International Journal of Advanced Biochemistry Research

ISSN Print: 2617-4693
ISSN Online: 2617-4707
NAAS Rating: 5.29
IJABR 2025; 9(7): 1036-1039
www.biochemjournal.com
Received: 25-04-2025
Accepted: 29-05-2025

Namrata Ashiya
Research Scholar of M.Sc Final, Department of FSN, CCAS, MPUAT, Udaipur, Rajasthan, India

Dr. Sumitra Meena
Assistant Professor, Department of FSN, CCAS, MPUAT, Udaipur, Rajasthan, India

Dr. Sarla Lakhawat
Professor, Department of FSN, CCAS, MPUAT, Udaipur, Rajasthan, India

Dr. Dhriti Solanki
Professor and Dean of CCAS, Department of EECM, CCAS, MPUAT, Udaipur, Rajasthan, India

Dr. Monika Rai
Assistant Professor, Department f HDFS, CCAS, MPUAT, Udaipur, Rajasthan, India

Corresponding Author:
Namrata Ashiya
Research Scholar of M.Sc Final, Department of FSN, CCAS, MPUAT, Udaipur, Rajasthan, India

A study on health status and dietary habits of polycystic ovarian syndrome patient (PCOS)

Namrata Ashiya, Sumitra Meena, Sarla Lakhawat, Dhriti Solanki and Monika Rai

DOI: https://www.doi.org/10.33545/26174693.2025.v9.i7m.4876

Abstract
The psychological, reproductive, and metabolic health of women of reproductive age are significantly impacted by polycystic ovarian syndrome (PCOS), a complicated endocrine disorder. In order to identify any gaps that could impact the treatment and progression of PCOS, the study set out to assess the Health status and dietary habits of women with the condition.120 women of age group 25-45 years with a diagnosis of polycystic ovarian syndrome (PCOS) were selected from Geetanjali Medical College and Hospital, Udaipur in order to evaluate their health status and dietary habits. The data was collected by using a self structured questionairre The Health status was assesed by calculated the Body mass index (BMI) and waist hip ratio (WHR) and 24 hour recall method was used to analyse the Dietary habits. The results revealed that 18.3% women were obese, 37.5% women were overweight and 34.2% were on normal weight while 10% women were underweight and the findings also indicate about poor dietary habits as the consumption of calorie dense food was high and the micronutrient deficiency was also present among the respondents and due to the dietary dietary habits the health and nutritiona status was also not good among them.

Keywords: Polycystic ovarian syndrome, hyperandrogenism, hirsutism, hypercholesterolemia

1. Introduction
The endocrine disorder known as polycystic ovarian syndrome (PCOS) affects 3-10% of premenopausal women; the most common symptoms of PCOS are polycystic ovaries, hyperandrogenemia, and/or ovulatory failure; women with PCOS are more likely to be viscerally adipose and obese, in addition to having insulin resistance and hyperandrogenism; an increase in adipose tissue complicates PCOS for overweight women by increasing their susceptibility to weight gain. First, lifestyle changes like more exercise and a healthier diet are recommended. These changes result in weight loss, reduced insulin resistance, a lower incidence of type 2 diabetes, a decrease in hyperandrogenism, and an increase in women's fertility when menstruation improves. Nutrition has a medicinal impact on PCOS prevention and therapy. Aside from the complicated etiology of PCOS, nutritional therapy can help with typical symptoms such as hormonal imbalance, obesity, hirsutism, hypercholesterolemia, irregular menstruation, high blood sugar, and psychological eating behavior disorders. (Uludag *et al.*, 2022) [8]. Higher than usual testosterone levels might cause the ovaries to not produce an egg (ovulation) during each menstrual cycle, as well as acne and excessive hair growth. Among women with PCOS, insulin resistance is prevalent, especially in those who are overweight or obese, have poor eating habits. (Nizaruddin *et al.* 2018) [5]
Eating meals high in energy and low in nutrients is associated with poor eating habits, which are common in women with PCO syndrome. This appears to support the theory that insulin is the main contributor of PCOS. Research indicates that one in seven women will develop PCOS, and two out of three will not ovulate properly. The chance of developing type 2 diabetes, hypertension, and gynecological cancers such endometrial, ovarian, and breast cancers is also increased by PCOS. The patient's quality of life is also severely impacted by a range of physical (such as central obesity, acne, hirsutism, hair loss, and baldness) and psychological (such as depression, stress, and anxiety) problems. The full spectrum of clinical signs, however, won't always be evident (Muhaidat *et al.*, 2023) [4]. Almost 50% of women with PCOS are fat or overweight, and they frequently lament that they don't feel

