

Systematic Review

The effect of polycystic ovarian syndrome on the mental health of women of reproductive age

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ABSTRACT

Polycystic ovary syndrome (PCOS) is defined as a hormonal disorder that is prevalent among women of reproductive age. It affects the metabolic, endocrine, and reproductive systems of the body as well as mental health. We compared up to 20 peer-reviewed literature that displayed the relationship between PCOS and mental health. We searched the PMC/NCBI/NIH database and we used the following keywords while searching the database: "polycystic ovarian syndrome" or "PCOS" and "mental health" or "depression" or "anxiety" or "low self-esteem" were included in the search for articles. Women of reproductive age are seen to be affected by PCOS. The effect of polycystic ovarian syndrome on the mental health of women of reproductive age has serious complications. Complications include an increased rate of anxiety and depression in the individual. When there is an increase in depression and anxiety, it tends to affect the physical changes and the confidence of women with PCOS. PCOS has been proven to be incurable but its symptoms can be managed. PCOS is linked with mental health and it has serious implications on the psychological health of the individual. Management of PCOS should include an early assessment of the patients' mental health. If required, medications for mental health improvement should be prescribed in addition to medication for treating the physical and biochemical symptoms of PCOS.

Keywords: Hormonal disorder, Polycystic ovarian syndrome, Reproductive age, Mental health, PCOS, Depression

INTRODUCTION

Polycystic ovary syndrome (PCOS) is the most prevalent endocrine disorder among fertile women.¹ It affects women of reproductive age with a lot of changes in physical appearance and has been linked to low self-esteem, eating disorders, sexual dysfunction, anxiety, and depression.¹⁻³

PCOS is an endocrine disorder in women of reproductive age attributed to elevated androgen levels in females leading to anovulatory infertility, excessive hair growth on the face and body, acne, ovarian cysts, alopecia, weight gain, sleep disturbances, reduced libido.^{4,5} PCOS can also increase women's risk of type 2 diabetes, cardiovascular

disease, infertility, anxiety and depression, and poor health-related quality of life.⁶⁻⁸

The signs and symptoms usually develop in menarche and they vary from woman to woman.^{9,10} These changes may be in response to obesity causing irregular or prolonged cycles with more than 35-day intervals. Some symptoms are linked to excess androgens and excess androgens cause hirsutism, male pattern baldness, and severe acne.

Some of the reviewed literature shows the prevalence of depression in women with PCOS is four times higher than in women without PCOS.^{8,11} This increase in psychological distress is mostly attributed to physical and emotional changes experienced by the patient which has a

great adverse effect on the mental health and confidence of women with PCOS.¹²

Diagnosis of PCOS requires several investigations, some of which are ultrasounds, pelvic examination, blood pressure, BMI, glucose tolerance test, lipid profile, hormonal assay and there is screening for depression. The complications of PCOS include hypercholesterolemia, infertility, gestational diabetes, pregnancy-induced hypertension, and non-alcoholic steatohepatitis due to accumulation of fats in the liver, depression, anxiety, and eating disorders.⁴

PCOS has no cure but its symptoms can be managed with drugs like bupropion, naltrexone, pioglitazone, metformin, and lifestyle changes including a healthy diet and regular physical exercise.^{5,7}

Aim of study

The study aims to evaluate the outcome of PCOS on the mental health of patients and steps to take in the proper management of these women.

METHODS

Search methods for identification of studies

This study aimed to locate peer-reviewed articles on polycystic ovarian syndrome and psychological disorders or illnesses that may be associated with polycystic ovarian syndrome.

Electronic searches

We searched the pmc/ncbi/nih database using the following keywords "polycystic ovarian syndrome" or "PCOS" and "mental health" or "depression" or "anxiety" or "low self-esteem" or "borderline disorder" or "antidepressants" or "sleep disorders" or "psychological disorders" and "infertile females" or "adolescent girls" or "women of reproductive age" and "epidemiology".

Selection of studies

The searches were performed and the titles and abstracts were carefully scanned. All potentially relevant articles were investigated as full text. These studies were then assessed to check if they met the inclusion criteria.

