

ASSESSMENT OF RISK STATUS OF POLY CYSTIC OVARIAN SYNDROME (PCOS) AMONG ADOLESCENT GIRLS- A CROSS SECTIONAL STUDY

Nisha P. Nair^{*1, 3}, Dr. Narayanappa D.² and Dr. Sujatha M. S.³

¹Professor, NHF College of Nursing, Mysuru.

²Professor, Dept. of Paediatrics, JSS Medical College and Hospital, Mysuru.

³Professor, Dept. of Obstetrics and Gynaecology, JSS Medical College and Hospital, Mysuru.

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*Corresponding Author: Nisha P. Nair

Professor, NHF College of Nursing, Mysuru.

ABSTRACT

Introduction: Polycystic ovarian syndrome is an endocrine disorder with many complications. This syndrome is a growing concern among adolescents around the world. **Aims:** The study was aimed to assess the risk status of PCOS among adolescent girls. **Settings and Design:** The study was conducted in selected schools and colleges. Descriptive cross sectional study was used in the present study. **Methods and Material:** Simple random sampling was employed to select two Schools and all the adolescent girls studying in 8th to 10th standard were assessed for the risk factors for PCOS and the adolescent girls were categorized based on the risk status of PCOS. Statistical analysis used: the data was analysed using frequency and percentage and chi square. **Results:** The study revealed that 58% of the adolescent girls were at high risk for developing PCOS and 39.5% were at low risk for PCOS. Among the adolescent girls with risk for PCOS, 17.5% were overweight / obese and 78.5% eats fast food more than three times a week and 61.5% were physically inactive. **Conclusions:** The present study identified the risk factors responsible for PCOS and also categorized the adolescent girls based on the risk status.

KEYWORDS: Risk status, PCOS, adolescent girls.

Key Messages: Sensitizing the adolescent girls regarding the risk factors of PCOS which will motivate them to adopt healthy life style, thereby preventing the development of the disease and its long term complications.

INTRODUCTION

Adolescence is defined as the stage of life when a person is no longer a child but not yet an adult. Adolescents are individuals in the age group of 10-19-years (WHO). There are more than 1.1 billion teenagers in the globe; one in every five persons is between the ages of 10 and 19.^[1] Polycystic ovarian syndrome is a developing problem among adolescents all over the world, with varying reports of its incidence in various parts of the globe.^[2] The estimated global prevalence of PCOS ranged from 2 to 20%.^[3,4,5] Various studies conducted in different states of India reported that the prevalence of PCOS ranged from 9.13 to 22.5%.^[6,7,8] In Karnataka the calculated prevalence of PCOS was 8.1%.^[9]

Even now, there is a lack of awareness of PCOS in India, and the disorder is frequently left misdiagnosed for years. To reduce the incidence of PCOS, most suitable approach would be to prevent its development which can be achieved by understanding the various risk factors involved in the development of PCOS.^[10]

The present study was aimed to assess the risk status of PCOS among adolescent girls.

SUBJECTS AND METHODS

Objectives

1. To assess the risk status of PCOS among adolescent girls.
2. To compare the risk status of PCOS among adolescent girls based on personal variables.

A cross sectional study was conducted as a first phase of pilot study from December 2019 to March 2020 among adolescent girls studying in 8th to 10th standard in selected schools. The study was approved by the

institutional ethical committee. Formal administrative permission was obtained from respective Block Education Officer (BEO) and also from the Principal/ Head Master of the selected School before the commencement of study. An informed consent was obtained from the participants and their parents. Simple random sampling was employed to select two Schools and all the adolescent girls studying in 8th to 10th standard who met the inclusion criteria were included in the study to assess the risk factors responsible for the development PCOS and the adolescent girls were categorized based on the risk status of PCOS.

Inclusion Criteria

Inclusion criteria of the study comprised of adolescent girls who

- Are studying in 8th to 10th standard
- Attained menarche at least one year prior to the commencement of the study
- Are willing to participate in the study

Exclusion criteria

Exclusion criteria of the study comprised of adolescent girls who

- Are diagnosed with PCOS

Data collection instruments

1. Personal variables: The information about personal variables was obtained by using a set of semi structured questionnaire.
2. Assessment of risk factors of PCOS: A check list was developed by the researcher to assess the risk factors for the development of PCOS and the risk status was further categorized as no risk, low risk and high risk.
Content validity and face validity of the data collection instrument was established by the subject experts before the commencement of the study.

