



## Review

# Psychopharmacologic intervention for adults with autism spectrum disorder: A systematic literature review



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## ABSTRACT

**Background:** The increased recognition of psychiatric and behavioural disorder in adults with autism spectrum disorder (ASD) has been associated with more frequent use of psychopharmacologic intervention in this population. However, limited evidence supports the effectiveness of these interventions for adults with ASD.

**Objective:** To review and synthesise the evidence regarding the effectiveness of psychotropic medication in reducing behavioural disturbance in adults with ASD.

**Data sources and study selection:** Electronic literature search of PubMed plus manual reference checks of all articles on psychopharmacology in adults with ASD published in the English language between 1985 and 2015.

**Results and conclusions:** A total of 43 studies were included in the analysis. The results indicate that only two medications, fluoxetine and risperidone, can be considered as promising evidence-based practices for adults with ASD. Given the rising prevalence of ASD, along with increased use of psychopharmacologic intervention in this population, there is a clear need for methodologically rigorous research to establish the effectiveness of these interventions. The subsequent establishment of clinical guidelines for medication use in this population is essential.

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## 1. Introduction

Autism spectrum disorder (ASD) is a lifelong neurodevelopmental disorder characterized by impaired social communication and a pattern of rigid and repetitive behaviour and restricted interests (American Psychiatric Association, 2013). Adults with ASD often present with associated features including intellectual disability, epilepsy, sleep disturbance, autoimmune disease, gastrointestinal disorders and behavioural disturbance (Matson & Goldin, 2013). A substantial proportion of adults with ASD also experience psychiatric comorbidities (Buck et al., 2014; Hofvander et al., 2009; Howlin, 2000; Morgan & Chance, 2003). There is a higher prevalence of psychiatric disorder in adults with ASD relative to individuals with intellectual disabilities and those in the general population (Bradley, Summers, Wood, & Bryson, 2004; Buck et al., 2014; Underwood, McCarthy, & Tsakanikos, 2010), with some studies estimating that more than 75% of adults with ASD have at least one lifetime diagnosis of psychiatric disorder (Buck et al., 2014; Ghaziuddin & Zafar, 2008). The types of mental health conditions experienced by adults with ASD include anxiety disorders, major depressive disorder, bipolar disorder and obsessive compulsive disorder, which are consistently reported at high frequencies (Howlin, 2000; Hofvander et al., 2009; Lainhart & Folstein, 1994; Stewart, Barnard, Pearson, Hasan, & O'Brien, 2006; Ståhlberg, Soderstrom, Rastam, & Gillberg, 2004; Sterling, Dawson, Estes, & Greenson, 2008). Severe and debilitating disorders, such as psychotic disorders (including schizoaffective disorder and schizophrenia), as well as psychotic symptoms (hallucinations, catatonia, delusions, paranoia) have also been observed in a substantial proportion (up to 50%) of adults with ASD (Hofvander et al., 2009; Howlin, 2000; Konstantareas & Hewitt, 2016; Morgan, Roy, & Chance, 2003; Ståhlberg et al., 2004).

In addition, many adults with ASD, particularly those with comorbid Intellectual Disability and limited communication, present with severe behavioural disorder (Matson & Rivet, 2008). Challenging behaviours may include physical and verbal aggression, property destruction, absconding and self-injurious behaviour, each of which occur more frequently in adults with ASD than in those with an intellectual disability (Matson & Rivet, 2008; McCarthy et al., 2014). These behaviours are often severe and persisting and are likely to reflect a complex interaction between environmental factors, physical health needs, ASD severity and psychopathology.

The identification of psychiatric and behavioural disorder in adults with ASD has resulted in increasing rates of psychotropic use in this population (Aman, Lam, & Van Bourgondien, 2005; Esbensen, Greenberg, Seltzer, & Aman, 2009). Indeed, the results of recent research indicate that up to 81% of adults with ASD take at least one psychotropic medication, with a high proportion of these individuals (40.6%) taking three or more medications (Esbensen et al., 2009; Morgan et al., 2003). Furthermore, a higher proportion of adults with ASD receive psychopharmacologic intervention than those with intellectual disability alone (Tsakanikos, Costello, Holt, Sturmey, & Bouras, 2007). The primary indicator of psychotropic medication use in individuals with ASD is behavioural disturbance, often in the absence of a diagnosed psychiatric disorder (Morgan et al., 2003; Tsakanikos et al., 2007).

### 1.1. Psychopharmacology in children with ASD

Substantial research has investigated the efficacy of psychopharmacologic intervention in reducing stereotyped and repetitive behaviour, irritability and aggression in children with ASD (see Siegel & Beaulieu, 2012 for a recent review of psychopharmacology in children with ASD). The results of several large, multi-site, double-blind, placebo-controlled trials

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