

# A Study on the Prevalence of the of Polycystic Ovary Syndrome among the Selected Young Women of Dimapur, Nagaland

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**Abstract:** *One the most common endocrine disorder among women of reproductive age is the Polycysticovary syndrome. Women with PCOS are found to experience symptoms such as acne, darkening of the skin, hirsutism, irregular menstrual cycle, polycystic ovaries, and weight gain. The prevalence of PCOS is increasing which will eventually create an issue to future mother. The study was conducted with the objectives to check the incidence of PCOS among the selected young women who visited gynecologist with menstrual issue and to check the factors associated with PCOS and its symptoms and lifestyle and to impart knowledge on PCOS and its nutrition management. The study was questionnaire based survey, conducted among young women (age group 21-26) who visited a gynecologist. The respondent was selected with the help of the gynecologist and using a standards questionnaire data of the respondents was collected. Among the selected young women 56 % were found to be PCOS diagnosed. All 100 % of the PCOS cases had irregular menstrual cycle, 54 % were hirsute, and 78% had acne, 86 % had emotional disturbances, and only 2 % with a positive family history. Furthermore, the BMI of the PCOS diagnosed showed to be overweight and obese than the other selected female so as for abdominal obese all the young women with PCOS were with higher waist hip ratio than non PCOS groups. The young women were imparted with PCOS knowledge and its nutrition management and after assessment they were found to be familiar with PCOS related knowledge. The present study is aimed to design awareness among the young women about PCOS and its prevalence and primary step in managing PCOS like associated factors lifestyle diet and its symptoms, for primordial and accurate diagnosis.*

**Keywords:** Body mass index, hirsutism, irregular menstrual, obesity, polysystic ovary syndrome

## 1. Introduction

Polycystic ovary syndrome (PCOS) is the most common endocrine disorder among women of reproductive age and is defined as a hormonal disorder characterized by the presence of at least one polycystic ovary (presence of multiple cysts) accompanied by ovulatory dysfunction and excessive androgen secretion (Jalilian et al., 2015). PCOS was first reported by Stein and Leventhal in 1935 with complex symptoms of amenorrhea, hirsutism and enlarged ovary with multiple cysts. Polycystic ovary syndrome (PCOS), also called Stein-Leventhal syndrome, is a multifaceted condition represented by small atypical cysts in the ovaries, elevated androgen levels. Polycystic ovary syndrome is one of the most common hormonal disorders diagnosed with infertility among women of reproductive age. About 6-8% of women of reproductive age have been affected by PCOS worldwide. Women with PCOS experience symptoms such as acne, darkening of the skin, hirsutism (abnormal growth of hair on the face and body), irregular menstrual cycle, polycystic ovaries, sometimes both ovaries may be involved, i.e. bilateral polycystic ovaries or ovarian cysts, skin tags, hair thinning, weight gain. Some women start experiencing symptoms around the time of their first cycle. PCOS signs and symptoms can vary; however, symptoms are generally more severe in obese patients. (Zahid, 2016). Some of the women who have PCOS have insulin resistance, due to which the body does not respond to insulin, insulin is a hormone that allowed

glucose / sugar which is the energy that powers the body to enter cells. So then, without insulin working properly in the body, glucose / sugar levels can be highly accumulated in the blood. As a result, women with PCOS are at a high risk of developing type 2 diabetes, cardiovascular disease will lead to other health conditions as well. There is a significant in homogeneity between the symptoms of PCOS Sharif., (2017) However, in most of them the menstrual cycle was disturbed, which reduces the chances of getting pregnant. About 70-80% of women had infertility (Melo et al., 2015). Mental and emotional divergence as depression and anxiety are accompanied in such women affecting quality of life (Tan et al., 2017).

Educating women on how to manage their lifestyle is very crucial as many women of reproductive age even if they have PCOS are not yet aware of it. Irregular menstruation with acne is very common in many young adult women, however many of them are unaware of PCOS and its symptoms and complications. Therefore, educating on information related to PCOS, such as its prevalence, causes, diagnosis, symptoms and other complications related to reproductive health is very important and need of an hour. It is necessary to educate young women on how to manage lifestyle such as diet modification, types of food to focus on and types of food to avoid, also the importance of the role of exercise in weight loss which is a factor important in controlling PCOS symptoms.

