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Health related complications associated with polycystic ovarian disease (PCOD)

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Abstract

Background: Polycystic ovary Disease (PCOD) is associated with psychological and metabolic disturbances. The aim of this study was to determine the complications associated, depression, anxiety and reduced health-related quality of life (HRQOL) among are women with PCOD.

Methods: The study included 100 PCOD patients. All participants completed standardized questionnaires assessing depression and anxiety by HADS. Patients also completed a PCOD HRQOL questionnaire. The other complications like Weight gain, Obesity, Abortion, Irregular bleeding, Infertility, Acne, Acanthosis Nigricans, TSH abnormalities, Hirsutism and Hair fall are assessed by patient history interview, case record analysis and from laboratory values.

Results: 42% of the patients were on 22-26 age. On analysis of Body Mass Index, 60% of the patient having BMI of 18.5 – 25. Distribution of BMI according to the age founds that patients in 17-21 age group were having high BMI Score (obese). Analysing the complications of PCOD indicates that 78% of women having Irregular menstrual cycle, 68% having weight gain, 44% having hirsutism, 36% having anxiety, 32% having Acne and Acanthosis nigricans, 22% having hair fall, 16% having infertility and Depression, 10% having TSH abnormality and 6% having abortion history. According to the data, PCOD patients under the age group of 22-26 were more susceptible for the complications. HADS Score indicates that 52% having score in between 11-21 (abnormal) in which 36% having anxiety and 16% having Depression. Evaluation of Quality of Life among PCOD patients indicates that 52% of patients scored having medium quality of life.

Conclusion: The study concludes that there are many complications associated with PCOD where anxiety and depression is a chronic recurring disorder which significantly affect the Quality of life among PCOD patients therefore appropriate evaluation and treatment of PCOD as well as proper counselling for anxiety and depression symptoms at an early age may prevent the onset of secondary disorders.

Keywords: Anxiety, depression, polycystic ovary, quality of life

Introduction

Polycystic ovary disease (PCOD) is the most common endocrine disorder among women of reproductive age, affecting approximately 5% to 10% of women in the Western world [1, 2]. Women with PCOD exhibit a wide range of symptoms presenting in varying combinations. These include amenorrhea, oligomenorrhea, menorrhagia, hirsutism, subfertility or infertility, anovulation, weight gain or obesity, acne vulgaris, androgenic alopecia, excess androgen production, and insulin resistance [3, 4]. Furthermore, growing research indicates PCOS as a risk factor for endometrial cancer [2, 5], as well as conditions resulting from metabolic disturbances (e.g., type 2 diabetes, cardiovascular disease, dyslipidemia, and hypertension) [1, 2, 5, 7]. Because of the variability in symptomatology, PCOD has proven challenging to diagnose. The Rotterdam diagnostic criteria [7] (developed in 2003 to aid clinicians in the systematic and accurate diagnosis of PCOD), state that two of the following three criteria should be present for a diagnosis: 1) oligoovulation or anovulation; 2) clinical and/or biochemical signs of hyperandrogenism; and 3) polycystic ovaries. Furthermore, the likelihood of other similar illnesses (such as Cushing's syndrome) should first be systematically excluded. New criteria have recently been proposed by the Androgen Excess and PCOS Society [8], which suggest tighter definitions are required by focusing on only two criteria: 1) hyperandrogenism (clinical hirsutism or biochemical hyperandrogenemia, or both); and 2) ovarian dysfunction (oligo-ovulation or anovulation, or polycystic ovaries, or both). Increasingly, importance is placed on understanding the impact of a condition, its symptoms and treatment from the patients' perspective, and the overall impact of these on patients' quality of life (QoL) [9, 10]. The variability of PCOS symptoms (and the potentially significant and varied impact of these on QoL) makes it paramount to understand PCOD from the patients' perspective.

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Insulin resistance is one of the underlying mechanisms for the metabolic manifestations of this syndrome, which include increased risk for obesity, dyslipidemia, glucose intolerance, and long-term cardiovascular disease. (CVD). Depression and anxiety disorders are also recognized risk factors for CVD. Recently, in a systematic review and meta-analysis, founds that women with PCOS had a fourfold greater odds of depressive symptoms compared with age-matched control women ^[11]. Further subanalysis of body mass index (BMI)-matched subjects also demonstrated greater odds of depressive symptoms in women with PCOS and risk of depression in PCOS and found a persistent high prevalence of depression after 12–18 months ^[12]. Mood disorders are commonly associated with anxiety disorders, especially generalized anxiety disorder (GAD) ^[13]. The estimated prevalence of anxiety disorders is 5%–8% in women seen in the primary care setting. Abnormal or inappropriate anxiety can become a problem when it occurs without any recognizable stimulus or when the stimulus does not warrant such a reaction. Often, anxiety gets generalized to other situations, and can then become overwhelming or associated with life in general. Typically, GAD develops over a period of time and may not be noticed until it is significant enough to cause problems with functioning. In the National Comorbidity Survey, patients with GAD had a high prevalence of social phobia, specific phobia, panic disorder, and major depression ^[14, 15]. The majority of people with GAD reported substantial interference with their life, a high degree of professional help seeking, and a high use of medication to relieve their symptoms.

