

# Management of psychosis in children and adolescents

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**Nuts and Bolts of Pediatric  
Psychopharmacology and management of  
Psychosis in children**

**1<sup>st</sup> Nov 2022**

# CONFLICT OF INTEREST



Conflict of interest: None



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for Child and Adolescent  
Mental Health  
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**Cochrane**  
Schizophrenia

# We will touch upon

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Presentation of psychosis in children and adolescents

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Differential diagnosis

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Psychosis in children

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Psychosis in adolescents

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Cochrane review: Childhood onset schizophrenia

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Cochrane review: Atypical antipsychotics in adolescents with psychosis

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Cochrane review: Psychological interventions for adolescents with psychosis

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Tying it all together

# Presentation of psychosis in youth

- Diagnostic criteria (Positive symp, negative symptoms, disorganized behaviour)
- Misdiagnosis is common (Normal child, OCD, Mania)
- Distinguish formal thought disorder with language disorders
- Children who develop schizophrenia may have premorbid problems with verbal reasoning, memory, attention.
- Cognitive decline typically occurs at the onset and stabilize over time

## Neurotypical child

- Overactive imagination
- Vivid fantasies

## High risk state

- Family history, recent deterioration in functioning
- Paranoid thought, social impairment, Substance misuse

## OCD

- Obsessional thinking e.g. symmetry
- “Something bad will happen”

## ASD spectrum

- Lack of social reciprocity
- Idiosyncratic beliefs; No acute onset = long standing pattern








## Mania

- Florid delusions and elaborate thoughts
- Rapid speech as opposed to withdrawal

## Schizophrenia

- Onset (acute or slowly developing)
- Change in functioning

# Systematic Review and Meta-analysis: Psychosis Risk in Children and Adolescents With an At-Risk Mental State

Ulla Lång, MA , Kathryn Yates, MSc , Finbarr P. Leacy, PhD , Mary C. Clarke, PhD ,  
Fiona McNicholas, MD , Mary Cannon, MD, PhD , Ian Kelleher, MD, PhD 

Conclusion: At 5-year follow-up, 1 in 6 youths diagnosed with an ARMS had transitioned to psychosis, but we did not find evidence that this risk was related to ARMS diagnosis as opposed to sampling/recruitment strategies.

Our findings indicate a need for caution in applying ARMS methodology to children and adolescents and highlight the need for developmentally sensitive approaches when considering psychosis risk.

**J Am Acad Child Adolesc Psychiatry 2022;61(5):615–625.**

# Psychosis in children and adolescents

- Normal hallucinations that are not part of a psychiatric disorder
- Acute and transient psychosis
- Prodromal symptoms
- Childhood onset schizophrenia (COS)
- Adolescent onset psychosis
  - First episode psychotic bipolar
  - Schizophrenia (1/5<sup>th</sup> of all patients with schizophrenia)
  - Misdiagnosed psychosis (in OCD, bipolar, developmental disorders etc.)



# Childhood onset Schizophrenia

- Less than 13 years of age
- Not adequately studied as its rare (1 in 10,000)
- Diagnostic validity of Schizophrenia below 6 years of age has not been established
- Symptomatology – Positive, Negative symptoms and Cognitive decline
- Course: Prodrome, acute phase, recovery phase and residual phase
- Outcome: Moderate to severe impairment



## Practice Parameter for the Assessment and Treatment of Children and Adolescents With Schizophrenia

- All children with suspected schizophrenia should be evaluated for pertinent clinical conditions that may be associated with the presentation
  - developmental disorders
  - substance misuse
  - childhood abuse/psychosocial stressors/ PTSD
  - medical conditions

# PHYSICAL EXAMINATION OF ALL CHILDREN WITH SUSPECTED SCHIZOPHRENIA



# When to be more cautious about medical problems giving rise to psychotic symptoms?



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Organic signs e.g. focal neurological deficits, seizures etc.



