

EMPOWERING COMMUNITIES: UNDERSTANDING HEALTH LITERACY AND POLYCYSTIC OVARIAN SYNDROME (PCOS) AWARENESS IN BARANGAY MAGSAYSAY, BAYOMBONG, NUEVA VIZCAYA

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ABSTRACT

Polycystic Ovarian Syndrome (PCOS) is a common endocrine disorder affecting 6–13% of reproductive-aged women, with up to 70% undiagnosed. Defined by the WHO, it involves hormonal imbalances, irregular menstruation, and hyperandrogenism, leading to infertility and metabolic risks. Despite its impact, it remains underdiagnosed, underscoring the need for greater awareness. Defined by the WHO, it involves hormonal imbalances, irregular menstruation, and hyperandrogenism, leading to infertility and metabolic risks. Despite its impact, it remains underdiagnosed, underscoring the need for greater awareness. This study employed a quantitative descriptive-correlational design to assess the health literacy and PCOS awareness of women aged 18–44 in Barangay Magsaysay, Bayombong, Nueva Vizcaya. A structured questionnaire was used to gather data on demographic profiles, health literacy, and PCOS awareness.

Statistical analysis examined relationships between age, educational attainment, health literacy, and awareness. The findings showed that most respondents were aged 25–44 and had basic to intermediate levels of education. While health literacy levels were moderate, nearly half of the respondents reported not receiving help in understanding medical information. Awareness of PCOS was generally high at 63.6%. Still, knowledge gaps remained, particularly regarding metabolic symptoms, treatment options, and cultural beliefs. The Internet was the most cited source of information. A moderate negative correlation was found between age and health literacy.

In contrast, educational attainment showed positive correlations with both health literacy and PCOS awareness. Findings indicate that although general awareness of PCOS is high, gaps remain that may hinder early detection and management. Education plays a key role in improving health literacy and awareness. Community-based initiatives and integrating PCOS education into local health campaigns are recommended to enhance reproductive health outcomes. The researchers recommend integrating PCOS awareness into local health campaigns to support early recognition and intervention.

Keywords: Health campaigns, information sources, knowledge gaps, metabolic symptoms, reproductive health

INTRODUCTION

Polycystic Ovarian Syndrome (PCOS) is a common hormonal disorder affecting 8–13% of women of reproductive age globally, with over 116 million cases reported (WHO, 2023). Despite its prevalence, around 70% of affected women remain undiagnosed due to its complex symptoms—such as irregular menstruation, excess androgens, and polycystic ovaries—and a general lack of awareness. PCOS can lead to significant reproductive and metabolic complications, including infertility, diabetes, and cardiovascular disease, with Asian women shown to be at higher risk (Kakoly et al., 2018). In the Philippines, about 4.5 million women are affected. Still, PCOS remains underreported and poorly addressed at the institutional and community levels, largely due to limited health surveillance and the absence of localized data (Plume, 2022).

Health literacy plays a crucial role in addressing PCOS, as it influences individuals' ability to recognize symptoms, seek timely care, and manage the condition. However, limited health literacy among underserved populations in the Philippines contributes to delayed diagnoses and worsening of chronic diseases (Santiago, 2019; Tolabing et al., 2022). Despite the country's high burden of PCOS, there is a lack of focused research on PCOS-related health literacy, particularly in communities close to healthcare facilities. This study aims to assess the level of awareness and health literacy regarding PCOS among women in Barangay Magsaysay, Bayombong, Nueva Vizcaya—located near the Region 2 Trauma and Medical Center. It seeks to determine whether proximity to health services translates into greater understanding and access to care, and to identify key gaps that could inform targeted interventions to improve women's reproductive health outcomes.

Statement of the Problem

This study aimed to measure health literacy levels, assess awareness of Polycystic Ovarian Syndrome (PCOS), and examine relationships between selected demographic factors and these outcomes among women in Barangay Magsaysay, Bayombong, Nueva Vizcaya, for the school year 2024-2025.