Many aspects of this syndrome, such as hirsutism, acne, obesity, menstrual abnormalities and difficulty in becoming pregnant, have a negative impact on the health-related quality of life (HRQOL) and may increase the risk of mood disorders ^[16, 17]. Several studies reported that women with PCOD have an increased rate of depression and anxiety compared with healthy controls ^[17]. Hyperandrogenism and obesity along with insulin resistance (IR) and dyslipidemia appear to be associated with these mood disorders in PCOD ^[18, 20]. Oral contraceptive pills (OCs) are first-line medical therapy in women with PCOS. In women without PCOD, some studies reported less severe depressive symptoms and better overall physical function with the use of OCs ^[21], whereas change in mood, specifically depression, is one of the most common reasons given for discontinuing OC use in others ^[22, 23]. Even though improvement of HRQOL in women with PCOD with use of metformin is reported in the literature ^[23], no data are available regarding the potential effects of OCs on quality of life, emotional well-being, depression and anxiety in PCOD. In this prospective observational study, we aimed to determine potential impact of an OC on HRQOL, emotional well-being, depression and anxiety symptoms in patients with PCOD.

Methods

This was a hospital based study done in 100 patients in the Department of gynaecology at Pushpagiri Medical College Hospital, Thiruvalla, Kerala which is a 1200 bedded hospital during January 2018 to June 2018. The study was retrospective-observational study carried out using Patient case profile and measuring scale like Hospital Anxiety and Depression Scale(HAD) and Quality Of Life Assessment Scale(QOL) for a period of two months. The data from case records of the patients who diagnosed with PCOD during the

study period were included for the study based on inclusion and exclusion criteria. The data from the case records of patients above the age of 12 till 35 years were included for the study. All women provided informed consent to participate in the study. Only the women aged 12- 35 years were included for analysis to reduce any potential confounding effects of menopause (average age of onset is 51 years) which is associated with mental health outcomes. Pregnant women, women living overseas, women with a psychiatric illness (other than anxiety or depression) or an incomplete PCOS diagnosis were excluded from the research.

Measures

Body mass index

BMI was calculated based on self-reported weight and height (weight in kg/height in metre²). This population (adult women) is known to typically underestimate their weight and overestimate their height (therefore reducing estimated BMI), however, any adjustments required would be common.

Mental health measures

The Hospital Anxiety and Depression Scale (HADS) is a state measure of anxiety and depression, used to detect clinical cases and the severity of both conditions. The scale consists of 14 items, 7 measuring depression, 7 measuring anxiety. The measure displays high internal consistency for both anxiety ($\alpha = .93$) and depression ($\alpha = .90$). The scores can be used as a continuous variable, with higher scores (out of a possible 21) indicating greater anxiety or depression. A score of 8 or greater indicates possible presence of anxiety and/or depression.

Quality of Life

The scoring of the Quality of Life Enjoyment and Satisfaction Questionnaire (Q-LES-Q-SF) involves summing only the first 14 items to yield a raw total score. The last two items are not included in the total score but are stand alone items. The raw total score ranges from 14 to 70. The minimum raw score on the Q-LES-Q-SF is 14, and the maximum score is 70. Thus the formula for % maximum can also be written as (raw score -14)/56. The other complications like Weight gain, Obesity, Abortion, Irregular bleeding, Infertility, Acne, Acanthosis Nigirians, TSH abnormalities, Hirsutism and Hair fall are assessed by patient history interview, case record analysis and from laboratory values.

Results

Participation and demographics

After considering the inclusion criteria, 100 women were included for analysis. Out of 100 Patients, 42% of the patients were on 22-26 age group followed by 36% were on the 17-21 age group (Table no.1).

Table 1: Age Wise Distribution of Patients

Sl No	Age Groups	No of patients	Percentage
1	12 to 16	4	4 %
2	17 to 21	36	36%
3	22 to 26	42	42%
4	27 to 31	16	16%
5	32 to 36	2	2%

On analysis of Body Mass Index (Table No.2), 60% of the patient having BMI of 18.5 – 25 followed by 24% having BMI of 25-30. Distribution of BMI according to the age

(Table no.3) founds that patients in 17-21 age group were having high BMI Score (obese) followed by patients in 22-26

were having moderately BMI (Over weight).

Table 2: Distribution Based on BMI (kg/m²)

Sl No	Body Mass Index	No of patients	Percentage
1	<18.5	8	8%
2	18.5 – 25	60	60%
3	25 – 30	24	24%
4	> 30	8	8%

Table 3: Distribution Based on Age and BMI

Sl. No	Age Groups	< 18.5 (Underweight)	18.5 – 25 (Normal)	25 – 30 (Overweight)	> 30 (Obese)
1	12 to 16	2	2	0	0
2	17 to 21	2	22	6	6
3	22 to 26	4	20	16	2
4	27 to 31	0	8	8	0
5	32 to 36	1	0	0	0

Complications of PCOD

Analysing the complications of PCOD (Figure no.1) indicates that 78% of women having Irregular menstrual cycle, 68% having weight gain, 44% having hirsutism, 36% having anxiety, 32% having Acne and Acanthosis nigricans, 22% having hair fall, 16% having infertility and Depression, 10% having TSH abnormality and 6% having abortion history.



