

Children born to women after fertility treatment at greater risk of psychiatric disorders

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Children born to women with fertility problems have a higher risk of psychiatric disorders than naturally conceived children. The increase in risk was described as "modest" by researchers from Denmark, but was found to persist throughout childhood and into young adulthood.

The results, which are presented today at the 30th Annual Meeting of ESHRE in Munich by Dr Allan Jensen of the Danish Cancer Society Research Center at the University of Copenhagen, were derived from a register study of all [children](#) born in Denmark between 1969 and 2006.

From a grand total of 2,430,826 children, 124,384 (5%) were born to women with registered [fertility problems](#) and 2,306,442 children (95%) to women without such problems. All the children were followed up for psychiatric disorders until 2009.

During this follow-up period (a median of around 20 years), 170,240 children were hospitalised for a psychiatric disorder. Those born to women with fertility problems were found to have a 33% greater overall risk of any defined psychiatric disorders, which was statistically significant (HR 1.33, 95% confidence interval 1.20-1.36).

Statistically significant hazard ratios for specific groups of psychiatric disorders were found for schizophrenia and psychoses (1.27, 1.16-1.38), affective disorders (1.32, 1.25-1.39), anxiety and other neurotic

disorders (1.37, 1.32-1.42), mental and behavioural syndromes including eating disorders (1.13, 1.04-1.24), mental retardation (1.28, 1.17-1.40), mental development disorders including autism spectrum disorders (1.22, 1.16-1.28), and behavioural and emotional disorders including attention deficit hyperactivity disorder (ADHD) (1.40, 1.34-1.46), when compared with rates in naturally conceived children.

When separate analyses were performed for psychiatric disorders diagnosed during childhood (0–19 years) and in young adulthood (≥ 20 years), the investigators found that the risk estimates were not markedly changed, indicating that the increased risks persist into adulthood.

Commenting on the results, Dr Jensen said that professionals involved in the diagnosis and treatment of women with fertility problems should be aware of "the small, but potentially increased risk of psychiatric disorders among the children born to women with fertility problems". However, this knowledge, he added, "should always be balanced against the physical and psychological benefits of a pregnancy".

Only a few studies have investigated the risk of psychiatric disorders among children born after fertility treatment. Although results from most of these studies do not find an increased risk, the results do show substantial variation, said Dr Jensen; this may be because of the limited size and follow-up time in most of them. This study is the first with sufficient numbers and an adequately long follow-up period to enable a realistic assessment of risk patterns into [young adulthood](#).

A calculation made by Dr Jensen - based on a 33% overall increased risk of psychiatric disorders in children born to women with fertility problems and on the proportion of children born in Denmark following fertility treatment - suggests that 1.9% of all diagnosed psychiatric disorders in Denmark are associated with the mother's infertility.(1) "In my opinion," said Dr Jensen, "this figure supports our interpretation of

the results - that the increased risk is real but modest."

Despite the size of the study, it was not able to establish if the increased risk was associated with factors related to the mother's infertility (genetic or biological) or to its treatment. "So the exact mechanisms behind the observed increase in risk are still unknown," explained Dr Jensen, "but it is generally believed that underlying infertility has a more important role in adverse effects in the offspring than the treatment procedures. It is known, for example, that psychiatric disorders to some degree have a genetic component. It is perhaps thus likely that that these damaged genes coding for psychiatric diseases are overrepresented in women with fertility problems, and, if transferred to their offspring, this may at least partly explain the increased risk of psychiatric diseases."

However, Dr Jensen noted that other results from long-term cohort studies are sparse and inconsistent, but in general do not show strong associations between infertility, fertility treatment and risk of [psychiatric disorders](#).(2) However," said Dr Jensen, "our study is the largest to date. It includes the highest number of children and a long enough follow-up time to adequately assess the risk into adulthood."

More information: Notes

1. ESHRE's latest IVF monitoring data shows that 6% of all babies born in Denmark in 2010 were conceived by IVF. The calculation is based on this proportion and a 33% increased risk of all psychiatric disorders in these children.

2. For example, a recent meta-analysis of 14 studies investigating the association between infertility and autism found no differences in risk between cases and controls, and that treatment by assisted reproduction "is not a strong independent risk factor" - Lyall K, Baker A, Hertz-Picciotto I, Walker CK. Infertility and its treatments in association with

autism spectrum disorders: a review and results from the CHARGE study. *Int J Environ Res Public Health* 2013; 10: 3715-34.

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