-6 years. *European Child and Adolescent Psychiatry*, 17, 306–315.

12  
13 5 doi:10.1007/s00787-007-0672-6

14  
15  
16 6 Davies, P. T., Sturge-Apple, M. L., Cicchetti, D., Manning, L. G., & Vonhold, S. E. (2012). Pathways and processes

17  
18 7 of risk in associations among maternal antisocial personality symptoms, interparental aggression, and

19  
20 8 preschooler's psychopathology. *Development and Psychopathology*, 24(3), 807–32.

21  
22 9 doi:10.1017/S0954579412000387

23  
24  
25 10 De la Osa, N., Granero, R., Penelo, E., Domènech, J. M., & Ezpeleta, L. (2013). The Short and Very Short Forms of

26  
27 11 the Children's Behavior Questionnaire in a Community Sample of Preschoolers. *Assessment*, 21(4), 463–476.

28  
29 12 doi:10.1177/1073191113508809

30  
31 13 Derryberry, D., & Rothbart, M. K. (1997). Reactive and effortful processes in the organization of temperament.

32  
33 14 *Development and Psychopathology*, 9(04), 633–652. doi:10.1017/S0954579497001375

34  
35  
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37  
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1 Parental psychopathology, temperament and ODD

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- 10
- 36 15 Dougherty, L. R., Bufferd, S. J., Carlson, G. A., Dyson, M., Olino, T. M., Durbin, C. E., & Klein, D. N. (2011).  
37
- 38 16 Preschoolers' observed temperament and psychiatric disorders assessed with a parent diagnostic interview.  
39
- 40 17 *Journal of Clinical Child and Adolescent Psychology, 40*(2), 295–306. doi:10.1080/15374416.2011.546046  
41
- 42
- 43 18 Driscoll, K., & Pianta, R. C. (2011). Mothers' and fathers' perceptions of conflict and childhood. *Journal of Early  
44*
- 45 19 *Childhood and Infant Psychology, 7*, 1–24.  
46
- 47
- 48 20 Eisenberg, N., Valiente, C., Spinrad, T. L., Cumberland, A., Liew, J., Reiser, M., Zhou, Q. & Losoya, S. H. (2009).  
49
- 50 21 Longitudinal relations of children's effortful control, impulsivity, and negative emotionality to their  
51
- 52 22 externalizing, internalizing, and co-occurring behavior problems. *Developmental Psychology, 45*(4), 988–  
53
- 54 23 1008. doi:10.1037/a0016213  
55
- 24 Elgar, F. J., Mills, R. S. L., McGrath, P. J., Waschbusch, D. A., & Brownridge, D. A. (2007). Maternal and paternal  
depressive symptoms and child maladjustment: The mediating role of parental behavior. *Journal of Abnormal  
Child Psychology, 35*, 943–955. doi:10.1007/s10802-007-9145-0
- 2
- 3
- 11 4 Ezpeleta, L., de la Osa, N., & Doménech, J. M. (2014). Prevalence of DSM-IV disorders, comorbidity and  
12
- 13
- 14 5 impairment in 3-year-old Spanish preschoolers. *Social Psychiatry and Psychiatric Epidemiology, 49*(1), 145–  
15
- 56
- 57
- 58
- 59
- 60
- 61
- 62
- 63
- 64
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1 Parental psychopathology, temperament and ODD

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3

4 1

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6 2

7

8

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10

15

16 6 Children and Adolescents for Parents of Preschool and Young Children: psychometric properties in the

17

18 7 general population. *Psychiatry Research*, 190(1), 137–44. doi:10.1016/j.psychres.2011.04.034 19

20 Ezpeleta, L., de la Osa, N., Granero, R., & Trepato, E.

(2014). Functional impairment associated with symptoms

of

21 8

22

23 9 oppositional defiant disorder in preschool and early school boys and girls from the general population, 30,

24

25 10 395–402.

26

27 11 Flouri, E., Midouhas, E., & Narayanan, M. K. (2015). The Relationship Between Father Involvement and Child

28

29 12 Problem Behaviour in Intact Families: A 7-Year Cross-Lagged Study. *Journal of Abnormal Child Psychology*.

