Assessment of prevalence and level of knowledge of PolyCystic Ovarian Syndrome (PCOS) – A Cross sectional study from Central India

Ms.Vahitha.S, Prof Dr Geetha .C, Dr. Binu Mathew
Lecturer/Assistant Professor,PhD Scholar , SBV University, Puducherry (deemed to be)
College of Nursing, All India Institute of Medical Sciences, Raipur.

HOD,Nursing Foundation ,ormer Associate Dean Research
Kasthurba Gandhi Nursing College
SBV University, Puducherry (deemed to be)

Prof cum Principal, College of Nursing,
All India Institute of Medical Sciences, Raipur

Corresponding author details Ms.Vahitha.S Lecturer/Assistant Professor,
College of Nursing, All India Institute of Medical Sciences, Raipur.

Abstract

Introduction and Background: Polycystic ovarian syndrome (PCOS) is the most common endocrine disorder among girls. It has a wide range of symptoms such as irregular cycles, , infertility, obesity, hirsutism and acanthosis nigran. Many factors influence PCOS such as genetics, environment, lifestyle changes, sedentary life and diet. The present study was conducted to assess the prevalence and level of knowledge of Polycystic Ovarian Syndrome (PCOS) among college girls and find out the association on level of knowledge with selected demographic variables.
Materials and Methods: This descriptive cross-sectional study was done among Nursing students in a tertiary care hospital and teaching institute in Raipur at Central India. A total of 180 participants were included and used convenient sampling method to collect the data. Institute Research Review committee and Ethical clearance from Institutional Ethics Committee (IEC) was obtained. The participants were assured that participation was voluntary, and confidentiality would be maintained. Pretested semi-structured questionnaire was devised and validated. The first part of the questionnaire covered the socio-demographic details. The second part of the questionnaire included the questions about their level of knowledge and clinical symptoms about polycystic ovarian syndrome. After obtaining the data, it was entered in excel spread sheet and analyzed using SPSS software version 16, statistical analysis were done by using Chi-square test.
Results: The study revealed that majority of the students 162 (90%) had poor knowledge (<11) and 18 (10%) had adequate level of knowledge e(>12) respectively and majority of the students 129(71.7%) had suspected and 51(28.3%) had diagnosed in clinical evaluation respectively.
Conclusion : : The findings emphasize the necessity of comprehensive interventions to enhance the well-being of students and consequently the society. Thus, this study helps to know about the prevalence and level of knowledge and possibility of suspecting symptoms among nursing students and also to diagnose it early, so that lifestyle changes and appropriate actions can be taken.
Keywords: PCOS, Nursing students and knowledge

Introduction

Adolescence is a dynamic phase of rapid growth and development during this stage physical, physiological and behavioural changes occur in our body[1]. They constitute more than 1.2

billion worldwide, and about 21% of the Indian population[2]. Adolescent girls and young women aged 15-24 years constitute approximately 880 million of the world's population.3 Adolescence is divided into four periods early adolescence includes ages 10-12years, middle adolescence ages 13- 15years, late adolescence ages 16-18 years, and young adults ages 19 -25years 4 .Menarche symbolizes the onset of sexual development and is characterized by the onset of the first menstrual bleeding.

The average age at menarche is 13.8 years[3]. Puberty is considered a sequence of events that happens in an individual where physical changes occur, resulting in physical characteristics development and capacity to reproduce. These physical changes are regulated by hormones that are produced by the pituitary gland such as luteinizing hormone and follicle-stimulating hormone. In the early stage of puberty, levels of luteinizing hormone and follicle-stimulating hormone increase, stimulating the production of sex hormones. The increased levels of sex hormones (primarily estrogen) result in physical changes, including maturation of the breasts, ovaries, uterus, and vagina[4].

Normally, these changes occur sequentially during puberty, resulting in sexual maturity[5]. PCOS is a very complex syndrome, with typical imbalances of hormones and metabolic factors. Lifestyle modification focusing on diet and exercise behavioral modification is preferred as the first-line treatment for PCOS. Several studies have 2 shown, weight loss of 5–10% of total body weight in overweight women with PCOS with the help of balanced nutrition and exercise training which can lead to a reduction of central fat deposition, reduced circulating insulin and androgen levels, improved insulin sensitivity and restoring ovulation, improving menstrual cycles and decrease cardiovascular disease risk factors.[6]

In one of study done in Bhopal 2017, the estimated prevalence of PCOS is 9.1% in the population among the age group of 15-21 years.[1]Women with PCOS are at an increased risk for infertility, preeclampsia, early pregnancy loss, and endometrial cancer. Moreover, because of the association of PCOS with insulin resistance, evidence suggests that women with PCOS are at an increased risk for developing type-2 diabetes, dyslipidemia, hypertension, and heart disease[7].