A total of 676 potential articles were identified through the database search but only 607 of 676 were screened as the other 69 were not related to the intended topic. 49 of 607 articles were considered potentially relevant because the other 558 articles met the exclusion criteria. Out of 49 potentially relevant articles only 20 of them were selected to be summarized as the other 29 did not meet the inclusion criteria.

Four additional articles were added to the previously

selected 20 in order to understand the epidemiology and pathophysiology of PCOS better.

Figure 1 shows flow chart showing inclusion and exclusion criteria.

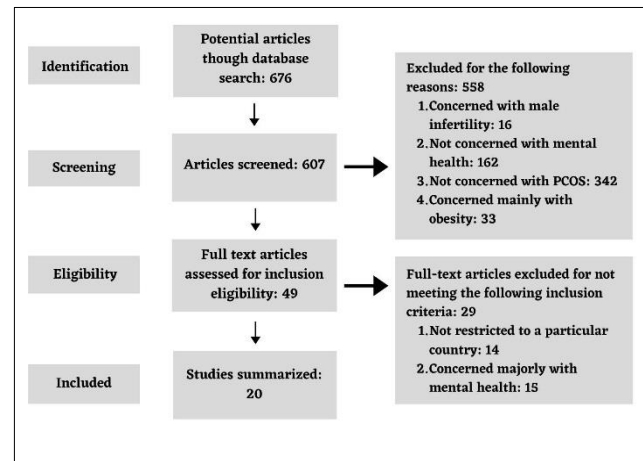


Figure 1: Inclusion and exclusion criteria used in the methodology of the research.

Exclusion criteria

The exclusion criteria include studies are concerned with male infertility, studies are not concerned with mental health issues, studies are not concerned with PCOS and studies are concerned mainly with obesity.

Inclusion criteria

The inclusion criteria include studies are not restricted to a particular country and studies are concerned majorly with mental health.

Ethical considerations

The ethical considerations made include making sure there is minimal plagiarism in this review work, and making sure to cite every source used for this review; both in-text and in the references.

RESULTS

PCOS was first described in modern medicine by Stein and Leventhal in 1935 and now it is recognized as a common medical condition affecting about 6-20% of women of reproductive age depending on the diagnostic criteria.^{13,14} Generally, the condition usually begins during puberty but doesn't usually get diagnosed until later years when the condition has significantly progressed.¹⁵

There are currently three sets of criteria for diagnosing PCOS stipulated by the US National Institutes of Health (NIH), the Rotterdam criteria, and the androgen excess society (AES).¹⁰ Although they have slight differences, all criteria agree that oligo- or anovulation and

hyperandrogenism should be present for diagnosis as well as the exclusion of other endocrine disorders.

Figure 2 shows diagnostic criteria for PCOS.

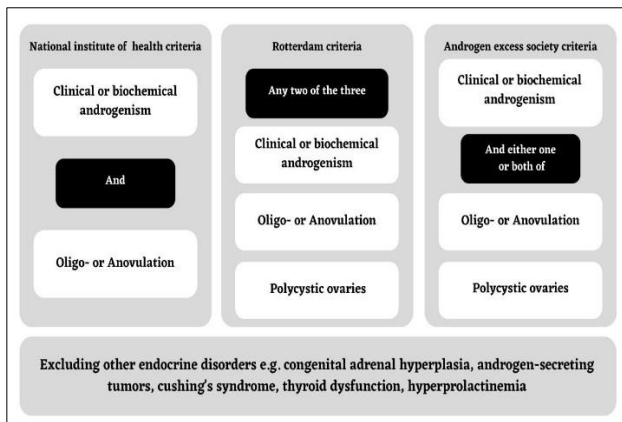


Figure 2: Diagnostic criteria for PCOS adapted from sleep disturbances in women with PCOS: prevalence, pathophysiology, impact and management strategies by Fernandez. The picture illustrates the US National Institutes of Health, Rotterdam, and the androgen excess society (AES) criteria.

Adapted from sleep disturbances in women with polycystic ovary syndrome: prevalence, pathophysiology, impact and management strategies by Fernandez.