Specifically, it sought to answer the following questions:

1. What is the demographic profile of the female respondents in terms of:
 - (a) Age; and
 - (b) Educational attainment
2. What is the level of health literacy among female respondents of Barangay Magsaysay?
3. What is the level of awareness of PCOS among the female respondents of Barangay Magsaysay in each of the following components:
 - (a) physiology of the female reproductive system,
 - (b) Symptoms of PCOS,
 - (c) complications of PCOS,
 - (d) physiology, treatment, and beliefs on PCOS,
 - (e) measures to decrease the symptoms of PCOS.
 - (f) curiosity to learn about PCOS, and
 - (g) method of knowing about PCOS
4. What is the relationship between the respondents' demographic profile and the level of health literacy?
5. What is the relationship between the respondents' demographic profile and the level of awareness of PCOS?
6. What health education information material can be designed based on findings?

METHODOLOGY

The researchers used a quantitative, descriptive-correlational design to describe respondents' age, educational level, health literacy, and awareness of Polycystic Ovarian Syndrome (PCOS). This enabled the researchers to quantify the correlation between respondents' profile variables and their health literacy and PCOS awareness levels. The survey method was the primary data collection instrument. The population of interest was women aged 18–44 years who live in Barangay Magsaysay, Bayombong, Nueva Vizcaya.

The research was conducted in Barangay Magsaysay, Bayombong, Nueva Vizcaya, part of the Cagayan Valley Region (Region II) of the country. The barangay was purposely chosen for its accessibility to the Region 2 Trauma and Medical Center, one of the leading health facilities serving the region's residents. Barangay Magsaysay comprises seven puroks and has a

population of 5,496, according to the 2020 Philippine census. Although it is near a medical center, certain parts of the barangay are still geographically remote, making it a good site for investigating differences in healthcare literacy and PCOS awareness.

The researchers purposively chose 250 female respondents aged 18–44 years old who were all residents of Barangay Magsaysay. As there were no gender-disaggregated population figures, the authors estimated the female population using the 2020 national sex ratio of 1.09 males per female, yielding an estimated female population of 2,748. Utilizing the Raosoft Sample Size Calculator with a margin of error of 5%, a confidence level of 90%, and a response distribution of 50%, the suggested sample size was 247, which the authors slightly overshot.

A formal survey questionnaire was used as the research instrument, arranged into three sections. The initial section gathered demographic information, namely age and the highest educational level. The second component included the Single Item Literacy Screener (SILS) from Alessa et al. (2017), which measured health literacy using the following question: "How often do you have someone help you when you read instructions, pamphlets, or other written material from your doctor or pharmacy?" From 1 (Never) to 5 (Always). Table 1 displays the interpretation of SILS scores. The third part is the "The Awareness of Polycystic Ovarian Syndrome (PCOS) questionnaire adopted from Alessa et al. (2017). It is an instrument designed to measure respondents' knowledge of PCOS. The instrument was formulated to assess the degree of knowledge about PCOS (of Saudi females), risk factors, and problems among Saudi females, to discover variables that impacted said awareness, and to improve healthcare and reduce the cost of treatment for the disease.

The questionnaire includes key components for measuring PCOS awareness, specifically the respondent's awareness of the physiology of the female reproductive system, awareness of the symptoms of PCOS, awareness of the complications of PCOS, awareness of the physiology, treatment, and beliefs on PCOS, awareness of measures to decrease the symptoms of PCOS, curiosity to learn about PCOS, and method of knowing about PCOS.

RESULTS AND DISCUSSION

Section 1. Demographic Profile

Table 1

Age Distribution among Female Respondents from Barangay Magsaysay

Age Groups	Frequency	Percent
18-24	89	35.6
25-44	161	64.4
Total	250	100.0

The majority of respondents are between the ages of 25 and 44, accounting for 64.4% of the sample, indicating that the surveyed population is primarily composed of young to middle-aged adults. In contrast, 35.6% are within the 18–24 age group. Age may influence awareness levels, as younger women may have access to more recent health education through academic institutions but might lack firsthand experience with conditions like PCOS. Meanwhile, older women may have developed greater awareness through personal or peer encounters with the condition (PCOD and PCOS: Causes, Symptoms, Differences and Treatment, 2025). Additionally, digital tools and health-related apps could help raise awareness and support learning among younger women. However, their practical knowledge may remain limited (Goodyear et al., 2019).