30

31 13 doi:10.1007/s10802-015-0077-9

32

33

34 14 Gardner, F., Hutchings, J., Bywater, T., & Whitaker, C. (2010). Who Benefits and How Does It Work? Moderators

35

36 15 and Mediators of Outcome in an Effectiveness Trial of a Parenting Intervention. *Journal of Clinical Child &*

37

38 16 *Adolescent Psychology*, 39(4), 568–580. doi:10.1080/15374416.2010.486315

39

40

41 17 Gartstein, M. A., Bridgett, D. J., Young, B. N., Panksepp, J., & Power, T. (2013). Origins of Effortful Control:

42

43 18 Infant and Parent Contributions. *Infancy*, 18(2), 149–183. doi:10.1111/j.1532-7078.2012.00119.x

44

56

57

58

59 25

60

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1 Parental psychopathology, temperament and ODD

- 2
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- 5
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- 7
- 8
- 9
- 10
- 45
- 46 19 Goelman, H., Zdaniuk, B., Boyce, W. T., Armstrong, J. M., & Essex, M. J. (2014). Maternal mental health, child
- 47
- 48 20 care quality, and children's behavior. *Journal of Applied Developmental Psychology, 35*(4), 347–356.
- 49
- 50 21 doi:10.1016/j.appdev.2014.05.003 51
- 52 Goldsmith, H. H., & Campos, J. J. (1982). Toward a
- theory of infant temperament. In R. N. Emde and R.
- 53 22 J.
- 54 *Harmond (Eds.), The development of attachment*
- and *af\$liative systems*. New York: Plenum.
- 55 23
- 24 Goodman, R. (1997). The Strengths and Difficulties Questionnaire: A Research Note. *Journal of Child*
- Psychology*
- 25 *and Psychiatry, 38*(5), 581–586. doi:10.1111/j.1469-7610.1997.tb01545.x
- Goodman, S. H., Rouse, M. H., Connell, A. M., Broth, M. R., Hall, C. M., & Heyward, D. (2011). Maternal
- Depression and Child Psychopathology: A Meta-Analytic Review. *Clinical Child and Family Psychology*
- 3 *Review, 14*, 1–27. doi:10.1007/s10567-010-0080-1
- 11 4 Hurrell, K. E., Hudson, J. L., & Schmiering, C. A. (2015). Parental reactions to children's negative emotions:
- 12
- 13 5 Relationships with emotion regulation in children with an anxiety disorder. *Journal of Anxiety Disorders, 29*,
- 14
- 15 6 72–82. doi:10.1016/j.janxdis.2014.10.008
- 16
- 17
- 18 7 Jaffee, S. R., Moffitt, T. E., Caspi, A., & Taylor, A. (2003). Life with (or without) father: the benefits of living with
- 19
- 56
- 57
- 58
- 59
- 60
- 61
- 62
- 63
- 64
- 65

1 Parental psychopathology, temperament and ODD

2  
3

4 1

5

6 2

7

8

9

10

20 8 two biological parents depend on the father's antisocial behavior. *Child Development*, 74(1), 109–126.

21

22 9 doi:10.1037/a0014588

23

24

25 10 Jewell, J. D., Krohn, E. J., Scott, V. G., Carlton, M., & Meinz, E. (2008). The Differential Impact of Mothers' and

26

27 11 Fathers' Discipline on Preschool Children's Home and Classroom Behavior. *North American Journal of*

28

29 12 *Psychology*, 10(1), 173–188.

30

31 13 John, A., Halliburton, A., & Humphrey, J. (2012). Child–mother and child–father play interaction patterns with

32

33 14 preschoolers. *Early Child Development and Care*, (December 2014), 1–15. 34

35 15

doi:10.1080/03004430.2012.711595

36

37

38 16 Kashdan, T. B., Jacob, R. G., Pelham, W. E., Lang, A. R., Hoza, B., Blumenthal, J. D., & Gnagy, E. M. (2004).

39

40 17 Depression and anxiety in parents of children with ADHD and varying levels of oppositional defiant 41

42 18 behaviors: modeling relationships with family functioning. *Journal of Clinical Child and Adolescent* 43

44 19

*Psychology*, 33(1), 169–181. doi:10.1207/S15374424JCCP3301\_16

45

46

47 20 Kleinbaum, D. G., Kupper, L. L., Muller, K. E., & Nizam, A. (2013). *Applied Regression Analysis and Other*

48

49 21 *Multivariable Methods*. Pacific Grove: Duxbury Applied Press.