In a study done in Maharashtra shows 58.3% of the student confirmed with PCOS have a positive history of diabetes mellitus.[3] Certain normal physiologic changes that occur during adolescence can minimal symptoms of PCOS, including oligomenorrhoea, acne, and polycystic ovaries. Physical evaluation for persistent oligomenorrhoea is necessary to determine early signs of PCOS, especially when the symptoms persists 2 years beyond menarche need to be follow up.[4]One study done in Mangalore showing , there 76% of the participate were with average knowledge and 10.7% with good knowledge regarding polycystic ovarian syndrome.[7] Since early detection and management is key to alleviation of PCOS symptoms intended to generate awareness so that students could seek medical help.[8]

The present study was conducted to assess the prevalence and level of knowledge of Polycystic Ovarian Syndrome (PCOS) among colleges girls and find out the association on level of knowledge with selected demographic variables[8].

METHODS

Research design: The research design adopted for the study was descriptive cross sectional design.

Study setting: This study was conducted in a tertiary care hospital and teaching institute, Raipur where the students are studying in a undergraduate nursing programme.

Population and Sampling methods: The sampling population for the study includes college's girls in Nursing College, Raipur and they are available during the course of data collection. Convenient sampling method was used to collect the data. Students were included as girls aged 18 to 22 years and those who have attained menarche. Girls who are taking treatment for PCOS and having other co morbidities were excluded from the study.

Sample size calculated based on estimation of single proportion , considering an expected prevalence of PCOS as 8.34% among girls aged 18-22 years , Gupta et al with an absolute precision of 5% and 95% confidence level , the sample size is 180.

Study Tool and scoring

A self-developed questionnaire was used for which both content and face validation was done by the experts of Faculty of Nursing. The questionnaire consists of three domains: First part is concerned with demographics of the respondents. Second part of questionnaire contained 20 questions about PCOS Knowledge. The third part of questionnaire consists of clinical evaluation regarding the prevalence of PCOS. There were total 20 knowledge questions and scoring will be done by making cutoff value of 11. The score ≤ 11 will be considered as poor knowledge while score ≥ 12 will be considered as adequate knowledge. For clinical evaluation, a total of 12 sign and symptoms were given and students having 4-8 symptoms were considered as suspected while students having more than 8 symptoms were considered as diagnosed.

Data collection Procedure

After obtaining permission from Institute Research Review Committee and Institute Ethics Committee, written consent was obtained from participants. A formal administrative permission was obtained from the Principal and Dean (Academics) in AIIMS Raipur The information was collected by using self administered questionnaires. The result was evaluated based on response received from participants in the questionnaire. The questionnaire was distributed among female students and responses were collected. After collecting filled questionnaires, education about PCOS was provided through brochure (written material) and short lecture was delivered to students.

1.1 Data Analysis

Categorical variable such as mother's occupation, father's occupation, religion, residence History of PCOS, and family history will be expressed as frequency and percentage. The continuous variable such as age, height, weight , age of menarche, hip and waist ratio, level of knowledge will be expressed as mean with standard derivation or median with inter quartile range according to the assumption of normality. The association of risk factor of PCOS with socio –demographic variables will be assessed using Chi- square test or Fisher's exact test. All statistical analysis will be carried out in SPSS version 19 and p – value < 0.05 is considered statistically significant.

Results

The present study was conducted among the Nursing students in a tertiary teaching institute, Raipur. A total of 180 participants were included in this study. Table 1 shows frequency and percentage of the demographic characteristics. Out of of 180 participants, 92 (51%) of them are 19 years old, 52 (29%) of them are studying first year, majority of the participants parents were self employed 109 (61%). 71 (39%) of the them attained menarche at the age of 13 years, 116(64%) had normal BMI and 133(74%) had high waist hip ratio.

Table 2 shows distribution oflevel of knowledge of Polycystic Ovarian Syndrome (PCOS) among Nursing College students at AIIMS, Raipur. Majority of the students162 (90%) had poor knowledge and 18 (10%) had adequate level of knowledge respectively.

In the current study, amomg 180 Nursing students, out of this studied population(Table 2) we found that 162 had poor knowledge and 18 of them had adequate knowledge. The study also found that (Table 3), 129 students are suspected for clinical evaluation of PCOS and 51 are diagnosed as PCOS currently.

Table 4 shows there is a statistically association between the correlation of knowledge (r value is 0.226 and p value is 0.002) and clinical evaluation of PCOS.

