

# Awareness of Obesity as a Risk Factor for Polycystic Ovary Syndrome

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## Abstract

**Aim:** To do a survey on the awareness of obesity as a risk factor for polycystic ovary syndrome Objective: To analyse the relation between obesity and PCOS with the help of a survey.

**Background:** Polycystic ovary syndrome (PCOS) is a heterogeneous, multifactorial, complex genetic and endocrine disorder, characterized by menstrual disturbances. Polycystic ovary syndrome (PCOS) affects between 4%-18% of reproductive-aged women and is associated with increased risk of obesity and obesity-related disease. Obese women are more likely to have menstrual irregularity and anovulatory infertility than normal-weight women. Obesity, particularly the abdominal phenotype, may be partly responsible for insulin resistance and associated hyperinsulinemia in women with PCOS. Therefore, obesity-related hyperinsulinemia may play a key role in favouring hyperandrogenism in these women. Other factors such as increased estrogen production rate, increased activity of the opioid system and of the hypothalamic-pituitary adrenal axis may be additional mechanisms by which obesity favours the development of hyperandrogenism in PCOS.

**Reason:** The current survey will make people aware of the risk factors of obesity in relation to the polycystic ovary syndrome so that the condition can be diagnosed and treatment intervention can be done at an early stage.

**Key words:** obesity, menstrual disturbance, polycystic ovary, infertility, weight loss, type2 diabetes.

## INTRODUCTION

Obesity is a rapidly growing, common health problem in the recent generation. Obesity modifies insulin sensitivity and gonadotrophins dynamics, and is associated with disorders of spontaneous ovulation. High concentrations of leptin are possibly a link between weight and spontaneous ovulation.[1] PCOS is one of the most common hormonal disorders in women of reproductive age, affecting a rational population. Women with PCOS have irregular menstrual bleeding and often have difficulty getting pregnant. The syndrome occurs when levels of hormones are abnormal. The name "polycystic ovarian syndrome" refers to the appearance of small cysts along the outer edge of the enlarged ovaries of women with this condition. Weight excess in polycystic ovary syndrome (PCOS) patients increases hyperinsulinaemia, which may result in altered follicular maturation. It is tempting to speculate that obesity could influence the results of stimulated ovulation, since increased body fat has been associated with disorders of spontaneous ovulation.[1] Low-grade inflammation is another potential factor leading to PCOS. Heredity is also a factor. Finally, even conditions before birth in the mother's womb can be a factor contributing to PCOS. Excessive exposure to male hormones (androgens) in fetal life may permanently prevent normal genes from working normally. These androgens can promote a male pattern of abdominal fat distribution, which increases the risk of insulin resistance and low-grade inflammation. Because many factors can lead to the development of excess androgens, which is related to the development of PCOS, it is impossible to name a single, exact cause of this condition. The clinical features of PCOS are heterogeneous and may change throughout the lifespan, starting from adolescence to postmenopausal age.[2] This is largely dependent on the influence of obesity and metabolic alterations, including an

insulin resistant state and the metabolic syndrome, which consistently affect most women with PCOS.[3]

Common symptoms of PCOS include:

- irregular or no menstrual periods (for women of reproductive age)
- irregular ovulation, with or without monthly bleeding
- acne
- excess hair growth on the face and body
- thinning scalp hair
- accumulation of unruptured follicles on the periphery of the ovaries (mislabelled as "cysts", often called polycystic ovaries)

## MATERIALS AND METHODS:

This is a questionnaire based study on the awareness of obesity as a risk factor for polycystic ovary syndrome. The participants who undertook the survey are undergraduate students of a dental college. A total of 17 questions were asked to 50 students. Individuality was assured when the subjects filled the survey. The questionnaire is filled in paper and pen method. After the data collection, statistical measurements are done. The questions included are:

1. Do you know that a condition called polycystic ovary syndrome(PCOS) prevails?
2. Has any of your family members been affected by PCOS?
3. Are you aware that an obese person is likely to get PCOS?
4. Do you know that untreated PCOS can lead to complications like type 2 diabetes?
5. What is your most important long term concern on PCOS?
6. What is the most frequent age of diagnosis of PCOS?
7. Is PCOS a condition which can be easily diagnosed and treated?