Table 2*Educational Attainment of Female Respondents from Barangay Magsaysay*

Profile	Groups	Frequency	Percent
Educational Attainment	Elementary Graduate	51	20.4
	High School Graduate	130	52.0
	College Undergraduate	31	12.4
	College Graduate	38	15.2
	Total	250	100.0

The table shows that most of the 250 respondents have a basic to intermediate education, with 52% being high school graduates and about 20% having only an elementary education. Less than one-third pursued college-level studies, indicating limited higher education among the group. Overall, the data suggest that most respondents have a basic to intermediate level of education, with fewer having attained a college degree.

For instance, college graduates, especially those in the medical field, would demonstrate greater PCOS knowledge than non-medical students due to their curriculum exposure (Rizvi et al., 2023). Conversely, among elementary graduates, 51 of 250 respondents may have limited access to health information or a lower ability to understand medical concepts related to PCOS.

Section 2. Health Literacy of Women in Barangay Magsaysay

Table 3*Level of Health Literacy among Women in Barangay Magsaysay*

Response	Frequency	Percent	Mean	SD	QD
Always	1	0.4			
Often	28	11.2			
Sometimes	76	30.4	3.92	1.12	High Literacy
Rarely	29	11.6			
Never	116	46.4			
Total	250	100			

The findings from Table 3 highlight a high level of health literacy among female respondents in Barangay Magsaysay, with a mean score of 3.92 (SD = 1.12). Interestingly, 46.4% of respondents reported never receiving help when reading medical instructions or health materials. However, this self-reported independence in processing medical information warrants cautious interpretation. According to Sørensen et al. (2021), health literacy is multidimensional, and high confidence does not always equate to an accurate understanding or the correct application of health information. On the other hand, Nutbeam and Lloyd (2021) support the idea that promoting personal health literacy can empower individuals, especially women, who often serve as primary caregivers in families.

Section 3. Awareness of Polycystic Ovarian Syndrome (PCOS)

Table 4*Basic Knowledge of Female Reproductive System Physiology*

Statement	Mean	SD	QD
1. The follicle is a small fluid-filled sac with a single egg inside, and the follicles are often called cysts.	1.16	0.50	Low

2. Ovulating more frequently will improve my fertility.	1.29	0.69	Low
3. After egg release (ovulation), the hormone progesterone is released; progesterone would allow my uterine lining to shed and allow me to have a normal menstrual period.	1.22	0.59	Low
4. Having monthly increases in progesterone, and therefore menstrual periods, would decrease my risk for cancer of the uterus.	1.19	0.57	Low
5. The amount of fat in the body affects the amount of free testosterone in my body.	1.14	0.49	Low
6. Insulin helps the ovary to make more male hormones.	1.12	0.49	Low
Overall	1.19	0.47	Low

The data indicate a limited understanding of female reproductive system physiology, with a mean score of 1.19 (SD = 0.47). The highest mean was found in Item 2 (Mean = 1.29, SD = 0.69), while the lowest was in Item 6 (Mean = 1.12, SD = 0.49), indicating a gap in reproductive health literacy, potentially hindering understanding of conditions like PCOS (Rizvi et al., 2023; Bazrafkan et al., 2018). Nurses must be knowledgeable in female reproductive physiology to educate patients, dispel misconceptions, and promote reproductive wellness. Strengthening nursing curricula with reproductive health laws and active learning strategies can improve nursing competence and health advocacy skills.

Table 5*Previous Knowledge about PCOS*

Response	Frequency	Percent (%)
Yes	159	63.60
No	36	14.40
I do not know	55	22.00
Total	250	100.00

Among 250 participants surveyed, 63.60% reported prior knowledge of polycystic ovary syndrome (PCOS). In contrast, 14.40% were unaware, and 22.00% were uncertain, highlighting that over one-third lacked sufficient awareness. Deswal et al. (2020) and Balen et al. (2018) highlighted that the underdiagnosis of PCOS globally is due to inconsistent awareness among patients and healthcare providers. Nurses play a crucial role in addressing this gap by educating women, reducing stigma, and supporting early diagnosis for better health outcomes.