Table 1: The demographic characteristics of the participant (N=180). The frequency and percentage of the participants

Variables	Categories	Frequency (N)	Percentage (%)
Age in years	18	64	36
	19	92	51
	20	14	8
	21	10	6
Year of study	1	52	29
	2	37	21
	3	42	23
	4	49	27

Occupation of the parents	Private	32	18
	Government	17	9
	Self employed	109	61
	Unemployed	10	10
	Retired	4	2
Age at menarche	11 years	11	6
	12years	39	22
	13 years	71	39
	14 years	40	22
	15 years	12	7
	16years	7	4
BMI	Under weight	31	17
	Normal	116	64
	Over weight	22	12
	Obese	11	6
Waist /hip ratio	Low	4	2
	Moderate	43	24
	High	133	74
Any chronic illness	Anxiety	1	.6
	Back pain	1	.6
	Hypothyroidism	3	2
	Nil	175	97

Table 2:- Frequency and percentage wise distribution of level of knowledge of Polycystic Ovarian Syndrome (PCOS) among Nursing College students at AIIMS, Raipur.

(N = 180)

LEVEL OF KNOWLEDGE	**FREQUENCY (n)**	**PERCENTAGE (%)**
Poor knowledge	162	90
Adequate knowledge	18	10
Total	180	100

Table 3 :- Frequency and percentage wise distribution ofClinical evaluation of Polycystic Ovarian Syndrome (PCOS) among Nursing College students at AIIMS, Raipur. (N = 180)

Clinical evaluation of Polycystic Ovarian Syndrome (PCOS)	FREQUENCY (n)	PERCENTAGE (%)
Suspected	129	71.7
Diagnosed	51	28.3
Total	180	100

Table 4: Correlation between the knowledge and Clinical evaluation of Polycystic Ovarian Syndrome (PCOS) among Nursing College students at AIIMS, Raipur. (N=180)

Correlation	MEAN	STANDARD DEVIATION	'r' VALUE	'p' VALUE	CORRELATION
Knowledge	13.70	1.891	0.226	**0.002 **S**	**POSITIVE**
Clinical evaluation	6.37	2.055			

-p < 0.001 highly significant. NS-Non significant

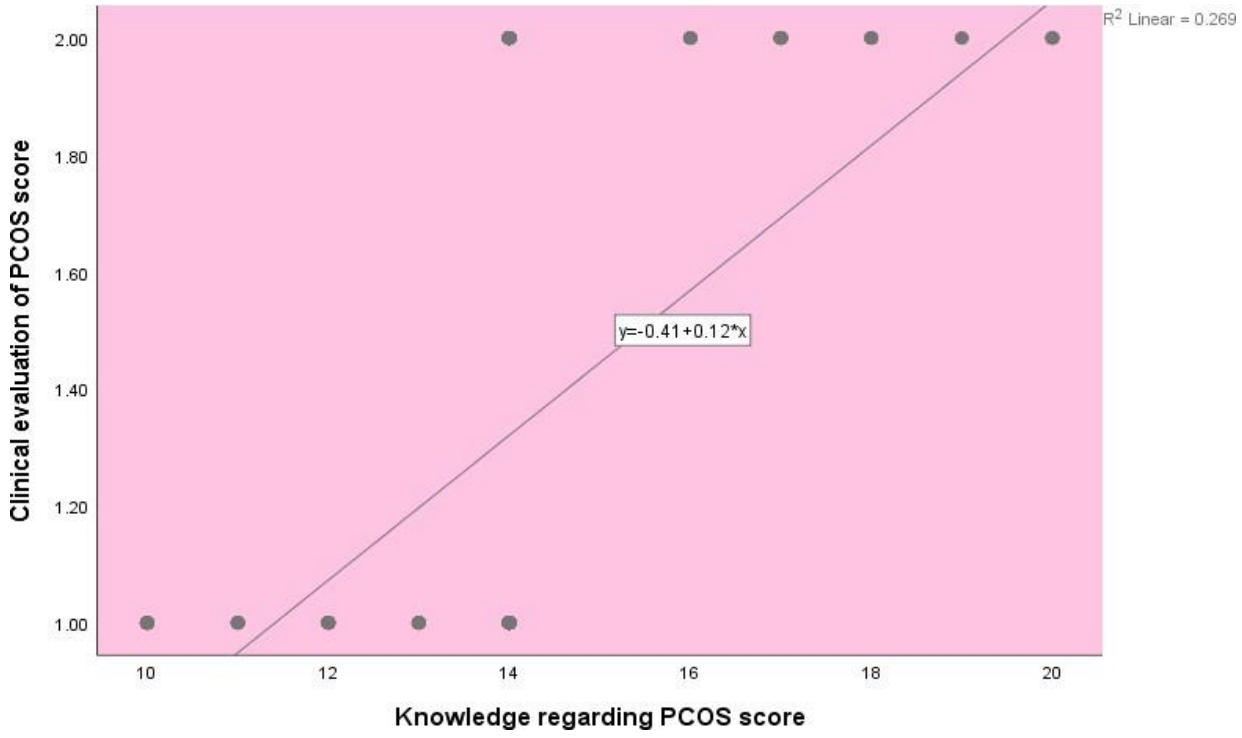

Figure 1:-Correlation of knowledge regarding PCOS score and clinical evaluation of PCOS

Discussion

Adolescence is a unique period where we can observe many change from puberty to adulthood. It is a period of changes in different levels such as in physical, psychological, social interaction with others and emotional adjustment with changing life style. After puberty, every individual undergoes physical, sexual, emotional, psychological changes which cause imbalance due to changes in hormones level. These changes play an important role to understand the health risks which may be associated with PCOS or others genetic factors which can indirectly affect the health.