PCOS has high prevalence among first-degree relatives making it a heritable disorder even though the mode of inheritance is still unknown.¹³ However, there is no proof that the syndrome exhibits higher prevalence in any specific race or ethnicity.¹⁶ Other factors like obesity, high birth weight in girls born to overweight mothers, congenital virilization and low birth weight have also been associated with an increased risk of the condition.¹³

The prevalent theory behind the pathophysiology of PCOS is that ovarian dysfunction and hyperandrogenism is due to a defect in the feedback loop of the steroid-hormone gonadotropin-releasing hormone (GnRH).¹⁵ The patients with the syndrome have an increased pulsatile GnRH secretion which causes increased LH pulse frequency, pulse amplitude and increased luteinizing hormone (LH)/follicle-stimulating hormone (FSH) ratios.¹⁴ The increase in LH secretion stimulates the theca interna cells to produce androgens causing the increase in male steroid hormones seen in the condition.¹⁷

DISCUSSION

Mental health symptoms in PCOS

According to Scaruffi, women with PCOS have relevant personality and psychiatric disorders when compared to those without the syndrome.¹ The most common of these symptoms are depression and anxiety while others include

bipolar disorder, schizophrenia spectrum disorder, eating disorder, personality disorder, sleeping disorder, and psychosis.^{15,18,19} The exact pathophysiology of these conditions however is not yet fully understood.²⁰

Alexithymia, a personality trait characterized with difficulty to identify and distinguish emotions from bodily sensations, difficulty to describe and verbalize emotions, externally oriented thinking style, poverty of fantasy life or imaginative ability, and poor empathy is a risk factor for various physical and mental health problems including anxiety, depression, compulsive or addictive behaviours, physical symptoms, and potentially psychosomatic diseases.⁴

Consequently, PCOS patients with menstrual irregularities have been linked to higher rates of depression. These irregularities mean these women have brief fertile periods and emotional changes like anger, irritability, and signs of stress are seen in these periods, the emotional changes are linked to the hormonal changes in those fertile periods.¹²

The physical changes seen in PCOS including hirsutism, acne, obesity, and hair thinning can also adversely affect the body image and self-esteem of these women contributing to psychological distress.²¹ The knowledge of having an incurable albeit manageable condition can be upsetting.

The mental changes have been shown to have no correlation with socioeconomic determinants like age, marital status, and education.²² Environmental factors however play a significant role in the psychological distress seen in PCOS patients, for example, the pressure to have children or stay fit can be triggering to patients as a large number of PCOS patients are obese or struggle with infertility.^{2,5}

Management for the mental health symptoms for PCOS

The first step to proper management of the mental symptoms associated with PCOS includes early mental screening.²³ Early screening allows for adequate treatment to begin as soon as possible and is important for the prevention of a worse mental state which will affect the patient's quality of life.⁷

Lifestyle changes like a healthy diet and physical changes are advised as first-line treatment options for PCOS, both interventions have been linked to a reduction in depression and elevated quality of life.²⁴ Physical activity reduces insulin resistance, improves body image and the metabolic and reproductive features of PCOS, and group exercise has been linked to better mental health outcomes since it is a great way to have a form of accountability and support.³

While some studies show that antidepressants have no major effectiveness in treating depression and other symptoms in women with PCOS, some others state that drugs like bupropion with naltrexone help.^{8,21} Bupropion

treats obesity and depression and naltrexone enhances its effects especially with regards to weight loss in obese patients.⁵

Cognitive-behavioral therapy and pharmacotherapy although recommended for short-term periods have proven useful for sleeping disorders.¹⁰ Psychological support from the community is also important in mental symptom management of PCOS patients but it is not meant to replace the role played by medication.²²

CONCLUSION

This study aimed to determine the effect of PCOS on the mental health of women of reproductive age. PCOS is linked with mental health and has important implications that require the diagnosis and treatment of the disorders. Also, PCOS patients with menstrual irregularities have been linked to higher rates of depression.

The early evaluation of PCOS in women should include the assessment of their mental health due to the increased rate of depression and anxiety in this population. Mentally affected PCOS patients should be given psychological support aside from medical treatment for PCOS, this can better their situation, giving them a higher quality of life and better outcomes overall.

Recommendations

The pathophysiology for the prevalence of depression in people with PCOS should be studied to reduce speculation and make prevention and management easier for affected patients.

It is also highly recommended that more research goes into finding more useful drugs for the treatment and management of mental health symptoms in patients with PCOS.

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