

Women with polycystic ovary syndrome at significantly increased risk of COVID-19

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Women with polycystic ovary syndrome (PCOS) are at a significantly increased risk of contracting COVID-19 than women without the condition, new research led by the University of Birmingham has revealed.

Researchers are now calling for healthcare policy to specifically encourage [women](#) with PCOS to adhere to COVID-19 infection control measures while the global pandemic continues.

Polycystic ovary syndrome (PCOS) is a common condition affecting around one in 10 women in the UK. The three main symptoms are irregular periods, high levels of 'male' hormones which may cause physical signs such as excess facial or body hair, and a cystic appearance on an ultrasound or MRI scan of the ovaries which is caused by follicles becoming increasingly fluid filled as they fail to develop and release an egg normally to be ready for fertilization within a women's menstrual cycle.

Women with PCOS have an increased risk of cardiometabolic disease, such as type 2 diabetes,

non-alcoholic fatty liver disease, and [high blood pressure](#), all of which have been identified as risk factors for COVID-19.

To investigate whether the increased metabolic risk in PCOS translates into an increased risk of COVID-19 infection, the team carried out a population-based closed cohort study in the UK during the first wave of the pandemic between January and July 2020.

Using UK GP patient records, the study included 21,292 women with PCOS and 78,310 female 'controls' without PCOS matched for age and general practice location.

Results revealed a 51% increased risk of contracting COVID-19 in women with PCOS, compared to those of the same age and background of those without PCOS.

A 26% increased susceptibility to COVID-19 infection in the PCOS cohort persisted—even after adjustment for individual cardio-metabolic [risk factors](#) known to cluster within PCOS, which have recently been directly linked to increased COVID-19 susceptibility, including obesity, impaired glucose regulation and hypertension.

The research, published in the *European Journal of Endocrinology*, showed that incidence of COVID-19 in women with PCOS was almost twice the rate than in women without PCOS (18.1 cases per 1,000 person years in women with PCOS, compared to 11.9 cases per 1,000 person years in women without PCOS).

First author Anuradhaa Subramanian, of the University of Birmingham, said: "Given the high prevalence of PCOS, these findings need to be considered when designing public health policy and advice as our understanding of COVID-19 evolves."

Joint senior author Dr. Krish Nirantharakumar, of

the University of Birmingham's Institute of Applied Health Research, said that COVID-19 shielding strategies for women with PCOS should also carefully consider the need to protect mental health.

"The risk of mental health problems including low self-esteem, anxiety and depression is significantly higher in women with PCOS, and advice on strict adherence to social distancing needs to be tempered by the associated risk of exacerbating these underlying problems," he adds.

Co-author Dr. Michael O'Reilly, of the Royal College of Surgeons of Ireland, explains: "Before the onset of the COVID-19 pandemic, women with PCOS consistently report fragmented care, delayed diagnosis and a perception of poor clinician understanding of their condition.

"Women suffering from this condition may fear, with some degree of justification, that an enhanced risk of COVID-19 infection will further compromise timely access to healthcare and serve to increase the sense of disenfranchisement currently experienced by many patients."

Joint senior author Professor Wiebke Arlt, Director of the University of Birmingham's Institute of Metabolism and Systems Research, said: "The pandemic has already dramatically altered our current healthcare delivery models, and although the increased rollout of virtual consultations and methods of delivering remote healthcare have been commendable, for many patients with PCOS these will not be an appropriate substitute for the traditional clinician-patient live consultation."

Professor Arlt, who leads DAISy-PCOS—a large Wellcome Trust-funded research program on metabolic health and 'male' hormones in women with PCOS—adds: "Women with PCOS have recently been highlighted as an overlooked and potentially high risk population for contracting COVID-19.

"However, our study does not provide information on the risk of a severe course of the COVID-19 infection or on the risk of COVID-19 related long-term complications of COVID-19 and further

research is required."

More information: Anuradhaa Subramanian et al, Increased COVID-19 infections in women with polycystic ovary syndrome: a population-based study, *European Journal of Endocrinology* (2021). [DOI: 10.1530/EJE-20-1163](https://doi.org/10.1530/EJE-20-1163)

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