

Awareness of Polyendocrine Metabolic Ovarian Syndrome (PMOS) Among Reproductive-Aged Women in a Tertiary Care Hospital in Bangladesh

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ARTICLE INFO

Received: 19 July 2026
Accepted: 25 July 2026
Published Online: 28 July 2026

DOI:

Volume: 10, Number: 1, Page: 158-162

e-ISSN: 2789-5912
ISSN: 2617-0817

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ABSTRACT

Introduction: Polyendocrine Metabolic Ovarian Syndrome (PMOS), previously known as Polycystic Ovary Syndrome (PCOS), is a common endocrine and metabolic disorder affecting women of reproductive age and is associated with menstrual irregularities, infertility, obesity, insulin resistance, and long-term metabolic complications. This study aimed to assess the level of awareness of PCOS among reproductive-aged women attending a tertiary care hospital in Bangladesh. **Methods and materials:** This descriptive cross-sectional study was conducted in the Outpatient Department of Obstetrics and Gynaecology of US-Bangla Medical College and Hospital, Rupganj, Narayanganj, Bangladesh, from January 2025 to December 2025. The study included 120 reproductive-aged women (18–45 years) attending the outpatient department. Awareness was categorized based on Bloom's modified cut-off criteria. Data were analyzed using Statistical Package for the Social Sciences (SPSS) version 26.0. **Result:** The study included 120 reproductive-aged women with a mean age of 26.4 ± 5.8 years. Only 35.0% had previously heard of PMOS/PCOS, with social media/internet being the most common source of information (59.8%). Knowledge was highest regarding infertility and the benefits of weight reduction (54.2% each), while awareness of cardiovascular complications was the lowest (16.7%). Overall, 46.7% of participants had poor awareness, 36.7% had moderate awareness, and only 16.6% had good awareness, with a mean knowledge score of 10.2 ± 3.6 . **Conclusion:** The present study concludes that awareness of PMOS/PCOS among reproductive-aged women attending a tertiary care hospital in Bangladesh was generally inadequate, with nearly half of the participants

demonstrating poor knowledge, particularly regarding its metabolic and cardiovascular complications. Higher educational attainment and urban residence were significantly associated with better awareness.

Keywords: Polyendocrine Metabolic Ovarian Syndrome, Reproductive-Aged, Awareness

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INTRODUCTION

Polyendocrine Metabolic Ovarian Syndrome (PMOS), formerly known as Polycystic Ovary Syndrome (PCOS), is the most common endocrine and metabolic disorder affecting women of reproductive age worldwide. The condition is characterized by a complex interplay of reproductive, endocrine, and metabolic abnormalities, including ovulatory dysfunction, hyperandrogenism, insulin resistance, obesity, and polycystic ovarian morphology, resulting in significant reproductive, metabolic, cardiovascular, and psychological consequences [1,2]. Recent international consensus has emphasized that the term PMOS more accurately reflects the multisystem nature of the disorder than the previous nomenclature, highlighting its endocrine and metabolic components rather than solely ovarian morphology [3]. Although the terminology has recently evolved, most of the published literature still refers to the condition as PCOS. Globally, PMOS affects approximately 8–13% of women of reproductive age, with prevalence varying according to the diagnostic criteria used and the population studied [1,4]. The syndrome is recognized as one of the leading causes of anovulatory infertility and is associated with an increased risk of type 2 diabetes mellitus, dyslipidemia, hypertension, metabolic

syndrome, cardiovascular disease, endometrial hyperplasia, and adverse pregnancy outcomes [2,5]. Furthermore, women with PMOS frequently experience anxiety, depression, poor body image, and reduced health-related quality of life, making it a significant public health concern requiring early recognition and comprehensive management [5,6]. Despite its high prevalence and long-term health implications, awareness of PMOS among women remains unsatisfactory across many countries. Limited knowledge regarding its symptoms, risk factors, complications, and available treatment options often leads to delayed diagnosis and missed opportunities for early intervention [6]. Studies have demonstrated that women with inadequate awareness are less likely to seek timely medical consultation, resulting in disease progression and increased risk of chronic metabolic and reproductive complications [7]. Since lifestyle modification and early management play pivotal roles in reducing disease burden, improving public awareness is considered an essential component of preventive women's healthcare [1,5]. Several international studies have evaluated awareness of PCOS among university students and reproductive-aged women, reporting considerable deficiencies in knowledge regarding menstrual irregularities, infertility, obesity, insulin

resistance, and cardiovascular risks associated with the disorder [8,9]. Higher educational attainment, medical background, and previous exposure to health information have consistently been associated with better awareness scores [7,8]. However, misconceptions regarding diagnosis and management remain common even among educated populations, indicating the need for targeted educational interventions [8]. In Bangladesh, PMOS represents an increasingly important reproductive and metabolic health issue because of rising rates of obesity, sedentary lifestyle, and metabolic disorders among young women. Although hospital-based studies have described the prevalence and clinical characteristics of women with PCOS, evidence regarding public awareness remains limited [9]. Inadequate knowledge may contribute to delayed presentation, poor adherence to lifestyle modification, and increased disease burden. The aim of this study was to assess the level of awareness of PMOS among reproductive-aged women attending a tertiary care hospital in Bangladesh.

