

ORIGINAL ARTICLE



OPEN ACCESS

## Knowledge, Attitude and Practice regarding Polycystic Ovarian Syndrome(PCOS) among final year medical students and interns in a Medical College in Kathmandu Nepal

Adhikari P<sup>1</sup>, Bhattarai J<sup>2</sup>

<sup>1,2</sup>Department of Internal Medicine, Nepal Medical College and Teaching Hospital, Kathmandu

### Abstract

**Background:** Polycystic ovarian syndrome (PCOS) is one of the most common endocrinal conditions in young women. It affects women in their reproductive years. This study was undertaken to find out understanding of PCOS in young doctors who will be shortly delivering health services in the community.

**Methods:** This will be a Descriptive, Cross-sectional study carried out in Nepal Medical College Teaching Hospital on the final year medical students of MBBS and interns. Survey was done online using Google docs questionnaire. A set of questionnaire adopted from similar study was used. The questionnaire had 3 sections, testing knowledge, attitude and practice. A total of 117 study participants were enrolled in the study. Data was tabulated and analyzed. Descriptive statistics was used to calculate frequency and percentage of variables. **Results:** There were 61 (52.13%) female, and 56 (47.86%) were male who participated in the study. The median age of the population was 23 years. The population's age range was 10 years, with the youngest person being 20 and the oldest person being 30. Majority (98%) had heard about the ovarian cyst before, and 74.4% had received knowledge through friends. All participants (100%) chose to comfort and counsel their friend regarding treatment modalities; in response to if she reveals her diagnosis to them. 76.92% thought that PCOS patient will hide their diagnosis. 92.30% of the study participants responded positively for weight reduction as an option for management with 72.72% identified it to help in countering insulin resistance. 96.58% of them responded to lack of authentic material for PCOS awareness and 85.47% of them thought that awareness can be raised through social media. When asked about best person to treat PCOS, 85.47% responded to Gynecologist. **Conclusion:** The final year medical students and interns demonstrated a satisfactory level of polycystic ovary syndrome knowledge and had a good attitude towards disease with good practice knowledge for disease.

**Key Words :** Polycystic ovarian syndrome, Awareness, Knowledge

### Introduction:

Polycystic ovary syndrome (PCOS) is a chronic, complex and the most common endocrine disorder observed in women of reproductive age groups. It also affects adolescent populations. Its prevalence is between 8 to 13% according to criteria used.<sup>1</sup> Up to 70% of affected women remain undiagnosed or have long delays before the condition is recognized.<sup>2</sup> The diagnosis of PCOS is made if two of the three

criteria of androgen excess, ovulatory dysfunction, or polycystic ovaries are met. PCOS is associated with increased reproductive morbidity, including infertility, irregular menstruation and increased pregnancy loss.<sup>3</sup> However, PCOS affects not only the women's sexual and reproductive health, but also their metabolic health and psychological wellbeing. With high prevalence of PCOS, its short- and long-term effects on physical and mental health, and its costs to the health care system, there is urgent need for spreading awareness among health care personnel and community at large.<sup>4</sup>

### Correspondence Author

Dr. Prabin Adhikari, Associate professor, department of internal medicine, NMCTH, aprabin@gmail.com

## ORIGINAL ARTICLE



## OPEN ACCESS

Awareness of PCOS and its diagnosis must be increased among physicians caring for adolescent girls. Not all women who have PCOS receive a formal diagnosis or if they do, it may take years and several different doctors before diagnosis is made. This may be attributable to both a lack of awareness and educational material available at the correct level for individuals and healthcare providers. A recent study showed that over one third of women with PCOS had to wait over 2 years and visit with at least 3 different health professionals before their diagnosis was established. Furthermore, when these women were finally diagnosed, they received little, if any, information regarding long-term complications for PCOS, treatment options, or emotional support and counseling. Instead, women reported seeking information about PCOS from online resources, where the information quality is variable. Overall, there is an obvious need to study different aspects of women's awareness and understanding of PCOS as well as their sources of information. Understanding these parameters will inform the development of educational tools not only for women with PCOS but also for their family members and healthcare providers.<sup>5</sup> The South Asian population, in general, has high prevalence of PCOS. Both Insulin resistance and type 2 diabetes are prevalent in them along with PCOS, which may increase long term morbidity.<sup>6</sup> This can be reduced by health education. Previous studies have shown that awareness, diagnosis and management of PCOS are suboptimal. Studies had been carried out on PCOS which emphasizes only on the diagnostic modalities and clinical categorization but studies focusing on awareness of the condition are very sparse. Studies have found that there was a gap in the knowledge of students about POS and its symptoms and signs, and that lifestyle preferences may predispose to PCOS. With very few healthcare professionals being aware of PCOS and infertility being stigmatized in the society and virtually no information from government side, people with PCOS in developing world are facing difficulties in their disease management. More so, assessing the knowledge level is an essential part of

disease management. This study was done to find out understanding of PCOS in young doctors who were to be shortly delivering health services in the community.

