Original Article

Study of Impact of Polycystic Ovarian Syndrome on Quality of Life

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Abstract

Background: Polycystic ovarian syndrome (PCOS) is a complex disorder affecting women of reproductive age group with main features like anovulation, hyperandrogenism and insulin resistance. Quality of Life (QoL) is a multidimensional concept that encompasses physical, emotional and social aspects associated with a specific disease or its treatment. Measurement of QoL provide crucial information on the advantages of medical treatments and interventions from the viewpoint of the patient. The study's goal is to ascertain how polycystic ovarian syndrome affects quality of life (QoL). **Material and Methods:** As per defined study criteria Sample size of total 300 PCOS women were interviewed & assessed for Health Related Quality of Life (HRQoL) by using the standardized 36-Item Short Form Survey Instrument (SF-36) developed at RAND which measures eight+one health parameter. **Results:** The comparison of the mean and SD scores of the individual items in SF-36 in our study with scores of normative asian women revealed the highest scores in Physical Role Limitation (73.5±30.8) domain and lowest scores in Energy /Vitality (43±20) domain. Results of present study are consistent with other authors. **Conclusion:** The present study shows that women with PCOS have lower HRQoL & negative impact on QOL than women without the disorder in each scale of SF-36, particularly in the energy/vitality domain & general health function. Clinical management of PCOS patients depends on evaluating the influence on their quality of life. It is essential to detect patients with predisposing factors which have a higher risk of experiencing worse quality of life in order to treat them in a more integrated way. Further qualitative research and complementary studies examining HRQoL in young women and adolescents with PCOS will add valuable insights to the scientific knowledge already in existence.

Keywords: HRQoL (Health Related Quality of Life), Polycystic ovarian syndrome (PCOS), 36-Item Short Form Survey Instrument (SF-36).

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Introduction

Polycystic ovarian syndrome (PCOS) is one of the most common female endocrine disorders affecting women of reproductive age group.PCOS is a complicated condition with an unclear origin, however there is compelling evidence that it is mostly a hereditary condition. This syndrome is also known with various names like Ovarian hyperthecosis, sclerocystic ovarian syndrome, polycystic ovarian illness, functional ovarian hyperandrogenism, and Stein-Leventhal syndrome.[1,2]

About 5% to 10% of women between the ages of 12 and 45 who are of reproductive age have PCOS symptoms. The most common endocrine issue among women of reproductive age, it is believed to be one of the main reasons of female infertility and subfertility. The majority of PCOS patients exhibit anovulation, hyperandrogenism, and insulin resistance as its primary characteristics.[3,4]

Polycystic ovaries, ovulation-related infertility, irregular menstruation, and amenorrhea are all consequences of anovulation. Hirsutism and acne are symptoms of hyperandrogenism. Obesity, high cholesterol, and Type 2 diabetes are frequently linked to insulin resistance. Depending on a number of variables, the syndrome's symptoms and intensity differ significantly among the afflicted women. Additionally, it might have an impact on regular physical activities.[5] The overall goal of PCOS management is to improve patients' health-related quality of life (HRQoL) by reducing symptoms and preventing long-term issues like the emergence of metabolic syndrome and its consequences, such as Type 2 diabetes mellitus and cardiovascular disease.

HRQoL (Health Related Quality of Life) is defined as a multidimensional concept that encompasses physical, emotional and social aspects associated with a specific disease or its treatment. PCOS is known to have a significant negative impact on a woman's HRQoL. Measurement of HRQoL therefore provides important information on the benefits of medical

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therapies & interventions from the patient's perspective.[6,7] This is particularly important that subjective clinical data dont correlate with HRQoL.[8] The measurement of HRQoL also has an important role in measuring the impact of chronic disease and in evaluative research as a measure of outcome, particularly in community based clinical trials where health status tools can assist in clinical decision-making regarding treatment choice and policy decisions.[9]

Materials and Methods

Study Design: A Monocentric Hospital Based Observational Study.

Locus of Study: Acharya Vinoba Bhave Rural Hospital, J.N.M.C, Sawangi (Meghe), Wardha

Time Frame: 1st October 2015 To 30th September 2017

Study Sample: Patients Of Polycystic Ovarian Syndrome Attending A.V.B.Rural Hospital, Sawangi (Meghe) , Wardha

Sample Size: Patients Of Polycystic Ovarian Syndrome Attending A.V.B.Rural Hospital, during the given time frame matching the selection criteria of study were included. We managed to survey 300 PCOS patients during the study tenure matching the study criteria.

