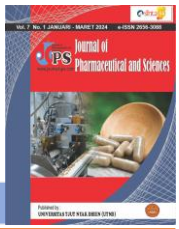
Journal of Pharmaceutical and Sciences
Electronic ISSN: 2656-3088 DOI: https://doi.org/10.36490/journal-jps.com
Homepage: https://journal-jps.com



ORIGINAL ARTICLE JPS. 2026, 9(3), 2801-2807

Association Between Risk Factors and Medication Use Among Patients with Polycystic Ovary Syndrome at Kencana Clinic, Sorong City

Hubungan Faktor Risiko dengan Penggunaan Obat pada Pasien Sindrom Ovarium Polikistik di Klinik Kencana, Kota Sorong

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Abstract

Polycystic ovary syndrome (PCOS) requires individualized pharmacotherapy because reproductive and metabolic manifestations vary among patients. This study evaluated the associations of age, documented menstrual complaints, and pregnancy-related presentations with medication-count category among patients with PCOS at Kencana Clinic, Sorong City. A retrospective cross-sectional analysis was conducted on 118 eligible records selected by computer-generated simple random sampling from 412 records dated January 2022-December 2023. Associations were analyzed using the chi-square test and expressed as odds ratios (ORs) with 95% confidence intervals (CIs). Patients aged >25 years were more likely to receive >2 medications than those aged ≤25 years (40/73 vs 16/45; OR = 2.197; 95% CI = 1.022-4.721; p = 0.042). Menstrual complaints and pregnancy-related presentations were not significantly associated with medication-count category (p = 0.297 for each comparison). Older age was associated with greater medication-count complexity, but did not establish causality. Treatment planning should integrate age with metabolic status, comorbidities, and reproductive goals.

Keywords: Polycystic ovary syndrome; Risk factors; Medication use; Menstrual complaints; Reproductive health

Abstrak

Sindrom ovarium polikistik (polycystic ovary syndrome/PCOS) memerlukan farmakoterapi individual karena manifestasi reproduktif dan metaboliknya bervariasi antarpasien. Penelitian ini mengevaluasi hubungan usia, keluhan menstruasi yang terdokumentasi, dan presentasi terkait kehamilan dengan kategori jumlah obat pada pasien PCOS di Klinik Kencana, Kota Sorong. Analisis potong lintang retrospektif dilakukan terhadap 118 rekam medis yang dipilih melalui simple random sampling berbasis bilangan acak komputer dari 412 rekam medis periode Januari 2022-Desember 2023. Hubungan dianalisis menggunakan uji chi-square dan dinyatakan sebagai odds ratio (OR) dengan interval kepercayaan (CI) 95%. Pasien berusia >25 tahun lebih berpeluang menerima >2 obat dibandingkan pasien berusia ≤25 tahun (40/73 dibandingkan 16/45; OR = 2,197; 95% CI = 1,022-4,721; p = 0,042). Keluhan menstruasi dan presentasi terkait kehamilan tidak berhubungan signifikan dengan kategori jumlah obat (masing-masing p = 0,297). Usia yang lebih tua berhubungan dengan kompleksitas jumlah obat yang lebih tinggi, tetapi tidak membuktikan kausalitas. Perencanaan terapi perlu mengintegrasikan usia, status metabolik, komorbiditas, dan tujuan reproduksi.

Kata kunci: Sindrom ovarium polikistik; Faktor risiko; Penggunaan obat; Keluhan menstruasi; Kesehatan reproduksi

https://doi.org/10.36490/journal-jps.com.v9i3.1794

Article History:
Received: 30/05/2026,
Revised: 20/08/2026,
Accepted: 20/08/2026,
Available Online: 22/08/2026.

QR access this Article

Introduction

Polycystic ovary syndrome (PCOS) is a heterogeneous endocrine-metabolic disorder affecting women of reproductive age. Its core manifestations include clinical or biochemical hyperandrogenism, ovulatory dysfunction, and polycystic ovarian morphology, while insulin resistance, dyslipidemia, type 2 diabetes, cardiovascular risk, and psychological disorders contribute substantially to its long-term burden [1,17,18].