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Mobile phones have become one of the most appreciated devices by all consumers and of all ages especially among young people and even the elderly. Along with the emergence of application stores, the use of smartphones is also on the rise. The health field classifies a separate section in stores. More than eight thousand medical applications are present in the android (Zapata et al., 2015).

The need for health information on PCOS among young women of reproductive age that is evidence-based, low-cost or no-cost, and easily accessible has enabled current technology to be used and thus enabled them to maximize their health outcomes. In developing countries where resources are limited and the economy is low, mobile phone applications have been found to be a propitious device for intervention against PCO/S and other noncommunicable diseases (Xie et al., 2018).

In this study, information, education and communication (IEC) approaches were used to reach young women whose PCOS education was produced in the form of a text message and integrated with the mobile application called WhatsApp.

Although number of studies have been conducted in India on the prevalence of PCOS and related, however, studies have not been conducted specifically in Nagaland. Very little is known about the prevalence and frequency of PCOS in Naga women attending gynecological clinics along with the major complaints. Furthermore, data regarding PCOS-related complication in this region are also scarce. Therefore, the current study is conducted to investigate the frequency of PCOS among gynecological disorders; her relationship to BMI and to highlight age-related changes in her garment that has associated complaints and problems So it takes an hour to propose the steps to explore, as young women are the mothers of the near future. The concept was to raise awareness among young women about PCOS as its prevalence increases daily with a subtle effect on women's reproductive health and to impart education on the nutritional management of PCOS. With this in view the study was conducted with the following objective: To study the demographic profile related to health, dietary pattern, life style and physical activity of the selected respondents. To study the prevalence of PCOS among the selected respondents. To impart education on PCOS and its nutrition management.

## 2. Methods

### Ethical approval

The study was approved by ethical committee of Avinashilingam institute of home science and higher education for women, the survey was conducted and the data collected was interpreted as per the consent of the respondent

### Selection of sample and area:

The area selected for the survey was Dimapur city of Nagaland state. The samples were collected from the two gynecologist of two different hospitals. The consent of the gynecologist was taken and as per their consent patients were selected. Fifty young women aged 21-26 years who

were willing to participate in the study were selected as respondents.

### Data collection and procedure

The survey is conducted online. A structured questionnaire was distributed as Google form. The questionnaire was in English medium as per the inclusion criteria the respondents were all familiar English reading and writing as well. The questions were based on the demographic profile, social status and medical information like PCOS related questions like diagnosis of PCOS, its symptoms associated, family history, co morbidity and questions regarding the respondent's lifestyle and their dietary pattern. The respondents were then informed and requested to fill the form with proper thinking before answering to the question. The questionnaires were collected from the respondents. A whatsapp group was formed as a means of mHealth, all the 50 respondents were added in the group and education on PCOS and its Nutrition management was imparted for a period of 10 days. At the end of the 10 days period another questionnaire was sent to assess the knowledge on the imparted education.

### Statistical analysis

The responses were imported to excel spread sheet from Google form and Data entry was done as per the question and responses giving a code for each variables to minimize any errors and for the analysis of the data excel, window 2010, SPSS software was used. For analysis and to find the associations between variables, Chi-square test was used, the result was computed with the significance at the level of  $P > 0.05$ .

## 3. Result

Out of the total 50 respondents, 26 respondents were from the age group 21-23 years and 24 respondents were from the age group 24-26, and majority of them i.e 35 respondents were pursuing post graduate and more than 50 % belonged to nuclear family and belonged to upper-middle income group. It was evident from the study that majority of the respondents attained their age of menarche at the age of 14-16 years and all the 50 respondents had irregular menstrual cycle which could be the main reason for their visit to the gynecologist. Majority of the respondents had menstrual problem of dysmenorrhea (29 respondents) followed by Pre Menstrual Syndrome (PMS) in 10 respondents. Polycystic ovary syndrome was diagnosed in more than 50 % of the respondents i.e. 28 of the respondents. The common symptoms of PCOS observed in the respondents were, Irregular menstrual cycle in all 50 respondents, hirsutism in 30 respondents, acne in 38 respondents. Hirsutism was found to be associated with PCOS with  $P > 0.001$ .

