



Reconsidering the Mental Health of Women. A Scoping Review of Poly Cystic Ovary Syndrome and Meditation Therapies

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ABSTRACT

Background: A complex heterogeneous endocrine issue linked to female reproductive disorder is known as polycystic ovarian syndrome. It has been shown that a lot of cysts form in the female ovarian antral follicles when there is an imbalance in the sex hormones.

Method: Scoping review methodology was used. For which an extensive literature review was carried out comprehensively from April to September 2024. Databases were used to search the literature: PsycINFO, CINAHL, Medline, and PubMed and Google scholar from 2019 to 2024, using various keywords and Boolean operators. **Objective:** To identify, synthesize, evaluate the evidences that PCOS effect mental health of women and Mindfulness Training Program (MTP) can improve level of stress, anxiety and depression.

Results: Subsequent the elimination of duplicates, 185 independent studies from the 352 records that the search technique produced were suitable for title and abstract screening. Following a successful full-text retrieval of 82 citations, out of which 26 retrieval citation met the inclusion criteria and were incorporated into the analysis. Examined were a number of psychological effects, such as anxiety, depression, stress, concerns about PCOS, and general psychological distress. **Discussion:** The Scoping review offers a brief summary of the data currently available about MTP's effectiveness in reducing PCOS symptoms. The results help shape the direction of current and upcoming studies in this area. Further investigations must improve the current monitoring status concerning MTP delivery.

Conclusion: The analysis suggests that there is an urgent need for significant advancements in PCOS research concerning mental health assessment and therapies.

INTRODUCTION

Polycystic ovarian syndrome, (PCOS) is a complicated heterogeneous endocrine problem associated with female reproductive disease (15 to 45 years). It has been shown that a lot of cysts form in the female ovarian antral follicles when there is an imbalance in the female sex hormones [1]. Although the precise etiology of PCOS is unknown, it may be linked to genetics, lifestyle choices, environment, high testosterone, insulin resistance, and obesity. In addition, PCOS is the most common cause of anovulation and a significant factor in infertility [2]. PCOS is a chronic condition for which there is no recognized treatment. Nonetheless, medical interventions such as fertility treatments and lifestyle changes might alleviate certain symptoms [3]. Numerous physiological problems, including acne, obesity, infertility, irregular periods, hirsutism, and pelvic discomfort, are linked to PCOs and can cause a variety of social problems, including social disapproval, stigma,

and detachment from society. Additionally, negative body image can contribute to anxiety, depression, and stress [4]. PCOS is a chronic condition for which there is no recognized treatment. On the other hand, medical interventions such as fertility treatments and lifestyle changes can alleviate certain symptoms (WHO 2023). PCOS is far more common among South Asian women (52%) than in women from other nations (20% to 25%) in the UK. This is notably true for Pakistani women [5]. Reference is about the knowledge of PCOS, not about its prevalence. Stress is a response to any physical or psychological disturbance that upsets homeostasis. The stimuli are referred to as stressors, and the stress response is the result of behavioral and physiological changes brought on by exposure to stressors [6]. Mindfulness based programs (MBPs) are linked to advantages for wellbeing and health. These results contribute to the increasing body of research indicating

that mindfulness based stress reduction (MBSR) and minndfullnes based cognitive therapy (MBCT)could be useful treatments for mental illness at the subclinical stage and could be included in the agenda for public mental health [7]. Stress is associated with adverse health consequences. Psychological distress is associated with PCOS; women with PCOS are more likely than women without PCOS to experience psychiatric disorders (50% vs. 27%) [8].The use of mindfulness practices as a stress-reduction tactic has become increasingly popular. In the mindfulness training program (MTP), participants may learn breathing exercises, yoga-inspired light exercise, and body scanning techniques. With practice, people can learn to process their ideas, feelings, and sensations as they arise [9].The purpose of this scoping review was to identify and critically analyses the prevalence of PCOS globally and regionally and its consequences on mental health of the women effected by PCOS, as well as the non-pharmacological approaches and practices using to improve mental health of this population. The intent is to increase the knowledge of mindfulness training program and ultimately to contribute to the identification of existing understanding and practice. The objective of this scoping review was to identify, synthesize, evaluate the evidences that PCOS effect mental health of women and MTP can improve level of stress, anxiety and depression.