Reported prevalence varies with diagnostic criteria and population characteristics. Contemporary estimates indicate that approximately 8-13% of reproductive-aged women are affected, and a substantial proportion remain undiagnosed [2,6,17]. Region-specific evidence remains important because clinical presentation, access to care, and prescribing practices may differ across settings. The pathophysiology of PCOS reflects interacting genetic, neuroendocrine, ovarian, and metabolic mechanisms. Increased gonadotropin-releasing hormone pulse frequency may favor luteinizing hormone secretion, while hyperinsulinemia amplifies ovarian androgen production and reduces sex hormone-binding globulin. These mechanisms impair follicular maturation and ovulation and can intensify both reproductive and metabolic manifestations [1,18].

No single pharmacological regimen addresses all PCOS phenotypes. Combined oral contraceptives, metformin, antiandrogens, ovulation-inducing agents, and selected anti-obesity medications are used according to the dominant symptoms, metabolic risk, reproductive plans, contraindications, and patient preferences [3,4,17,19-22]. Consequently, the number of medications prescribed may reflect clinical complexity, but medication count alone cannot establish treatment appropriateness or disease severity.

Recent retrospective evidence from a tertiary hospital in South Korea described metformin, hormonal agents, and other medications used in PCOS, whereas an Indonesian study reported local treatment patterns in Yogyakarta [5,11]. Persistent gaps in clinicians' knowledge of diagnostic criteria and management have also been documented [14]. However, evidence linking patient characteristics to medication-count complexity in Sorong City is limited.

This study therefore aimed to determine whether age, menstrual complaints, and pregnancy-related presentations were associated with the number of medications prescribed to patients with PCOS at Kencana Clinic, Sorong City. The analysis was intended to generate locally relevant evidence for more individualized and rational pharmacotherapy.

Methods

Study Design

This observational analytic study used a retrospective cross-sectional design. Medical records of patients diagnosed with PCOS at Kencana Clinic, Sorong City, between January 2022 and December 2023 constituted the source data. Exposure variables and the medication-count outcome were abstracted from the same episode of care; therefore, the analysis estimates associations rather than temporal or causal effects.

Study Population and Sample

The sampling frame comprised 412 medical records with a documented PCOS diagnosis. The minimum sample size was estimated with the finite-population proportion formula $n = NZ^2p(1-p)/[d^2(N-1) + Z^2p(1-p)]$, using $N = 412$, $Z = 1.96$, $p = 0.50$, and precision $d = 0.08$. The calculation yielded 110.2 records and was rounded up to 111; the final sample of 118 exceeded this minimum. Each record in the sampling frame was assigned a sequential identification number. A computer-generated random-number sequence without replacement was used, and records were screened in that order until 118 eligible records had been obtained.

Variables

The independent variables were age group (≤25 or >25 years), documented menstrual complaints, and pregnancy-related presentation. A menstrual complaint was coded as present when the clinical record documented irregular, delayed, or prolonged menstruation; where cycle intervals were available, cycles <21 or >35 days were considered abnormal. Pregnancy-related presentation denoted attendance recorded for pregnancy follow-up or a fertility/pregnancy program and was not interpreted as a diagnosis of infertility. The dependent variable was medication-count category, defined as ≤2 versus >2 distinct medications recorded on the prescription for the indexed encounter.

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Inclusion and Exclusion Criteria

Records were eligible when they concerned female patients aged 15-45 years with a documented PCOS diagnosis during the study period and contained the age, clinical presentation, and prescription information required for classification. Eligible prescription records had to identify each medication and provide sufficient information on dose and route of administration for data abstraction. Records were excluded when the PCOS diagnosis was not confirmed, the patient was outside the prespecified age range, or the medical record or prescription was incomplete, damaged, or illegible. Duplicate encounters were resolved by retaining the indexed encounter used in the sampling frame.

Data Collection

Data were abstracted using a standardized extraction sheet that captured age, documented clinical presentation, menstrual-complaint subtype, pregnancy-related presentation, and prescribed medications. Direct identifiers were removed before analysis. Because the variables were derived from routine clinical documentation, only information explicitly recorded in the source file was coded.

Data Analysis

Categorical variables were summarized as frequencies and percentages. Bivariate associations between each risk factor and medication-count category were evaluated using Pearson's chi-square test. All contingency tables had expected cell counts >5; therefore, Fisher's exact test was not required. A normality test was not applicable because no continuous variable was analyzed. Odds ratios (ORs) and 95% confidence intervals (CIs) were reported with the reference category stated in the corresponding table note. Statistical significance was set at a two-sided $p < 0.05$.

