

What is the relationship between Polycystic Ovary Syndrome and Neurodevelopmental and Psychiatric Disorders?

PCOS and Mental & Neurodevelopmental Health: What Research Shows

Polycystic ovary syndrome (PCOS) is linked not only to metabolic and reproductive problems but also to a wide range of **psychiatric** and **neurodevelopmental** conditions in affected women and their children. The associations are consistent across large cohort studies and multiple meta-analyses, though exact causes are still being clarified.

Psychiatric Disorders in Women with PCOS

- Multiple systematic reviews and meta-analyses show **higher odds of depression and anxiety** in women with PCOS (OR ~2.7–3.5 for depression; ~2.7 for anxiety) (Blay et al., 2016; Brutocao et al., 2018; Yin et al., 2020; Dybciak et al., 2023).
- PCOS is also associated with **bipolar disorder, obsessive–compulsive disorder, eating disorders, personality disorders, and schizophrenia/psychosis** (Matte et al., 2024; Maliszewska et al., 2024; Cesta et al., 2016; Yadav et al., 2023; Blay et al., 2016; Rodriguez-Paris et al., 2019; Brutocao et al., 2018; Katsigianni et al., 2019).
- Overall, women with PCOS have about **1.5–1.6 times higher odds of any psychiatric disorder** compared with the general population (Cesta et al., 2016; Chen et al., 2020; Brutocao et al., 2018).
- Position and consensus statements recommend **routine screening** for depression, anxiety, and disordered eating at diagnosis (Yadav et al., 2023; Dokras et al., 2018).

Common Psychiatric Outcomes in PCOS

Outcome	Approximate increased risk vs controls	Citations
Depression	~2.5–3.5× higher odds	(Berni et al., 2018; Cesta et al., 2016; Yadav et al., 2023; Blay et al., 2016; Brutocao et al., 2018; Yin et al., 2020; Dybciak et al., 2023)
Anxiety	~1.3–2.8× higher odds	(Matte et al., 2024; Cesta et al., 2016; Yadav et al., 2023; Blay et al., 2016; Brutocao et al., 2018; Yin et al., 2020)
Bipolar disorder	~1.7–1.8× higher odds	(Matte et al., 2024; Maliszewska et al., 2024; Cesta et al., 2016; Brutocao et al., 2018)
Eating disorders	~1.4–1.5× higher odds	(Matte et al., 2024; Maliszewska et al., 2024; Cesta et al., 2016; Yadav et al., 2023)
OCD / psychotic spectrum	Modestly increased	(Matte et al., 2024; Maliszewska et al., 2024; Cesta et al., 2016; Rodriguez-Paris et al., 2019; Brutocao et al., 2018)

FIGURE 1 Common psychiatric diagnoses reported in women with PCOS

Neurodevelopmental and Psychiatric Disorders in Offspring

- Large national cohorts show **maternal PCOS increases risk of many child diagnoses**, including:
 - **ASD** (HR/RR/OR ~1.3–1.5) (Berni et al., 2018; Abu-Zaid et al., 2022; Dubey et al., 2021; Chen et al., 2020; Cesta et al., 2019; Katsigianni et al., 2019; Bravo-Muñoz et al., 2025)- **ADHD and conduct disorders** (similar magnitude) (Berni et al., 2018; Kosidou et al., 2017; Abu-Zaid et al., 2022; Dubey et al., 2021; Chen et al., 2020; Cesta et al., 2019)- **Intellectual disability, specific developmental disorders, tic disorders, sleeping and eating disorders, anxiety, and mood disorders** (Abu-Zaid et al., 2022; Dubey et al., 2021; Chen et al., 2020).
- Meta-analyses confirm **~1.4–1.5x higher risk of ASD and ADHD** in children of mothers with PCOS (Kosidou et al., 2017; Abu-Zaid et al., 2022; Dubey et al., 2021; Chen et al., 2020; Katsigianni et al., 2019; Bravo-Muñoz et al., 2025).
- Risks tend to be **higher when PCOS co-occurs with obesity, gestational diabetes, or perinatal complications**, but still present when these are excluded (Kosidou et al., 2017; Abu-Zaid et al., 2022; Dubey et al., 2021; Chen et al., 2020).
- Several studies report **similar effect sizes in boys and girls**, sometimes slightly higher in girls (Abu-Zaid et al., 2022; Dubey et al., 2021; Chen et al., 2020; Cesta et al., 2019).

Possible Mechanisms (Hypothesized)

- **Hyperandrogenism and hyperinsulinemia** in PCOS may alter brain development in utero and during adolescence (Matte et al., 2024; Abu-Zaid et al., 2022; Dubey et al., 2021; Chen et al., 2020; Cesta et al., 2019; Kahn et al., 2025; Nautiyal et al., 2026).
- Proposed pathways include altered sex hormone signaling, chronic inflammation, metabolic disturbances, gut–brain axis changes, and disrupted **BDNF**-related neurotrophic signaling (Maliszewska et al., 2024; Abu-Zaid et al., 2022; Dubey et al., 2021; Chen et al., 2020; Kahn et al., 2025; Nautiyal et al., 2026).
- Familial/genetic factors also contribute; sibling/cousin designs show **shared familial risk**, but still support a specific effect of maternal PCOS, especially for ASD/ADHD and tics (Cesta et al., 2016; Chen et al., 2020; Cesta et al., 2019).

Clinical and Public Health Implications

- Evidence supports **routine mental health assessment** in women with PCOS and monitoring of offspring development (Matte et al., 2024; Berni et al., 2018; Abu-Zaid et al., 2022; Cesta et al., 2016; Yadav et al., 2023; Chen et al., 2020; Brutocao et al., 2018; Dokras et al., 2018).
- Mental health comorbidity adds substantial **economic burden**, with billions in extra annual healthcare costs for depression, anxiety, and eating disorders in PCOS populations (Yadav et al., 2023).

Summary

PCOS is consistently associated with higher rates of depression, anxiety, bipolar disorder, OCD, eating disorders, and other psychiatric conditions in affected women. Children of mothers with PCOS have modest but significant increases in risk for ASD, ADHD, tic disorders, intellectual and specific developmental disorders, and various emotional and behavioral problems. Hormonal and metabolic disturbances, along with shared genetic and environmental factors, likely underlie these links. Regular screening and integrated care for mental health and child development are strongly supported by current evidence.

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