50

51

52 22 Larsson, H., Viding, E., Rijdsdijk, F. V., & Plomin, R. (2008). Relationships between parental negativity and

53

56

57

58

59 25

60

61

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1 Parental psychopathology, temperament and ODD

- 2  
3  
4 1  
5  
6  
7  
8  
9  
10  
54 23 childhood antisocial behavior over time: a bidirectional effects model in a longitudinal genetically informative  
55 design. *Journal of Abnormal Child Psychology*, 36(5), 633–45. doi:10.1007/s10802-007-9151-2
- 24
- Lavigne, J. V, Gouze, K. R., Hopkins, J., Bryant, F. B., & LeBailly, S. A. (2012). A multi-domain model of risk factors for ODD symptoms in a community sample of 4-year-olds. *Journal of Abnormal Child Psychology*, 40(5), 741–57. doi:10.1007/s10802-011-9603-6
- 2
- 3 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 : The Official Journal for the Society of Clinical Child and Adolescent Psychology, American Psychological Association, Division 53*, 38(3), 315–328. doi:10.1080/15374410902851382
- 11 4  
13 5  
15 6  
16  
17
- 18 7 Liang, Z., Zhang, G., Deng, H., Song, Y., & Zheng, W. (2013). A multilevel analysis of the developmental trajectory of preschoolers' effortful control and prediction by parental parenting style. [A multilevel analysis of the developmental trajectory of preschoolers' effortful control and prediction by parental paren. *Acta Psychologica Sinica*, 45(5), 556–567. doi:10.3724/SP.J.1041.2013.00556
- 20 8  
21  
22 9  
23  
24 10  
25  
26
- 27 11 Lonigan, C. J., & Phillips, B. M. (2001). Temperamental influences on the development of anxiety disorders. (M. W. V. M. R. Dadds, Ed.)*The Developmental Psychopathology of Anxiety*. New York, NY, US: Oxford University Press.
- 29 12  
30  
31 13  
32
- 33 14 Lovejoy, M. C., Graczyk, P. A., O'Hare, E., & Neuman, G. (2000). Maternal depression and parenting behavior: A
- 56  
57  
58  
59  
60  
61  
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## 1 Parental psychopathology, temperament and ODD

2  
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4 1  
5  
6 2  
7  
8  
9  
10  
3435 15 meta-analytic review. *Clinical Psychology Review*, 20(5), 561–592. doi:10.1016/S0272-7358(98)00100-736  
37

38 16 Martel, M. M., Gremillion, M. L., &amp; Roberts, B. (2012). Temperament and Common Disruptive Behavior Problems

39

40 17 in Preschool. *Personality and Individual Differences*, 53(7), 874–879. doi:10.1016/j.paid.2012.07.011

41

42

43 18 Meadows, S. O., McLanahan, S. S., &amp; Brooks-Gunn, J. (2007). Parental depression and anxiety and early childhood

44

45 19 behavior problems across family types. *Journal of Marriage and Family*, 69(5), 1162–1177.

46

47 20 doi:10.1111/j.1741-3737.2007.00439.x

48

49

50 21 Melegari, M. G., Nanni, V., Lucidi, F., Russo, P. M., Donfrancesco, R., &amp; Cloninger, C. R. (2015). Temperamental

51

52 22 and character profiles of preschool children with ODD, ADHD, and anxiety disorders. *Comprehensive*

53

54 23 *Psychiatry*. doi:10.1016/j.comppsy.2015.01.001

55

24 Munkvold, L. H., Lundervold, A. J., &amp; Manger, T. (2011). Oppositional defiant disorder-gender differences in

co25 occurring symptoms of mental health problems in a general population of children. *Journal of Abnormal Child*

56

57

58

59 25

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1 Parental psychopathology, temperament and ODD

2  
3  
4 1  
5  
6  
7  
8  
9  
10 *Psychology*, 39(4), 577–87. doi:10.1007/s10802-011-9486-6

11 2 Nicholson, J. S., Deboeck, P., Farris, J. R., Boker, S. M., & Borkowski, J. G. (2011). Maternal Depressive  
12 3 Symptomatology and Child Behavior: Transactional Relationship with Simultaneous Bidirectional Coupling.  
13 *Developmental Psychology*, 47(5), 1312–1323. doi:10.1037/a0023912