METHODS & MATERIALS

This descriptive cross-sectional study was conducted in the Outpatient Department of Obstetrics and Gynaecology of US-Bangla Medical College and Hospital, Rupganj,

Narayanganj, Bangladesh, from January 2025 to December 2025. The study included 120 reproductive-aged women (18–45 years) attending the outpatient department during the study period. Participants were selected using a convenience sampling technique, and those who fulfilled the inclusion criteria and provided written informed consent were enrolled. Women previously diagnosed with PMOS/PCOS, healthcare professionals (physicians, nurses, midwives, and medical students), women with cognitive impairment or severe psychiatric illness, and those unwilling to participate were excluded. Data were collected through face-to-face interviews using a pretested, structured questionnaire. The questionnaire consisted of two sections: the first recorded sociodemographic information, including age, marital status, educational status, occupation, and residence, while the second assessed awareness regarding PMOS, including previous awareness, sources of information, knowledge of symptoms, risk factors, complications, diagnosis, treatment, lifestyle modification, and long-term health

consequences. Overall awareness was evaluated using a 20-item knowledge questionnaire, with one point awarded for each correct response and zero for an incorrect or "don't know" response, resulting in a total score ranging from 0 to 20. Based on Bloom's modified cut-off criteria, awareness was categorized as poor (<50% of the total score; 0–9 points), moderate (50–74%; 10–14 points), and good (≥75%; 15–20 points). The primary outcome variable was the overall awareness level regarding PMOS, while secondary outcome variables included previous awareness, sources of information, knowledge of symptoms, risk factors, complications, lifestyle modification, and their association with sociodemographic characteristics. Data were analyzed using Statistical Package for the Social Sciences (SPSS) version 26.0. Continuous variables were expressed as mean ± standard deviation (SD), whereas categorical variables were presented as frequencies and percentages. Associations between awareness level and sociodemographic variables were assessed using the Chi-

square (χ^2) test. A p-value <0.05 was considered statistically significant. Ethical approval was obtained from the Institutional Review Board (IRB)/Ethical Review Committee of the respective institution, and written informed consent was obtained from all participants. Confidentiality and anonymity were strictly maintained throughout the study, and participation was entirely voluntary.

RESULTS

Table I shows that the mean age of the participants was 26.4 ± 5.8 years, with the largest proportion (45.0%) belonging to the 18–24 years age group. More than half of the participants were unmarried (53.3%), while 46.7% were married. Primary/Secondary education was the most common educational level (51%), followed by Higher Secondary (15.0%). Students constituted the largest occupational group (43.3%), and nearly two-thirds (64.2%) of the respondents resided in urban areas.

Table I
Sociodemographic Characteristics of the Study Participants (n = 120).

Characteristics	n	Percentage (%)
Age (years)		
18–24	54	45.0
25–30	38	31.7
31–35	19	15.8
36–45	9	7.5
Mean ± SD		26.4 ± 5.8 years
Marital status		
Married	56	46.7
Unmarried	64	53.3
Educational status		
Illiterate	47	39
Primary/Secondary	51	42.5
HSC	15	12.5
Graduate	7	6
Occupation		
Student	52	43.3
Housewife	28	23.3
Service holder	26	21.7
Business/Others	14	11.7
Residence		
Urban	77	64.2
Rural	43	35.8

Table II shows that only 35.0% (n=42) of the participants had previously heard about PMOS/PCOS, while the majority (65.0%, n=78) had never heard of the condition.

Among those who were aware, social media or the internet was the most frequently reported source of information (59.8%), followed by healthcare professionals

(37.8%), friends or relatives (30.5%), educational institutions (26.8%), and television or newspapers (18.3%).

Table IIPrevious Awareness and Sources of Information Regarding PMOS ($n = 120$).

Variables	n	Percentage (%)
Previous awareness of PMOS		
Heard about PMOS/PCOS	42	35.0
Never heard about PMOS/PCOS	78	65.0
Source of information*		
Social media/Internet	49	59.8
Healthcare professionals	31	37.8
Friends/Relatives	25	30.5
Educational institutions	22	26.8
Television/Newspaper	15	18.3

Multiple responses were allowed.