Approval of Institutional Ethics Committee: The study was approved by the Institutional Ethics Committee of Datta Meghe Institute of Medical Sciences (Deemed University) on 05/10/2015 (Ref. No. DMIMS (DU) / IEC / 2015-16 / 1514).

Methodology:

To Study the data of patients of polycystic ovarian syndrome among the Women of reproductive age group, attending A. V. B. Rural Hospital's Obstetrics and Gynecology O.P.D./I.P.D. at Sawangi (Meghe), Wardha, from October 1, 2015, to September 30, 2017.

Inclusion Criteria:

- Women of reproductive age (15-45 years).
- Womenwith polycystic ovarian syndrome.
- Women associated with chronic oligomennorrhoea or amenorrhoea along with PCOS.
- Women who are available at the time of data collection and willing to participate in thestudy.

Exclusion Criteria:

- Women older than 45 years, amenorrhoea of menopause, hyperglycaemia,heart failure, thyroid disorders, renal failure, malignancy.
- Womenusing oral contraceptives/hormone treatment/insulin-sensitising agents

In- Depth Discussion with Unit – Heads.

Interview of Senior and Junior Health Care Professionals.

Interview of Patients suffering from polycystic ovarian syndrome

Evaluation of Impact on Health Related Quality of Life:

The assessment of Health Related Quality of Life of the patients with PCOS was done by using the 36-Item Short Form Survey Instrument (SF-36) developed at RAND.[10]SF-36 from RAND health is a public document and available without charge. 36-Item Short Form Survey Instrument (SF-36) developed at RAND as part of the Medical Outcomes Study was used to determine how PCOS symptoms and therapies affect health-related quality of life (HRQoL).HRQoL was evaluated using the 36-item short-form health survey (SF-36) in Marathi, and it was verified. This widely used instrument contains a total of eight+one subscales/domains which are as follows.

Eight+one health categories are used in the RAND 36-Item Health Survey (Version 1.0):

1. physical activity,
2. physical discomfort,
3. role restrictions brought caused by physical health issues,
4. role restrictions brought on by emotional or personal issues,
5. Mental health/ emotional health,
6. social interaction,
7. fatigue/energy, and
8. perceptions of general health.
9. Perceived change in health after one year (optional).

The RAND 36-Item Health Survey has a two-step scoring procedure. First, using the scoring key found in Annexure-1, precoded numerical values are recorded. Keep in mind that every item is graded so that a high score indicates a better condition of health. Additionally, every item has a score between 0 and 100, with 0 representing the lowest possible score and 100 representing the most. Scores show what proportion of the total achievable score was attained. In step 2, items in the same scale are averaged together to create the 8 scale scores. Annexure-1. lists the items averaged together to create each scale.[10]

Items that are left blank (missing data) are not taken into account when calculating the scale scores. Hence, scale scores represent the average for all items in the scale that the respondent answered. The questionnaire was completed by the patients regarding how their illness and its treatment affect their life after obtaining due consent.

Collection, presentation and analysis of data:

- The detailed data was entered into the Microsoft Excel sheet.
- The collected data presented in tabular form and interpreted using SPSS statistical software.

Figure 1: Locus of Study - Acharya Vinoba Bhave Rural Hospital Wardha.

Results

Assessment of PCOS's Effect on HRQOL (Health Related Quality of Life): In the present study 36-Item Short Form Survey Instrument (SF-36) developed at RAND as part of the Medical Outcomes Study was used to determine the effect that PCOS symptoms and therapies have on HRQoL.[10] Version 1.0 of the RAND 36-item Health Survey has eight and a half health concepts:

1. Physical activity
2. Physical discomfort
3. Role restrictions brought on by medical issues
4. Role restrictions brought on by emotional or personal issues
5. Mental health and wellness
6. Social interaction
7. Fatigue and energy
8. Perceptions of general health
9. Perceived health improvement after a year (optional)

The questionnaire was completed by the patients regarding how their illness and its treatment affect their life. Data were obtained from patients who responded to SF-36 questionnaire and analysed.

