

Common hormonal disorder linked to longer reproductive lifespans in S'pore women

Study finds women with milder form of PCOS condition may conceive more easily

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A common hormonal disorder in women need not be an inherently worrying condition, a new study involving local researchers has found.

A majority of the women in Singapore who have polycystic ovary syndrome (PCOS) have a milder form of it, which may give them a wider reproductive window and more favourable reproductive and health outcomes, compared with women without the condition.

The finding fundamentally shifts the narrative surrounding PCOS,

which affects about 11 per cent to 13 per cent of women worldwide.

For decades, the syndrome has been defined by its negative features, including irregular menstrual periods and resulting infertility, excess hair growth, obesity, acne and a higher risk of certain conditions such as diabetes and high blood pressure.

The study, which involved researchers from the NUS Yong Loo Lin School of Medicine and National University Hospital (NUH), was published in *Nature Medicine* on Oct 29.

It identified four subtypes of PCOS among more than 11,900

women aged 20 to 45 in China, before confirming these subtypes in five groups of women, from China, Singapore, the US, Europe and Brazil. The study found 53 per cent of the Singapore cohort of 127 women diagnosed with PCOS from 2011 to 2019 have the subtype with the best reproductive and health outcomes.

This SHBG-PCOS subtype is characterised by high levels of SHBG, or sex hormone-binding globulin (a protein made mostly in the liver that binds to sex hormones like testosterone and estrogen to keep them under control), and low body mass index (BMI) levels. It also shows lower levels of a chemical called luteinising hormone (LH) that regulates reproductive functions, and lower levels of testosterone.

Professor Yong Eu Leong from

the department of obstetrics and gynaecology at NUS Medicine and NUH, who is one of the study's corresponding authors, said that women with this subtype had the best assisted birth outcomes.

As they are not obese, they also exhibited the lowest risk of diabetes and hypertension and had the highest rate of remission to normal for the condition. Obesity or having a high BMI typically causes lower SHBG levels.

In the west, PCOS, which became widely known after American gynaecologists published a paper on it in 1935, tends to be associated with someone who is obese and infertile, and has excess hair growth as well as an elevated risk of diabetes, high blood pressure and cancer, said Prof Yong.

But the study published in *Nature*

Medicine debunks the long-held belief that PCOS is inherently a worrying diagnosis, he said.

The other three subtypes of PCOS are:

1. Hyper-androgenic phenotype, characterised by elevated levels of male sex hormones, which can result in increased abnormal hair growth.

2. Overweight-obesity phenotype, which is linked to higher BMI and insulin resistance, with the highest prevalence of Type 2 diabetes, hypertension and dyslipidaemia (abnormal level of fats in the blood). These women were observed to be more prone to pregnancy complications, including gestational diabetes and pre-term birth.

3. Elevated LH and anti-Mullerian hormone (AMH), which is linked to elevated levels of LH, as well as follicle-stimulating hormone and AMH, both of which are used to assess a woman's ovarian reserve.

The study highlights the potential for more personalised treatment approaches.

PCOS presents varied symptoms. Ms Ke Youduan, 48, who was among the first patients here to be recruited for the international study, had none of the usual symptoms such as irregular periods.

She found out she has PCOS only recently. She had her first child at 23 and went on to conceive thrice, all of them naturally.

A separate study, led by Adjunct Assistant Professor Huang Zhongwei from the department of obstetrics and gynaecology at NUS Medicine and NUH, found that Singapore women with PCOS have a good chance of conceiving through assisted reproductive technologies, even at a later age.

They tend to maintain their supply of eggs as they age, unlike women without PCOS.

This study, published in *Human Reproduction Open* on Oct 14, involved 1,249 Asian women who underwent in-vitro fertilisation at NUH between 2016 and 2022. A total of 212 of them had PCOS.

It found that women with PCOS aged 36 and above who underwent assisted reproduction had higher cumulative pregnancy rates – 52.8 per cent versus 38.7 per cent in women without PCOS – and a greater number of eggs retrieved.

About eight years ago, when Ms Andrea Lee sought help for her fertility, she was told that she did not have PCOS because “you’re not hairy, you are not fat, and you don’t have acne”.

When she went to see Prof Huang later on, she found out that she had a large pool of eggs, which increased her chances of conceiving at a later age when the chances of infertility typically rise.

Ms Lee, now 40, gave birth to her child at 38.

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