Fig 1: Distribution Based on Complications

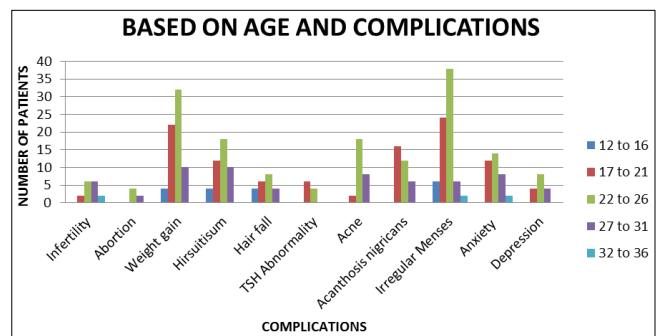


Fig 2: Based on Age and Complications

Anxiety and Depression

The Hospital Anxiety and Depression Scale HADS was used to measure of anxiety and depression among 100 PCOD patient (Table No.4) and it indicates that 52% having score in between 11-21 (abnormal) in which 36% having anxiety and 16% having Depression. 48% of patient having score in between 8-11 (Borderline) in which 26% having borderline anxiety and 22% having borderline Depression.

Table 4: Distribution Based on Hads Score

Sl. No	Scoring	0-7 (Normal)	8-11 (Borderline)	11-21 (Abnormal)
1	Anxiety	38(38%)	26(26%)	36(36%)
2	Depression	62(62%)	22(22%)	16(16%)

Quality of Life

Evaluation of Quality of Life among PCOD patients (Figure no.3) indicates that out of 100 patients, 52% of patients scored 51-60% and having medium quality of life followed by 34% of patients scored 41-50% and having low Quality of life, 10% of patient scored 61-70% which indicates high Quality of Life, 2% is having very low quality of life and Only 2% is having high quality of life.

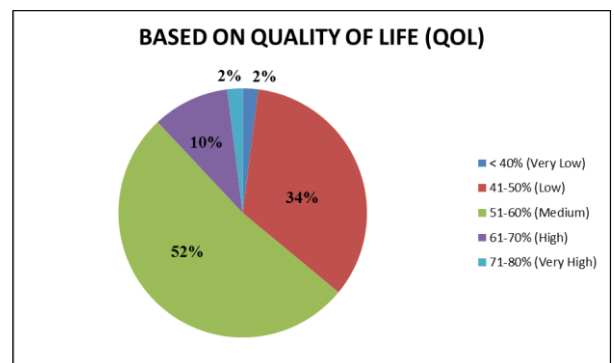


Fig 3: Distribution Based on Quality of Life (QOL)

Discussion

This is the first study examining the Complication associated with PCOD, Anxiety and Depression and Quality of life in women with PCOD. In this study, founds that teenagers is having high prevalence of PCOD and BMI Score had found to be high in the 22-26 age group. The study identified that there were many complications associated with PCOD. The most founded complication associated with PCOD are Irregular menstrual cycle, Weigh gain, Hirsutism, Acne, Acanthosis nigricans, Hair fall and Infertility. It is well known that women with PCOS have a high prevalence of obesity which can detrimentally affect the pregnancy outcome. The result of this study indicated that the risk of spontaneous abortion in women and all women with post-adolescent acne should be considered for underlying PCOD. The papulo pustular form of acne was the most prominent form in post-adolescent acne and the face, especially the mandibular region, and the chin were the most affected sites.

Depression and anxiety are more common in patients with PCOD compared with healthy women. Depression in PCOD might be associated with obesity and metabolic abnormalities [24]. Our results suggest an increased prevalence of the symptoms of depression and anxiety and a significantly impaired quality of life in women with PCOD. The Study also suggests an increased odds of anxiety symptoms in women with PCOS, underscoring the importance of screening all women with PCOD for anxiety symptoms. Follow-up evaluation and treatment are essential, because generalized anxiety disorder is a chronic condition. Potential contributors for anxiety symptoms, such as hirsutism, obesity, and/or infertility may be specific to women with PCOD. Anxiety symptoms are common in the general female population, occur at an early age, and coexist with other mood disorders such as depression. The Health-related quality of life surveys suggest that women with PCOD may be at an increased risk for anxiety symptoms, given their low self-esteem, poor body image, fear of future health problems, including infertility, and perceived lack of effective treatment. There is some evidence that during the time that couples attempt to conceive, women with fertility problems experience more negative emotional feelings than women who successfully conceive spontaneously [25]. Although infertility is a feature of PCOD, the majority of women with PCOS will respond to ovulation induction agents and achieve a pregnancy. As our study concludes that there are many complications associated with PCOD where anxiety and depression is a chronic recurring disorder which significantly affect the Quality of life among PCOD patients therefore appropriate evaluation and treatment of PCOD as well as proper counselling for anxiety and depression symptoms at an early age may prevent the onset of secondary disorders.

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