14 4 Nigg, J. T. (2006). Temperament and developmental psychopathology. *Journal of Child Psychology and Psychiatry*,  
15 5 47(3-4), 395–422. doi:10.1111/j.1469-7610.2006.01612.x 17

16 6 Pardini, D. A., Fite, P. J., & Burke, J. D. (2008).  
17 Bidirectional associations between parenting  
18 practices and conduct

19 7  
20 problems in boys from childhood to adolescence: the  
21 moderating effect of age and African-American  
22 8

23 9 ethnicity. *Journal of Abnormal Child Psychology*, 36(5), 647–62. doi:10.1007/s10802-007-9162-z

24  
25 10 Reeb, B. T., Conger, K. J., & Wu, E. Y. (2010). Paternal Depressive Symptoms and Adolescent Functioning: The  
26 Moderating Effect of Gender and Father Hostility. *Fathering*, 8(1), 131–142. doi:10.3149/fth.0801.131

27 11  
28  
29  
30 12 Reich, W. & Ezpeleta, L. (2009). *Diagnostic interview for children and adolescents - version for parents of*  
31 *preschoolers (3-7 years)* (Unpublishe.). St. Louis, MO, USA.

32 13  
33  
34  
35 14 Rothbart, M. K. (2007). Temperament, Development, and Personality. *Current Directions in Psychological Science*,

56  
57  
58  
59  
60  
61  
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1 Parental psychopathology, temperament and ODD

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62  
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65

16(4), 207–212. doi:doi: 10.1111/j.1467-8721.2007.00505.x

Rothbart, M. K., Ahadi, S. A, Hershey, K. L., & Fisher, P. (2001). Investigations of temperament at three to seven years: the Children’s Behavior Questionnaire. *Child Development*, 72(5), 1394–1408. doi:10.1111/1467-8624.00355

Rothbart, M. K., & Bates, J. E. (2006). *Temperament*. (N. Eisenberg, W. Damon, & R. M. Lerner, Eds.)*Handbook of child psychology: Vol. 3, Social, emotional, and personality development (6th ed.)*. Hoboken, NJ, US: John Wiley & Sons Inc.

Rothbart, M. K., & Posner, M. I. (2006). Temperament, attention, and developmental psychopathology. (D. C. D. J. Cohen, Ed.)*Developmental Psychopathology, Vol 2: Developmental Neuroscience (2nd Ed.)*. Hoboken, NJ, US: John Wiley & Sons Inc.

Sarkadi, A., Kristiansson, R., Oberklaid, F., & Bremberg, S. (2008). Fathers’ involvement and children's developmental outcomes: a systematic review of longitudinal studies. *Acta Paediatrica*, 97(2), 153–158. doi:10.1111/j.1651-2227.2007.00572.x

Stringaris, A., & Goodman, R. (2009). Mood lability and psychopathology in youth. *Psychological Medicine*, 39,

1237–1245. doi:10.1017/S0033291708004662

1 Parental psychopathology, temperament and ODD

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52  
53  
54  
55  
56  
57  
58  
59  
60  
61  
62  
63  
64  
65

1 Stringaris, A., Maughan, B., & Goodman, R. (2010). What's in a disruptive disorder? Temperamental antecedents of  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
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52  
53  
54  
55  
56  
57  
58  
59  
60  
61  
62  
63  
64  
65

1 Thomas, A., & Chess, S. (1977). *Temperament and development*. (N. Y. N. Y. U. Press., Ed.). New York.

1 Trepát, E., Granero, R., & Ezpeleta, L. (2014). Parenting practices as mediating variables between parents'

2 psychopathology and oppositional defiant disorder in preschoolers. *Psicothema*, 26(4), 497–504.

3 doi:10.7334/psicothema2014.102

1 Valiente, C., Smith, C. L., Fabes, R. A., Guthrie, I. K., & Murphy, B. C. (2003). The Relations of Effortful Control

2 and Reactive Control to Children's Externalizing Problems: A Longitudinal Assessment. *Journal of* 33

3 *Personality*, 71(6), 1171–1196.

