

# Persistent risk: psychological comorbidity in polycystic ovary syndrome

## Introduction

An estimated 9–18% of reproductive-age women worldwide are affected with polycystic ovary syndrome (PCOS) depending on the diagnostic criteria used by clinicians.<sup>1–4</sup> PCOS is considered the most common endocrine condition in women at reproductive age.<sup>3</sup> The main characteristic of PCOS is hyperandrogenism which leads to ovarian dysfunction. Excess androgen persists in women with PCOS throughout life even after menopause. The etiology of PCOS is not fully understood although genetic, environment, and lifestyle parameters are considered as contributing factors.<sup>5–7</sup> PCOS is associated with a variety of comorbidities such as cardiovascular diseases -the most significant and frequent cause of morbidity and mortality in women-, metabolic disorders, insulin resistance, chronic inflammation, oxidative stress, and psychological disorders.<sup>8–11</sup> Many of these comorbidities may be found in PCOS patients even at early age and worsen in pre-menopause and post-menopause stage. A large body of research has been focused on adverse reproductive and metabolic comorbidities of PCOS. However, its negative impact on mental health is less thoroughly investigated and more dismissed.

## PCOS-associated psychological disorders

Growing consistent evidence suggests increasing prevalence of psychological disorders such as anxiety, depression, and helplessness in patients with PCOS.<sup>12–19</sup> Moreover, it has been found that women with PCOS are at an increased risk of social phobia, painful emotional stress, suicidal ideation, bipolar disorder, and attention-deficit/hyperactivity disorder.<sup>20–22</sup> Anxiety and depression are two major PCOS-associated psychological comorbidities, and high incidence of these disorders is a substantial public health burden. Women with PCOS suffer from anxiety (29%–50% vs 18%) and depression (57% vs 7%) compared to age-matched women without PCOS.<sup>12,14,15,23</sup> Of note, the reported depression prevalence in PCOS patients is higher than other chronic diseases including diabetes, lupus, and coronary artery disease with 28%, 26%, and 18% prevalence rate, respectively.<sup>24–26</sup>

Compelling data clearly highlights the association of anxiety and depression with PCOS in adolescents and women. However, there is no established prevalence of PCOS-associated anxiety and depression for distinct ethnic groups. Although few studies suggest that this association may vary by race and ethnicity.<sup>19,26</sup> A new study has found a lower prevalence of anxiety and depression in African American adolescents with PCOS compared to their White Counterparts.<sup>19</sup> This may suggest heterogeneous expression of psychopathological disorders in PCOS patients. Although, it is not clear whether the lower percentage of anxiety and depression in African American adolescents with PCOS is solely a biological phenomenon or it is the consequences of the barriers to mental healthcare access for screening and diagnosis.<sup>27</sup>

## Multidiscipline intervention

PCOS is a multisystem disorder with a complex pathophysiology, therefore a multidiscipline clinical approach is required to manage and improve PCOS patients' physical and mental health. It has been

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shown that the longer it takes to receive a diagnosis of PCOS, the more likely women are to be depressed and/or anxious.<sup>12,15,23,28</sup> Anxiety and/or depression that remains undiagnosed and/or untreated may increase the risk of suicide attempts in women with PCOS. Knowing that depression accelerates aging, neurological dysfunction, and severe cognitive impairment, a broader vision for PCOS management and treatment is required including increased awareness, early detection by implementation of screening, and development of a comprehensive treatment plan that address both physical and mental health of female with PCOS. Early detection of PCOS-associated comorbidities leads to early intervention which impacts the treatment plan, duration, and outcome. Moreover, it is evident that due to the high prevalence of associated anxiety and depression and their significant adverse effect on PCOS patients, psychological screening is vital by primary care, endocrinology, and Obstetrics & Gynecology clinics to prevent further manifestations.

In fact, recent clinical practice guidelines published by the Endocrine Society specifically “suggest screening women and adolescents with PCOS for depression and anxiety”.<sup>29</sup> However, the guideline specifically calls for screening for the history of depression and anxiety, which may not sufficiently capture current symptoms women with PCOS may experience. Thus, using more formalized screening measures such as the Patient Health Questionnaire (PHQ)<sup>30</sup> and Generalized Anxiety Disorder 7 item (GAD-7),<sup>31</sup> would be important to assess for current symptoms of depression and anxiety. It has been shown that health-promoting behaviors and lifestyle modification intervention that modify dietary and physical activity; reduces depression in PCOS women.<sup>32</sup> Furthermore, it has been demonstrated that cognitive behavioral therapy (CBT) improves anxiety and depression in women with PCOS<sup>33,34</sup> and it is recommended as one of the first line treatments for anxiety and depression by the American Psychological Association and the American College of Physicians.<sup>35,36</sup> Therefore, implementation of

multidisciplinary medical clinics that treat women and adolescents with PCOS would be essential.

In addition, an integrated medicine approach may also be important to consider for improving medical and psychological symptoms for women with PCOS. Integrative medicine or health has been recognized as incorporating the body, mind, and spirit, as well as inter-connections between these aspects, the implementation of prevention and treatment approaches for chronic medical conditions, and the physical, social, and economic environments patients live.<sup>37</sup> When considering a patient with PCOS, integrative medicine treatment may include hormonal contraceptives, physical therapy prescription, moderate exercise, nutritional and dietary regimen; and psychological counseling to address painful emotional stress, anxiety, and depression symptoms that the patient may have at different stages in her life. It is highly recommended to refer all adolescents and women with PCOS to centers for integrative health- not just those with anxiety and depression symptoms- to receive integrated medicine treatment. This may help to improve aspects of PCOS-associated physical and mental comorbidities.

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## Conflicts of interest

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