### Methods:

This was a Descriptive, Cross-sectional study carried out in Nepal Medical College Teaching Hospital on the final year medical students of MBBS and interns. This study was approved by Nepal Medical college-institutional Review Committee(ref.14-079/80) Survey was done online using google docs questionnaire. The questionnaire was uploaded on Google forms and distributed to medical students, through social media platforms and students' university emails. A set of questionnaire was adopted from similar study done by Albezrah et al in Saudi Arabia.<sup>7</sup> It was pretested on 10% of study population for possible changes if needed. The questionnaire had 3 sections, testing knowledge, attitude and practice. For this e information, the participants' had to answer to PCOS-related questions.

After completing online survey, data were entered in SPSS and analyzed. The observations were expressed in number and percentage.

### Results:

The median age of the study participants was 23.8 years and range was 20-30 years. There were 61 females and 56 male participants in the study and two of the female participants had been diagnosed and treated for PCOS.

### Knowledge:

Out of 117 participants, 115 of the study participants had heard of PCOS and two of them had no prior knowledge of the disease. Of the 115 participants, 88 had heard it from their friends, 17 from mass media and only twelve from the health educator. 115 were aware of the problems of PCOs however two were not.<sup>8</sup> 80 of them identified menstrual problems,16 of them identified obesity ,11 of them identified excess hair and10 identified delayed pregnancy as problem associated with PCOS. Only 26 of them had knowledge of long-term

**ORIGINAL ARTICLE**



**OPEN ACCESS**

complications with PCOS while 91 were not. 59 of them knew PCOS were associated with metabolic syndrome, 38 of them knew it was associated with diabetes while 20 of them knew its association with hypertension. Only 30 of them knew about methods of treatment while 87 did not. When asked about

methods of treatment available, weight reduction opted by 50, ovarian surgery by 30, subcutaneous injection by 10 and others modalities by 27 of the study participants. Table 2 entails details about knowledge of the study participants about PCOS.

**Table 1 Respondents Knowledge of PCOS**

Knowledge	Frequency (n=117)	Percentage
Have you Heard about PCOS?	Yes - 115	98%
	No- 2	2%
From whom?(Source of knowledge)	Friends - 88	75%
	Mass Media - 17	15%
	Health Educators- 12	10%
Do you Know the Problems of PCOS?	Yes-115	98%
	No-2	2%
What are the Problems of PCOS?	Delay in Pregnancy 10	9%
	Menstrual Problems 80	68%
	Excess hair 11	9%
	obesity 16	14%
Do you know the long-term complications?	Yes-26	22%
	No-91	78%
What are the Systemic disease associated ?	Diabetes 38	32%
	Hypertension 20	17%
	Metabolic Syndrome 59	50%
Do you Know about treatment modalities?	Yes-30	26%
	No-87	74%
Methods of treatment	Weight reduction 50	42%
	Ovarian surgery 30	26%
	Subcutaneous injection 10	8%
	Others 27	23%

**Attitude**

All participants (100%) chose the solution "Comfort her and counsel her regarding treatment modalities" in response to the first question, "What is the first thing you tell your friend if she reveals a diagnosis of PCOS?" When asked about whether PCOS will hide their the diagnosis, 90 of them responded with yes remark while the 27 who responded with no were all male. For the reasons behind not revealing the diagnosis, 50 of them told about stigma associated with disease, peer pressure was reason

behind for 44 of the respondents and 40 of them thought that lack of knowledge could be the reason. When asked about attitude of family members when diagnosed PCOS, 100 of the participants thought that they will be supportive while 17 of them had negative response. And when asked about attitude of colleague when revealed diagnosis 56 of them had supportive as response while 61 thought they will not be supportive.

