The Bioscan
AN INTERNATIONAL QUARTERLY JOURNAL OF LIFE SCIENCES
21(1): 95-106, 2026 www.thebioscan.com

A Study on the Causes, Complications, and Risk Factors of Polycystic Ovarian Syndrome Among Married Women in the Cuddalore District.

Mrs. A. PONMALAR[1], Dr. S. VASUKI[2]

[1]Research Scholar, Department of Population Studies, Annamalai University, Annamalai Nagar, TN, India. Email: mssmalar@gmail.com
[2]Assistant Professor& Supervisor, Department of Population Studies, Annamalai University, Annamalai Nagar, TN, India. Email: vasukibothi2006@gmail.com

DOI: 10.63001/tbs.2026.v21.i01.pp95-106

Keywords
Polycystic Ovarian Syndrome, Lifestyle, Risk Factors, Causes, Complications, Reproductive Age.

Received on:
19-11-2025

Accepted on:
11-12-2025

Published on:
10-01-2026

ABSTRACT

Polycystic Ovary Syndrome (PCOS) is a common endocrine disorder among women of reproductive age and is a major contributor to subfertility associated with anovulation. Moreover, insufficient awareness of PCOS, its management, and the lifestyle modifications required for effective control adversely affects health outcomes. This qualitative study examines married women's understanding and perceptions of the syndrome, its treatment options, and the lifestyle changes necessary for its management. A total of 140 married women with PCOS were selected through convenience sampling from the Cuddalore District. The emerging themes encompassed women's understanding of PCOS, its causes, complications, and associated risk factors.

Introduction

Polycystic Ovarian Syndrome (PCOS) is a complex endocrine disorder that affects women of reproductive age and is characterized by hormonal imbalance, irregular menstrual cycles, and the presence of polycystic ovaries. Although the exact etiology of PCOS remains unclear, several factors—including genetic predisposition, insulin resistance, and environmental influences—are believed to contribute to its development. If left untreated, PCOS can lead to serious complications such as infertility, type 2 diabetes, cardiovascular disease, and endometrial cancer. Therefore, understanding its causes, complications, risk factors, and treatment options is essential for effective management and for preventing long-term adverse outcomes.

Objectives

1. To investigate the causes of PCOS among the selected respondents in the Cuddalore District.
2. To assess the relationship between PCOS and its complications among the selected population in the study area.
3. To identify the risk factors associated with PCOS among the selected respondents in the study area.

Research Design

This study utilized a qualitative exploratory research design to investigate the stated objectives by conducting semi-structured interviews. The interview questions explored participants' understanding and awareness of Polycystic Ovary Syndrome (PCOS) and its related treatment options, as well as the impact of PCOS on essential lifestyle adjustments required for effective management of the condition. The interview schedule was developed based on a comprehensive review of the existing literature. Necessary modifications were made after the review, and expert feedback was obtained to confirm the face validity of the interview schedule. After finalizing the tool, it was pilot-tested with a few participants to ensure clarity and appropriateness.

This study adopted a qualitative exploratory research design to address the research objectives outlined earlier. Semi-structured interviews were selected as the primary method of data collection, allowing flexibility to probe participants' nuanced understanding and lived experiences while accommodating their convenience. The interview guide was developed after an extensive review of literature on PCOS, with particular attention to its causes, complications, and risk factors.

Sample Size

The study adopted a sample of 140 respondents diagnosed with Polycystic Ovary Syndrome (PCOS) from the Cuddalore District, Tamil Nadu. Participants were recruited through convenience sampling, ensuring that they met the eligibility criteria. The participants were women aged 19 to 35 years with a confirmed diagnosis of PCOS based on clinical records. This age range was selected to capture the reproductive-age population most affected by PCOS and to align with common diagnostic parameters. The sample size of 140 was determined considering practical constraints such as time, budget, and availability of participants, while

still providing sufficient data for qualitative exploration. Data collection was carried out through semi-structured telephonic interviews, which offered in-depth insights into participants' awareness, perceptions, and lifestyle experiences related to PCOS.

Sampling Method

Using a convenience sampling technique, potential participants were contacted to determine their willingness to participate in the planned semi-structured interview. Rapport and trust were established between the interviewer and participants throughout the process. Participants were informed about the purpose of the study, and consent was obtained to record the interview while assuring them of the confidentiality of their identity. Respondents were encouraged to seek clarification for any questions they found unclear. The interview schedule used in the study is presented in the following tables.

