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Review Paper

PCOS and Meditation: A Review Paper

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ABSTRACT

Polycystic ovarian syndrome (PCOS) is becoming more prevalent among women of age of reproduction. Common symptoms of PCOS includes Anovulation, infertility, excessive hair growth on body and face, Ovarian cysts, acne, sleep disturbances and decreased libido. PCOS has not just its biological manifestations but also psychological. These psychological effects have been found to be managed by Mediation which further also improves even the biological manifestations of the same. The aim of the present study is to gather relevant data and review papers highlighting the role of meditation in managing PCOS. For this, peer-reviewed literature that displayed the relationship between PCOS and mental health, PCOS and Meditation were searched on PubMed/Google scholar/PMC/NCBI/NIH/Web of Science and Scopus database from 2003 to 2021. The keywords while searching the database included: "polycystic ovarian syndrome" or "PCOS" and “meditation". The existing literature states that meditation has been found to be effective in managing PCOS. However, a gap in the literature was found as very handful researches exists on psychosocial dimensions of PCOS and intervention to manage the same.

Keywords: *Polycystic ovarian syndrome, Meditation, Mental Health*

PCOS or Polycystic Ovarian Syndrome is an endocrinal or hormonal disorder found to affect women of reproductive age. In a study by Abbot et. Al. 2005, it was found that PCOS affects 5-10% of the female population. Common symptoms of PCOS includes Anovulation, infertility, excessive hair growth on body and face, Ovarian cysts, acne, sleep disturbances and decreased libido. PCOS has further been linked to heightened risk of type 2 diabetes, infertility anxiety, depression, cardiovascular diseases and reduced quality of life. Hyperandrogenism or elevated testosterones has been sound to be the consistent feature of the syndrome occurring in 60-80% of the women suffering from PCOS (Farrell and Antomi, 2010). High levels of male hormones in women with PCOS has masculinism effect like excess hair growth, fertility problems, acne, weight again and therefore has been termed as “Thief of Womanhood” by Kitzinger and Willmont, 2002. Patients often have been found to complain that there is a lack of professional help in this syndrome leading to excessive worry.

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PCOS' pathogenesis have not yet been understood in totality but its primary symptoms include polycystic ovaries, increase level of androgens and irregular periods. Studies have also demonstrated a positive correlation between PCOS and anxiety and depression. PCOS has not just its biological manifestations but also psychological. Women with PCOS have been found to have high levels of anxiety and depression. Monzani et al. (1994) found that 23 PCOS patients had significantly higher levels of anxiety and depression than 20 age-matched healthy control women. The reason for depression in PCOS can be linked to the distressing symptoms of the same including high levels of insulin resistance and weight gain, acne, hirsutism etc. Another reason suggested for mood related disorders is BMI and body weight. (Milsom et al. 2013; Celik and Akbulut 2018). Kitzinger and Willmott (2002) found that such women are poorly adjusted to the feminine gender roles due to facial hair and other effects of hyperandrogenism. To manage these psychological manifestation of PCOS, various relaxation techniques may be suggested like meditation.

Meditation is frequently utilised in treating different range of anxiety problems as well as social anxiety. The attention-land-arousal theories of anxiety provide the majority of the justification for proving meditation as a type of anxiety treatment. Generally speaking, anxious persons examine their surroundings for information about potential threats and interpret ambiguous information as potentially dangerous (French, Hunt& Keogh, 2006). In addition, individual experience severe endure continuous over-arousaland who have anxiety disorders, increasing the probability that information of ambiguous environmental may be misinterpreted as potentially hazardous (Barlow, 1991). Therapeutic programs based on meditation for anxiety are similar with those used in the treatment of depression in that participants are told to be non-judgmental "observe" their own process of thought and bodily sensations. The ability to accept and objectively examine physiological signs is critical in this situation. The assessment of symptoms which are physiological is inherently same to (CBT)cognitive behavioural therapy; nevertheless, cognitive behavioural therapy encourages people to recognise the relationship among cognition and arousal (Barlow, 1991). Training of Mind-fullness, on the other hand, does not make a direct connection between thoughts and physical sensations; instead of, it tries to make people learn to pay attention to their physical sensations and thoughts like they happen (Kabat-Zin, 1990). Meditation does not directly address over-arousal, but it has been demonstrated to reduce muscular tension and the overall symptoms of anxiety which are physiological. (Bradley&Mogg, 2005).

