



EXERCISE DEFICIENCY AND PCOD/PCOS SEVERITY

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ABSTRACT

Polycystic Ovary Syndrome (PCOS) is a prevalent endocrine disorder that affects 6–26% of reproductive-aged women. PCOS is linked with an extremely varied range of signs and symptoms, i.e., menstrual and ovulatory dysfunction, weight gain, and psychological disturbances. The present study was designed to determine the impact of physical inactivity on symptoms of PCOS, and also the awareness, lifestyle, and activity level in PCOS women. A cross-sectional descriptive survey was carried out using an online questionnaire distributed through social media. Sixty subjects in the age group of 18–35 years formed the sample. On analysis, it was found that 53% of the subjects were sedentary, and 75% were diagnosed with PCOS, but only 22% of them had visited a doctor. Among the moderately active subjects, 42%, a very large number were unaware: only 38% had received exercise counseling, and 72% lacked access to a fitness center. Moreover, they also had 32% and 42% fewer chances to follow a healthy diet or reduce stress, respectively. On average, 57. 3% of the respondents opined that physical exercise would be a treatment for their PCOS, but they were unaware of it. The present study indicates the need for more support and facilities, including medical guidance and physical activity, and health opportunities. Stressing lifestyle modification could have a significant impact on the quality of life of PCOS women.

KEYWORDS Polycystic Ovary Syndrome, Exercise, Deficiency, Psychological



INTRODUCTION

Polycystic Ovary Syndrome (PCOS) is a heterogeneous endocrine disorder with an estimated prevalence of 6–26% of women of reproductive age worldwide. PCOS is commonly characterized by menstrual dysfunction, infertility, ovulatory dysfunction, and metabolic disturbance. PCOS is also responsible for significant psychosocial morbidity, such as low self-esteem, anxiety, and social withdrawal (**Butt et al., 2023**). Despite unknown etiology, evidence in the literature supports the significant role that lifestyle determinants, such as diet and physical activity, can have in managing symptoms of PCOS. Physical activity has been found to enhance ovulation, insulin sensitivity, and cardiovascular function, and also maintain psychological health. Present guidelines recommend ≥ 150 minutes of physical activity per week in women with PCOS (**Conte et al., 2014**). Hyperandrogenism of PCOS is typically present in the context of central adiposity and excess visceral fat despite normal BMI, and thus, usual measures of weight are less predictive of health risk (**Woodward et al., 2020**). These derangements of metabolism are highly correlated with insulin resistance and hyperglycemia. The psychological burden of PCOS cannot be neglected. Fertility, body image, and hormonal imbalance concern is a universal denominator for depression and anxiety in affected women (**Wang et al., 2021**). Management of the physical and psychological components of the syndrome is of prime importance. Encouragement of physical activity enhances metabolic effects and psychological well-being and improves overall health-related quality of life (**Woodward et al., 2020; Kite et al., 2024**). More evidence is needed to examine how exercise interventions can be individualized to maximize individual needs for women with PCOS and confer long-term health benefits (**Wang et al., 2021**).

METHODOLOGY

Selection of Subjects

The subject of research is "Physical inactivity worsens PCOS and PCOD." An attempt was made to know about the impact of lifestyle factors, the risk prevalence of PCOS AND PCOD. The majority of the responders are from the age group of 18 to 40 years, female subjects. The study participants were school-going girls, college students, and working women. The snowball sampling method was used to collect information from the participants.

Data collection

Data were collected through the use of the Google Forms questionnaire method since it is one of the most effective methods in collecting data from many individuals. The method allows for the collection of many samples, and it also supports quantitative and qualitative data. We used the questionnaire instrument for the survey, which was conducted



online (Google Form). We have a total sample size of about 60. The survey mainly covers their lifestyle, symptoms, and health activities. The data were analysed using numbers and percentages. Microsoft Excel was used to compute the data.