Table 6*How Respondents Knew about PCOS*

Response	Frequency	Percent (%)
Someone I know has PCOS	56	22.40
I read about it	100	40.00
I do not know about it	88	35.20
I was diagnosed with PCOS	5	2.00
No answer (other)	1	0.40
Total	250	100.00

The results show that a substantial portion of respondents became aware of polycystic ovary syndrome (PCOS) through self-initiated learning, with 40% reporting they read about it. In comparison, 35.2% admitted they did not know the condition. Only a small percentage knew about PCOS through personal connections (22.4%), were diagnosed (2%), or gave no response (0.4%). These findings underscore the ongoing gap in PCOS awareness, consistent with Azziz et al. (2016), who highlight PCOS as a prevalent yet underdiagnosed condition due to limited public and clinical understanding. However, Dokras et al. (2015) highlighted the importance of digital platforms and advocacy efforts in raising awareness about health issues, emphasizing the role of nurses in bridging this knowledge gap by providing accessible education, promoting early recognition, and creating supportive environments.

Table 7
Methods Used to Learn About PCOS

Source of Information	Frequency	Percent (%)
Reading books or magazines	18	7.20%
Internet	94	37.60%
Asking someone who has PCOS	40	16.00%
Asking a doctor or specialist	7	2.80%
I did not try to learn about PCOS	91	36.40%
Total	250	100.00%

Table 7 reveals that the Internet was the most common source of PCOS information (37.6%), followed by those who did not seek information (36.4%). At the same time, fewer relied on peers, print materials, or healthcare professionals. This supports findings by Malik and Bakir (2020), who noted that young women often prefer online sources for reproductive health due to ease and privacy. However, Mehta et al. (2019) warned of the risks of misinformation and emphasized the need for professional input. These findings highlight the nurse's role in promoting reliable health education through both digital and community-based channels.

Table 8
Knowledge of Common Symptoms Associated with PCOS

Statement	Mean	SD	QD
1. Irregular menstrual cycle is a symptom associated with PCOS.	2.16	1.17	Moderate
2. I am aware that facial acne is a symptom associated with PCOS	2.10	1.09	Moderate
3. I am aware that Hirsutism is a symptom associated with PCOS (Hirsutism is excess hair most often noticeable around the mouth and chin)	1.29	0.70	Low
4. I am aware that reduced fertility is a symptom associated with PCOS	1.51	0.90	Moderate
5. I am aware that weight gain is a symptom associated with PCOS	2.15	1.18	Moderate
6. I am aware that loss of hair in front of the head is a symptom associated with PCOS	1.26	0.65	Low
7. I am aware that psychological disturbance is a symptom associated with PCOS	1.41	0.77	Low
8. I am aware that Diabetes is a symptom associated with PCOS	1.20	0.60	Low

9. I am aware that Hypertension is a symptom associated with PCOS	1.14	0.52	Low
10. I am aware that abortion is associated with PCOS	1.12	0.47	Low
11. I am aware that early puberty is associated with PCOS	1.60	1.03	Moderate
12. I am aware that pain in the pelvic area is associated with PCOS	1.62	0.97	Moderate
13. I am aware that there are no symptoms associated with PCOS	1.09	0.46	Low
Overall	1.51	0.56	Moderate

Legend: 3.50 – 4.00 – Very high, 2.50 – 3.49 - High, 1.50 – 2.40 – Moderate, 1.00 – 1.49 – Low

The data indicate a moderate awareness of PCOS symptoms ($M = 1.51$, $SD = 0.56$), with irregular periods, weight gain, and acne being the most recognized, while knowledge of Hirsutism, hair loss, diabetes, and hypertension remains low. Similar findings by Fernandez et al. (2020) and Patel et al. (2021) highlight that while reproductive symptoms are better known, awareness of long-term health risks and broader PCOS implications is lacking. These insights underscore the need for nurses to promote reproductive health education, routinely assess for PCOS symptoms, and support early intervention.

Table 9
Knowledge of Potential Complications Linked to PCOS

Statement	Mean	SD	QD
1. I am aware that Diabetes is a complication associated with PCOS	1.12	0.45	Low
2. I am aware that Cardiovascular diseases are complications associated with PCOS	1.11	0.43	Low
3. I am aware that breast and uterine cancer are complications associated with PCOS	1.42	0.83	Low
4. I am aware that an increase in androgen levels is a complication associated with PCOS	1.10	0.42	Low
5. I am aware that anxiety is a complication associated with PCOS	1.35	0.80	Low
6. I am aware that Psychological disturbance is a complication associated with PCOS	1.35	0.70	Low
Overall	1.24	0.47	Low

Table 9 reveals low awareness of PCOS complications among respondents, with mean scores ranging from 1.10 to 1.42, especially regarding androgen levels, cardiovascular disease, and diabetes. Awareness was slightly higher for cancer risks and anxiety. Similar findings were reported by Bazarganipour et al. (2013) in underserved populations, while Ali (2018) noted moderate awareness among nursing students, underscoring the role of education. These results highlight the need for targeted training to equip nursing students as effective health educators for early PCOS detection.