Table III demonstrates varying levels of knowledge regarding the symptoms, risk factors, and complications of PMOS among the participants. The highest proportion correctly identified that PMOS may cause infertility and that weight reduction is beneficial (54.2% each), followed by

irregular menstruation as a symptom (46.7%) and excess facial/body hair and family history as risk factors (45.8% each). Knowledge that regular medical follow-up is necessary (43.3%), acne may occur in PMOS, and lifestyle modification improves symptoms (41.7% each) was moderate.

Fewer participants recognized obesity as a risk factor (33.3%) or the association of PMOS with diabetes mellitus (34.2%), while awareness that PMOS may increase the risk of cardiovascular disease was the lowest (16.7%).

Table IIIKnowledge Regarding Symptoms, Risk Factors, and Complications of PMOS ($n = 120$).

Knowledge Item (Multiple Response)	Correct Response, n (%)
Irregular menstruation is a symptom	56 (46.7)
PMOS may cause infertility	65 (54.2)
Excess facial/body hair is a symptom	55 (45.8)
Acne may occur in PMOS	50 (41.7)
Obesity increases the risk	40 (33.3)
Family history increases the risk	55 (45.8)
PMOS is associated with diabetes mellitus	41 (34.2)
PMOS may increase cardiovascular disease risk	20 (16.7)
Lifestyle modification improves symptoms	50 (41.7)
Weight reduction is beneficial	65 (54.2)
Regular medical follow-up is necessary	52 (43.3)

Multiple responses were allowed.

Table IV shows that nearly half of the participants (46.7%) had a poor level of awareness regarding PMOS, while 36.7%

demonstrated a moderate level of awareness and only 16.6% achieved a good awareness level. The mean knowledge score was 10.2

± 3.6 out of a maximum possible score of 20, with observed scores ranging from 3 to 18.

Table IVOverall Awareness Level of PMOS Among the Study Participants ($n = 120$).

Awareness Level (Knowledge Score)	n	Percentage (%)
Poor (<50%)	56	46.7
Moderate (50–74%)	44	36.7
Good ($\geq 75\%$)	20	16.6
Mean knowledge score (Mean $\pm$ SD)		10.2 $\pm$ 3.6
Score range		3–18

Table V demonstrates that educational status was significantly associated with good awareness of PMOS ($p = 0.008$), with participants having graduate or higher secondary education exhibiting the highest

proportion of good awareness (28.2%). Residence was also significantly associated with awareness ($p = 0.041$), as urban participants were more likely to have good awareness than rural participants (20.8% vs.

9.3%). However, no statistically significant associations were observed between good awareness and age ($p = 0.298$) or marital status ($p = 0.586$).

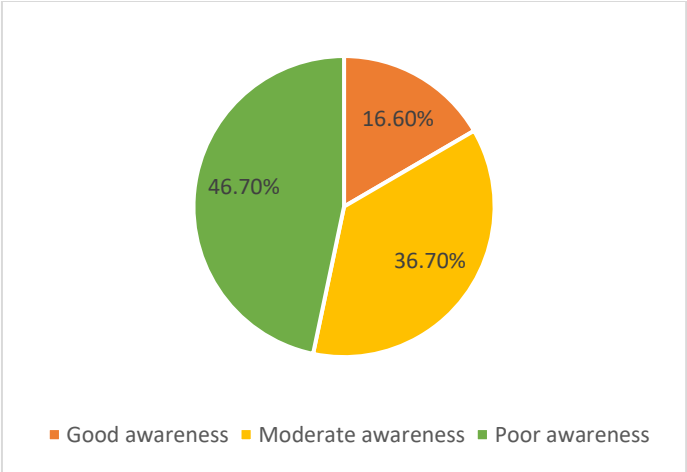


Figure 1 Pie chart showing level of awareness among participants.

Table V
Association Between Sociodemographic Characteristics and Good Awareness of PMOS (n = 120).

Variable	Good Awareness n (%)	Poor/Moderate Awareness n (%)	p-value*
Age (years)			0.298
<30 (n=92)	17 (18.5)	75 (81.5)	
≥30 (n=28)	3 (10.7)	25 (89.3)	
Educational status			0.008
Primary/Secondary (n=51)	3 (5.9)	48 (94.1)	
HSC (n=15)	2 (14.9)	13 (85.1)	
Graduate(n=7)	2 (28.2)	5 (71.8)	
Residence			0.041
Urban (n=77)	16 (20.8)	61 (79.2)	
Rural (n=43)	4 (9.3)	39 (90.7)	
Marital status			0.586
Married (n=56)	8 (14.3)	48 (85.7)	
Unmarried (n=64)	12 (18.8)	52 (81.2)	

Chi-square test.