The anthropometric parameters show that the mean weight of the respondents was 63 kg, mean height of 156 cm and waist hip ratio (WHR) of 0.85. The significant risk factors found associated with PCOS were BMI  $\geq 25$  ( $P > 0.001$ ), WHR (abdominal obese)  $\geq 0.85$  ( $P > 0.001$ ).

Table 2 below shows the association of PCOS with risk factors and other variables

**Table 1:** Symptoms/ Endocrinological abnormalities distribution of respondents

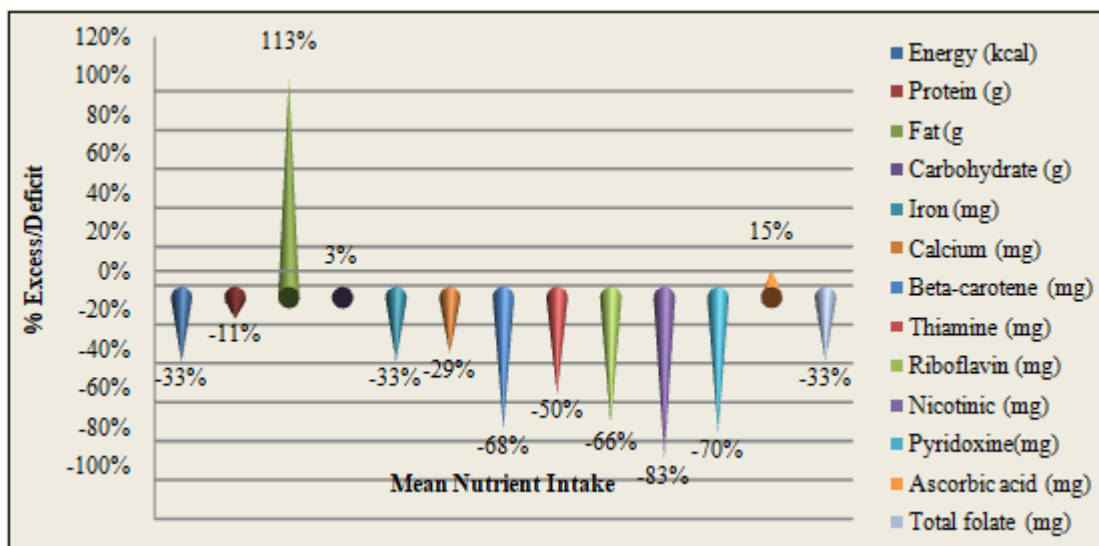
Symptoms	With PCOS	Without PCOS
Acne	21	17
Excessive facial/body hair growth	28	2
Irregular menstrual cycle	28	22
Hairloss / alopecia	Nil	Nil

**Table 2:** Association of PCOS with variables

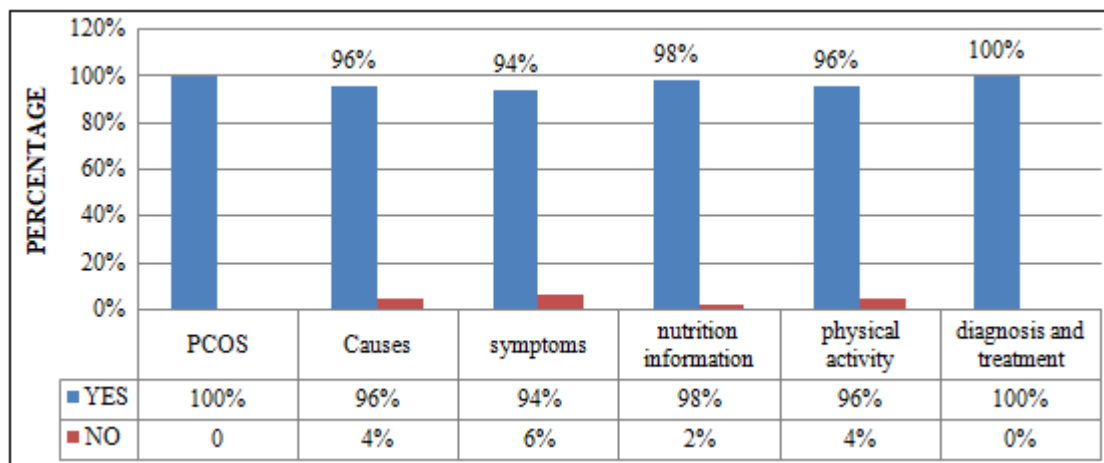
Variables	chi square	P- value
Age	0.000	0.612
Age of menarche	0.936	0.398
BMI	1.000	P>0.001
Waist Hip Ratio (WHR)	1.000	P>0.001
Family History	1.181	0.554
Income	1.453	6.91