1 Weaver, C. M., Shaw, D. S., Crossan, J. L., Dishion, T. J., & Wilson, M. N. (2014). Parent-Child Conflict and Early

2 Childhood Adjustment in Two-Parent Low-Income Families: Parallel Developmental Processes. *Child*

3 *Psychiatry and Human Development*, 1–14. doi:10.1007/s10578-014-0455-5

1 Weitzman, M., Rosenthal, D. G., & Liu, Y.-H. (2011). Paternal Depressive Symptoms and Child Behavioral or

1 Parental psychopathology, temperament and ODD

2  
3  
4  
5  
6  
7  
8  
9  
10  
45

46 19 Emotional Problems in the United States. *Pediatrics*, 128, 1126–1134. doi:10.1542/peds.2010-3034 47

48 20 Yoo, Y. S., Adamsons, K. L., Robinson, J. L., & Sabatelli, R. M. (2013). Longitudinal Influence of Paternal Distress  
49

50 21 on Children's Representations of Fathers, Family Cohesion, and Family Conflict. *Journal of Child and Family* 51

52 *Studies*, 24(3), 591–607. doi:10.1007/s10826-013-  
9870-7

53 22 54

55 23 Zeman, J., Cassano, M., Perry-Parrish, C., & Stegall, S. (2006). Emotion Regulation in Children and Adolescents.

24 *Journal of Developmental and Behavioral Pediatrics*, 27(2), 155–168. doi:10.1097/00004703-200604000-

25 00014

11  
12  
13  
14  
15  
16  
17  
18  
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Parental psychopathology, temperament and ODD

1 Table 1. Characteristics of the initial sample of participants and the sample of children who were part of the analysis at baseline.

Sociodemographic		Total	Analysis	DSM-IV Disorders	Total		Analysis			
At baseline (3 years)		<i>n</i> =622	<i>n</i> =550	(weighted % at ages 3-4-5)	<i>n</i> =622		<i>n</i> =550			
Age (years)	Mean (SD)	3.76 (0.32)	3.77 (0.34)	Disruptive disorders	10.03	8.93	9.72	9.28	7.93	9.59
Sex; <i>n</i> (%)	Female	312 (50.2)	285 (51.8)	ADHD	3.70	5.10	4.33	3.50	4.73	4.16
Socioeconomic status	High	205 (33.0)	184 (33.5)	Oppositional defiant	6.91	5.14	6.55	6.34	4.21	6.47
	Mean-high	195 (31.4)	184 (33.5)	Conduct disorder	1.36	0.20	0.53	1.08	0.00	0.23
	Mean	88 (14.1)	74 (13.5)	Depressive disorders	3.10	0.60	0.32	2.93	0.00	0.00
	Medio-low	99 (15.9)	82 (14.9)	Anxiety disorders	8.33	6.70	9.81	7.71	5.72	9.24
Ethnicity	Low	35 (5.6)	26 (4.7)	Separation anxiety	2.15	1.41	1.27	1.86	0.89	1.04
	White	554 (89.1)	499 (90.7)	Generalized anxiety	0.10	0.10	0.53	0.11	0.11	0.58
	Hispanic	40 (6.4)	31 (5.6)	Specific phobia	5.33	5.60	8.96	4.67	4.73	8.31
	Other	28 (4.5)	20 (3.7)	Social phobia	1.94	2.10	3.58	1.96	2.19	3.57

2 SD: standard deviation.

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Table 2. Descriptives for the CBQ and ASR scales in the sample: means and standard deviations (SD).

	Age 3; <i>n</i> =550		Age 4; <i>n</i> =540		Age 5; <i>n</i> =496	
	Mean	SD	Mean	SD	Mean	SD
CBQ-surgency	4.34	0.80	4.21	0.82	4.23	0.83
CBQ-negative	3.78	0.75	3.64	0.72	3.68	0.77
CBQ-effortful	5.26	0.63	5.33	0.60	5.33	0.57
ASR-anx-depressed (mother)	6.32	4.24	---	---	---	---
<i>Clinical range (T-score&lt;70)</i>	5.6%					
ASR-aggressive behavior (mother)	4.08	3.49	---	---	---	---
<i>Clinical range (T-score&lt;70)</i>	4.5%					
ASR-anx-depressed (father)	5.16	3.90	---	---	---	---
<i>Clinical range (T-score&lt;70)</i>	5.1%					
ASR-aggressive behavior (father)	3.55	3.46	---	---	---	---
<i>Clinical range (T-score&lt;70)</i>	5.5%					



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8 # of ODD-symptoms



2 \*Significant correlation. †High effect size for the correlation ( $|r| \geq 0.30$ ).