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Past history of a medical illness that can present with psychiatric symptoms



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Family history of a medical illness that can present with psychiatric illness (e.g. Wilson's disease, porphyria etc)

Journal of the American Academy of  
**CHILD & ADOLESCENT  
PSYCHIATRY**

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**AACAP OFFICIAL ACTION** | VOLUME 52, ISSUE 9, P976-990, SEPTEMBER 01, 2013

## Practice Parameter for the Assessment and Treatment of Children and Adolescents With Schizophrenia

# AACAP

**Recommendation 4. Antipsychotic medication is a primary treatment for schizophrenia spectrum disorders in children and adolescents. [CS]**

Mainstay of treatment of childhood onset schizophrenia is medications

Psychological and social treatments are complementary and is essential to support a young person and a family



## Appendix A: Summary of evidence from surveillance

2022 surveillance of psychosis and schizophrenia in children  
and young people: recognition and management

(2013 NICE guideline CG155)

# Psychosis and schizophrenia in children and young people: recognition and management

### Overall surveillance proposal

We will not update the guideline at this time. We will monitor the evidence base for new evidence in the areas indicated below.

Clinical guideline  
Published: 23 January 2013  
[www.nice.org.uk/guidance/cg155](http://www.nice.org.uk/guidance/cg155)



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**Eilis Kennedy<sup>1,2</sup>, Ajit Kumar<sup>3</sup>, and Soumitra S. Datta<sup>4</sup>**

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## **Antipsychotic medication for childhood-onset schizophrenia (Review)**

Kennedy E, Kumar A, Datta SS

Status: *New*

This record should be cited as:

Kennedy E, Kumar A, Datta SS. Antipsychotic medication for childhood-onset schizophrenia. *Cochrane Database of Systematic Reviews* 2007, Issue 3. Art. No.: CD004027. DOI: 10.1002/14651858.CD004027.pub2.

This version first published online: 18 July 2007 in Issue 3, 2007.

Date of most recent substantive amendment: 21 May 2007

*Schizophrenia Bulletin* vol. 33 no. 5 pp. 1082–1083, 2007

doi:10.1093/schbul/sbm080

Advance Access publication on August 1, 2007

## **Antipsychotic Medication for Childhood-Onset Schizophrenia**

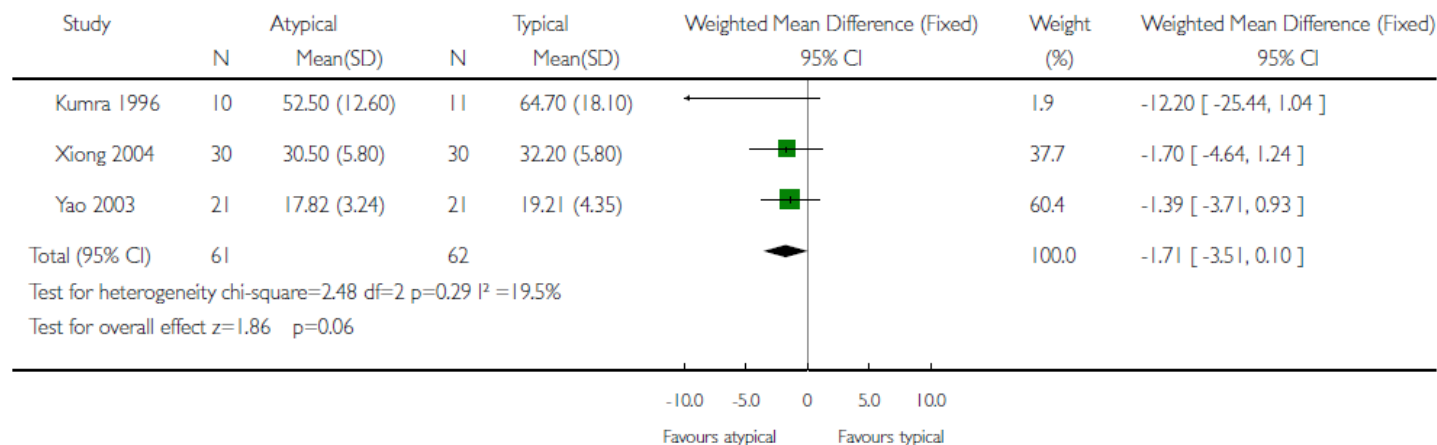
# Efficacy data – Limited information on superiority of one medication over another

## Analysis 01.04. Comparison 01 ATYPICAL vs TYPICAL ANTIPSYCHOTICS (only short term), Outcome 04 Mental state: 2. Mean end point score (BPRS, high score = poor)

