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Cognitive Biases and Obsessive-Compulsive Symptoms in Children: Examining the Role of Maternal Cognitive Bias and Child Age

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Objective: Multiple cognitive biases associated with adult obsessive-compulsive disorder (OCD) were tested in a clinical sample of children (ages 7–11) and adolescents (12–17) and their mothers. This study examined (a) the associations between child cognitive biases and OCD severity, (b) maternal cognitive biases and child OCD severity, and (c) maternal cognitive bias and child cognitive bias. It was hypothesized that age would significantly moderate these relationships, with stronger associations with OCD severity for cognitive bias in adolescents (relative to children), and maternal cognitive bias in younger children (relative to adolescents). Method: Forty-six children and adolescents diagnosed with OCD and their mothers completed questionnaires assessing responsibility bias, thought–action fusion (TAF), thought suppression, and metacognitive beliefs. OCD symptoms were assessed using structured diagnostic interviews and semistructured symptom interviews. Results: As predicted, age significantly moderated associations between (a) child cognitive variables and OCD severity—specifically between child responsibility and child metacognition, which were associated with OCD severity for adolescents only; (b) maternal cognitive biases and child OCD severity—specifically for maternal responsibility and thought suppression, which were significantly and positively associated with child OCD severity but not adolescent OCD severity; and (c) maternal cognitive biases and child cognitive bias—such that significant associations were evident only in the younger child sample, and only between maternal TAF self and metacognition, with child suppression and child TAF moral, respectively. Conclusion: Maternal cognitive biases are more consistently linked to greater OCD severity among younger children, whereas personal cognitive biases are associated with greater OCD symptoms in adolescents. Treatments for pediatric OCD are likely to be improved by age-specific considerations for the role of maternal and child cognitive biases associated with OCD.

Keywords: cognitive appraisals; meta-cognitive beliefs; OCD; thought–action fusion; thought suppression

RESEARCH INTO OBSESSIVE-COMPULSIVE DISORDER (OCD) has continued to mount over the past decade (Boschen, 2008), with increasing evidence to support cognitive theoretical models (e.g., Taylor, Abramowitz, & McKay, 2006), and efficacy for cognitive-behavioral treatments (CBT) in both adults (e.g., Rosa-Alcázar, Sánchez-Meca, Gómez-Conesa, & Marín-Martínez, 2008) and children with OCD (e.g., Barrett, Farrell, Pina, Peris, & Piacentini, 2008). Despite the wealth of research into the cognitive underpinnings of OCD in adults (e.g., Frost & Steketee, 2002), there is comparatively limited research into the underlying mechanisms associated with the persistence and maintenance of this disorder during childhood. As such, examination of maladaptive beliefs, the development of such beliefs, and familial processes involved in childhood OCD warrants further investigation.

Adult cognitive models of OCD focus on six core domains of cognition that have been identified by the Obsessive–Compulsive Cognitions Working Group (OCCWG, 1997, 2001) as centrally important to OCD. These cognitions include (a) inflated

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responsibility (Salkovskis, 1985, 1996), (b) overimportance of thoughts (e.g., thought–action fusion [TAF]; Rachman, 1993), (c) control of thoughts (e.g., thought suppression [Clark & de Silva, 1985] and meta-cognitive beliefs [Wells & Papageorgiou, 1998]), (d) overestimation of threat, (e) intolerance of uncertainly, and (f) perfectionism (OCCWG, 1997, 2001). Notably, all of these cognitive processes share a central tenet that an individual's *beliefs and appraisals* of OCD symptoms play an integral part in the development of the disorder.

