

**Comparative Efficacy of Atomoxetine, Lisdexamfetamine, Bupropion and Methylphenidate in Treatment of Attention Deficit Hyperactivity Disorder in Children and Adolescents: a Metaanalysis with Focus On Bupropion**

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**INTRODUCTION:** Pharmacotherapy is essential for the treatment of children and adolescents with Attention Deficit Hyperactivity Disorder (ADHD). There are only two metaanalyses available in the literature where bupropion (BUP) was also included and compared to atomoxetine (ATX) and methylphenidate (MPH) in the treatment of ADHD in youths.

**OBJECTIVES:** There is a lack of comparative effectiveness research among ADHD medications in terms of efficacy, where BUP is compared with ATX, lisdexamfetamine (LDX) and MPH.

**AIM:** The main aim of this work was to compare the efficacy of these drugs in children and adolescents using a metaanalysis.

**METHODS:** A literature search was conducted to identify double-blind, placebo-controlled, noncrossover studies of ADHD. A systematic electronic literature search of PubMed (1975–April 2014) and clinicaltrials.gov with full text (1981–April 2014) was conducted. Drug efficacy was calculated based on the standardized mean difference (SMD). Treatment score was the primary endpoint.

**RESULTS:** 28 articles and 27 trials met inclusion criteria and were sufficient for inclusion in the metaanalysis. BUP 0.32 (95% CI, -0.05, 0.69) showed small efficacy, ATX 0.68 (95% CI, 0.59, 0.76), and MPH 0.75 (95% CI, 0.52, 0.98) showed modest efficacy in reducing ADHD symptoms and LDX showed high efficacy 1.28 (95% CL, 0.71, 1.84).

**CONCLUSIONS:** The results suggest that LDX has the best efficacy and has promising potential for treating children and adolescents with ADHD. Effect sizes should not be the only evidence for clinicians when choosing ADHD medication. More research is needed for a better clinical evaluation of BUP.