**ORIGINAL ARTICLE**



**OPEN ACCESS**

**Table 2 Respondents attitude towards PCOS**

Attitude	Frequency(n=117)	Percentage
Do you think Person with PCOS will hide their diagnosis?	Yes 90	77%
	No-27	23%
Reason for hiding diagnosis	Peer Pressure-44	37%
	Stigmata -33	28%
	Lack of knowledge -40	34%
Your action when your friend reveal PCOS diagnosis	Comfort her -117	100%
	Shy away from her -0	0%
What would be attitude of your family members on revealing diagnosis	Supportive -100	85%
	Non- supportive -17	15%
What would be attitude of your Collogues	Supportive -56	48%
	Non-supportive-61	52%

**Practice**

As per the query inquired how accurate information regarding PCOS might be spread. The majority of participants 100 of them chose the response "Via mass media; 110 Social Media," Government Website30 showing that they think it is possible to effectively spread information on PCOS using a variety of channels, including the news media, official websites, and social media. When asked if they will advise weight reduction for PCOS 118 responded positively and 9 responded negatively. When asked about how weight reduction helps in PCOS, improving insulin sensitivity was the response given by 80 of them, improving ovulation was the response by 40 of them, 30 had response that it improves psychological condition of the diagnosed. When asked about usefulness of OCP, 57 responded positively and 30 negatively, 30 said it has usefulness but also had

side-effect. 115 of the study participants knew about methods of weight loss while 2 of them did not know. When asked about the best person to treat PCOS 100 of them responded for Gynecologist, 50 of them responded endocrinologist, 30 of them responded for physician, 8 of them responded for dermatologist. When asked if they will advise to avoid pregnancy in PCOS, 103 responded against it only 14 responded for it.

ORIGINAL ARTICLE



OPEN ACCESS

**Table 3 Respondents preferred Practices for PCOS**

Practice	Frequency	Percentage
Are there authentic materials for PCOS	Yes 4	3%
	No 113	97%
How do you think knowledge about PCOS can be disseminated?	Mass media-10	9 %
	Social media-100	85%
	Govt. website-7	6%
How dose weight reduction helps in PCOS/	Increases insulin sensitivity-80	68%
	Improving ovulation-30	26%
	Improving psychological condition-7	6%
Is OCP helpful	Yes-110	94%
	Yes with side effects-4	3.4%
	No-3	3.4%
Do you know how to use OCP	Yes-80	68%
	No-37	31%
Do you advise PCOS patients to avoid pregnancy?	Yes-14	12%
	No-103	88%
Who is the best person to treat PCOS?	Gyanecologist-100	85%
	Endocrinologist-6	5%
	Pjysician-1	1%
	Dermatologist-8	7%

**Discussion**

The present survey was to assess awareness of medical students in their final year about PCOS. The study reveals 98% of them had heard the name of disease. This study is in line with a study done among 200 female medical students of different colleges in India revealed that 72% of the medical students were aware of PCOS.<sup>8</sup> Although PCOS is a common condition, 76% of the student nurses have average knowledge about PCOS and only 10.7% had good knowledge.<sup>9</sup> A Saudi study showed that two thirds of 350 female participants (66.3%) had

inaccurate knowledge about the risks of PCOS due to a lack of discussions regarding reproductive health in schools and families.<sup>7</sup> The level of knowledge of PCOS is significantly proportional to higher educational as shown by many studies.<sup>7-9</sup> In our study, the study participants were medical students who may have better knowledge of PCOS as compared to the other studies that were studied on the general public. A high educational level is the most significant socio-demographic factor that attributed to the satisfactory level of knowledge and positive attitudes towards PCOS .Also, our study



## ORIGINAL ARTICLE



## OPEN ACCESS

suggested that the field of study had a significant impact on knowledge about PCOS. In our study 76.5% had heard it from their friends, 26% from mass media and only 9.5% from health educator. This implies that sharing of knowledge is adequate among medical students.

In a study done among physicians providing health care related to PCOS, awareness of the clinical features of PCOS and associated comorbidities was generally high, except for psychosocial issues.<sup>10</sup> In our study too majority of them were aware of the symptoms and associated comorbidities of PCOS. Interestingly however, 79% of them had no knowledge of long term complications of PCOS and only half of them were aware of metabolic syndrome association. Regarding the sources of knowledge regarding, in other studies healthcare professionals were the primary information source of PCOS however since our study population were medical students this was not the case.