Table 10
Understanding of PCOS Physiology, Treatment Options, and Cultural Beliefs

Statement	Mean	SD	QD
1. I am aware that PCOS is an inherited disease	1.24	0.47	Low

2. I am aware that regular ovulation leads to regular menstruation	1.25	0.65	Low
3. I am aware that treating PCOS reduces the risk of developing cancers	1.48	0.87	Low
4. I am aware that PCOS changes the shape of the ovaries	1.66	1.04	Moderate
5. I am aware that PCOS affects ovulation	1.15	0.54	Low
Overall	1.48	0.88	Low

The study reveals a generally low level of understanding among participants regarding the physiology, treatment options, and cultural beliefs related to Polycystic Ovary Syndrome (PCOS), with an overall mean score of 1.48 (SD = 0.88). The highest awareness was related to changes in ovarian shape (Mean = 1.66, SD = 1.04), while the lowest was about PCOS's effect on ovulation (Mean = 1.15, SD = 0.54). The data support Ali's (2019) findings on limited PCOS awareness among young women in rural and underserved areas, highlighting the importance of educational interventions in schools and communities to improve knowledge and attitudes towards the condition, and emphasizing the critical role of nurses, as stated by Kaur et al. (2020).

Table 11

Awareness of Remedies and Strategies to Alleviate PCOS Symptoms

	Mean	SD	QD
1. I am aware that exercise reduces symptoms of PCOS	2.07	1.18	Moderate
2. I am aware that losing weight reduces symptoms of PCOS	2.08	1.15	Moderate
3. I am aware that using contraceptives reduces symptoms of PCOS	1.58	0.88	Moderate
4. I am aware that eating vegetables reduces symptoms of PCOS	2.06	1.20	Moderate
5. I am aware that meals rich in protein reduce symptoms of PCOS	1.67	0.98	Moderate
6. I am aware that meals rich in fats reduce symptoms of PCOS	1.48	0.88	Low
Overall	1.82	0.87	Moderate

This table presents the awareness of remedies and strategies to alleviate symptoms of Polycystic Ovary Syndrome (PCOS) among respondents. Overall, awareness is described as moderate (Mean = 1.82, SD = 0.87). Among the items, the highest mean score was recorded for awareness of weight loss (Mean = 2.08, SD = 1.15) and exercise (Mean = 2.07, SD = 1.18). Conversely, awareness that meals rich in fats can help reduce symptoms scored the lowest (Mean = 1.48, SD = 0.88). Keller et al. (2019) found that many women with PCOS lack knowledge about lifestyle interventions, suggesting that future nurses play a crucial role in educating patients on exercise, diet, and weight management.

Table 12*Summary Table of Knowledge and Awareness Related to PCOS*

Component	Overall Mean	SD	QD
1. Basic Knowledge of Female Reproductive System Physiology	1.19	0.47	Low
2. Knowledge of Common Symptoms Associated with PCOS	1.51	0.56	Moderate
3. Knowledge of Potential Complications Linked to PCOS	1.24	0.47	Low
4. Understanding of PCOS Physiology, Treatment Options, and Cultural Beliefs	1.48	0.88	Low
5. Awareness of Remedies and Strategies to Alleviate PCOS Symptoms	1.82	0.87	Moderate
6. Previous Knowledge about PCOS (Yes: 63.6%)	-	-	Fairly Aware
7. Source of Knowledge about PCOS (Internet: 37.6%; No attempt: 36.4%)	-	-	The Internet is the most common source; high passive rate
Overall	1.45	0.65	Low to Moderate Awareness

The summary reveals that respondents have limited to moderate awareness of PCOS and reproductive health. Although some are familiar with its symptoms and remedies, knowledge about its complications and underlying physiology is lacking. Despite many claiming prior knowledge, a significant number have not actively sought information, underscoring the need for more effective educational efforts.