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## Parental psychopathology, temperament and ODD

Table 4. Association between child temperament, paternal psychopathology and their interaction in ODD levels:

2 father + mother joint analysis.

	B	SE	95% CI for B		$\chi^2$	<i>p</i>
<i>Transversal 3 years-old</i>						
CBQ-surgency	0.012	0.006	-0.001	0.024	3.237	.072
CBQ-negative	0.032	0.006	0.020	0.044	27.328	<.001
CBQ-effortful	-0.018	0.007	-0.031	-0.005	7.306	.007
ASR-anx-depressed (mother)	0.004	0.017	-0.031	0.038	0.042	.837
ASR-aggressive behavior (mother)	0.047	0.021	0.005	0.088	4.825	.028
ASR-anx-depressed (father)	0.043	0.020	0.003	0.082	4.475	.034
ASR-aggressive behavior (father)	-0.025	0.023	-0.069	0.019	1.255	.263
<i>Chunk test for interactions</i>					7.23	.842
<i>Transversal 4 years-old CBQ-</i>						
<i>surgency</i>	0.007	0.007	-0.007	0.021	1.029	.310
CBQ-negative	0.047	0.007	0.033	0.061	44.629	<.001
CBQ-effortful	-0.027	0.007	-0.041	-0.012	13.411	<.001
ASR-anx-depressed (mother)	-0.019	0.020	-0.058	0.021	0.879	.348
ASR-aggressive behavior (mother)	0.075	0.023	0.030	0.120	10.579	.001
ASR-anx-depressed (father)	0.017	0.022	-0.027	0.060	0.563	.453
ASR-aggressive behavior (father)	0.016	0.024	-0.031	0.064	0.451	.502
<i>Chunk test for interactions</i>					6.97	.859
<i>Transversal 5 years-old CBQ-</i>						
<i>surgency</i>	0.005	0.007	-0.008	0.019	0.595	.440
CBQ-negative	0.048	0.007	0.033	0.062	40.839	<.001
CBQ-eff.; anx-dep:-father T=50	-0.268	0.087	-0.438	-0.098	9.528	.002
CBQ-eff.; anx-dep:-father T=65	-0.355	0.116	-0.582	-0.128	9.399	.002
CBQ-eff.; anx-dep:-father T=70	-0.384	0.126	-0.630	-0.138	9.368	.002
ASR-anx-depressed (mother)	-0.017	0.020	-0.056	0.021	0.781	.377
ASR-aggressive behavior (mother)	0.033	0.023	-0.013	0.079	1.952	.162
ASR-anx-depressed (father)	0.324	0.098	0.132	0.515	10.985	.001
ASR-aggressive behavior (father)	-0.004	0.026	-0.056	0.047	0.028	.867
<i>Inter.: CBQ-eff<math>\times</math>Anx-Dep (father)</i>					8.97	.003
<i>Chunk test for interactions</i>					19.43	.079
<i>Longitudinal model CBQ-</i>						
<i>surgency</i>	0.006	0.007	-0.008	0.019	0.686	.407
CBQ-negative	0.033	0.007	0.019	0.046	21.325	<.001
CBQ-eff.; anx- dep:-father T=50	-0.182	0.092	-0.363	-0.001	3.897	.048
CBQ-eff.; anx- dep:-father T=65	-0.245	0.123	-0.485	-0.004	3.957	.046
CBQ-eff.; anx- dep:-father T=70	-0.287	0.143	-0.567	-0.006	4.008	.045
ASR-anx-depressed (mother)	-0.015	0.019	-0.053	0.022	0.657	.418
ASR-aggressive behavior (mother)	0.023	0.023	-0.022	0.068	1.009	.315
ASR-anx-depressed (father)	0.235	0.103	0.033	0.438	5.174	.023
ASR-aggressive behavior (father)	0.008	0.025	-0.041	0.057	0.092	.762

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<i>Inter.: CBQ-eff□Anx-Dep.(father)</i>	<i>4.20</i>	<i>.040</i>
<i>Chunk test for interactions</i>	<i>13.11</i>	<i>.041</i>

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