Does PCOS Get Passed From Mother to Daughter, Experts Response

Photo by Bence Halmosi on Unsplash

Polycystic ovary syndrome (PCOS) is a multifactorial disorder that gives rise to a stellar of symptoms. Literature often associates PCOS with visual manifestations related to excess BMI, facial hair, and skin conditions. While these are all reasonable orders of theoretical biology, each modern woman is physically unique with individualized PCOS experiences to tell. Generalizing individuals with PCOS under a common set of signs and symptoms will rob its community of its vibrant and individual stories.

Contemporary faces of PCOS can encompass a competent orthopedic surgeon, best next-door neighbor, beloved mother, and a sophisticated sister. But, what about daughters?

Since PCOS affects the reproductive organs, it is coherent to wonder about its hereditary implications. Can women with PCOS pass it down to their daughters? Read on to get a glimpse of what experts say.

The Role of Genetics in PCOS

Though PCOS is a complex health condition with overlapping etiologies, genetics is a strong documented contributor which triggers it. To answer the question of the heritability of PCOS, it is estimated that 60-70 percent of daughters inherit the disease from their mothers [1]. Recall, however, PCOS is a multifactorial disease which implies that genetics is just the tip of the

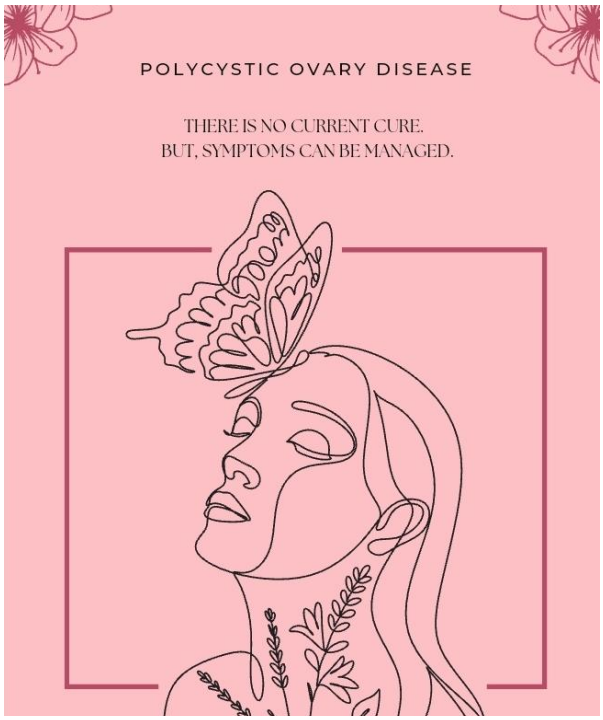
iceberg in its overall causation. Other contributory factors are environmental and lifestyle choices, which include a sedentary and nutritional state. These are equivalently important root causes of PCOS.

A longitudinal study conducted as part of a national twin family research in the Netherlands confirmed the genetic propensity of PCOS. Out of the participants selected from The Netherlands Twin register, data revealed a higher correlation between PCOS in monozygotic twins compared with dizygotic and singleton sisters [2]. The study highlights that first-degree family relatives of women with PCOS are more likely to have the syndrome themselves.

Similar findings are also reported in a Swedish-based nationwide registry study with a focus scope on 29, 700 daughters. Out of the participant group, 2, 300 were born to mothers diagnosed with PCOS. Researchers from the study concluded that daughters of women with PCOS have at least 5-fold elevated raise of PCOS diagnosis in their lifetime, as opposed to the non-PCOS daughters. This implies that the affected generation is highly likely to exhibit elevated circulating androgens, irregular menstrual cycles, polycystic ovaries, and metabolic disturbances.

Since PCOS is highly complex, its pattern of trait heritability also mirrors its elaboration. As it has been established, the physical ramifications of PCOS vary. Among the common symptoms associated with PCOS, its most heritable phenotypic trait is the state of androgen excess or hyperandrogenism [3]. Hyperandrogenism is a driving force behind many major complications of PCOS, such as oily skin, acne, thick hair growth, irregular menstruation, and infertility.

Remember in notable instances of heritable diseases, genetics loads the gun but lifestyle pulls the trigger.



Not All Doom and Gloom

Although the causation of PCOS is still an obscure topic, researchers have concluded that it is a multifaceted health condition. As stated earlier, common side culprits in the pathogenesis of the disease include environmental and lifestyle. Another study also proposed that it is the prenatal elevation in androgen levels that exposes children of PCOS women to an environment ideal for the syndrome to be triggered [4]. The bottom line is, it would be another generalization to assume that genetics is the sole trigger of PCOS.

While altering one's genetics is not a plausible alternative at the moment, there are many actionable steps that women who are susceptible to inheriting PCOS can do to improve their general well-being.

To do so, it is worthwhile to identify workable risk factors of PCOS. Out of the exhaustive risk factors, an elevated BMI and diabetes are both leading causes of insulin resistance which contribute to several comorbidities including metabolic syndrome and declining cardiovascular health in PCOS. Recognizing this piece of information can hint at the capacity of lifestyle modifications and dietary changes to curb PCOS symptoms. Remember in notable instances of heritable diseases, genetics loads the gun but lifestyle pulls the trigger.

References

1. Abbott, D. H. (2020). Does a compromised placenta contribute to transgenerational transmission of metabolic dysfunction in polycystic ovary syndrome? In Fertility and Sterility (Vol. 113, Issue 6, pp. 1165–1166). Elsevier BV. https://doi.org/10.1016/j.fertnstert.2020.03.011
2. J. M. Vink, S. Sadrzadeh, C. B. Lambalk, D. I. Boomsma, Heritability of Polycystic Ovary Syndrome in a Dutch Twin-Family Study, The Journal of Clinical Endocrinology & Metabolism, Volume 91, Issue 6, 1 June 2006, Pages 2100–2104, https://doi.org/10.1210/jc.2005-1494
3. Stener-Victorin, E., Padmanabhan, V., Walters, K. A., Campbell, R. E., Benrick, A., Giacobini, P., Dumesic, D. A., & Abbott, D. H. (2020). Animal Models to Understand the Etiology and Pathophysiology of Polycystic Ovary Syndrome. In Endocrine Reviews (Vol. 41, Issue 4). The Endocrine Society. https://doi.org/10.1210/endrev/bnaa010
4. Risal, S., Pei, Y., Lu, H., Manti, M., Fornes, R., Pui, H.-P., Zhao, Z., Massart, J., Ohlsson, C., Lindgren, E., Crisosto, N., Maliqueo, M., Echiburú, B., Ladrón de Guevara, A., Sir-Petermann, T., Larsson, H., Rosenqvist, M. A., Cesta, C. E., Benrick, A., … Stener-Victorin, E. (2019). Prenatal androgen exposure and transgenerational susceptibility to polycystic ovary syndrome. In Nature Medicine (Vol. 25, Issue 12, pp. 1894–1904). Springer Science and Business Media LLC. https://doi.org/10.1038/s41591-019-0666-1