Results and Discussion

A total of 118 randomly selected records met the eligibility criteria and were included in the analysis. Patient characteristics and medication-count categories are summarized in Table 1 and Figure 1. Associations with age, menstrual complaints, and pregnancy-related presentation are presented in Tables 2-4.

Characteristics of Patients with Polycystic Ovary Syndrome

Table 1. Characteristics of patients with polycystic ovary syndrome at Kencana Clinic, Sorong City (n = 118)

Patient characteristics	n (%) (n = 118)
Age	
≤25 years	45 (38.1%)
>25 years	73 (61.9%)
Primary clinical presentation	
Menstrual complaints	70 (59.3%)
Pregnancy-related presentation	48 (40.7%)
Menstrual complaint type	
Irregular menstruation	58 (82.86%)
Delayed menstruation	9 (12.86%)
Prolonged menstruation	3 (4.28%)
Pregnancy-related presentation	
Pregnancy follow-up	40 (83.33%)
Fertility program	8 (16.67%)
Medication-count category	
≤2 medications	62 (52.5%)
>2 medications	56 (47.5%)

Note: *Data are n (%). Percentages for complaint subtypes are calculated within their presentation group.*

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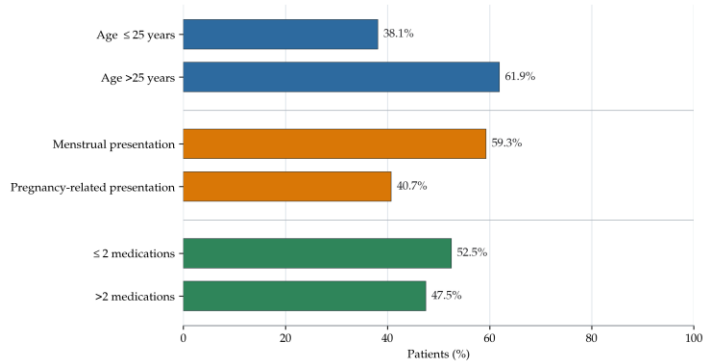

Figure 1. Distribution of age group, primary clinical presentation, and medication-count category among patients with PCOS (n = 118).

Most patients were >25 years old (61.9%). Menstrual complaints were the most frequent primary presentation (59.3%), and irregular menstruation predominated within this group (82.86%). Of the 48 pregnancy-related presentations, 40 (83.33%) involved pregnancy follow-up and 8 (16.67%) involved a fertility program.

Slightly more than half of the patients received ≤2 medications (52.5%), while 47.5% received >2. This distribution should not be interpreted as a measure of prescribing quality because medication classes, indications, dose, duration, and clinical outcomes were not analyzed. Contemporary studies likewise show that PCOS care spans reproductive, metabolic, dermatological, and weight-related treatments [5,7,17,19].

The predominance of menstrual complaints is clinically plausible because ovulatory dysfunction is a core PCOS manifestation [8,9,13,17,23]. Nevertheless, the complaint categories in this study were abstracted from routine records rather than reassessed with a standardized research instrument, so misclassification remains possible.

The near-even division between simpler and more complex medication counts is consistent with individualized management: a single agent may target one dominant concern, whereas combinations may address menstrual regulation, hyperandrogenism, metabolic risk, or fertility simultaneously [4,10,19-22].

Association Between Age and Medication-Count Category

The relationship between age group and medication-count category was evaluated using Pearson's chi-square test (Table 2).

Table 2. Association between age group and medication-count category

Age group	Medication-count category		p-value	OR	95% CI
	≤2 medications	>2 medications			
≤25 years	29 (46.8%)	16 (28.6%)	0.042*	2.197	1.022-4.721
>25 years	33 (53.2%)	40 (71.4%)			

Note: *Percentages are column percentages. OR compares patients aged >25 years with those aged ≤25 years for the outcome >2 medications. *p < 0.05.*

Age was significantly associated with medication-count category (p = 0.042). Patients aged >25 years had 2.197 times the odds of receiving >2 medications compared with patients aged ≤25 years (95% CI = 1.022-4.721). Because the confidence interval was close to 1.0, the estimate should be interpreted cautiously.

A plausible explanation is that metabolic abnormalities, comorbidities, and reproductive-care needs accumulate or become more clinically apparent with age, increasing the likelihood that several therapeutic targets are addressed. Longitudinal evidence shows greater multimorbidity and medication use among women with PCOS by midlife [12], and current guidance recommends treatment according to the patient's metabolic profile and reproductive goals rather than age alone [17,18]. The present association therefore does not demonstrate that age caused the use of combination therapy; unmeasured BMI, insulin resistance, dyslipidemia, and comorbidity could partly explain the finding. The local age pattern reported previously [11] provides contextual support but not causal confirmation.