DISCUSSION

The present study demonstrated that awareness of PMOS/PCOS among reproductive-aged women attending a tertiary care hospital in Bangladesh was generally inadequate. Only 35.0% of participants had previously heard about PMOS/PCOS, while 46.7% exhibited poor overall awareness and only 16.6% demonstrated good awareness. The mean knowledge score was 10.2 ± 3.6 out of a maximum score of 20, indicating substantial deficiencies in understanding the disorder. These findings are comparable to those reported by Goh et al., who conducted a cross-sectional survey among 410 women in Malaysia and found that 47.3% of participants had poor knowledge regarding PCOS^[10]. The source of information in this study also deserves attention. Social media and the internet were the leading information sources (59.8%), followed by healthcare professionals (37.8%). Similar dependence on digital media has been reported elsewhere in Asia. In Malaysia, Goh et al. found that social media (65.4%) and healthcare professionals (64.9%) were the two main sources of PCOS information, and the overall knowledge score was 62.3%^[10]. In the UAE, Zaitoun et al. reported that

social media accounted for 53.1% of information sources, compared with 24.0% from doctors and 22.9% from friends^[11]. By contrast, the university study by Alshdaifat et al. noted that students mainly sought PCOS information from healthcare professionals, showing that the balance between formal and informal sources can differ by setting^[12]. Knowledge of symptoms was moderate in the present study, with 54.2% recognizing infertility and weight reduction as relevant, 46.7% identifying irregular menstruation, and 45.8% identifying excess facial or body hair as a symptom. However, recognition of obesity as a risk factor was only 33.3%, diabetes mellitus 34.2%, and cardiovascular disease risk just 16.7%. This gap in metabolic awareness is consistent with findings from Pakistan, where Khurshid et al. reported that most diagnosed young women recognized core symptoms such as ovarian cysts (90.5%), hirsutism (81.0%), and hair loss (80.0%), but far fewer identified pre-diabetes (18.5%) or the link with irregular menstruation (26.5%)^[13]. Likewise, Goh et al. found that while Malaysian women had moderate knowledge overall, understanding was lower for risk factors (58.7%) and long-term

complications (50.7%) than for symptoms (67.8%)^[10]. These studies together indicate that symptom recognition is generally better than awareness of metabolic consequences. The overall awareness level in the current study was low, with nearly half of participants in the poor-awareness category and only 16.6% in the good-awareness category. This is consistent with broader Asian data showing important knowledge gaps. In South India, Jabeen et al. reported that 78.4% of adolescent and young girls were unaware of PCOS, while knowledge sources were mainly teachers (37.0%), doctors (31.5%), the internet (11.0%), and friends (7.5%)^[14]. In Iran, Malekzadeh et al. found very low awareness among schoolgirls and mothers, with only 3.2% of schoolgirls and 27.0% of mothers reported as aware of PCOS^[15]. Educational status and residence were significantly associated with good awareness in the present study. Participants with higher secondary or graduate education had the highest proportion of good awareness, and urban residents were more likely to have good awareness than rural residents. Similar patterns have been reported in other Asian studies. In the Maldives, students from healthcare backgrounds had adequate

knowledge in 67.9%, compared with 49.4% among non-healthcare students, and this difference was statistically significant ($p < 0.001$)^[16]. The same study also found no significant association with age ($p = 0.806$), which is consistent with the present findings where age was not significantly associated with awareness. However, the Maldivian study^[16] found marital status to be significant, whereas marital status was not significant in the present study, suggesting that the influence of demographic factors may vary by setting and by the availability of educational exposure.

LIMITATIONS

The study was conducted in a single hospital with a small sample size. So, the results may not represent the whole community.

CONCLUSION

The present study concludes that awareness of PMOS/PCOS among reproductive-aged women attending a tertiary care hospital in Bangladesh was unsatisfactory, with substantial deficiencies in knowledge of its symptoms, risk factors, and particularly its long-term metabolic and cardiovascular complications. Although awareness was significantly higher among women with greater educational attainment and those residing in urban areas, the overall level of knowledge remained inadequate.

RECOMMENDATION

Targeted awareness and health education programs on PMOS/PCOS should be implemented through healthcare facilities, educational institutions, and digital media, with particular emphasis on women with lower educational attainment and those living in rural areas. Healthcare professionals should provide routine counseling on the symptoms, risk factors, long-term complications, and the importance of early diagnosis and lifestyle modification to improve timely recognition and management of PMOS/PCOS. Further large-scale multicenter studies are also recommended to better evaluate awareness levels and guide national public health strategies.

FUNDING

No funding sources

CONFLICT OF INTEREST

None declared

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