The mean score among polycystic ovarian syndrome patients for various domains of HRQOL is presented in the following [Table 1, Figure 2]

Table 1: Mean Scores of each domain of SF 36-Item Health Survey questions in polycystic ovarian syndrome Patients

SR. No	SF-36 Domain	ITEM	Q. NO	Mean ± SD (n=300)
1	Physical Functioning	10	3,4,5,6,7,8,9,10,11,12	57.80±16.23
2	RoleLimitation /Physical	4	13,14,15,16	73.5±30.8
3	Role Limitation/ Emotional	3	17,18,19	64.28±25.1
4	Energy /Vitality	4	23,27,29,31	43±20
5	Mental Health	5	24,25,26,28,30	57.5±17.9
6	Social Functioning	2	20,32	66±30
7	Pain	2	21,22	56.40±16.3
8	General Health Perceptions	5	1,33,34,35,36	46.3±15.9
9	Health Change	1	2	57.32±21.3(n=257)

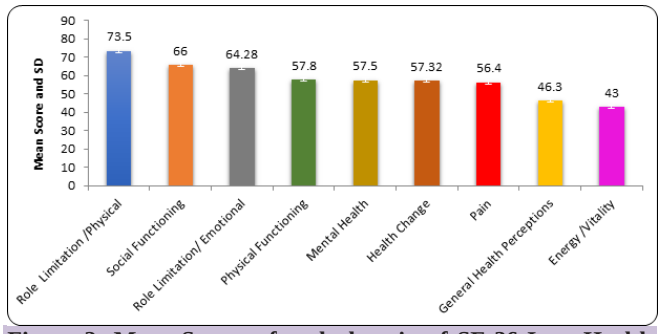

Figure 2: Mean Scores of each domain of SF 36-Item Health Survey questions in polycystic ovarian syndrome Patients

When comparing the scores of the individual items in 36-Item Short Form Survey Instrument (SF-36), the highest scores was seen in Physical RoleLimitation (73.5±30.8) domain and lowest scores in Energy /Vitality (43±20) domain.

Discussion

Crispin Jenkinson et al,[11] published scores for normative Asian women using (SF 36) health survey questionnaire. We compared the mean scores of present study below with Mean scores of (SF 36) HRQOL of normative Asian,[11] women considering Normative Asian Mean as age matched healthy sample.

SF-36 Domain	Mean ± SD (n=300)in Present study	Normative Asian Mean
Physical Functioning	57.80±16.23	78.7(n = 53)
RoleLimitation /Physical	73.5±30.8	79.8 (n = 52)
Role Limitation/ Emotional	64.28±25.1	72.7 (n = 55)
Energy /Vitality	43±20	55.0 (n = 51)
Mental Health	57.5±17.9	67.7 (n = 56)
Social Functioning	66±30	79.0 (n = 54)
Pain	56.40±16.3	69.8 (n = 57)
General Health Perceptions	46.3±15.9	64.5 (n = 57)
Health Change	57.32±21.3(n=257)	Not recorded

The comparison of the scores of the individual items in SF-36in our study revealed the highest scores in Physical RoleLimitation(73.5±30.8) domain and lowest scores in Energy /Vitality (43±20) domain. The present study shows that women with PCOS have lower HRQoL& negative impact on QOL than women without the disorder in each scale of SF-36, particularly in the energy/vitality domain & general health function.

Mean scores of women with PCOS published by Wang et al. 2009,[12] Hahn et al. 2005,[13] using SF-36 are compared below with the mean scores of SF-36 scales in present study.

Sf-36 Domain	Present study(n=300)Mean ± SD	Wang et al. 2009 Mean ± SD	Hahn et al. 2005 Mean ± SD
Physical Functioning	57.80±16.23	80±11	81±21
RoleLimitation /Physical	73.5±30.8	78±13	76±32
Role Limitation/ Emotional	64.28±25.1	63±19	62±40

Energy /Vitality	43±20	51±17	43±20
Mental Health	57.5±17.9	58±14	57±20
Social Functioning	66±30	69±10	67±24
Pain	56.40±16.3	76±12	74±28
General Health Perceptions	46.3±15.9	58±13	62±20
Health Change	57.32±21.3(n=257)	Not recorded	Not recorded