Purpose of the Review

This scoping review's main goal is to systematically map and assemble the existing body of research on the positive effects of mindfulness-based therapies (MTPs) for women with polycystic ovary syndrome (PCOS) in terms of both medical and psychological outcomes. This review specifically intends to: 1. Identify and categorize the various types of MTPs that are used to treat PCOS. 2. Examine at the wide range of outcomes that are examined, such as physiological indicators, stress, anxiety, depression, and quality of life. 3. Assess the limitations and methodological quality of previous research. 4. Assess how well MTPs work to improve outcomes for women with PCOS. 5. Determine the areas and gaps in this field's future study.

Methods

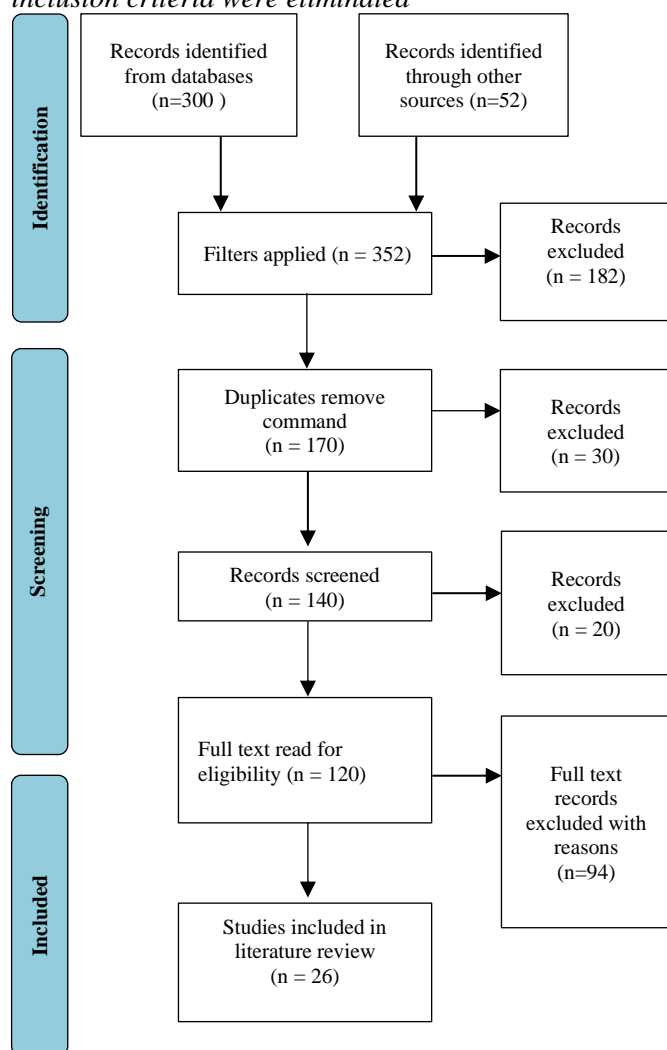
Scoping review methodology used for this research. For which an extensive literature review was carried out comprehensively from April to September 2024. The five-step framework developed by Arksey and O'Malley is what was employed for this scoping review: the

following steps: i) identifying the research question; ii) locating relevant studies; iii) selecting the study; iv) plotting the data; and v) gathering, summarizing, and publishing the results. Every step of the iterative approach was done more than once to ensure thorough coverage of the literature. The PICO (patient or problem, Intervention or exposure, Comparison and control) framework was used to develop the research question. This review ask: what are the existing condition of mental health of women effected by PCOS and uses of MTP to improve the level of stress anxiety and depression?

