

# INPLASY

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## The Effect of Psychostimulant Medications on the Risk of Anxiety among Children with Attention Deficit Hyperactivity Disorder: A Systematic Review and Meta-analysis of Randomized Controlled Trials Protocol

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## ADMINISTRATIVE INFORMATION

**Support** - No specific external funding was received. This study is conducted as part of academic research activities at Taif University.

**Review Stage at time of this submission** - Completed but not published.

**Conflicts of interest** - None declared.

**INPLASY registration number:** INPLASY202650100

**Amendments** - This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 17 May 2026 and was last updated on 17 May 2026.

## INTRODUCTION

**Review question / Objective** This systematic review and meta-analysis aims to evaluate the effect of psychostimulant medications on anxiety risk among children with attention-deficit hyperactivity disorder (ADHD).

PICOS framework:

Population: Children diagnosed with ADHD  
 Intervention: Psychostimulant medications including methylphenidate and amphetamines  
 Comparator: Placebo or control groups  
 Outcomes: Anxiety risk and anxiety scores  
 Study design: Randomized controlled trials.

**Rationale** Anxiety disorders commonly co-occur with ADHD and significantly affect emotional, social, and academic functioning.

Although psychostimulants are considered first-line treatments for ADHD, concerns persist regarding their potential impact on anxiety symptoms.

Previous studies have shown conflicting findings, with some suggesting increased anxiety risk and others reporting neutral or protective effects.

This review synthesizes evidence from randomized controlled trials to clarify the relationship between psychostimulant use and anxiety in children with ADHD.

**Condition being studied** Attention-deficit hyperactivity disorder (ADHD) is a neurodevelopmental disorder characterized by inattention, impulsivity, and hyperactivity.

Children with ADHD frequently exhibit comorbid anxiety symptoms and disorders, including

generalized anxiety, social anxiety, and separation anxiety.

The interaction between ADHD, emotional dysregulation, and psychostimulant treatment remains clinically important and controversial.

## METHODS

### Search strategy

Electronic databases searched:

PubMed  
Scopus  
Web of Science

Search terms included:

“Stimulants”  
“Methylphenidate”  
“Amphetamine”  
“Anxiety”  
“Attention Deficit Hyperactivity Disorder”  
“Children”

Medical Subject Headings (MeSH) and keyword combinations were used.

Searches included titles and abstracts from database inception until November 2024.

**Participant or population** Children and adolescents diagnosed with ADHD.

### Intervention

Psychostimulant medications including:

Methylphenidate  
Amphetamines  
Dexamethylphenidate  
Other stimulant formulations.

**Comparator** Placebo

Standard control conditions.

**Study designs to be included** Randomized controlled trials (RCTs), including crossover and parallel-group trials.

**Eligibility criteria** Inclusion criteria:

Pediatric ADHD populations  
Psychostimulant interventions  
Anxiety-related outcomes  
Randomized controlled trials

Exclusion criteria:

Observational studies  
Reviews  
Case reports  
Adult-only studies.

### Information sources

PubMed  
Scopus  
Web of Science  
Reference lists of included articles.

### Main outcome(s)

Primary outcomes:

Risk of anxiety  
Anxiety symptom severity

Measured using:

Odds ratios  
Anxiety rating scales.

### Additional outcome(s)

Adverse psychiatric effects  
Anxiety score changes  
Treatment tolerability.

### Data management

Study records were managed using Rayyan software and Microsoft Excel.

Duplicates were removed before screening.

Two independent reviewers performed data extraction and verification.

**Quality assessment / Risk of bias analysis** The Cochrane Risk of Bias Tool (RoB-2) was used for assessment of randomized controlled trials.

**Strategy of data synthesis** Meta-analysis was conducted using Review Manager 5.4 software.

Odds ratios (OR) were used for dichotomous outcomes

Standardized mean differences (SMD) for continuous outcomes

Fixed-effect model applied due to low heterogeneity

Heterogeneity assessed using  $I^2$  statistics.

**Subgroup analysis** Subgroup analyses were conducted based on:

Type of stimulant  
Medication formulation  
Anxiety outcome measures.

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**Sensitivity analysis** Sensitivity analyses were performed by evaluating heterogeneity and excluding potentially influential studies when necessary.

**Language restriction** English only.

**Country(ies) involved** saudia arabia.

**Other relevant information**

This study follows:

PRISMA 2020 guidelines  
Cochrane recommendations for systematic reviews and meta-analyses

**Keywords** ADHD; Anxiety; Methylphenidate; Amphetamine; Psychostimulants.

**Dissemination plans** The findings will be submitted to a peer-reviewed journal and presented at academic and psychiatric conferences.

**Contributions of each author**

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