Section 4. Relationship between the Demographic Profile and Level of Health Literacy

Table 13*Level of Health Literacy of Women from Barangay Magsaysay in relation to their Age and Educational Attainment*

		Level of health literacy
Age	Correlation Coefficient	-.419***
	p-value	< 0.001
Educational Attainment	Correlation Coefficient	.155*
	p-value	0.014
n		250

Legend: *** significant at $\alpha=0.001$; *significant at $\alpha=0.05$

Table 13 shows a moderate negative correlation between age and health literacy and a significant positive link with educational attainment among women in Barangay Magsaysay. Sørensen et al. (2021) suggest age-related declines may stem from cognitive and digital access issues, though Nguyen et al. (2019) found no such link in some low-income groups. Van der Heide et al. (2013) highlight the role of social support and experience, while Nutbeam (2008)

points to lifelong learning and system access as key factors. These findings stress the need for age- and education-appropriate nursing communication to support informed health decisions.

Section 5. Relationship between the Demographic Profile and the level of awareness of PCOS

Table 14

Knowledge About PCOS from Barangay Magsaysay in relation to their Age and Educational Attainment

Component		Age	Educational Attainment
Basic knowledge about the physiology of the female reproductive system	Correlation Coefficient	-.184**	.376***
	Sig. (2-tailed)	0.004	0.0001
		250	250
Symptoms associated with PCOS	Correlation Coefficient	-.322***	.553***
	Sig. (2-tailed)	0.0001	0.0001
		250	250
Complications may happen due to PCOS	Correlation Coefficient	-.148*	.312**
	Sig. (2-tailed)	0.019	0.0001
		250	250
Physiology, treatment, and beliefs on PCOS	Correlation Coefficient	-.299***	.429***
	Sig. (2-tailed)	0.0001	0.0001
		250	250
Measures to decrease the symptoms of PCOS	Correlation Coefficient	-.330***	.450***
	Sig. (2-tailed)	0.0001	0.0001
	N	250	250

This study highlights the significant impact of age and education on women's knowledge of Polycystic Ovarian Syndrome (PCOS). Age showed a moderate negative correlation with symptom knowledge ($\rho = -0.322$, $p < .001$), likely due to younger women's greater access to online and social media health resources (Anderson et al., 2021; Fenton et al., 2018). Meanwhile, higher educational attainment was positively associated with better understanding of PCOS symptoms, management, and treatment beliefs, reinforcing the role of education in health literacy (Nutbeam, 2008). However, Alsubaie et al. (2023) found that misconceptions persist even among educated women, particularly about long-term risks like infertility and metabolic issues.

CONCLUSION AND RECOMMENDATIONS

Conclusion

The study revealed that the majority of respondents were women aged 25 to 44, most of whom had only completed high school. Although many had heard of PCOS, their overall health literacy remained at a moderate level, with limited ability to fully understand or apply health-related information. Awareness of PCOS, especially regarding hormonal symptoms, psychological impacts, and long-term complications, was generally low to moderate. The analysis further showed that demographic factors played a significant role. Age showed a

negative correlation, indicating that older women tended to have lower levels of health literacy and awareness.

In contrast, educational attainment was positively correlated, with those who had reached higher levels of education demonstrating greater understanding and awareness of PCOS. These findings highlight a notable gap in health education for women, particularly among older individuals and those with lower levels of education. Without adequate knowledge, women may not recognize PCOS symptoms, seek timely medical intervention, or adopt healthy preventive practices.

Recommendations

It is recommended that the women of Barangay Magsaysay take an active role in managing their reproductive health by participating in educational activities, seeking reliable information, and forming peer-support groups. Barangay and municipal officials are advised to prioritize reproductive health by organizing year-round campaigns and collaborating with health experts and institutions. Health workers should undergo continuous training, use simple, culturally sensitive communication, and employ interactive teaching methods. Family members and community leaders are encouraged to support open discussions, reduce stigma, and help women access necessary healthcare. Future researchers are advised to go beyond awareness studies by exploring actual practices, using larger and more diverse samples, employing longitudinal and qualitative methods, and testing community-based interventions to improve health outcomes.

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