PCOS is a common health issue among teenagers and young women due to sedentary life style, lack of exercise. It has affected 5% to 10% young girls in their reproductive phase. One of the complications we can see is infertility. There is no cure for PCOS but it is treatable and manageable with life style modification.

Majority of the students (92) are 19 years of age (86.7%), studying second year 52(28.9), most of their parents are self employed 109(60.6%), attained menarche at the age of 13 years 71(39.9%), regarding BMI, most of them were in normal 116(64.6%) , waist hip ratio was high in 133(73.9%). The study also found that majority of the students, 85 (47.2%) who were not doing any extracurricular activity. The present study also found that Correlation between the knowledge and Clinical evaluation of Polycystic Ovarian Syndrome (PCOS) among Nursing College students at AIIMS, Raipur indicates the positive correlation and shows the

results r- value is (0.226), p-value is (0.002) are significant. Majority of the students 129(71.7%) had suspected and 51(28.3%) had diagnosed in Clinical evaluation respectively.

The study conducted by **Krithika s et al** shows the similarity among college students. An observational study conducted among 300 adolescent girls aged between 14-18years and the data was collected by questionnaire and modified Ferriman - Gallwey scal. Mean, t- test and chi- square test were used. The study findings showed that 96.3% were not aware of PCOS .The study revealed the prevalence rate of PCOS is about 12.3% .The mean score regarding level of knowledge before and after the structured teaching programme was 13.25 and 23.16 respectively.

Another study, **Mihika Aggarwal et al (2019)** conducted a cross sectional study on prevalence of PCOS and risk factors associated with it among medical students. The aim of the study is to find the prevalence of PCOS and its risk factor s associated with it among women, where 456 medical, dental, physiotherapy students in the age group of 17-24 years took part in this study. A self-administered questionnaire was prepared on the basis of the Cronin et al questionnaire was applied to collect data and Pearson chi-square and mean test were used. Among those with PCOS, the mean age was 21.18 years. From this study prevalence was 21.05%, girls are aware of PCOS, 22.22% of the subjects were at high risk and 77.77% were at low risk for PCOS.

Mahesh Gupta et al (2018) conducted a cross sectional study of polycystic ovarian syndrome among young women in Bhopal, Central India, to find the prevalence of PCOS. A structured self-administrative questionnaire along with interview technique was applied to collect the data and total 500 college girls were included in the study. Mean and chi-square are used to calculate the result.. From this study prevalence was 8.2% and 21.6% girls are aware of PCOS. Among all the risk factors, BMI ≥25 (P value < 0.0001) and waist hip ratio ≥0.85. Lack of awareness was found among majority of girls (78.4).

Recommendations

The findings of the present study have several implications for healthcare providers and policy makers to enrich the young adolescents to free from the symptoms of PCOS. Firstly, the hidden prevalence of PCOS symptoms underscores the necessity of integrating PCOS related care into routine healthcare services. Adolescent girls should be encouraged to seek medical guidance for symptom management and receive accurate and reliable information and current modalities for treatment options.

Secondly, health care interventions should focus on a holistic approach that addresses the all aspects of PCOS. Incorporating strategies such as regular physical activity in the form of walking or running for daily 15 to 20 minutes for minimum five days in a week, taking conscious in energy restriction diets and calorie free drinks and additionally following mindful-based interventions such as yoga, cognitive therapy can equip the adolescent girls with the effective way to manage the symptoms and enhance their quality of life.

Conclusion

This present study was conducted to find out the prevalence and level of knowledge among nursing students in a tertiary teaching institute, Raipur. It reveals that, to bring more awareness among the Nursing students and modify the lifestyle changes to prevent the occurrence of the symptoms. Hence, it is necessary for us to decrease its incidence and complications. Early diagnosis of PCOS and its prompt treatment will help the girls to improve quality of life.

Consent and Ethical approval

Formal approval was obtained from Institute Research Review Committee, Institute Ethics Committee (AIIMSRPR/IEC/2023/1309 (A)) and formal administrative permission was obtained from the Principal and Dean (Academics) in AIIMS Raipur

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Competing interests

Authors have declared that no competing interests exist.

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