The extent to which these factors explain child and adolescent OCD remains unclear. Research with child samples is limited and has been restricted in focus, with much of the work examining inflated responsibility bias, metacognitions, and TAF (see Reynolds & Reeves, 2008, for a review). Moreover, of only 11 studies to date on cognitive models of OCD in children (Reynolds & Reeves, 2008), only four examined the applicability of cognitions in *clinical* samples (i.e., Barrett & Healy, 2003; Barrett & Healy-Farrell, 2003; Farrell & Barrett, 2006; Libby, Reynolds, Derisley, & Clark, 2004), and findings have been mixed. One study provided support for an inflated responsibility bias in 11- to 18-year-olds with OCD (i.e., Libby et al., 2004); however, another found responsibility biases were significantly lower for children versus adolescents and adults with OCD, whereas TAF, overestimation of threat, doubt, and cognitive control were similar across all age groups (Farrell & Barrett, 2006). Yet other work has shown that inflated responsibility was not associated with increased ratings of distress, avoidance or ritualizing in children with OCD, ages 7–17 years, during a behavioral avoidance task (Barrett & Healy-Farrell, 2003). Moreover, another study comparing 7- to 13-year-olds with OCD, nonclinical children, and children with other (non-OCD) anxiety disorders (Barrett & Healy, 2003) found that biases of responsibility, threat severity, TAF, and cognitive control were significantly higher in children with OCD and other anxiety disorders compared to nonclinic controls. Cognitive control was the only bias however, found to be *specific* to children with OCD. Thus, while there is support for cognitive models in understanding childhood OCD (Reynolds & Reeves, 2008), the inconsistent findings to date warrant further examination.

More recently, the role of responsibility in nonclinical children ($n = 81$; ages 9–12 years) was assessed during a sorting task, whereby responsibility was manipulated as a function of whether an adult was assigned to check the children's sorting or not (Reeves, Reynolds, Coker, & Wilson, 2010). The manipulation was successful, with significantly higher ratings of perceived responsibility in the high-responsibility condition. Furthermore, this was associated with increased time taken to complete the task, increased checking, and more frequent hesitations, providing support for a role of responsibility in checking behaviors. However, unexpectedly there were no between-group differences on state anxiety, raising the question about the specificity of responsibility bias to anxiety and/or the development of clinical OCD.

Coles and colleagues (2010) recently published the initial validation of the Obsessive-Belief Questionnaire–Child Version (OBQ-CV), which in the future will allow for standardized and reliable testing of obsessional beliefs in children across six core belief domains identified by the OCCWG (1997, 2001). The results provide support for a relationship between beliefs (OBQ-CV total scores) and self-reported OCD severity in two samples of children (8–18 years). Interestingly, however, total scores were not significantly correlated with OCD severity based on the Children's Yale–Brown Obsessive–Compulsive Scale (CY-BOCS; Scahill et al., 1997) total scores or compulsion scores, and there was only borderline significance in one sample and a nonsignificant trend in the other sample with the CY-BOCS obsession scores. While the child studies collectively provide preliminary support for a role of maladaptive beliefs, the results are somewhat inconsistent across samples, study methodologies, and age groups.

Research specifically exploring the origins of obsessive beliefs may offer more prevailing information regarding the role of maladaptive beliefs in the development of OCD symptoms in childhood. Researchers have suggested that maladaptive beliefs may have their origins within a familial-based developmental context (Rector, Cassin, Richter, & Burroughs, 2009), whereby specific parenting behaviors, such as criticism, control, and strict codes of conduct have been postulated to be associated with the development of maladaptive perfectionism (e.g., Kawamura, Frost, & Harmatz, 2002) and inflated responsibility beliefs (e.g., Salkovskis, Shafran, Rachman, & Freeston, 1999). Rector and colleagues examined familial vulnerability for OCD by comparing maladaptive beliefs between adults with OCD, their nonaffected first-degree relatives, and nonaffected controls. First-degree relatives scored significantly higher than controls on inflated responsibility and overestimation of threat. Furthermore, relatives of adults with early onset OCD also scored significantly higher than controls on both inflated responsibility and overestimation of threat, suggesting a familial-based vulnerability for the development of certain maladaptive beliefs.