RESULT AND DISCUSSION

1. Study subjects based on age

Polycystic Ovary Syndrome (PCOS) is a heterogeneous endocrine disorder that affects females of reproductive age. While PCOS is typically diagnosed in late adolescence or early adulthood, its clinical presentation and metabolic risks can vary significantly with age. Understanding how PCOS interacts with age is essential for accurate diagnosis, management, and long-term health planning (Teede, 2018). Hence the data on age which is crucial on PCOS/PCOD were presented in table 1.

TABLE 1: Age of female participants

| School going (16-17 years) | | College-going (18-24 years) | | Working women (25-40 years) | |
|-----------------------------------|----------|------------------------------------|----------|------------------------------------|----------|
| no | % | no | % | no | % |
| 18 | 30% | 25 | 41% | 9 | 15% |

The survey (table 1) included 60 female participants, with 30% being school students, 41% college students, and 15% office goers. The age distribution of participants showed that 28% were in the 16-17 age group, 33% were in the 18-24 age group, and 50% were in the 25-40 age group. Teede *et al.* (2018) highlight that the average age of diagnosis is around 25–30 years, when reproductive concerns become most prominent. Carmina *et al.* (2012) found that clinical signs of PCOS may decline with age, but metabolic risks (e.g., type 2 diabetes, cardiovascular disease) remain elevated.

2. Diagnosis And Treatment

A systematic review by Harrison *et al.* (2011) confirmed that lifestyle intervention, particularly physical activity, improves reproductive and metabolic outcomes in women with PCOS. Table 2 discusses the influence of lifestyle and consultation with a physician on PCOS/PDOS.



TABLE 2: Diagnosis, physician consultation, and lifestyle of subjects

| Lifestyle | | Group | PCOS test | | Consulted Physician | |
|-----------|-----|-------|-----------|-----|---------------------|-----|
| No | % | | No | % | No | % |
| 32 | 53% | Yes | 45 | 75% | 13 | 22% |
| 28 | 47% | No | 15 | 25% | 43 | 72% |

The table 2, found that 53% of participants reported a sedentary lifestyle, among which 75% were diagnosed as PCOS, and only 22% had consulted a physician. **Bazarganipour *et al.* (2013)** found that psychological stress and poor quality of life were significantly higher in women with PCOS, reinforcing the importance of holistic lifestyle management.

3. Physical Activity- Types

Women with PCOS often exhibit insulin resistance, which contributes to weight gain, menstrual irregularities, and elevated androgen levels. **Hutchison *et al.* (2011)** found that 12 weeks of aerobic exercise significantly improved insulin sensitivity in overweight women with PCOS, independent of weight loss. Table 3 describes the activity of subjects.

Table 3 Intensity of physical activity carried out by subjects

| Group | Daily | % | Rare | % | Never | % | 3-4 Times | % | 1-2 Times | % |
|------------------|-------|-----|------|-----|-------|-----|-----------|----|-----------|-----|
| Moderate-Intense | 25 | 42% | 18 | 30% | 3 | 5% | 5 | 8% | 9 | 15% |
| Vigorous-Intense | 7 | 12% | 26 | 43% | 14 | 23% | 5 | 8% | 8 | 13% |

The Table-3, shows that 42% of the participants engaged in moderate-intensity physical activity daily, 30% do it rarely, and 5% never do it, and 12% engaged in vigorous-intensity physical activity daily, 43% rarely and 23% never do. **Manson *et al.* (2002)** found that women who walked briskly for 2.5 hours per week had a 30% lower risk of coronary events. **Wolff *et al.* (1999)** concluded that physical activity during adolescence significantly improves peak bone mass in females.



4. Dietary Pattern

Diet plays a critical role in maintaining overall health and preventing chronic diseases. In recent years, the growing prevalence of processed foods in global diets has raised concerns due to their links with obesity, diabetes, cardiovascular diseases, and even cancer. Understanding the contrast between healthy diets and processed diets is essential for both individual lifestyle choices and public health strategies. Table 4 discusses the pattern followed by the subjects.