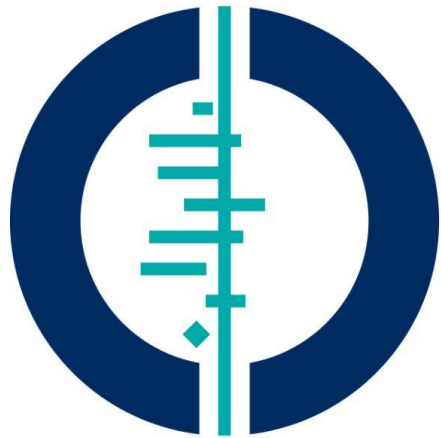
Review: Antipsychotic medication for childhood-onset schizophrenia

Comparison: 01 ATYPICAL vs TYPICAL ANTIPSYCHOTICS (only short term)

Outcome: 04 Mental state: 2. Mean end point score (BPRS, high score = poor)



# Evidence for antipsychotic medications in adolescents with psychosis



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**Schizophrenia**

# Atypical antipsychotics for psychosis in adolescents

Atypical antipsychotics for psychosis in adolescents (Review)

Kumar A, Datta SS, Wright SD, Furtado VA, Russell PS



Ajit Kumar<sup>1</sup>, Soumitra S Datta<sup>2,3</sup>, Stephen D Wright<sup>4</sup>, Vivek A Furtado<sup>5</sup>, Paul S Russell<sup>6</sup>

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**Editorial group:** Cochrane Schizophrenia Group.

**Publication status and date:** New, published in Issue 10, 2013.

**Review content assessed as up-to-date:** 18 July 2012.

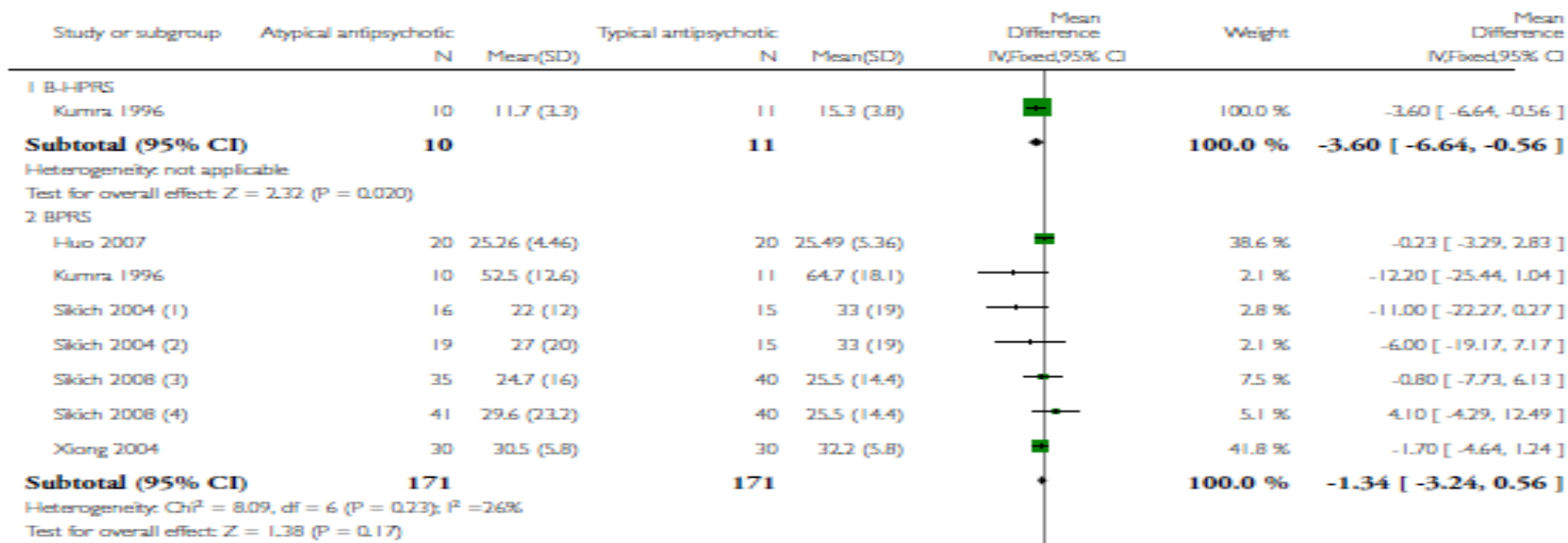
**Citation:** Kumar A, Datta SS, Wright SD, Furtado VA, Russell PS. Atypical antipsychotics for psychosis in adolescents. *Cochrane Database of Systematic Reviews* 2013, Issue 10. Art. No.: CD009582. DOI: 10.1002/14651858.CD009582.pub2.