The literature search and subsequent data screening procedure were conducted in accordance with Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) standards by using databases, PsycINFO, CINAHL, Medline, and PubMed and Google scholar. It also adhered to the Prisma P protocol, which covered items written in English between January 2000 and 2024, Studies included in the review included from 2019 to 2024. (Figure I). Search phrases were generated and refined to better target the study question under consideration. Boolean operators were applied to associate search phrases. The term used (PCOS AND Stress, PCOS AND Depression, PCOS AND Anxiety, Mindfulness AND PCOS, Mindfulness AND Depression, Mindfulness AND Stress, mindfulness AND anxiety) to increase search sensitivity. An iterative process of literature analysis was carried out to determine the impact of PCOS on women's mental health, currently available non-pharmacological therapies, their advantages and disadvantages, and changes in their implementation. With assistance from the authorship team, author one independently screened the records. 26 records were charted after meeting the eligibility requirements. (Author, publication year, context & location, study design, sample attributes, and important results) There is literature on PCOS and stress anxiety and depression, and mindfulness therapies .However an interventional study yet to be done on this particular population to determine the effectiveness of MTP on stress, anxiety and depression in PCOS women. Articles kept in inclusion criteria available in recent 5 years full text and providing information related to PCOS, PCOS effecting mental health of women, and non-pharmacological therapies improving mental health as well as articles only on English language. The review excluded the articles from extended literature that were more than five years old, unavailable in full form.

Figure 1

PRISMA Model displaying the selection of researches for review process, research that did not meet the inclusion criteria were eliminated



RESULTS

Prevalence of PCOS Irrelevant

Research conducted in Iran revealed that PCOS is a highly prevalent hormonal gynecological condition (14.6%). Infertility, obesity, insulin resistance, skin conditions, irregular menstruation, and standard psychological symptoms like anxiety and sadness could all be physical manifestations. Females with PCOS are more likely to develop depression, dyslipidemia, high blood pressure, and elevated blood glucose levels. There was a significant impact on both the emotional and physical aspects of health. [10]. National Institute of Health (NIH) established criteria in 1990 after scientists tried to develop average analytical measures utilized for PCOS, according to a Sydney Chang report from New York. NIH requirements included experimental or biological evidence of high levels of androgen and problems with ovulation. Since it was known at the time that 20–30% of healthy women had polycystic ovarian morphology, PCOM was excluded from these criteria

[11]. A Cross sectional study conducted in turkey found that prevalence of PCOS is (10%), and the psychiatric diagnosis rate was higher in the PCOS group than in the control group ($P < .5$) [12]. Australia's Damone et al. proposed a connection between co-occurring psychiatric problems and PCOS in 2019. Psychiatric care providers are best positioned to lead when it comes to initiating therapy and conducting mental health screenings. Those with PCOs (8.7%) reported higher rates of anxiety symptoms (50% vs. 39.2%), sadness (27.3% vs. 18.8%), and anovulation-related infertility as the main causes when compared to those without PCOs [13].

Consequences of PCOS on Mental Health of the Women Repetition

MTP can have a significant positive impact on the physical and emotional health of older adults and patients with insomnia, as well as help them feel less depressed and anxious [14]. According to other research findings, MTP's positive health impacts were also linked to prenatal stress and to how it lessened the negative feelings that pregnant women experienced. Furthermore, it helps cancer patients adapt emotionally [15, 16]. Additionally, studies conducted in the USA and Brazil have shown that MTP can enhance the general well-being of infertile women by reducing self-reported stress and depressive symptoms as well as the need for psychological interventions for a variety of chronic medical conditions [17], [18]. The symptoms of physical, emotional, and mental health in women with PCOS are improved by mindfulness-based interventions, especially in young individuals who are more vulnerable [19]. Furthermore, inadequate self-respect is associated with both PCOS and despondency, according to Snehal from India. The associated conditions that account for excessive weight, acne, hair loss on the scalp, and facial hair growth are mostly to blame for the decrease in self-esteem. In addition, there may be overlap in the risk factors for depression, PCOS, and abnormalities linked to PCOS, such as obesity, insulin resistance (IR), cardiovascular disease (CVD), and androgen excess. On the other hand, PCOS is thought to be a pro-inflammatory condition due to its elevated levels of pro-inflammatory markers. As a result, there's a chance that PCOS and depression will contribute to inflammation. Furthermore, there's a risk that depression could be brought on by the inflammatory markers linked to PCOS crossing the blood-brain barrier (BBB) [20].