8. Of the people who are diagnosed with PCOS, what do you think will be the most common reason for clinical attendance?
9. What is your opinion on the approximate prevalence (frequency) of PCOS in the current population?
10. Do you think PCOS is a rapidly spreading condition in the recent days?
11. Type of speciality which deals with PCOS?
12. Are you aware of the psychological problems associated with PCOS such as anxiety and depression?
13. How regular are your periods?
14. Are you aware that irregular periods maybe due to PCOS?
15. Are you undergoing any treatment for PCOS? Yes/No if yes then mention the drug's name\_\_\_\_\_
16. Do you have difficulties staying at your ideal weight?
17. Are you concerned about being overweight?

**RESULTS AND DISCUSSION:**

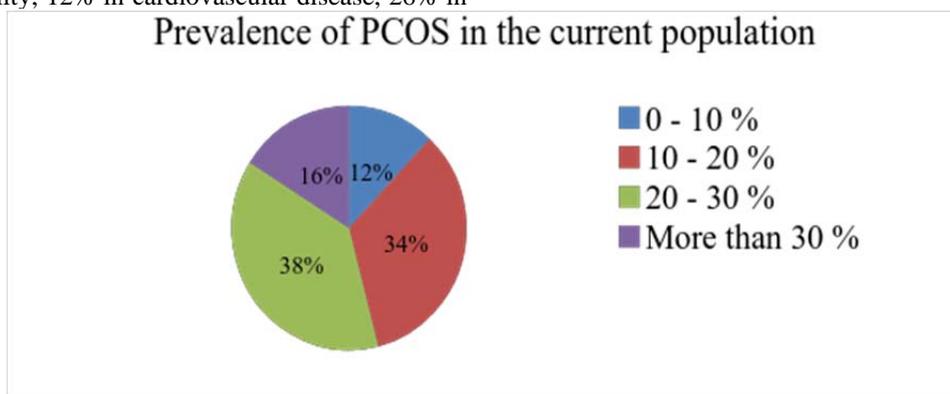
From the data collected from the college students only 68% of people are aware of this syndrome. Of the 68% of people, only 38% has an awareness that obesity is one of the major cause for PCOS.

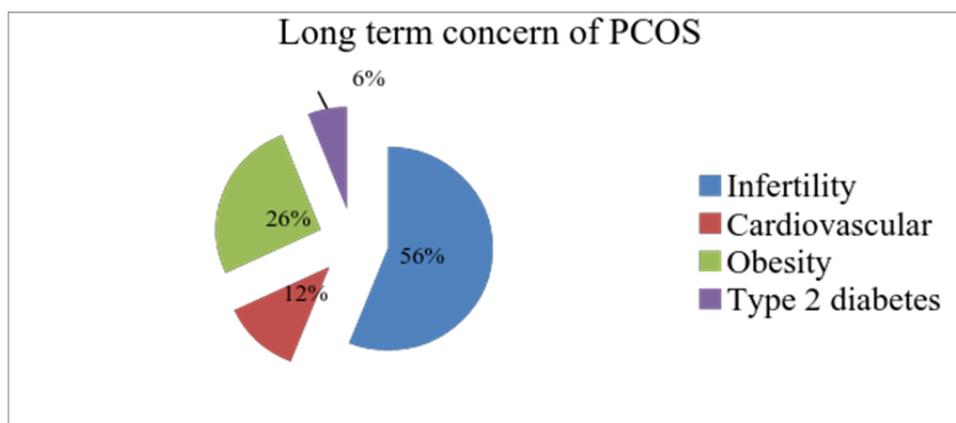
In addition to the reproductive and psychological consequences of PCOS, there are several other well established long-term risks and consequences of the disorder. Among these, one of the most important and pervasive is an increased risk for type 2 diabetes mellitus. From the survey report , 30% of people know that untreated PCOS can lead to diabetes mellitus. Polycystic ovary syndrome and Type 2 diabetes mellitus (T2D) are both obesity-related conditions that share epidemiological and pathophysiological factors.