Table 1: Percentage Distribution of Respondents by Level of Causes of PCOS

Variables	Causes Level	No. of Respondents	Percentage(%)
Genetic Predisposition	Very Important	32	22.86
	Important	9	6.43
	Moderately Important	35	25.00
	Somewhat Important	51	36.43
	Not Important	13	9.29
	Total	140	100.00
Hormonal Imbalance	Very Important	37	26.43
	Important	27	19.29
	Moderately Important	38	27.14
	Somewhat Important	31	22.14
	Not Important	7	5.00
	Total	140	100.00
Insulin Resistance	Very Important	21	15.00
	Important	35	25.00
	Moderately Important	39	27.86
	Somewhat Important	31	22.14
	Not Important	14	10.00

	Total	140	100.00
Environmental Factors	Very Important	33	23.57
	Important	37	26.43
	Moderately Important	26	18.57
	Somewhat Important	39	27.86
	Not Important	5	3.57
	Total	140	100.00
Lifestyle Factors	Very Important	21	15.00
	Important	32	22.86
	Moderately Important	48	34.29
	Somewhat Important	35	25.00
	Not Important	4	2.86
	Total	140	100.00

The data indicate that respondents hold varied perceptions regarding the causes of PCOS, with no single factor overwhelmingly emphasized as the dominant cause. For genetic predisposition, the highest proportion of respondents (36.43%) rated it as somewhat important, while only 22.86% considered it very important, suggesting moderate awareness of hereditary influences. In contrast, hormonal imbalance received the strongest emphasis, with 26.43% identifying it as a very important cause and 27.14% rating it as moderately important—indicating that women generally recognize endocrine disturbances as a central contributor to PCOS. Insulin resistance, another key etiological factor, was perceived as moderately important by 27.86%, followed closely by important (25.00%) and somewhat important (22.14%) ratings, reflecting an intermediate but growing awareness of metabolic factors.

Environmental factors were also acknowledged, with the largest share (27.86%) rating them as somewhat important and 26.43% as important, while a smaller group (23.57%) considered them very important, showing that respondents perceive environmental influences as relevant but not primary. For lifestyle factors, the highest proportion (34.29%) rated them as moderately important, followed by somewhat important (25.00%) and important (22.86%), indicating that behavioural elements such as diet, physical activity, and stress are recognized but not strongly emphasized.

Overall, the findings show that hormonal imbalance emerges as the most strongly perceived cause of PCOS, whereas perceptions of genetic, environmental, insulin-related, and lifestyle

factors tend to be distributed across moderate to somewhat important levels. This suggests a mixed and varied understanding of PCOS aetiology among respondents, with greater recognition of biological causes compared to lifestyle and environmental influences.

Table 2: Percentage Distribution of Respondents by Complications level of PCOS

Variables	Complications level	No. of Respondents	Percentage
Infertility	Very Important	24	17.14
	Important	32	22.86
	Moderately Important	33	23.57
	Somewhat Important	38	27.14
	Not Important	13	9.29
	Total	140	100.00
Type 2 Diabetes	Very Important	14	10.00
	Important	46	32.86
	Moderately Important	46	32.86
	Somewhat Important	25	17.86
	Not Important	9	6.43
	Total	140	100.00
Cardiovascular Disease	Very Important	22	15.71
	Important	47	33.57
	Moderately Important	29	20.71
	Somewhat Important	34	24.29
	Not Important	8	5.71
	Total	140	100.00
Endometrial Cancer	Very Important	38	27.14
	Important	24	17.14
	Moderately Important	31	22.14
	Somewhat Important	32	22.86
	Not Important	15	10.71
	Total	140	100.00
Obesity	Very Important	11	7.86
	Important	3	2.14
	Moderately Important	43	30.71

	Somewhat Important	46	32.86
	Not Important	37	26.43
	Total	140	100.00

The data reveal varied perceptions among respondents regarding the severity of complications associated with PCOS. For infertility, the largest proportion (27.14%) rated it as somewhat important, followed by moderately important (23.57%) and important (22.86%), indicating that while infertility is recognized, it is not perceived as the most critical complication. In the case of Type 2 diabetes, both important and moderately important categories received the highest and equal responses (32.86% each), suggesting that respondents are aware of the metabolic risks but view them as moderately serious rather than extremely severe. Cardiovascular disease was perceived as a significant health concern, with 33.57% rating it as important and 24.29% as somewhat important, indicating a relatively strong understanding of long-term cardiac risks.

Endometrial cancer received the highest emphasis among all complications, with 27.14% identifying it as very important and another 22.14% and 22.86% rating it as moderately and somewhat important respectively. This highlights strong awareness of the potential oncological risks linked to untreated PCOS. Conversely, perceptions of obesity as a complication were more evenly distributed, with the highest share (32.86%) marking it as somewhat important and 30.71% as moderately important, while 26.43% considered it not important, indicating mixed views on obesity as a consequence rather than a cause of PCOS.