Studies have shown that there is a high risk of obesity in women diagnosed with PCOS. Obesity in PCOS can lead to complications like menstrual irregularities, infertility, gestational diabetes, as well as an increased risk for developing glucose intolerance and non-insulin dependent diabetes mellitus. Awareness about obesity and methods to manage it along with increased awareness programs on PCOS are the need for realistic solution to this problem. Even though the majority (98%) of study participants knew about methods of weight loss, only 68% knew that weight reduction help by improving insulin sensitivity. The study participants knew or were themselves using OCP and 94% were positive about usefulness of OCP. Oral contraceptives, along with lifestyle modifications, are the first-line medical treatment for the long-term management of PCOS.

As per assessment of attitude, majority of study participants had positive attitude towards disease

and all of them (100%) chose to comfort and counsel their friend the friend reveals diagnosis of PCOS to them. This shows that the participants value educating a friend about her treatment choices as well as offering emotional support once she receives a PCOS diagnosis. Most of them (94%) thought adequate information about disease can be disseminated through mass media followed by 85% social media. Now a days, social media as well as mass media plays an important role in information sharing so this seems an appropriate response. Two third of them thought that family members would be supportive if diagnosed with PCOS however more than half of them thought that a colleague will not be as supportive if diagnosed with PCOS. Majority of them thought that those who were diagnosed are likely to hide their diagnosis. And thought that stigmata associated with disease along with peer pressure and lastly lack of knowledge could be reasons behind not revealing disease diagnosis. A study conducted by Colwell et al reported that many women with PCOS expressed their frustration in communicating with their primary healthcare provider, leading to their negative attitude towards the disease.<sup>11</sup> This sheds light on the fact that there is still some negative attitude towards the disease which may be still the reason of delay in diagnosis and seeking help. A study conducted among adolescent girls shows that the lack of awareness and a negative lifestyle attitude towards PCOS prevent them from taking any measures to improve their lifestyle behaviors.<sup>12</sup> A study conducted in Pakistan among PCOS patients found that the negative attitude developed among PCOS patients was from the psychological effects of depression and anxiety as a result of the comorbidities and physical changes.<sup>13</sup> Spreading a high level of awareness and positive attitude towards PCOS is important. It was clearly evident that the subjects had good attitude about PCOS.

## ORIGINAL ARTICLE



## OPEN ACCESS

The majority of the respondents in our study showed good knowledge on health-related practices. 85.47 % of them thought gynecologist, as the best person to treat PCOS this was similar to one study where a vast majority of participants who were diagnosed with PCOS reported that they seek gynecologist's help for the treatment of delayed pregnancy and irregular menses.<sup>14</sup> Weight reduction among reproductive-age women with PCOS has been highlighted by the fact that as little as 5% weight reductions could improve the menstrual irregularities and restore ovulation more significantly among younger aged women. This modality of treatment is acknowledged by most of the respondents (92%). As pregnancy advise, 88% of them would not advise against pregnancy. Attitudes towards PCOS play an important role in affecting the health-related practices among people with varying knowledge levels of PCOS. So positive attitude is necessary for which adequate awareness is mandatory. In the absence of evidence of benefit for strategies specific to women with PCOS, the international evidence-based guidelines for the assessment and management of PCOS recommend screening, optimizing, and monitoring risk profile in women with PCOS (at preconception, during and post pregnancy) consistent with the recommendations for the general population.<sup>15</sup>

The study is helpful in addressing the gaps in knowledge, attitudes and practices. However, community based survey is needed to validate the findings of this study and to generalize it for general population. Another limitation found in this study is that the respondents may answer questions based on individual thoughts and attitudes toward PCOS instead of what they might be practicing.

### Conclusion

Medical students demonstrated a good level of

PCOS awareness and knowledge and this group when they go for practice of medicine, it would be highly desired to spread awareness to other sections of the population at large. There is a rise in the prevalence of PCOS due to increase in obesity in developing. For the effective management of this condition to improve the quality of life, raising knowledge and awareness of PCOS is necessary.

### Author Contributions

Junu Bhattra contributed in the conception of survey, collection of data and drafted the manuscript Prabin Adhikari contributed in analysis, and interpretation of data; and revised it critically for intellectual content for the final manuscript.

### Funding

None.

### Conflict of Interest

None declared.

### Acknowledgments

The authors are also grateful to all participants who took part in the survey.