3. Anthropometric measurement: The anthropometric measurement included measurement of height (meters) and weight (kg). Both the variables were measured without footwear and the participants wearing thin clothing. Height was measured by using a digital stadiometer and weight was measured using a digital weighing scale. BMI of each participant were calculated by dividing weight (kg) by height in meter square.

STATISTICAL ANALYSIS

The data were entered into excel sheet to prepare master data sheet and statistical analysis were performed using appropriate statistical method (MS excel).

RESULTS

The study included 200 adolescent girls from the selected schools. The data were analysed based on the objectives.

Distribution of participants based on personal variables

Out of 200 adolescent girls, majority 102(51%) belonged to the age group of 14 years followed by 15 years 50 (25%), 13 years 37(18.5%), 12 years 7(3.5%) and 16 years 4(2%).

Majority of the participants 83(41.5%) attained **menarche** at 12 years of age followed by 13 years 55(27.5%).

Out of 200 participants 98(49%) belonged to upper lower socio-economic status and 2(1%) were in the lower socio-economic status group.

Majority 178(89%) of the participants belonged to Hindu religion followed by Muslim 19 (9.5%) and Christian 3(1.5%).

Among 200 participants 147(73.5%) were residing in urban area and also they were using mixed diet.

Risk status of PCOS among adolescent girls

Frequency and percentage distribution of adolescent girls based on risk Status of PCOS

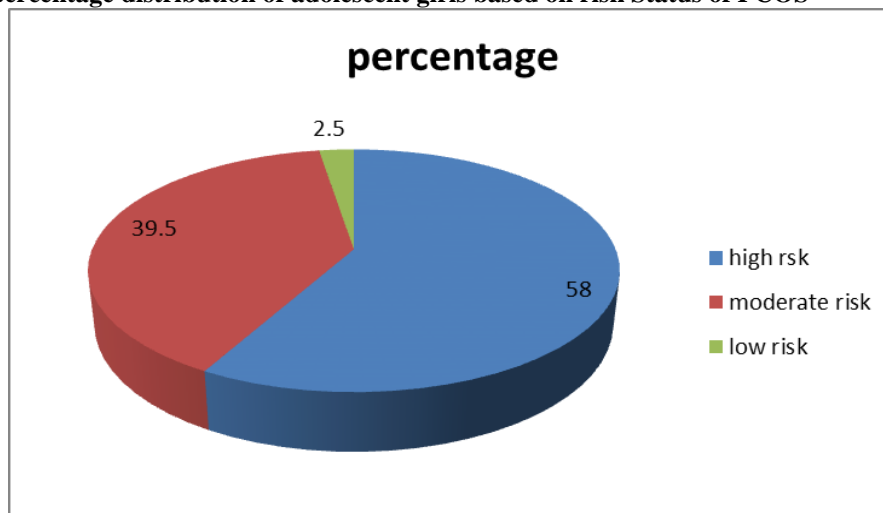


Fig.1: Distribution of adolescent girls based on risk status of PCOS.

Majority 116(58%) of the adolescent girls had high risk for PCOS and 79(39.5%) had low risk and only 5(2.5%) had no risk for PCOS

Table 1: Mean, Median, Range and Standard deviation of risk status scores of PCOS among adolescent girls.

PCOS Risk Score	Mean	Median	Range	Standard deviation
	2.7	3	0-6	±1.08

Comparison of PCOS Risk Status of the adolescent girls and their personal variables

Table 2: PCOS risk status of the adolescent girls and their age.

n=200

Age in years	Low risk	High risk
12	5(5.95%)	2(1.7%)
13	18(21.42)	19(16.37%)
14	40(47.6%)	62(53.45%)
15	21(25%)	33(28.45%)

Out of 116 participants with high-risk status for PCOS 62(53.45%) and out of eighty-four participants with low risk status 40(47.6%) were in the age group of 14 years.

Table 3: Comparison of PCOS risk status of the adolescent girls and Socio-Economic Status.