Table 4: Dietary pattern of subjects

| Group | Yes | % | No | % | Maybe | % | Rare | % |
|------------------------|------------|----------|-----------|----------|--------------|----------|-------------|----------|
| Healthy Diet | 19 | 32% | 11 | 18% | 23 | 38% | 7 | 12% |
| Processed Foods | 9 | 15% | 8 | 13% | 21 | 35% | 22 | 37% |

In Table 4, 32% of participants reported that they follow a healthy diet, and 18% reported that they don't practice healthy diet and 12% stated that they practice it rarely and 38 % reported that they do it sometimes (maybe) 15% reported consuming sugary drinks or processed foods, and 13% don't consume and 35% it as maybe sometimes and 37% reported as rarely. **Monteiro *et al.* (2019)** found that ultra-processed food consumption was positively associated with obesity and all-cause mortality in a cohort study.

5. Sleep Cycle- Stress

Meerlo *et al.* (2008) found that chronic stress alters both the quantity and quality of sleep by over-activating the HPA axis and increasing sympathetic nervous system activity. Table 5 describes the sleep cycle and its relation to stress.

TABLE 5- Sleep and stress levels of subjects

| Group | Yes | % | No | % | Maybe | % | Rare | % |
|-----------------------|------------|----------|-----------|----------|--------------|----------|-------------|----------|
| Sleep Cycle | 28 | 47% | 22 | 37% | 10 | 17% | 0 | 0% |
| Stress/Anxiety | 25 | 42% | 12 | 20% | 12 | 20% | 11 | 18% |

The Table 5 shows, 47% of participants reported getting sufficient sleep (7-8 hours per night), but 22% of them don't get it properly. 42% of the participants reported experiencing stress or anxiety, while 20% didn't experience stress or anxiety.



Yoo *et al.* (2007) demonstrated that sleep deprivation increases amygdala reactivity, making individuals more emotionally volatile and prone to stress.

6. Physical Activity and PCOS

Polycystic Ovary Syndrome (PCOS) is a common endocrine disorder affecting 8–13% of women of reproductive age worldwide. It is characterized by: Irregular menstrual cycles, Hyperandrogenism (excess male hormones), Polycystic ovaries, Insulin resistance, and metabolic disturbances. While medication and diet are conventional treatment components, physical activity plays a critical, non-pharmacological role in managing PCOS symptoms and improving quality of life (**Teede *et al.*, 2018**). Table 6 discusses the activity of subjects.

Table 6 Role of physical activity in the subjects

| Group | Yes | % | No | % | Maybe | % |
|---|------------|----------|-----------|----------|--------------|----------|
| Physical activity manages PCOS | 35 | 58% | 12 | 20% | 13 | 22% |
| Physical activity contributes to PCOS | 27 | 45% | 17 | 28% | 16 | 27% |
| Physical activity recommended by doctors | 23 | 38% | 37 | 62% | - | - |
| Access to the Gym | 17 | 28% | 43 | 72% | - | - |

The Table-6, found that 35% of participants believed that regular physical activity helps manage PCOS/PCOD symptoms, but 12% denied it. Among 45% of the population believed that physical inactivity contributes to PCOS/PCOD symptoms, whereas 28% of the population denied it, which shows us clearly that there is no proper awareness among people about how physical activity manages and contributes to PCOS. Regarding the physical activity recommendation by the physician, only 38% of them were advised to do the physical activity, whereas 62% of participants were not recommended on physical activity. About 28% of the population has reported that they have access to a gym or fitness center, whereas 72% don't have access to a gym.

CONCLUSION

The research highlights the finding that sedentary life is more frequently associated with PCOS/PCOD symptoms and points to the importance of incorporating regular physical exercise in the treatment plan. These findings are an acknowledgement of PCOS but point to the lack of adoption of a healthy lifestyle, compliance with medical counsel, and



resource availability. Filling this gap with health education interventions, affordable physical activity, and active medical intervention is the cornerstone to effective PCOS management.

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