

# Randomised controlled trials of antidepressant and anti-anxiety medications for people with autism spectrum disorder: A systematic review and meta-analysis

## Authors

Miss Bharati Limbu, BSc, Research Assistant, Imperial College London, UK

Professor Shoumitro (Shoumi) Deb, MBBS, FRCPsych, MD, Visiting Professor of Neuropsychiatry, Imperial College London, UK

Dr Meera Roy, MBBS, FRCPsych, Honorary Consultant Psychiatrist, Hereford and Worcestershire Health and Care Trust, UK

Dr Rachel Lee, MBBS, MRCPsych, Specialty Registrar in Psychiatry of Intellectual Disabilities, Coventry and Warwickshire Partnership NHS Foundation Trust, UK

Dr Madiha Majid, MBBS, Academic Clinical Fellow, Warwick Medical School, University of Warwick, UK

Dr Jacopo Santambrogio, MD, Consultant Psychiatrist, University Milano-Bicocca, Italy

Professor Ashok Roy, MBBS, MA, FRCPsych, Honorary Professorial Fellow, Warwick Medical School, University of Warwick, UK

Professor Marco O. Bertelli, MD, FISP, Scientific Director, CREA (Centro Ricerca E Ambulatori; Research and Clinical Centre), Fondazione San Sebastiano, Florence, Italy.

## Background

Around 17% of people with autism spectrum disorder (ASD) are prescribed antidepressants and 7% anti-anxiety medications despite limited evidence of their efficacy.

## Aims

We have carried out a systematic review and meta-analysis of the RCTs that assessed the effectiveness of antidepressants and anti-anxiety medications in people with ASD of all ages.

## Method

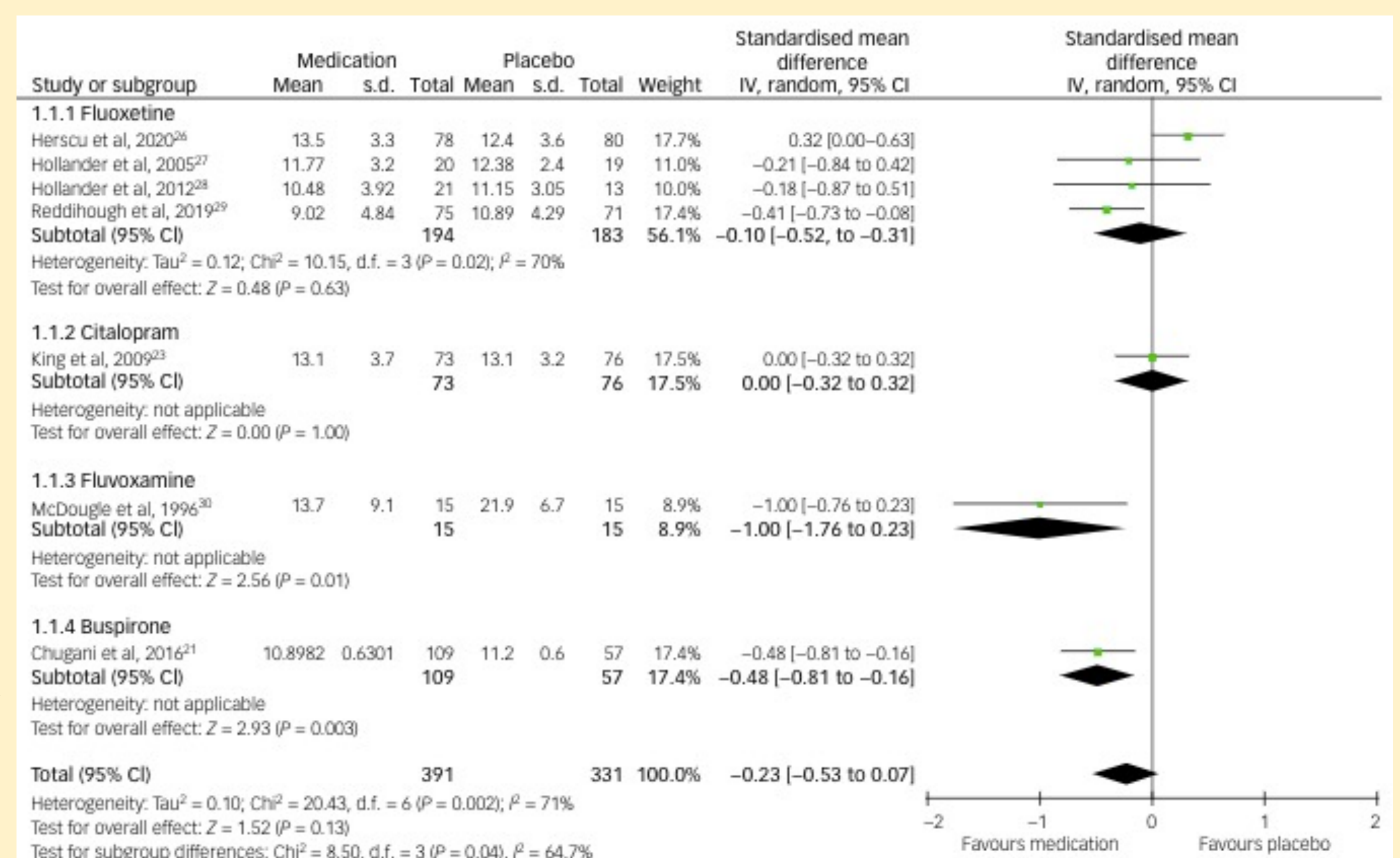
We have searched the following databases: Cochrane Library, MEDLINE, EMBASE, CINAHL, PsycINFO, ERIC, DARE, and ClinicalTrials.gov. Additionally, we have hand-searched 11 relevant journals in the field of intellectual disabilities, ASD and psychopharmacology. The quality of the included papers was assessed using the Cochrane Risk of Bias tool and Jadad score. We have also carried out a meta-analysis using a random-effects model.