N=200

Socio Economic Status	Low Risk	High Risk
Lower Middle	25(29.76%)	37(31.9%)
Upper Lower	47(55.95%)	51(43.9%)
Upper Middle	12(14.29%)	28(24.14%)

Among the 116 adolescent girls with high-risk status for PCOS 51(43.9%) were in the upper lower socio economic status, similarly in the low risk group adolescent girls 47(55.95%) were in the upper lower socio economic status.

Table 4: PCOS risk status of the adolescent girls and Dietary Habits.

N=200

Dietary Habits	No risk	Low Risk	High Risk
Vegetarian	3	25	25
Mixed	2	54	91

Out of 116 adolescent girls with high risk for PCOS 91 were using mixed diet and 25 were vegetarian and among 79 adolescent girls with low risk for PCOS 54 were using mixed diet and 25 were vegetarian.

Table 5: PCOS risk status of the adolescent girls and Area of Residence.

N=200

m	No risk	Low risk	High risk
RURAL	2	19	18
URBAN	3	60	98

Out of 116 adolescent girls with high risk for PCOS 98 were residing in urban area and 18 in rural area and

among 79 adolescent girls with low risk for PCOS 60 were residing in the urban area 19 in rural area.

DISCUSSION

Poly Cystic Ovarian Syndrome (PCOS) is a rising health issue among adolescent girls because of the lifestyle changes, increased stress levels accompanied with physical inactivity and major changes in the pattern of menstrual cycles. As of now, there is no cure to the disease, therefore the most powerful and paramount solution would be to identify the risk factors responsible for the development of PCOS so that preventive measures can be taken to halt its development and also to diagnose the condition in the initial stage so that the major long term complications can be avoided. Thus the study was aimed to identify the risk status of PCOS among adolescent girls in selected schools.

The present study revealed that 58% of the adolescent girls were at high risk for developing PCOS while in the study conducted by Sonia et al 33% of the female population were at high risk for developing PCOS.^[11] The risk status was higher in the present study which was conducted among adolescent girls in schools.

Among the adolescent girls with risk for PCOS, 17.5% were overweight / obese and 78.5% eats fast food more than three times a week and 61.5% were physically inactive.

In a study conducted by Gulam Saidunnisa Begum et al reported that female students aged between 18years to 24 years consuming fast food for more than 3 days/ week are 1.7 times at more risk of developing PCOS compared to those consume fast food diet for less than 3 days/week. The study also found that the risk of getting PCOS was about the same for those who exercised less than three days a week and those who exercised more than three days a week..^[12]

Fast food contains high amounts of saturated fats and steroids. Regular use of fast food and irregular eating habits leads to variations in glucose levels, insulin resistance and increases hormonal imbalance such as hyperandrogenism will increase the risk for development of PCOS.

The PCOS risk score was further analysed based on personal variables. Age wise distribution of adolescent girls with high risk for PCOS shows that 62 adolescent girls were in the age of 14 years.

When socio economic status were considered it was observed that 51 adolescent girls with high risk for

PCOS were in the upper lower socio economic status. (The present study socio economic status was classified based on Kuppuswamy scale).

Majority of the adolescent girls with high risk for PCOS were using mixed diet and were residents of urban area. Literature could not be retrieved for comparison of this section of analysis.

Sensitizing the general public regarding PCOS and its complication is very essential in the present scenario. Adequate counselling should be provided to adolescent girls regarding importance of early diagnosis of the disease which will help them to adopt life style modifications and prevent long term complications of the disease. Lifestyle modifications include weight reduction, dietary modifications and maintaining good physical activity.

CONCLUSION

PCOS is a common endocrine disorder among adolescent girls and the exact aetiology of the disease is unknown but pathophysiology of the disease includes insulin resistance, hyperandrogenism, and chronic anovulation. The present study was beneficial in identifying the risk factors responsible for the development of PCOS and also categorizing the adolescent girls based on the risk status.

Obesity, fast food diet habits and lack of physical exercise were found to be the risk factors for development of PCOS. The risk factors identified in the present study are interrelated to each other and most of them are modifiable. Therefore, proper supervision and management of the recognized risk factors will help in the control and appropriate management of the disease.

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