Non-Pharmacological Approaches and PCOS Women

In 2020, Sabrina Venditti from Rome, Italy also stated that a variety of pharmacological interventions, including medication, psychotherapy, or various meditation-based therapies, as well as environmental factors, such physical activity and stress reduction, can modify the epigenetic abnormalities of women with

PCOS [21]. Depression in PCOS might occasionally result from it, while the precise reason of depression in PCOS is yet unknown, according to Krishna Chauhan of India in 2023, [22]. In contrast to depression, anxiety and stress symptoms are increasingly prevalent in today's society and can range from mild to quite severe, according to a Sialkot study done by Asif S. et al., [23]. Coordinated efforts between the psychiatry and gynecology departments may help to minimize the psychological issues connected to PCOS symptoms, according to a different study by Pakistani researcher Siddique in 2021. [24]. The decreasing psychological health illness strategy based on meditation techniques has gained more attention recently. In the MTP program, participants may learn breathing exercises, yoga-inspired light exercise, and body scanning techniques. With practice, people can learn to process their ideas, feelings, and sensations as they arise. [25]. The majority of these therapies are very new, and the efficacy of interventions in improving PCOS outcomes is not well-established. Nevertheless, there is a growing interest among women in various non-pharmacological treatments despite this [26]. When used as a therapeutic

intervention, MTP has been shown to be effective in easing the symptoms of a number of co-occurring conditions, such as anxiety, depression, exhaustion, and mood swings. [27]. According to an Iranian study, women with PCOS experience a number of physical and psychological issues as a result of the disease's more severe experimental consequences. Repetition Some non-pharmacological strategies for lowering anxiety include relaxation and mindfulness exercises, which have been shown to significantly reduce patients' emotional disturbance following intervention [28]. According to Erandi in 2020, the MTP program would assist PCOS women in improving their ability and tolerance to handle stress. In addition, Repetition MTP has been linked to improvements in anxiety, sadness, and stress [29]. Repetition Another study suggests that MTP may help women with PCOS manage their stress and anxiety in addition to being a new self-management technique [30]. Repetition According to a study by Stefanaki USA 2018, MBSR helps PCOS-affected women with their stress, anxiety, and depressive symptoms [31].

Table 1

Characteristics of the Included Studies for scoping review

S. No	Author (Year) & Place	Sample Size	Study Design	Findings
1	Hassan (2022), Bangladesh	409	Cross sectional	PCOS itself is a condition that promotes poor physical and psychological health, even though a number of lifestyle-related and socio demographic factors have been linked to the poor mental health of women with PCOS.
2	Helena J Teede (2023), USA	55	Meta-analysis	PCOS is a chronic condition for which there is no recognized treatment. Nonetheless, medical interventions such as fertility treatments and lifestyle changes might alleviate certain symptoms.
3	Alina Rafique (2023), Pakistan	350	Cross Sectional Study	PCOS is far more common among South Asian women (52%) than in women from other nations (20% to 25%) in the UK.
4	Ghada Khafagy (2020), Egypt	72	Qualitative Study	Stress is associated with adverse health consequences. Psychological distress is associated with PCOS
5	Querstret (2020), USA	49	Meta-analysis	Mindfulness based programs (MBPs) are linked to advantages for wellbeing and health
6	Javanbakht, Maryam, (2020), Iran	30	RCT	The greater efficacy of online mind-body therapies on HRQOL in PCOS-affected women underscores their potential utility as telehealth therapy.
7	Özge Gizli Çoban MD (2019), Turkey.	59	Cross sectional	The psychiatric diagnosis rate was higher in the PCOS group than in the control group ($P < .5$)
8	Demon (2019), Australia	478	A cross-sectional	Proposed connections between PCOS and co-occurring psychiatric diseases.
9	Tsai-Ling Chen, (2020), Taiwan	40	RCT	MBSR reduced level of depression and anxiety and improve sleep in insomnia patients.
10	Jia-Yuan Zhang (2019), China	66	RCT	MBSR is effective in reducing parental stress.
11	Liu H, Gao X (2019), Brazil	101	RCT	Found positive results of MBSR and music therapy in pain reduction, depression and stress level as well as quality of sleep in patients with osteosarcoma.
12	Simone F. Nery (2019), Brazil	62	RCT	MBP was effective in reducing stress and symptoms of depression while also enhancing the general wellness of infertile women.
13	Bach Xuan Tran (2020), Vietnam		Meta-analysis	Patients with medical disorders can benefit from MTP by feeling better overall and reporting lower levels of stress and despair.
14	Vishesha Patel (2020), Pennsylvania	30	RCT	By improving their nutrition through improved eating habits, women with PCOS can have better lives when they regularly practice mindful meditation.