Overall, the findings suggest that respondents perceive endometrial cancer and cardiovascular disease as the most critical complications, whereas infertility and obesity are viewed as comparatively less severe. The pattern indicates varying levels of awareness regarding long-term health risks, with stronger recognition of life-threatening complications than chronic metabolic outcomes.

Table 3: Percentage Distribution of Respondents by Level of Risk Factors for PCOS

Variables	Levels Risk Factors	No. of Respondents	Percentage
Family History	Very Important	9	6.43
	Important	12	8.57
	Moderately Important	21	15.00
	Somewhat Important	53	37.86
	Not Important	45	32.14
	Total	140	100.00
Obesity	Very Important	12	8.57
	Important	8	5.71
	Moderately Important	26	18.57
	Somewhat Important	31	22.14
	Not Important	63	45.00
	Total	140	100.00
Physical Inactive	Very Important	10	7.86
	Important	13	7.86
	Moderately Important	45	32.86
	Somewhat Important	57	40.71
	Not Important	15	10.71
	Total	140	100.00
Unhealthy Diet	Very Important	6	4.29
	Important	4	2.86
	Moderately Important	52	37.14
	Somewhat Important	50	35.71
	Not Important	28	20.00
	Total	140	100.00
Stress	Very Important	9	7.14
	Important	14	9.29
	Moderately Important	38	27.14
	Somewhat Important	42	30.00
	Not Important	37	26.43
	Total	140	100.00

The distribution of respondents regarding PCOS risk factors reveals varied levels of awareness and perceived importance among the participants. Family history is acknowledged as a contributing factor by many respondents, with the largest share (37.86%) rating it as somewhat important, though a considerable proportion (32.14%) also considered it not important, suggesting mixed understanding of genetic influences on PCOS. Obesity, a widely recognized clinical risk factor, was perceived as not important by nearly half of the respondents (45%), indicating a substantial gap in awareness regarding its role in exacerbating hormonal imbalance and metabolic dysfunction.

Physical inactivity was regarded as a significant risk factor, with 40.71% rating it as somewhat important and 32.86% as moderately important, reflecting greater recognition of lifestyle-related contributors. Similarly, unhealthy dietary habits were primarily viewed as moderately important (37.14%) or somewhat important (35.71%), demonstrating acknowledgement of diet's role, though not with high severity. Stress was perceived with moderate significance, with 30% categorizing it as somewhat important and 27.14% as moderately important, while 26.43% considered it not important, indicating divided perceptions regarding psychological influences on PCOS.

Overall, the findings indicate that respondents view family history and physical inactivity as the most relevant risk factors, while obesity—despite its clinical importance—is largely underestimated. Dietary habits and stress fall within a moderate significance range, suggesting partial awareness but limited understanding of their full impact on PCOS risk. This pattern reflects the need for enhanced community education on evidence-based risk factors to support more informed prevention and management strategies.