satisfied after eating too many carbohydrates. Hyperandrogenism is associated with weight gain in these women. A diet that is out of balance can also lead to weight gain and chronic illness. Dietary patterns can be used to relate appropriate treatments to improved eating habits and the prevention of sickness.

1.1 Objective
- Assesment of Heath status in PCOS patients.
- Assesment of Dietary habits in PCOS patients.

2. Methodology
2.1 Locale of Study
The present study was conducted at Geetanjali Medical College and Hospital in Udaipur city, Rajasthan.

2.2 Selection of Samples
- **Sample size:** 120 women aged between 25 to 45 years of age will be taken for the study.
- **Sampling Technique:** A Purposive sampling method will be used to select sample.
- **Inclusion Criteria:** Women who have been diagnosed with PCOS experiencing symptoms such as irregular periods, acne, weight gain.

2.3 Research technique
2.3.1 Structured schedule: A structured schedule was prepared and used by Personal interview technique for assessment of PCOS patients.
Health status of selected sample was assesd by measuring body weight, Height, Body mass index and waist to hip ratio of respondents.

3. Results
Anthropometric measurements offer a crucial window into an individual's body composition and nutritional state. This study evaluated the prevalence of underweight, normal, overweight, and obese among PCOS patients using criteria like height, weight, and Body Mass Index (BMI). The likelihood and seriousness of issues connected to PCOS are strongly correlated with these markers.

Table 1: Anthropometric data of the participants (n = 120)

Variables	Mean	SD
Height (cms)	155.31	5.56
Weight (kgs)	68	12.76
BMI ($kg/m^{2)}$	25.39	4.23
Waist circumference	86.42	4.34
Hip circumference	99.05	4.80
Waist hip ratio (WHR)	0.83	0.06

3.1 Height
A person's height is influenced by both environmental and genetic (hereditary) factors. A stadiometer was used to measure height to the closest 0.01 cm. During the measurement process, the participants were told to stand barefoot and maintain a straight posture. The participants' average height was 155.31±5.56 cm. (Table 1)

3.2 Weight
The most widely used and repeatable indicator to assess an individual's anthropometric status is weight. Weight was measured on a calibrated scale to the closest 0.01 kg. Participants were told to take off all accessories, stand barefoot, and dress in loose-fitting clothing. The individuals weighed an average of 25.39±12.76 kg. (table 1)

3.3 BMI (body mass index)
Weight (in kilograms) divided by height (in meters squared) yields the BMI. It provides a body fat percentage based on weight and height. It provides a trustworthy evaluation of people's nutritional status. It might also indicate a medical issue. BMI is the most accurate way to determine the prevalence of obesity or underweight in a population. The individuals BMI an average of 68±4.23 kg/m^2 (table 1)

Table 2: BMI Classification as per WHO of the participants (n=120)

Category	BMI ($kg/m^{2)}$	*f*	%
Underweight	<18.5	12	10.0
Normal	18.50-24.9	42	34.2
Overweight	>25.0	45	37.5
Obese	>30.0	22	18.3
Total		120	100

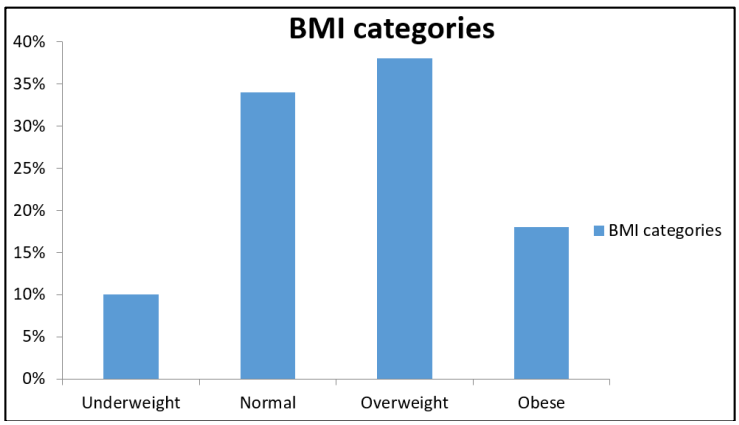

Fig 1: BMI categories as per WHO cut-offs (n = 120)