Objective

The aim of the current research is to gather relevant data and review papers that highlight the role of meditation in managing PCOS. While PCOS has not just its biological manifestation but is found to lead to anxiety and depression thereby affecting quality of life of these women, Meditation may be suggested to manage anxiety and depression further improving the quality of life. Thus, this paper aims to identify if practising meditation have benefitted women with PCOS.

METHODOLOGY

Peer-reviewed literature that displayed the relationship between PCOS and mental health, PCOS and Meditation were searched on PubMed/Google scholar/PMC/NCBI/NIH/Web of Science and Scopus database from 2003 to 2021. The keywords while searching the database included: "polycystic ovarian syndrome" or "PCOS" and "meditation".

RESULTS AND DISCUSSION

PCOS or Polycystic Ovarian Syndrome is an endocrinal or hormonal disorder found to affect women of reproductive age. Approximately 7–20% of women have polycystic ovarian syndrome, depending upon the criteria of diagnostic used (Day et al. 2018). As many as 60–80% of women with PCOS have 'hyperandrogenism,' a disorder characterised by abnormally high testosterone levels (Farrell and Antoni 2010, p. 1566). PCOS is characterised by increased testosterone levels (as determined by a blood test or by the hirsutism and acne presence in the clinical presentation), irregular menstrual cycles (9 or less periods every year), and ovaries with numerous cysts (as determined by an ultrasound).

Polycystic ovarian syndrome is a syndrome that can be related with variety of illnesses, albeit seldom are the conditions present in any one woman who have PCOS. Other than diagnostic symptoms, some characteristics of PCOS include obesity, insulin resistance (which has the potential to lead to type 2 diabetes), and not very common dark spots of skin discoloration (acanthosis nigricans) and balding in male-pattern. According to (Barry et al. 2014), modestly elevated cardiovascular and endometrial cancer risk are possible long-term complications (Anderson et al. 2014). In PCOS, elevated testosterone (hyperandrogenism) and insulin levels (hyperinsulinemia) are responsible for the majority of the symptoms, with it being worth mentioning that the elevated testosterone is most likely caused by increased levels of insulin (Tsilchorozidou et al. 2004). According to research, disorders which are psychological, including sadness and anxiety, are mostly common in women who have PCOS if compared to women who are healthy overall (Barry et al. 2011). Although specific aetiology of these problems is still unclear and they are caused at least in part through distressing symptoms of PCOS. Researchers have long discovered that women who have PCOS are more likely to go through anxiety as compare to women who have no illness (e.g., Monzani et al., 1994). Women who have PCOS have been seen to exhibit higher levels of anxiety mentioned in several research (e.g.Greiner et al. 2005;Keegan et al. 2003).Mansson et al. 2008; McCook 2002;Elsenbruch et al. 2003; and Elsenbruch et al. (2006) have found that obesity is associated with psychological PCOS distress. There is proof that anxiety with PCOS may be anchored in resistance of insulin instead of sadness, however this is a more complicated response because of this.

Polycystic ovarian syndrome is a complicated condition, and the association between anxiety and PCOS symptoms is in no way more complicated than the relationship between PCOS symptoms and anxiety. Distress may be an important contributor to PCOS symptoms, or perhaps the underlying reason in certain cases, but we're now entering dangerous ground. Because of stress there is an increase in inflammation and visceral fat, which, according to Antoni and Farrell (2010), can cause a 'negative spiral' that leads to an increased subsequent hyperandrogenism, insulin resistance, exacerbating clinical symptoms which are infertility, hirsutism and acne, also the potentially negative affect (Antoni and Farrell2010, p. 1568). As a result, it has the potential to increase the symptoms in women who already have the condition, although stress does not cause PCOS.

Evidence suggests that PCOS women have higher response in HPA to a stressor as compared to women who do not have the condition. After participating in mental arithmetic problems, even while trait anxiety was identical across 2 categories of women who have PCOS and 13 controls at the start of the trial, several hormones and state anxiety altered in PCOS women when compared to the control group after accomplishing a task, as Model et al. (1990) observed. Gallinelli et al. (2000) discovered that levels of cortisolrose significantly in the group of PCOS, as a stressor when than control group. When Benson et

al. (2009) tested women who have PCOS for their HPA reactivity after being subjected to a stressful public speaking challenge, they found that they were significantly less responsive than the controls. They discovered that the ACTH, cortisol, and heart rate of the PCOS group all increased much more than the controlled group in response to the task. In this study, the use of metformin had no effect on these disparities.