Comparision of the mean scores ofwomen with PCOS in present study with PCOS women in different ethnic groups as published by Wang et al,[12] and Hahn et al,[13] showed that indian women have lower scores of SF-36 HRQoL indicating that indian women with PCOS have a significantly lower quality Of life. Results of Health-related quality of life measurement in the present study also matched with the published data of Jones et al,[14] reported that PCOS affects women both psychologically and physically andhas a significant negative impact on a women's HRQoL. Well designed and well-conducted studies with expanded sample sizes on the HRQoL of women with PCOS should be conducted in different countries and ethnicities to assess the impact on quality of life in patients with PCOS for proper clinical management. To manage PCOS patients in a more integrated manner, it is critical to identify those who are more likely to experience a worse quality of life.

Tabassum F et. al. (2021) conducted case-control research of 200 healthy control cases and 100 PCOS patients undergoing treatment at AIIMS, Patna's tertiary medical facility in which they used pre-validated questionnaires of Short Form Health survey-36 for evaluating impact of PCOS in women. PCOS cases in this study had much lower HRQOL. PCOS sufferers had significantly different menarche ages, irregular or delayed menstruation histories, and no children compared to control. PCOS sufferers were also found to have greater rates of childbirth, pregnancy frequency, and loss. Furthermore, there were notable disparities between PCOS and healthy control in the various SF-36 domains across a number of age, BMI, educational, and marital status categories.[15]

Hassan AA et.al. (2024) conducted a cross-sectional study with 250 women registered with King Khalid University Hospital (KKUH) in Riyadh using the PCOS questionnaire and the social support survey (SSS) questionnaire. HRQoL was significantly affected in more than 50% of the women enrolled. Lack of social support in form of tangible support was significantly associated with severe PCOS symptoms which implied the need for tailored interventions to improve the HRQoL of women with PCOS.[16]

Kite, Chris &Lahart et.al. assessed the impact of a polycystic ovary syndrome (PCOS) diagnosis and other factors on health-related quality of life (HRQoL) in women of reproductive age. Online questionnaires were completed and study groups were compared. Potential causal relationships were evaluated using path analysis. Analyses revealed that a PCOS diagnosis alongside BMI had the largest effect on HRQoL. Higher levels of physical activity (PA) were not associated with greater HRQoL, and PA was not directly affected by any other outcome. However, reduced self-esteem was identified as a key factor in the promotion of physical and mental health.[17]

So the present study's findings show that a woman's HRQoL is significantly impacted negatively by PCOS overall. Given the variety of medicines available to help women with PCOS with their symptoms, more research examining how treatment affects HRQoL would be helpful to help prescribing physicians make clinical decisions. More qualitative research is needed to examine the varying subjective meanings, perspectives, and experiences of PCOS patients.

Limitations of present study: In the present study generic questionnaire (i.e., SF-36) is used for assessment of HRQOL which is not Disease-specific. Disease-specific instruments could more directly address the specific problems of women with PCOS (e.g., weight, body hair, infertility) which could not have been identified by a generic questionnaire (i.e., SF-36) because there were no questions pertaining to these specific problems.

Conclusion

- Results of Health-Related Quality of life (HRQoL) indicate that overall PCOS have a significantly negative impact on a woman's QoL. PCOS affects women both psychologically and physically & PCOS women have lower HRQoL than women without the disorder in each domain. PCOS is a heterogeneous disorder, and its main symptoms are infertility, menstrual dysfunction, hirsutism, and obesity—all of which may cause physical dysfunction and psychosocial stress.
- It is crucial for clinical management to evaluate the effect on PCOS patients' quality of life. It is essential to detect patients with predisposing factors which have a higher risk of experiencing worse quality of life in order to treat them in a more integrated way. Qualitative research and complementary studies examining HRQoL in young women and adolescents with PCOS will add valuable insights to the body of material already in existence.
- Along with its significance in academia and arena of research, the present study has its own societal perspective. These observations may be utilized in creating health awareness, educating the rural population, motivating the women to undergo screening for symptoms of PCOS, to adapt healthy lifestyle and promoting the health of the community to provide better quality of life.

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Conflicts of interest

There are no conflicts of interest.

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