activity, only 7 respondents had the habit of walking to college and 14 respondents had exercise performing habit. Almost all the respondents i.e. 49 experienced stress, 70 % of the respondents had habit of skipping meal. Among the respondents 40 young women selected, consumed carbonated drink. Among the young women selected, 24 were used to reading nutritional information on food products while 26 of the respondents were not used to reading nutritional information. The 24- hr dietary recall result shows that majority of the important nutrients were consumed were deficit except for carbohydrates, fats and ascorbic acid which were in excess. Below figure 1 shows the excess and deficit of mean nutrient intake and figure 2 shows the knowledge of the respondents on PCOS and its nutrition management as per their assessment score after the impart of education through m health.

Life style and Dietary Pattern shows that the respondents were not into practicing of any exercise or much of physical



**Figure 1:** Excess/Deficit nutrient intake of the respondents



**Figure 2:** Knowledge related to PCOS and nutrition management post intervention

#### 4. Discussion

In the present study, investigation was done on the prevalence of PCOS its associated symptoms and risk factors among the selected young women of age group 21-26 years. The study found the prevalence of PCOS among

the respondents to be more than 50 % i.e. 28 respondents were diagnosed PCOS, symptoms like hirsutism was found associated with PCOS, while other symptoms like acne and irregular menstrual cycle was experienced by most of the respondents. Risk factors like BMI and WHR were found significantly associated with PCOS in the respondents.

However, according to the experience of symptoms by respondents shows that the prevalence of PCOS in most of the respondents. This might be due to their improper lifestyle including their physical activity, absence of exercise habit and improper dietary intake pattern. The findings of this study are supported by the following studies conducted: Study by (Sharma and Majumdar, 2015) shows that young women in India has a high prevalence of PCOS ranging from around 9.13 to 36 per cent. In a study conducted in Bhopal to find the prevalence of PCOS in the city of Bhopal to assess the risk in the form of survey as a strategy to identify early syndrome to encourage young women to seek timely treatment and prevent its long term complications. The prevalence of PCOS in the study was 8.20%. Among all the risk factors, BMI  $\geq 25$  (P value < 0.0001) and waist hip ratio  $\geq 0.85$  (<0.0001) were strongly associated with PCOS and lack of awareness, there were in girls (78.4 %) (Gupta et al., 2017). A study conducted by Ramirez and his colleagues (2015) among females suffering from PCOS and functional hyperandrogenism found the patients were more hirsute and obese. Study conducted in Pakistan among 451 female science students aged 18-26 years of different Public Universities reveals that 17.5 % of the respondents were suspected to have PCOS and 3.5 p% of them were diagnosed with PCOS (Haq et al., 2017).

## 5. Conclusion

The findings and the observation of this study concludes that the prevalence of PCOS is growing rapidly, as more than fifty percent of the selected respondents had PCOS and were associated with abdominal obesity, overweight, hirsutism. With the surge of overweight and obesity, its risk factors are emerging to public health challenge. Reproductive age women with irregular menstrual cycles, obesity and symptoms associated with PCOS must be made aware to for the earliest diagnosis of PCOS to prevent long term health complications associated with PCOS and thus Lifestyle changes, including regular exercise, weight reduction, and healthy eating habits, should be encouraged, which will help the young generation women towards a better reproductive life.

## 6. Limitations of the study

The present study was conducted to see the prevalence of PCOS among young women and its association with the symptoms, risk factors, lifestyles and dietary patterns, yet there was a limitations in this study, with all the respondents being students and unmarried, it was impossible to see the association of one of the major symptoms or phenotype of PCOS i.e. infertility among the selected respondents.

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