### REFERENCES

1. Teede HJ, Misso ML, Costello MF, et al; International PCOS Network. Recommendations from the international evidencebased guideline for the assessment and management of polycystic ovary syndrome. *FertilSteril* 2018;110(03):364–379

ORIGINAL ARTICLE



OPEN ACCESS

2. Azziz R, Carmina E, Chen Z, Dunaif A, Laven JS, Legro RS, et al. Polycystic Ovary Syndrome. *Nature Reviews Disease Primers*. 2016;2:16057.
3. Rotterdam ESHRE/ASRM-Sponsored PCOS Consensus Workshop Group. Revised 2003 consensus on diagnostic criteria and long-term health risks related to polycystic ovary syndrome. *FertilSteril*. 2004 Jan;81(1):19-25. doi: 10.1016/j.fertnstert.2003.10.004. PMID: 14711538
4. Sanchez N. A life course perspective on polycystic ovary syndrome. *Int J Women's Health*. 2014;6:115-22.
5. Gibson-Helm M, Teede H, Dunaif A, Dokras A. Delayed diagnosis and a lack of information associated with dissatisfaction in women with polycystic ovary syndrome. *J ClinEndocrinolMetab*. 2017;102:604-612.
6. Wijeyaratne CN, Balen AH, Barth JH, Belchetz PE. Clinical manifestations and insulin resistance (IR) in polycystic ovary syndrome (PCOS) among South Asians and Caucasians: is there a difference? *ClinEndocrinol* 2002, 57:343-350.
7. Albezrah NK, Arein FR. Knowledge, attitude and practice towards weight reduction among polycystic ovary syndrome women at Taif city. *Saudi J Health Sci*[serial online]2019 [ cited 2021 Nov 19];8:112-7. Available from :<https://www.saudijheralthsci.org/text.sap?2019/8/2/112/26150>
8. Upadhye, J. J. and Shembekar, C. A. (2017). Awareness of PCOS (polycystic ovarian syndrome) in adolescent and young girls. *International Journal of Reproduction, Contraception, Obstetrics and Gynecology*, vol. 6, no. 6, pp. 2297-2301.
9. Nayak, S. (2016). A study to assess the knowledge regarding PCOS (polycystic ovarian syndrome) among nursing students at NUINS. *Nitte University Journal of Health Science*, vol. 6, no. 3
10. Gibson-Helm M, Dokras A, Karro H, Piltonen T, Teede HJ. Knowledge and Practices Regarding Polycystic Ovary Syndrome among Physicians in Europe, North America, and Internationally: An Online Questionnaire-Based Study. *SeminReprod Med*. 2018 Jan;36(1):19-27. doi: 10.1055/s-0038-1667155. Epub 2018 Sep 6. PMID: 30189447.
11. Colwell K, Lujan ME, Lawson KL, Pierson RA, Chizen DR. Women's perceptions of polycystic ovary syndrome following participation in a clinical research study: implications for knowledge, feelings, and daily health practices. *J ObstetGynaecol Can*. 2010;32(5):453-459. doi:10.1016/S1701-2163(16)34499-1



**ORIGINAL ARTICLE**



**OPEN ACCESS**

12. Ekramzadeh M, Hajivandi L, Noroozi M, Mostafavi F. Psychological Experiences of Adolescent Girls with Polycystic Ovary Syndrome: A Qualitative Study. *Iran J Nurs Midwifery Res.* 2020 Jun 17;25(4):341-347. doi: 10.4103/ijnmr.IJNMR\_276\_19. PMID: 33014747; PMCID: PMC7494171.
13. Sidra S, Tariq MH, Farrukh MJ, Mohsin M (2019) Evaluation of clinical manifestations, health risks, and quality of life among women with polycystic ovary syndrome. *PLoS ONE* 14(10): e0223329. <https://doi.org/10.1371/journal.pone.0223329>
14. Zeinab Omer Alfanob, Mohamed H Ahmed, Musaab Ahmed, and SafaaBadi\*, Habab K. Elkheir (2022) “Knowledge, Prevalence and Practice of Polycystic Ovary Syndrome among Sudanese women in Khartoum State, Sudan: The need for health education ,” *Sudan Journal of Medical Sciences*, vol. 17, no. 2, pp. 204–217. DOI 10.18502/sjms.v17i2.11455
15. BahriKhomami M, Teede HJ, Joham AE, Moran LJ, Piltonen TT, Boyle JA. Clinical management of pregnancy in women with polycystic ovary syndrome: An expert opinion. *ClinEndocrinol (Oxf).* 2022 Aug;97(2):227-236. doi: 10.1111/cen.14723. Epub 2022 Apr 5. PMID: 35383999; PMCID: PMC9544149.