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Review: Atypical antipsychotics for psychosis in adolescents

Comparison: 2 Atypical vs typical antipsychotics (only short term)

Outcome: 5 Mental state 2a. Mean end point scores (various scales, high score = poor)



# Treatment of Early-Onset Schizophrenia Spectrum (TEOSS) study

- No significant differences were found among treatment groups in response rates (molindone: 50%; olanzapine: 34%; risperidone: 46%) or magnitude of symptom reduction. Olanzapine and risperidone were associated with significantly greater weight gain. (Sikich 2008)
- Follow up: Only 12 % adolescents continued in the study
- No significant differences were found among treatment groups in response rates. All medicines associated with side effects. (Sikich 2010)

## Evidence Base for Using Atypical Antipsychotics for Psychosis in Adolescents

Soumitra S. Datta<sup>\*,1,2</sup>, Ajit Kumar<sup>3</sup>, Stephen D. Wright<sup>4</sup>, Vivek A. Furtado<sup>5</sup>, and Paul S. Russell<sup>6</sup>

<sup>1</sup>Child & Adolescent Psychiatry, Institute of Psychiatry, King's College London, London, UK; <sup>2</sup>Department of Palliative Care & Psycho-oncology, Tata Medical Centre, Kolkata, India; <sup>3</sup>South West, Yorkshire NHS Foundation, Trust, Wakefield, UK; <sup>4</sup>Central & North West Community Mental Health Team, Leeds Partnerships NHS Foundation Trust, Leeds, UK; <sup>5</sup>Forensic Psychiatry, Institute of Mental Health, Nottingham, UK; <sup>6</sup>Child & Adolescent Psychiatry, Christian Medical College, Vellore, Tamil Nadu, India

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If evidence is so limited, it's a good idea to see what child psychiatrists actually do?

# Antipsychotic prescribing: old wine in new bottles?

Shermin Imran<sup>1</sup>, Soumitra Shankar Datta<sup>2</sup>, Elaine Vincent<sup>1</sup>, Jade Whitfield<sup>1</sup>, & Andrew F. Clark<sup>1</sup>

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**Background:** Recent research suggests first generation antipsychotic medications may be no less effective or tolerated than second generation antipsychotics. **Aims:** To review prescribing practices in UK adolescent mental health settings. **Method:** A review of literature and a postal survey (structured questionnaire) of clinicians in UK adolescent mental health settings (80 general and specialised in-patient units) were conducted. **Results:** Second generation antipsychotics remain the drug of first choice for most UK clinicians (based on a survey response rate of 40%). **Conclusions:** Guidelines for antipsychotic use in adolescents need updating. Clinicians who qualified in the last 10 years may need specific training and experience in use of first generation antipsychotics.

# What to do for EOS and Adolescents with psychosis ?

- Make sure you have made the correct diagnosis
- There are no tests that can confirm the diagnosis other than a good history and MSE
- Start the young person on atypical anti-psychotic medication (start low – go slow)
- Risperidone, Olanzapine, Quetiapine, Aripiprazole can be used
- Clozapine should be offered for treatment resistant patients
- Depot anti-psychotic medications (no evidence) but can be used in adolescents when indicated
- ECT may be used in severely impaired patients (AACAP).

Lived experience of adolescents on APD is complex – *“If I have a problem, I’d rather beat it myself than breaking down and letting something else take care of it.”*

Pressure to conform to youth culture – *“and I went off my pills ...By choice...Because I had an issue with taking them. I don’t mind taking them now.”*

Functioning – *“I battled with drug usage...when you’re on antipsychotics...they don’t make you feel like yourself.”*

Relationships - *“I have different types of friends now.....”*

## PSYCHOPHARMACOLOGY

### A Qualitative Study of Antipsychotic Medication Experiences of Youth

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Steve Kisely MD, PhD<sup>3</sup>; Charmaine Cooke BScPharm, MSc<sup>4</sup>;  
Stan P. Kutcher MD, FRCPC<sup>2,5</sup>; Jean Hughes RN, PhD<sup>6</sup>