Association Between Menstrual Complaints and Medication-Count Category

The association between documented menstrual complaints and medication-count category is shown in Table 3.

Electronic ISSN : 2656-3088
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Table 3. Association between menstrual complaints and medication-count category

Menstrual complaints	Medication-count category		p-value	OR	95% CI
	≤2 medications	>2 medications			
Present	34 (48.6%)	36 (51.4%)	0.297	0.675	0.322-1.415
Absent	28 (58.3%)	20 (41.7%)			

Note: Percentages are row percentages. OR compares absence with presence of menstrual complaints for the outcome >2 medications; p > 0.05.

No statistically significant association was identified between menstrual complaints and medication-count category (p = 0.297). This null result does not imply that menstrual dysfunction is clinically unimportant. Current guidelines regard cycle irregularity as a central manifestation, but recommend that treatment be selected according to the patient's reproductive goals, hyperandrogenism, and metabolic risk [13,17,19,20,23].

The absence of an association may reflect the broad operational grouping of menstrual complaints and the use of medication count rather than medication class or indication. Metformin, combined oral contraceptives, and other agents can be used alone or in combination for different therapeutic targets [4,10,19,20]. In addition, physician-level practice variation and incomplete documentation can influence observed treatment patterns [14].

Association Between Pregnancy-Related Presentation and Medication-Count Category

The association between pregnancy-related presentation and medication-count category is summarized in Table 4.

Table 4. Association between pregnancy-related presentation and medication-count category

Pregnancy-related presentation	Medication-count category		p-value	OR	95% CI
	≤2 medications	>2 medications			
Absent	28 (58.3%)	20 (41.7%)	0.297	1.482	0.707-3.110
Present	34 (48.6%)	36 (51.4%)			

Note: *Percentages are row percentages. OR compares present with absent pregnancy-related presentation for the outcome >2 medications; p > 0.05.*

Pregnancy-related presentation was not significantly associated with medication-count category (p = 0.297; OR = 1.482; 95% CI = 0.707-3.110). The wide confidence interval includes 1.0 and is compatible with both lower and higher odds, indicating substantial statistical uncertainty. This group combined pregnancy follow-up and fertility-program encounters, which can involve different clinical goals and treatment pathways. Evidence-based fertility management in PCOS prioritizes lifestyle optimization and, when ovulation induction is indicated, commonly recommends letrozole as first-line pharmacotherapy [15-17,23]. The heterogeneous presentation definition and lack of information on infertility duration, ovulatory status, partner factors, prior therapy, and pregnancy status may therefore have obscured a true association.

Study Limitations

This study has several limitations. Its retrospective single-center design limits generalizability and prevents causal inference. Routine medical records may contain incomplete or inconsistent documentation, and the operational categories for menstrual and pregnancy-related presentations may be affected by misclassification. Important potential confounders-including BMI, waist circumference, lifestyle, insulin resistance, lipid profile, PCOS phenotype, comorbidities, reproductive goals, medication class, treatment duration, prescriber preference, and clinical outcomes-were unavailable. Medication count was therefore only a proxy for therapeutic complexity and should not be interpreted as polypharmacy, disease severity, or prescribing quality. Finally, the modest sample size produced imprecise estimates, as reflected by confidence intervals close to or crossing the null value.

Conclusions

Among patients with PCOS at Kencana Clinic, age >25 years was associated with higher odds of receiving >2 medications (OR = 2.197; 95% CI = 1.022-4.721), whereas menstrual complaints and pregnancy-related presentation were not significantly associated with medication-count category. Clinically, age may be

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used as a prompt for more comprehensive assessment, but it should not be the sole basis for combination therapy. Prescribers should integrate metabolic status, comorbidities, reproductive goals, contraindications, and patient preferences when selecting treatment. Prospective multicenter studies that capture BMI, laboratory parameters, medication classes, indications, treatment duration, and outcomes are needed to confirm these findings and determine whether more complex regimens improve patient-important outcomes.

Conflict of Interest

The authors declare that they have no financial, professional, or personal conflicts of interest that could have influenced the conduct, interpretation, or publication of this study.

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