Chart – 1: Causes, Complications and Risk Factors of PCOS - Structural Fit

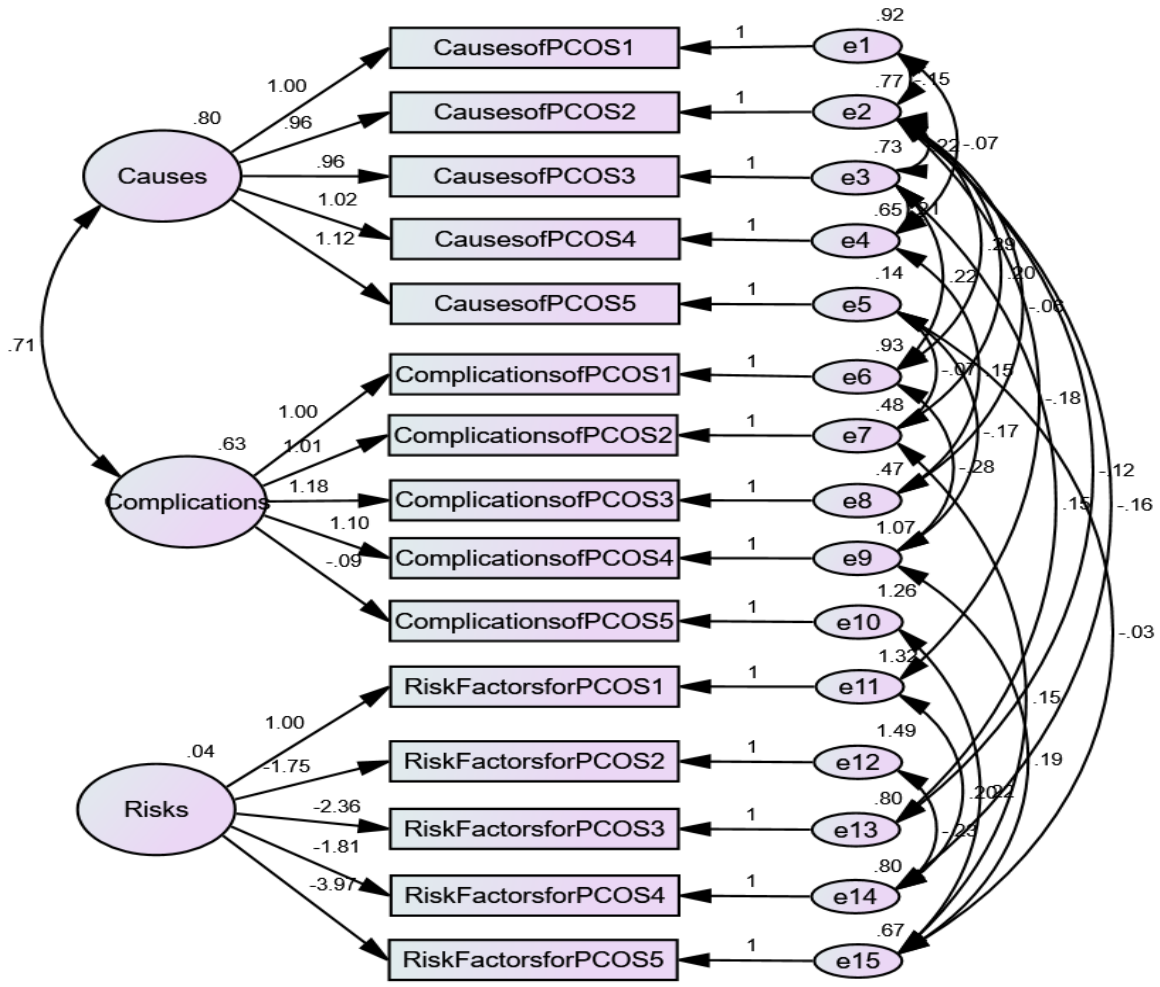

Table 4: GFI and Base Line Comparisons

Model Fit	Result	Cut Off Value
GFI	0.945	> 0.90
AGFI	0.901	> 0.80
NFI	0.937	> 0.90
RFI	0.901	> 0.90

Source : Computed from Primary Data

Table 4 shows the model fit indicate a good fit of the data to the above model, with Goodness of Fit Index (GFI) at 0.949, exceeding the recommended level cut-off value of 0.90. Similarly, AGFI, IFI, TLI and CFI are good fit. These results suggest that the model is a good

representation of the underlying data structure, providing a reliable basis for interpreting the effects of PCOS on reproductive health.

Table 5: Model Fit Summary - CMIN

Model	NPAR	CMIN	DF	P	CMIN/DF
Default model	53	59.823	67	.721	.893
Saturated model	120	.000	0		
Independence model	15	942.407	105	.000	8.975

Source : Computed from Primary Data

The CMIN fit indices in table 5 indicate that the default structural model fits the data very well. It yields a Chi-square (CMIN) of 59.823 with 67 degrees of freedom and a non-significant p-value of 0.721, suggesting no discrepancy between the observed and model-implied covariance matrices. The ratio CMIN/DF = 0.893 falls comfortable below the conservative cutoff of 3.0, reinforcing model adequacy. By contrast, the independence model (baseline) shows a large chi-square of 942.407 (df = 105, $p<0.001$) and CMIN/DF = 8.975, confirming that the hypothesized model explains substantially more variance than a null model. Thus, the fit statistics collectively support retaining the proposed causal-complication-risk structure for PCOS in this sample.

Table 6: RMSEA

Model	RMSEA	LO 90	HI 90	PCLOSE
Default model	0.000	0.001	0.039	0.987
Independence model	0.240	0.226	0.254	0.001

Source : Computed from Primary Data

The RMSEA results in table 6 show an excellent fit for the default model: RMSEA = 0.000, with a 90 percent confidence interval ranging from 0.001 to 0.039, and a PCLOSE value of 0.987, far exceeding the conventional threshold of 0.05. this indicates that the model's discrepancy per degree of freedom is negligible in contrast, the independence model displays a very poor fit (RMSEA = 0.240, LO = 0.226, HI 90 = 0.254, PCLOSE = 0.001), confirming that the hypothesized structure fits the data much better than a null model.

