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Review

Differential efficacy of cognitive-behavioral therapy and pharmacological treatments for pediatric obsessive–compulsive disorder: A meta-analysis

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ABSTRACT

The aim of this paper is to present a meta-analysis about the differential efficacy of cognitive-behavioral therapy (CBT), pharmacological and combined treatment for pediatric obsessive–compulsive disorder (OCD). The literature research and the application of the inclusion criteria enabled us to locate 18 studies, yielding a total of 24 independent comparisons between a treated (10 pharmacological, 11 CBT, and 3 combined interventions) and a control group. All types of interventions were efficacious in reducing obsessive–compulsive symptoms, with effect sizes adjusted by the type of control group of $d = 1.203$ for CBT, $d = 0.745$ for pharmacological treatments, and $d = 1.704$ for mixed treatments. Depression, anxiety and other secondary responses were also improved, especially with CBT interventions. The analysis of moderator variables showed that the CBT protocol and the total of intervention hours exhibited a significant influence on the effect size. Within pharmacological treatment, clomipramine ($d = 1.305$) was more efficacious than selective serotonin reuptake inhibitors ($d = 0.644$), but its adverse effects were more severe. Finally, the clinical implications of the results are discussed.

Contents

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1. Introduction

Obsessive–compulsive disorder (OCD) is a serious psychological disorder which occurs in approximately 2% of children and adolescents (Apter et al., 1996; Canals, Hernández-Martínez, Cosi, & Voltas, 2012; Rapoport et al., 2000). The main symptoms of pediatric OCD are obsessions and compulsions (American Psychiatric Association, 2013). As in adults, these interfere with the individual's daily life and cause a serious functional impairment (Piacentini, Bergman, Keller, & McCracken, 2003; Valderhaug & Ivarsson, 2005). The OCD is often associated with other psychological disorders, such as tics, attention deficit-hyperactivity disorder, depression, separation anxiety disorder, specific phobias, and multiple anxiety disorders that increase the degree of discomfort and complicate its treatment and prognostic (Storch et al., 2010). The comorbidity has been associated with a lower treatment response and a greater percentage of relapse after treatment both in medication and psychological interventions (Geller, Biederman, Stewart, Mullin, Farrell, et al., 2003; Krebs & Heyman, 2010; March et al., 2007).

The severe consequences of OCD in lives of children and adolescents have encouraged researchers and clinicians to develop new assessment instruments and to improve pharmacological and psychological interventions. Cognitive-behavioral therapy (CBT) has been the most investigated treatment model, with exposure with response prevention (ERP) being the main component. At least in adults, the efficacy of ERP seems to be similar regardless of whether it is applied alone or in combination with other techniques (Rosa-Alcázar, Sánchez-Meca, Gómez-Conesa, & Marín-Martínez, 2008). The treatment components that most frequently accompany ERP are neurobiological psychoeducation (March & Mulle, 1998), family-based treatments with parent training (Barrett, Healy-Farrell, & March, 2004; Freeman et al., 2008), intervention in narrative context (March & Mulle, 1998; Wagner, 2003), and cognitive or anxiety management techniques with the use of age appropriate metaphors to facilitate cognitive restructuring (Barrett et al., 2004; March & Mulle, 1998; Pediatric OCD Treatment Study [POTS] Team, 2004; Piacentini & Langley, 2004).

Empirical studies conducted on pediatric OCD have examined the efficacy of treatments in different modalities. For example, no relevant differences have been found between individual and group CBT, with efficacy figures ranging between 61% and 65% for both modalities (Barrett et al., 2004). Similarly, intensive CBT seems to be as efficacious as CBT applied in a longer format (Franklin et al., 1998; Storch et al., 2007). CBT has been investigated with the inclusion of certain modifications such as telephone format (Turner, Heyman, Futh, & Lovell, 2009), community-based CBT (Farrell, Schlup, & Boschen, 2010), or web-camera delivered CBT (Storch et al., 2011). However, the differential efficacy between the components of CBT has not been sufficiently investigated. Only the study by Simons, Schneider, and Herpertz-Dahlmann (2006) has compared the benefits of ERP and meta-cognitive therapy, finding better results for ERP.

