

1 **DOI:** <https://doi.org/10.47391/JPMA.5638>

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3 **Can Polycystic Ovary Syndrome render middle-aged females vulnerable**
4 **to severe COVID-19 infection?**

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11 Polycystic Ovary Syndrome is the most common endocrine disorder in women around
12 the globe. It is characterized by cysts, usually in ovaries, and caused by excessive
13 androgen production, resulting in menstrual abnormalities, hirsutism, obesity etc. It has
14 a fairly high prevalence in middle-aged Pakistani females¹ as well, and it often (75% of
15 the time) remains undiagnosed.² Besides, PCOS affects the women of age group 18-44
16 which is often considered low-risk for developing a severe COVID-19 infection,
17 compared to the older people who are more vulnerable.³

18 A study by Kyrou I et al.⁴ showed that women with PCOS and multiple cardio-
19 metabolic diseases are more likely to be suffering from Type 2 Diabetes Mellitus,
20 Hypertension, Dyslipidaemias, Obstructive sleep apnoea and Non-alcoholic fatty liver
21 disease. Moreover, there is a link between severe COVID-19 and certain factors such
22 as, hyper-inflammation, low vitamin D and hyper-androgenism which are all directly
23 associated with PCOS. Therefore, there exists an overlap between certain common
24 features of PCOS and identified risk factors for severe COVID -19. This implies that
25 the women with PCOS are at higher risk for developing a severe SARS-CoV-2
26 infection.

27 In this population,

- 28 • Clinicians should keep in mind the potential COVID-related implications on PCOS
29 management as mentioned by Kyrou I et al.⁴
- 30 • All Doctors should be skilled to diagnose PCOS based on the signs and symptoms
31 which can provide a provisional diagnosis, followed by Ultrasonography for a
32 definitive diagnosis. Similarly, PCOS should be kept in mind while treating a
33 middle-aged woman with COVID-19.
- 34 • Risk profile of COVID patients with PCOS should be assessed.
- 35 • Patients should be informed of preclinical risk for severe COVID 19 if PCOS
36 patients have coexisting Type 2 Diabetes Mellitus and/or Hypertension.
- 37 • In case of pregnancy, closer antenatal and perinatal monitoring is required.
- 38 • Careful monitoring for potential Thromboembolic complications in PCOS patients
39 who are at high risk for thrombosis (e.g. Treatment with oral contraceptive pills,
40 obesity etc).
- 41 • Women with PCOS should be given a priority for immunization with highly
42 efficacious vaccines. Furthermore, awareness regarding preventive measures against
43 COVID-19 should be ensured.
- 44 • There should be a follow-up of PCOS patients who recover from COVID-19 in-order
45 to manage any long term complications of the disease, if found.

46

47 **Abbreviations**

- 48 • PCOS = Polycystic Ovary syndrome, SARS-CoV-2 = Severe acute respiratory
49 syndrome coronavirus 2.

50 **Disclaimer:** None to declare.

51 **Conflict of interest:** None to declare.

52 **Funding disclosure:** None to declare.

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Provisionally Accepted for Publication