PCOS, according to Kirchengast and Eggers (2001), the source of suffering for an individual (as a result of symptoms) as well as an aggravation of distress due to stresses which are psychosocial (e.g., main events of life). The internet or mainstream media can, on occasion, take things a foot (or a jump) forward, defining things as 'a poor lifestyle and the great amounts of stress are main causes of PCOS are', which is not necessarily true (Moss 2016). However, a reasonable relationship between PCOS and group are there, as we've observed. However, this type of idea is likely overstating the situation.

As the most prevalent endocrine disorder in women of age of reproduction, PCOS is linked to a broad variety of comorbidities, many of which have a negative impact on well-being psychologically and quality of life (QOL). Beyond hormonal and metabolic therapy, health-care specialists now have few options for improving the well-being of this group. PCOS is a condition that affects people of all ages, but it can be better managed if a unique sustainable method, long-term method is studied to see if it works. Once this method is learned, it can be used for the rest of one's life. There have been some studies that show that mindfulness can enhance the quality of life of women who have PCOS. In women or adolescents who have PCOS there have been no studies of TM. (Oberfield S, Witchel SF, Codner E, Bonny A, Rosenfield RL, Ibáez L, et al, 2015).

Meditation is frequently utilised in treating different range of anxiety problems as well as social anxiety. According to a study conducted by James P. Malcolm and Istvan Schreiner (2008), training of mindfulness is useful in lowering the subclinical anxiety and depression symptoms, as well as in significantly reducing stress. According to (Raja-Khan et al. 2010) the mindfulness effects on individuals with PCOS have not been studied, however it has been found to alleviate psychological discomfort and have favourable effects in people with other conditions. With no negative side effects, mindfulness came out as a viable treatment for decreasing anxiety and stress associated with chronic illness and everyday living. Currently, it is being researched in clinical settings (Praissman 2008).

In clinical practise, mindfulness approaches are based on ideas that emphasise the non-judgmental acceptance of psychological suffering, which reduces the ruminate tendency about experiences that are unpleasant. Several researches have indicated that concentration of the brain to 'moment-to-moment' awareness of an individual's present emotions, sensations in body and thoughts in a non-judgmental way, in conjunction with brain plasticity, promote stress relief by increasing the relaxation response. Specifically, changes in the (ANS) autonomic nervous system; changes in brain structure and activity (Kubota Y et al. 2001); and changes in the axis of hypothalamic-pituitary-adrenal (HPA), i.e. low serum cortisol, appear to be the mechanisms by which this impact is mediated (Turakitwanakan, Mekseepralard and Busarakumtragul 2013);brain temporal transcriptome changes (Bhasin et al. 2013); increases in grey matter region (Hölzel et al. 2011); and default mode network connectivity (Brewer et al. 2011); regulation of emotion (Robins et al. 2012) amelioration of poor sleep quality (Brand et al. 2012); increased sensory processing and enhanced focusing and awareness of reflective sensory experience (Kilpatrick et al. 2011).Mindfulness has also been linked to enhanced control of glycemic and a decrement in anxiety, depression, and

overall discomfort psychologically in people who have diabetes (type 2) (Rosenzweig et al. 2007). Patients with PCOS may benefit psychologically from the use of mindfulness practices.

Study contributes to the growing body of research that gives support to the mindfulness practices application for the reduction of anxiety, depression and stress in many diseases, consisting pain which is (Klainin-Yobas, Cho and Creedy 2012). The goal of the study was to observe the impact of a stress management programe in terms of mindfulness on stres s and other aspects quality of life related to health in reproductive-aged PCOS patients. R esult concludes that the intervention reduced the levels of stress, anxiety, and sadness in these individuals, while also improving their overall quality of life. There are clues to support the use of stress management strategies like mindfulness in treating women who have Polycystic Ovarian Syndrome, according to new research (CharikleiaStefanaki et al. 2014).

Incrisis, like in present world pandemic due to COVID-19, mindfulness and meditation are techniques which can benefit healthcare patients, professionals, the general public and caregivers. Even though there are many different types of mindfulness and meditation practices, those having a strong scientific foundation, like mindfulness-based stress reduction, are special interest for healthcare practitioners (MBSR). Enhancement in level of pain, anxiety and depression scores have been observed in systematic studies of such procedures. People who have practised traditional meditation for a lengthy period of time, as well as those who have finished the MBSR programme, have shown structural and functional changes in their brains. People of all ages and abilities can benefit from mindfulness and meditation activities, which are adaptable to every situation. Introducing ameditation and mindfulness practice in the recent pandemic has the ability for the complementation of treatment and costs very low, helpful means of offering support for anxiety for all people affected (Behan, C. 2020).