Several studies have examined the efficacy of family-based CBT programs, finding very heterogeneous improvement percentages of around 25–65% (Barrett et al., 2004; Piacentini et al., 2011). On the one hand, some reviews have concluded that the efficacy of family-based CBT presents significant differences between fathers and mothers according to gender, age of children (Bögels & Phares, 2008), and parental style dimensions (McLeod, Wood, & Weisz, 2007). Other studies have concluded that individual exposure-based CBT can be considered as a probably efficacious treatment, whereas family-based CBT must be considered as a possibly efficacious treatment (Barrett, Farrell, Pina, Peris, & Piacentini, 2008; Sukhodolsky, Gorman, Scahill, Findley, & McGuire, 2013).

Pharmacological treatments of pediatric OCD have received wide empirical support from several randomized controlled trials, showing an adequate efficacy to reduce obsessive–compulsive symptoms. Although clomipramine has shown greater efficacy than selective serotonin reuptake inhibitors (SSRIs), its adverse side-effects are more severe than SSRIs (anticholinergic, adrenergic and histaminergic effects). As a consequence, SSRIs are preferred to clomipramine, as they are safer and better tolerated by the patients (Geller, Biederman, Stewart, Mullin, Farrell, et al., 2003; Geller, Biederman, Stewart, Mullin, Martin, et al., 2003; Watson & Rees, 2008).

Only a few studies have assessed the efficacy of combining pharmacological treatment and CBT (Franklin et al., 2011; POTS, 2004). The results have been better when CBT is added to medication than when the treatment is composed of medication alone. However, more controlled studies are needed to confirm and extend these results.

The American Academy of Child and Adolescent Psychiatry (AACAP) Committee on Quality Issues (2012) recommends CBT as the first choice when OCD presents mild to moderate severity, whereas SSRIs combined with CBT are indicated for moderate to severe cases, presence of comorbidity, or absence of clinicians specialized in CBT.

To date, five meta-analytic studies have been published on the efficacy of interventions for pediatric OCD (Abramowitz, Whiteside, & Deacon, 2005; Freeman et al., 2007; Geller, Biederman, Stewart, Mullin, Farrell, et al., 2003; Geller, Biederman, Stewart, Mullin, Martin, et al., 2003; O'Kearney, 2007; Watson & Rees, 2008). The main results of these meta-analyses are summarized in Table 1. Four of the five meta-analyses have investigated the efficacy of CBT. Although all of them exhibited mean effects of large magnitude and statistically significant, these mean effect estimates seem to be somewhat heterogeneous. Thus, Abramowitz, Whiteside, and Deacon (2005) found an average effect of $d_R = 1.98$, whereas Freeman et al. (2007) reported a slightly lower mean effect of $d_R = 1.55$ (see Table 1). O'Kearney (2007) computed the effect sizes for 5 CBT comparison studies and for 14 one-group studies, obtaining d_R indices for obsessive–compulsive symptoms that ranged from 0.78 to 3.49. Given the large variability showed by the effect estimates, he did not report a mean effect. The d_R index used in Abramowitz et al. (2005), Freeman et al. (2007), and O'Kearney (2007) was the standardized mean change between the pretest–posttest measures obtained in each CBT group. Due to the large number of internal validity threats of this effect size index, O'Kearney (2007) considered that the effect estimates obtained from these studies could be overestimations of the true treatment effect. In order to correct the effect estimates, he adjusted their d_R estimates by the mean d_R index obtained with the control groups, concluding that, on average, the mean effect of CBT is close to $d = 1$. In order to avoid the internal validity threats of the d_R index, Watson and Rees (2008) selected only randomized controlled studies that included a psychological or pharmacological treatment and a control group. Thus, they were able to calculate a more adequate effect