The study participants had a mean BMI of 25.39±4.23 kg/m2, which indicated that they were slightly overweight. Ten percent were reported to be underweight, 37.5% were overweight, 18.3% were obese, and 34.2 were normal body weight. (Table 2)

3.4 Waist hip ratio (WHR): It is calculated by dividing the circumference of the hips by the waist. It primarily implies central obesity, a PCOS risk factor. W:H was 0.83±0.06 on average.(Table 2)

Table 3: Waist hip ratio of the participants (n=120)

Category	Remarks	*f*	%
< 0.80 cms	Normal	37	30.8
0.80-0.85 cms	Increased risk	38	31.7
> 0.85 cms	High risk	45	37.5
Total		120	100

The survey found that 37.5% of women had a waist-to-hip ratio of greater than 0.85 cm, 31.7% had a waist-to-hip ratio of less than 0.80 cm, and 30.8% had under 0.85 cm. (table 3)

3.5 24 hour recall method

Table 4: Daily Mean nutrient intake and% adequacy of nutrient intake by respondents (N =120)

Nutrient	RDA 2024	Actual Intake Mean	SD	% Intake
Calorie (kcal/day)	1660	1987.76	236.91	119.6%
Protein (g/day)	46	31.12	11.24	67.7%
Fat (g/day)	37	42.55	9.01	115.0%
Fiber (g/day)	25	13.38	5.20	36.2%
Calcium (mg/day)	1000	371.08	145.28	37.1%
Zinc (mg/day)	13.2	5.51	3.42	41.7%
Iron (mg/day)	29	25.34	33.41	87.4%
Folate (µg/day)	220	122.96	63.39	55.9%
Vitamin C (mg/day)	65	17.26	11.15	26.6%

3.5.1 Calorie: According to (table 4), the average calorie consumption of the women with PCOS in this study was 198.76 kcal, and their percentage of calories over the RDA was 119.6. Central obesity and weight gain can result from consuming too much of calories, especially by inactive individuals.

3.5.2 Protein: The study found that the average protein intake of PCOS-afflicted women was 31.12 g, or just 67.7% of the Recommended Dietary Allowance (Table 4). This indicates that there is a significant lack of protein in the diet. In the case of PCOS, adequate protein intake is particularly important since it promotes satiety, which helps regulate appetite and promote weight management.

3.5.3 Fat: As seen in (table 4), the average fat intake for PCOS-afflicted women in this study was 42.55 g, or 115% of the RDA. This implies consuming significantly more fat than is recommended. When combined with insufficient protein and fiber, a high fat consumption often implies poor dietary quality. Therefore, fat intake must be balanced and managed in PCOS in order to support hormonal and metabolic health.

3.5.4 Fiber: According to (table 4), the average dietary fiber intake among PCOS-afflicted women in this study was 13.38 grams, or just 36.2% of the RDA. This suggests that the diet is seriously deficient in fiber. In order to improve satiety, regulate blood sugar, and promote digestive health—all of which are vital for the nutritional treatment of PCOS—nutritional fiber is necessary. Low-fiber diets are linked to increased insulin resistance, constipation, and difficulty keeping a healthy weight.

3.5.5 Calcium: According to (table 4), the average calcium intake among women with PCOS was 371.08 mg, or just 37.1% of the recommended daily allowance. High levels of irregular menstruation and poor follicular growth have been linked to inadequate calcium intake in PCOS.

3.5.6 Zinc: According to (table 4), women with PCOS in the current study consumed an average of 5.51 mg of zinc, which is only 41.7% of the RDA. There is a noticeable zinc deficiency in the diet. A zinc shortage has been connected to common PCOS symptoms such irregular ovulation, delayed wound healing, hair loss, and acne.