15	Kolhe J V (2021), India	---	Review article	The associated conditions with PCOS such as excessive weight, acne, hair loss on the scalp, and facial hair growth are mostly to blame for the decrease in self-esteem.
16	Sabrina Venditti, (2020), Italy	410	Cross sectional	It was discovered that the epigenetic modifications of PCOS women can be influenced by a variety of pharmacological interventions, such as medication, psychotherapy, or various meditation-based therapies, as well as environmental factors, such as physical exercise and stress reduction.
17	Krishna Chauhan (2023), India.	80	A Quasi-experimental Study	Depression in PCOS can sometimes result from it, albeit the precise reason why depression occurs in PCOS is yet unclear.
18	Asif S (2020), Pakistan Sialkot	500	Cross-sectional	Compared to depression, anxiety and stress symptoms are more widespread in the present population and range from mild to severely severe.
19	S Siddique. (2021), Pakistan	291	Cross-sectional	It was found that psychological aspects were associated with symptoms of PCOS, which could potentially be lessened by collaborative efforts between the departments of psychiatry and gynecology.
20	Worthen M, (2018), USA	BOOK	BOOK	With the aid of mild yoga and meditation, MTP can lessen stress, worry, and sadness.
21	Soniya John, (2021), Bangalore	60	Qusai experimental study	The comprehension of polycystic ovarian syndrome among students was significantly enhanced by an organized educational program.
22	Zhu, Xingmin BS (2019), China	50	RCT	MBSR reduced level of depression and anxiety in post herpetic neuralgia.
23	Salajegheh Z, (2021), Iran	60	Qusai experimental	Improved quality of life of PCOS women through MBSR.
24	Erandi Hewawasam, (2020), Australia	40	RCT	MTP is a new self-management technique for women with PCOS that may help with stress and anxiety management.
25	J. Nesamani Sonja (2021), India	60	A Quasi-experimental Study	Planned teaching was effective regarding developing knowledge regarding PCOS effected women.
26	Stefanaki C, (2018), USA	38	RCT	To assess how a mindfulness stress management program affects PCOS-afflicted women's stress, anxiety, and depression.

DISCUSSION

The review gives a concise overview of the data currently available about MTPs effectiveness in reducing PCOS symptoms. The results help to guide current and upcoming studies in this area. The majority of the trials examined how MTPs affected psychological metrics; research examining pregnancy and associated consequences were significantly lacking. There was a notable gap in the reporting of MTPs related adverse events and adherence. Reporting on MTP delivery is now considered to be below ideal, underscoring the need for future research to improve. In the Eastern world, the idea and practice of meditation encompass more than only treating illnesses; it also includes elements of self-care and spiritual well-being [32]. It is clear that different MTP forms are utilized in different contexts. For example, the most popular kind of meditation in India was yogic meditation, whereas in the USA, mindfulness-based techniques were widely studied. The cultural adaption of meditation practices in Western cultures may be the cause of this disparity [33]. Furthermore it is suggested that MTPs be investigated because they have the potential to maximize lifestyle changes and aid in weight management for women with PCOS. [34]. The symptoms of physical, emotional, and mental health in women with PCOS are improved by mindfulness-based interventions, especially in young individuals who are

more vulnerable [19]. According to the study's findings, MTPs may also help people with PCOS lose weight and increase their sense of self-efficacy. [24]. It is crucial to keep in mind that the concept of lifestyle management might need to be expanded in order to be more in line with the whole person model of healthcare delivery. This might involve providing treatment for psychological and sleep interventions in addition to a variety of MTP techniques [35]. This study has summarized the available data on non-pharmacological techniques, psychological therapies, and the standard lifestyle change components (diet, physical activity, and behavioral modification) using a holistic understanding of patient care.

CONCLUSION

The present analysis suggests that there is an urgent need for significant advancements in PCOS research concerning mental health assessment and therapies. These findings may have significances for the application of evidence to clinical practice. Women with PCOS can have higher quality of life when they receive psychological treatments such motivational interviewing, mindfulness therapy, yoga, CBT, and other therapies alone or in combination. To obtain more solid proof, more research with no bias and long-term follow-up are required.

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