Table 7: Regression Weights: (Group number 1 - Default model)

			Estimate	S.E.	C.R.	P	Label
Insulin Resistance	<---	Causes	0.956	.120	7.930	***	
Environmental Factors	<---	Causes	1.017	.128	7.946	***	
Lifestyle Factors	<---	Causes	1.120	.116	9.657	***	
Hormonal Imbalance	<---	Causes	0.961	.132	7.271	***	

			Estimate	S.E.	C.R.	P	Label
Genetic Predisposition	<---	Causes	1.000				
Type 2 Diabetes	<---	Complications	1.006	.136	7.400	***	
Cardiovascular Disease	<---	Complications	1.178	.147	8.018	***	
Infertility	<---	Complications	1.000				
Endometrial Cancer	<---	Complications	1.097	.189	5.805	***	
Obesity	<---	Complications	-0.087	.121	-.719	.472	
Obesity	<---	Risks	-1.753	1.199	-1.463	.144	
Physical Inactive	<---	Risks	-2.359	1.431	-1.649	0.099	
Family History	<---	Risks	1.000				
Unhealthy Diet	<---	Risks	-1.813	1.214	-1.494	0.135	
Stress	<---	Risks	-3.973	2.478	-1.603	0.109	

The p-values in table -7 indicate whether each regression weight differs significantly from zero. A $p<0.05$ (typically demoted by * for $p<0.001$) means the effect is statistically significant, thus all cause-related paths (Insulin Resistance, Environmental Factors, Lifestyle Factors, Hormonal Imbalance) and complication paths (Type 2 Diabetes, Cardiovascular Disease, Endometrial Cancer) are highly significant ($p<0.001$). in contrast, paths with $p>0.005$-obesity complications ($p=0.472$), obesity risks ($p=0.144$). physical Inactivity Risks ($p= 0.109$) are non-significant, suggesting those variables do not have a statistically meaningful impact on the respective outcomes in this method.

Conclusion

The study provides valuable insights into the perceptions, awareness, and experiences of PCOS among 140 women in the Cuddalore District, revealing substantial gaps in understanding despite the condition's high prevalence. While hormonal imbalance emerged as the most emphasized cause, genetic predisposition and environmental factors were perceived as less important, indicating a skewed understanding of the multifactorial nature of PCOS. Although respondents recognized cardiovascular disease and endometrial cancer as serious complications, infertility and obesity were viewed with comparatively lower concern, suggesting an underestimation of their long-term health implications.

Risk factor assessment further showed that family history and physical inactivity were considered important contributors, while obesity—an established clinical risk factor—was largely dismissed, reflecting potential cultural perceptions or lack of awareness. Structural equation modelling demonstrated a strong model fit (GFI 0.945, AGFI 0.901, CFI 0.937), and regression results confirmed significant associations between insulin resistance,

environmental, lifestyle, and hormonal factors with the causes of PCOS, as well as between type 2 diabetes, cardiovascular disease, and endometrial cancer with its complications. Conversely, obesity and physical inactivity showed non-significant paths under risk factors, indicating weaker direct influence within this sample.

Overall, the findings highlight the need for targeted health education, early screening, and lifestyle-oriented interventions to enhance awareness and reduce potential complications. Culturally tailored programs that emphasize balanced diet, regular physical activity, and routine medical follow-up could empower women to manage PCOS more effectively and ultimately reduce future morbidity.

References

1. **Y. Liu, C. Li, L.L. Wang (2014)**, Logistic regression of risk factors for polycystic ovarian syndrome with Clomiphene citrate resistance, J Reprod Med, 39 (11) , pp: 1542-1545.
2. **Norman RJ, Teede HJ. (2018),** A new evidence-based guideline for assessment and management of polycystic ovary syndrome. Med J Aust., 209(7), pp:299-300.
3. **Escobar-Morreale HF**. **(2018)**, Polycystic ovary syndrome: definition, aetiology, diagnosis and treatment, Nat Rev Endocrinol,14(5), pp:270-284.
4. **Combs JC, Hill MJ, Decherney AH. (2021)**, Polycystic Ovarian Syndrome Genetics and Epigenetics, Clin Obstet Gynecol, 64(1), pp:20-25.
5. **Chen YH, Heneidi S, Lee JM, Layman LC, Stepp DW (2013)**, Gamboa GM, Chen BS, Chazenbalk G, Azziz R. miRNA-93 inhibits GLUT4 and is overexpressed in adipose tissue of polycystic ovary syndrome patients and women with insulin resistance. Diabetes, 62(7), pp:2278-86.