3.5.7 Iron: According to (table 4) of the current study, women with PCOS consumed an average of 25.34 mg of iron, or 87.4% of the RDA. However, in women with irregular monthly cycles, it indicates a little insufficiency that may be clinically significant.

3.5.8 Folate: According to (table 4) of the current study, women with PCOS consumed an average of 122.96 micrograms of folate, or just 55.9% of the recommended daily allowance. An increased risk of infertility, irregular menstrual periods, and poor egg quality have all been linked to inadequate folate intake.

3.5.9 Vitamin C: According to (table 4) of the current study, women with PCOS consumed an average of 17.26 mg of vitamin C, which is just 26.6% of the recommended daily allowance. Low levels of vitamin C can hinder ovarian function, impair the healing of wounds, and worsen skin disorders like acne.

4. Conclusion

The findings conclude that the participants in this study were more likely to be overweight or obese, which is a substantial departure from recommended body weight ranges. Poor nutritional status, which may contribute to the rising prevalence of diseases like PCOS, is shown in this finding. According to dietary assessment, most respondents consumed more calories and fat than was advised, but they consumed much fewer important micronutrients than was indicated. These dietary pattern abnormalities point to a lack of knowledge about balanced nutrition and the role that foods high in micronutrients play in preserving hormonal and metabolic health. All things considered, the findings highlight the necessity of focused dietary therapies and lifestyle changes to control and avoid problems associated with obesity and overweight.

5. References

1. Bykowska-Derda A, Czlapka-Matyasik M, Kaluzna M, Ruchala M, Ziemnicka K. Diet quality scores in relation to fatness and nutritional knowledge in women with polycystic ovary syndrome: case-control study. Public Health Nutrition. 2021;24(11):3389-3398. doi:10.1017/S1368980020001755
2. Curameng CCD. The power of plate and knowledge: nutrition's role in PCOS management for Asian American women [Internet]. 2025 [cited 2025 Jul 21]. Available from: https://doi.org/10.33015/dominican.edu/2025.NURS.ST.11

3. Farshchi H, Rane A, Love A, Kennedy RL. Diet and nutrition in polycystic ovary syndrome (PCOS): pointers for nutritional management. Journal of Obstetrics and Gynaecology. 2007;27(8):762-773. doi:10.1080/01443610701667338
4. Muhaidat N, Mansour S, Dardas M, Qiqieh J, Halasa Z, Al-Huneidy L, *et al.* Current awareness status of and recommendations for polycystic ovarian syndrome: a national cross-sectional investigation of Central Jordan. International Journal of Environmental Research and Public Health. 2023;20(5):4018. doi:10.3390/ijerph20054018
5. Nizaruddin NM, Thayil KJ. Assessment of nutritional status of PCOS patients. IOSR Journal of Agriculture and Veterinary Science. 2018;11(6):27-31. doi:10.9790/2380-1106012731
6. Rani R, Sangwan V, Rani V. Assessment of nutritional status of young women with and without PCOS in Fatehabad District, Haryana. International Research Journal of Engineering and Emerging Technologies. 2024;Oct-Dec:35-41. doi:10.54986/irjee/2024/oct_dec/35-41
7. Szczuko M, Sankowska P, Zapalowska-Chwyc M, Wysokinski P. Studies on the quality nutrition in women with polycystic ovary syndrome (PCOS). Roczniki Państwowego Zakładu Higieny. 2017;68(1):61-66.
8. Uludağ BD, Cebirbay MAA. A comparison of eating attitudes, diet quality, and nutrition knowledge in polycystic ovary syndrome. Journal of Contemporary Medicine. 2022;12(5):733-737.
9. Zaeemzadeh N, Jahanian Sadatmahalleh S, Ziaei S, Kazemnejad A, Movahedinejad M, Mottaghi A, *et al.* Comparison of dietary micronutrient intake in PCOS patients with and without metabolic syndrome. Journal of Ovarian Research. 2021;14:1-9. doi:10.1186/s13048-020-00746-0