Insulin resistance is a key factor whereby obesity influences the expression of each condition.[4] Women with PCOS produce too much insulin, or the insulin they produce does not work as it should. The inability of insulin to function normally is one reason why women with PCOS tend to gain weight or have a hard time losing weight. For others, PCOS develops later on, following substantial weight gain. PCOS is a common cause of anovulation and female infertility. The infertility rate with polycystic ovary is very high, these women usually will have difficulty in getting pregnant and usually require treatments to improve chances of pregnancy. From the survey it can be observed that 56% of women think that long term PCOS condition results in infertility, 12% in cardiovascular disease, 26% in

obesity, and 6% in type 2 diabetes. There are several recent advancements for infertility problems which are linked with PCOS. Among them IVF[in vitro fertilization] success rates are excellent in cases with infertility caused by PCOS. From the data we can asses that the most frequent age of diagnosis of PCOS is 20 to 30 years with 68% and more than 30 years with 30%. This shows that many of them are not aware that PCOS is becoming a serious problem after 30 years of age.

Prevalence of the condition may vary depending on the diagnostic criteria used but according to this survey PCOS is thought to affect 20%-30% of women. 24% of the women think that PCOS can be easily diagnosed whereas 20% of people think that it cannot be diagnosed but unfortunately 56% of women are unaware whether it can be diagnosed or not. Young women diagnosed with PCOS do not get the correct hormonal signals from their pituitary. From this survey it can also be found that menstrual disturbance is major cause for PCOS with 52%, infertility and obesity is the next major cause each with 22%. According to this survey, 56% of people are not sure whether PCOS is a rapidly spreading disease in the recent condition which means that more than half of the population are unaware of this emerging issue. Depression or mood swings also are common in women with PCOS. Although more research is needed to find out about this issue, there are studies linking depression to diabetes. Therefore, in PCOS, depression may be related to insulin resistance. It also could be a result of the hormonal imbalances and the cosmetic symptoms of the condition. Acne, hair loss, and other symptoms of PCOS can lead to poor self-esteem. Infertility and miscarriages also can be very stressful. This is also in accordance with the survey that 42% of people believe that PCOS leads to psychological problems like anxiety and depression. 48% of women believe those irregular periods maybe due to PCOS. 26% of women have difficulties staying at their ideal weight and 34%of women are concerned of being overweight. Obesity is encountered in 30–70% of PCOS-affected women, and its presence significantly modifies both clinical and laboratory expression of the syndrome. Obesity increases the risk of co-morbidities associated with PCOS, such as impaired glucose tolerance and type 2 diabetes mellitus, hyperlipidemia and arterial hypertension.[5]





### CONCLUSION

The link between PCOS and obesity is complicated. Signs and symptoms of polycystic ovarian syndrome begin for some females soon after they start having periods. It is clear that women affected by obesity have a greater risk for PCOS and women with PCOS have a greater risk for obesity. Obesity is very common clinical feature in women affected by PCOS. In fact, approximately 50% of PCOS women are overweight or obese [6] and the history of the weight gain frequently precedes the onset of oligomenorrhea and hyperandrogenism, suggesting a pathogenetic role of obesity in the subsequent development of the syndrome. In particular, weight loss appears to be associated with a significant improvement in menses abnormalities, ovulation and fertility rates, and with a reduction of hyperandrogenism, hyperinsulinaemia, and altered gonadotrophin pulsatile secretion. The most effective and cheapest solution for polycystic ovary syndrome is weight loss. Understanding and learning more about PCOS will help a women to be supportive to the many teens and young women dealing with this challenging health problem.

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