Studies have shown that tools of meditation-based like (MBCT)mindfulness-based cognitive therapy,focused attention meditation, (MBSR)mindfulness-based stress reduction can reduce anxiety (Zabaleta-Del-Olmo, Garcia-Campayo, Pérez-Yus, Cuijpers and Montero-Marin et al. Reference Montero-Marin, 2019),post-traumatic stress disorder and depression (Khusid & Vythilingam, Reference Khus (Pascoe et al. Jenkins, Reference Pascoe, Thompson and Ski2017).

Techniques of meditation can be tailored for meeting the needs of children, adults, people and teenagers with an intellectual disability (Chadi et al. Reference (2018); Chadi & Hwang, Reference Singh and Hwang2020; Ahola Kohut & Malboeuf-Hurtubise, Locke and Vo, Viner & Kaufman, 2018; Singh & Hwang, Reference Singh and Hwang2020; Singh & Hwang, Reference Singh and Hwang2020; Singh & Hwang, Reference Singh and Hwang2020; Singh & Hwang, Reference Singh and Hwang2020). There has been an upsurge in research into meditation applications use and online Telehealth and eHealth on delivery of mindfulness-based stress reduction and (MBCT) mindfulness-based cognitive therapy and therapies. (Champion et al. Reference Economides, Champion and Chandler 2018; Huberty et al. ReferenceGreen, Huberty, Glissmann, Larkey,Puzia andLee 2019). Calm, Headspace, and Insight Timer are just a few of the meditation applications which people can use to help them with the personal meditation practices. In situations like pandemic of COVID-19, these strategies including others may be beneficial in providing population with support. People who engage in a mindfulness practise report benefits in

areas such as sleep, according to preliminary research (Zheng et al. Yao, Reference Zheng, 2020).

According to Moura Paul Labordadrador and Dona Polk, as well as James H. Dwyer et al. (2006), Meditation is a fundamental aspect of yogic practises, and it is through them that one can establish a harmonious balance between the body and the mind. PCOS symptoms are alleviated with the use of this breathing method, which is both peaceful and comforting. An individual engages in meditation when they concentrate their thoughts on certain activities or objects in order for acquiring an emotionally peaceful state of mind and mentally clear state. According to their study, transcendental meditation can alter the physiological reaction to stress. It has been shown to drastically lowerblood pressure and insulin resistance, both of them are elements of the metabolic syndrome. (Patel, V., *et al.* 2020) found that a woman who has PCOS, a daily practice of meditation and mindful yoga can be an effective supplemental therapy, especially for improving the levels serum androgen, a defining feature of the condition. This progress took place despite not losing weight and may continue even if practise is interrupted.

(Hoge, Elizabeth A et al., 2013) found that mindfulness meditation training can improve anxiety symptoms in people with Generalized Anxiety Disorder even when compared to an active control condition and is a therapy option worth pursuing in bigger exploratory trials. Study also revealed that patients who learnt mindfulness meditation performed better in a laboratory stress scenario, increasing the idea that mindfulness can help patients cope with stressful situations.

Infertile women who practised yoga (meditation) for six weeks a day for 90 minutes a day saw improvements in hirsutism and anthropometric measurements (abdomen and hip circumference). Medical professionals, such as midwives and gynaecologists, may recommend using this approach in conjunction with other therapies for PCO. Moreover, a variety of yoga techniques are suggested for managing the signs and symptoms of PCOS (Maryam Mohseni et al.2021).

Stress begins in the mind, and then spreads to the body, it is imperative that this issue be addressed at the mental level. Using meditation, you can achieve this goal. This technique has been proven scientifically to have several benefits on health by the American Medical Association (AMA). Dr. Shah asserts that "healing occurs from inside" when people reflect profoundly on their lives. With your eyes closed for a few minutes, you'll have the perspective to find a solution rather than continually fretting about it. When PCOS is discovered in the early stages of puberty, most women are left feeling bewildered and angry. It's possible to get an illness-free body and mind by practicing yoga and meditation from an early age.

CONCLUSION

From the above studies and review of literature, it can be concluded that meditation has been found to be effective in managing anxiety and has been significantly beneficial in managing symptoms of PCOS but there are very handful of studies in this area which makes the generalizability of these results difficult. There still is a dearth of literature exploring the psychosocial impact of PCOS. Therefore, there exists a gap in the literature which needs to be filled by exploring more psychosocial impact of PCOS and its management.

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Conflict of Interest

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