# Preventing side effects of antipsychotic medications

Antipsychotic medications are commonly used for several psychiatric conditions. Both first generation antipsychotic (FGA) medications and second generation antipsychotic (SGA) medications are associated with a variety of side effects that often jeopardise treatment and the quality of life of the patients receiving the medications. The side effects often lead to poor treatment adherence and ultimately relapse of the psychiatric illness for which they were prescribed. In the real world, often the potential side effects dictate the choice of medications more than other factors like clinical efficacy. Various risk factors for specific side effects are now known. This article focuses on the strategies that a clinician may use to predict and prevent at least some of the side effects like extra pyramidal symptoms, cardiac side effects, metabolic syndrome, dyslipidaemia and sexual dysfunctions in high risk patients. Primary and secondary preventive measures are discussed in light of current evidence and clinical experience of using antipsychotic medication.

**KEY WORDS:** Antipsychotic agents, adverse effects - Antipsychotic agents, prevention and control - Risk factors.

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S. S. DATTA<sup>1, 2</sup>, S. IMRAN<sup>3</sup>, A. KUMAR<sup>4</sup>, D. DAS<sup>5</sup>, R. JACOB<sup>6, 7</sup>

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TABLE II.—*Preventing cardiac toxicities of antipsychotic medications.*

Risk factors for increased cardiac adverse effects	Primary prevention strategies	Secondary prevention strategies
Older age	Do a baseline electrocardiogram for patients over 50 years of age and known cardiac problems.	Identify early any cardiac rhythm problems on commencement of antipsychotic medications.
History of pre-existing structural and cardiac conduction defects.	Get an opinion from a cardiologist prior to commencement of treatment with antipsychotic medications where cardiac problems are suspected.	Get inputs from physician and cardiologist as needed.
History of a disease (e.g. Down's syndrome) that is often associated with cardiac problems.	Avoid typical antipsychotic medications for patients with cardiac problems.	Treat these patients with antipsychotic medications with relatively lesser cardiac toxicities as Aripiprazole if antipsychotic medications are absolutely indicated.
Concurrent medications with potential for interactions e.g. antihistaminic medications, antidepressant medications etc.	Promote healthy life style that includes a good diet and regular exercise. Do regular electrocardiogram for older patients at 3-6 months intervals. For those needing high dose antipsychotic medications (more than 1000 mg of Chlorpromazine equivalent per day), it is important to do regular medical evaluation including a cardiac evaluations.	

# Follow up

Maintenance dose of APD can be lower than the dose required during the acute episode

One should be careful about side effects – as this is the key to having good medication adherence (sexual dysfunction in adolescent boys, weight gain in adolescent girls)



# Retrospective Review of Clozapine Use in Children and Adolescents

Ardelle Komaryk, NP(F), MSN<sup>1</sup>, Dean Elbe PharmD, BCPP<sup>2</sup>, Leah Burgess, PhD, RPsych<sup>3</sup>

## Abstract

**Objective:** Literature describing use of clozapine by children and adolescents is limited. The primary study objective was to assess the patterns of clozapine use in an inpatient child and adolescent population. **Methods:** A retrospective review of child and adolescent inpatients receiving clozapine at a Canadian children's hospital from January 2000 through December 2014 was conducted. Interdisciplinary comprehensive data collection was conducted by experienced clinicians. Baseline population characteristics and psychiatric illness risk factors were captured. Illness symptoms and severity were assessed retrospectively using validated measures including the Brief Psychiatric Rating Scale (BPRS), Children's Global Assessment Scale (CGAS) and Clinical Global Impressions (CGI) scales. Estimated clozapine dosing requirements for each patient to achieve a serum level associated with response was calculated. Clozapine-related adverse events were captured. **Results:** Twenty-eight inpatients (64% female) receiving clozapine during the study period were identified. Mean age at clozapine initiation was 15.8 years. Twenty-three patients (82%) were taking clozapine at discharge, and of these 22 patients (96%) experienced at least minimal improvement in BPRS and CGAS scores. Patients took a mean of 33.1 days from clozapine start to reach their maximum clozapine dosage, a mean maximum of 57% of their estimated clozapine dose requirement. Mean length of stay following clozapine initiation was 60.7 days. We observed a high rate of benign hematological adverse events, but no episodes of severe neutropenia. The majority of patients were of ethnicity associated with high risk for metabolic adverse events. **Conclusion:** Most hospitalized, treatment-refractory children requiring clozapine clinically improve despite experiencing high, but largely manageable, adverse event rates.