## Results

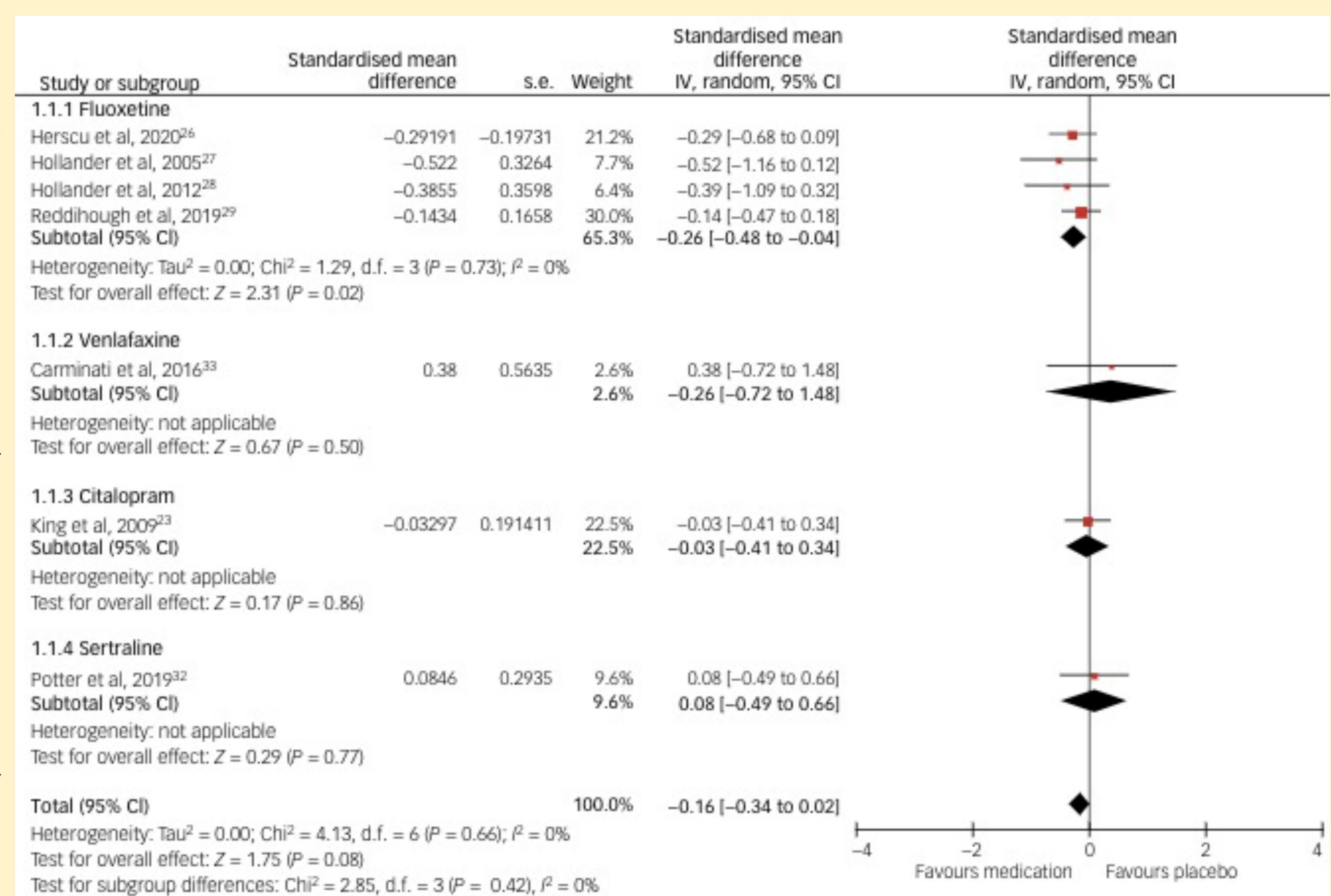
We have found 15 RCTs (13 on antidepressants and two on anti-anxiety medication buspirone) that included a total of 958 people with ASD primarily children and adolescents. There were four RCTs on fluoxetine, two each on clomipramine, venlafaxine, fluvoxamine, and one each on citalopram, sertraline and agomelatine. RCTs assessed efficacy of these medications on ASD core symptoms and associated behaviours such as agitation, irritability, and aggression rather than psychiatric disorders like anxiety or depression. Data showed contradictory findings among the studies with larger studies mostly showing a non-significant difference in outcomes between the treatment and the placebo group. Meta-analysis of pooled Yale-Brown Obsessive Compulsive Scale and Clinical Global Impression Scale data from nine studies (60%) did not show any statistically significant intergroup difference on either of the outcome measures. The adverse effects reported were mild and, in most studies, their rates did not show any significant intergroup difference.

## Conclusions

It is difficult to draw any definitive conclusion about the effectiveness of either antidepressants or anti-anxiety medications to treat either ASD core symptoms or associated behaviours because of the methodological flaws in the most included studies and contradictory findings.



Forest plot: Children-Yale-Brown Obsessive Compulsive Scale (Y-BOCS)



Forest plot: Clinical Global Impression-Improvement Scale (CGI-I)