**Key Words:** *clozapine, child, adolescent, early-onset, schizophrenia spectrum disorders*

■ Résumé

# Psychological interventions: Adolescents with psychosis



**Cochrane  
Library**

Cochrane Database of Systematic Reviews

## Psychological interventions for psychosis in adolescents (Review)

Datta SS, Daruvala R, Kumar A

Datta et al 2020



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Schizophrenia

*Schizophrenia Bulletin* vol. 47 no. 3 pp. 692–694, 2021

doi:10.1093/schbul/sbaa132

Advance Access publication 25 September 2020

## Do Psychological Interventions Work for Psychosis in Adolescents?

Rhea Daruvala<sup>1</sup>, Ajit Kumar<sup>2</sup>, and Soumitra Shankar Datta<sup>\*1,3</sup>

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# Types of psychological therapies tested for adolescents with psychosis

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Psycho-education

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Cognitive Remediation therapy

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Computer assisted cognitive remediation therapy

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Non structured group therapy

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Family therapy

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All patients were also on medications, but details were mostly not reported by the authors

# Cognitive remediation therapy vs TAU

- 2 STUDIES
- No difference in Global State
- PANNS (TAU was better as reported by one study)
- **Short term memory improved** in CRT group ((1 study, n = 31, RR 0.58, 95% CI 0.37 to 0.89; very low certainty evidence)

# Group therapy vs TAU

- **Global state improved slightly** (1 study, n = 31, RR 0.58, 95% CI 0.37 to 0.89; very low certainty evidence)
- Mental State (No difference)



# Cognitive Remediation Programme (CRP) + Psychoeducational Treatment Programme (PE) vs PE

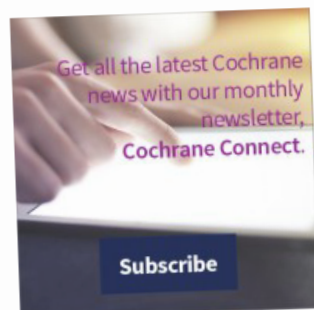
- No difference in
  - Global state
  - Mental State
  - Cognitive functioning
  - Global functioning

# Psychoeducational (PE) + Multifamily Treatment (MFT) Versus Nonstructured Group Therapy (NSGT, all long-term)

- No difference in
  - Global state
  - Mental State
  - Global functioning
  - Hospital admissions



## Featured Review: Psychological interventions for psychosis in adolescents



*Are psychological interventions effective and safe for adolescents with psychosis? Are there any differences in effect between different psychological interventions? New [Cochrane systematic review](#) looks at the available evidence.*



Some evidence for group therapy (POOR QUALITY)  
Some evidence for CRT (POOR QUALITY)

# Impact of a review: Lay literature



WIKIPEDIA  
The Free Encyclopedia

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## Psychosis

From Wikipedia, the free encyclopedia

*For other uses, see [Psychosis \(disambiguation\)](#).  
Not to be confused with [Psychopathy](#).*

26. <sup>^</sup> [a](#) [b](#) [c](#) [d](#) [e](#) [f](#) [g](#) Datta SS, Daruvala R, Kumar A, et al. (Cochrane Schizophrenia Group) (July 2020). "[Psychological interventions for psychosis in adolescents](#)" [↗](#). *The Cochrane Database of Systematic Reviews*. 7: CD009533. doi:10.1002/14651858.CD009533.pub2 [↗](#). PMC 7388907 [↗](#). PMID 32633858 [↗](#).

## Psychosis in adolescents [\[ edit \]](#)

Psychosis is rare in adolescents.<sup>[26]</sup> Young people who have psychosis may have trouble connecting with the world around them and may experience hallucinations and/or delusions.<sup>[26]</sup> Adolescents with psychosis may also have cognitive deficits that may make it harder for the youth to socialize and work.<sup>[26]</sup> Potential impairments include the speed of mental processing, ability to focus without getting distracted (limited [attention span](#)), and deficits in [verbal memory](#).<sup>[26]</sup>



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# Conclusions

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Medications remain important in treatment of children and adolescents with psychosis.

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There is almost no evidence in showing one medicine superior to other. Practice follows starting atypical APD and titrate slowly.

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Psychological care includes educational, supportive and psychotherapeutic interventions.



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