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GLOBAL PREVALENCE OF OLIGOMENORRHEA AND AMENORRHEA IN POLYCYSTIC OVARY SYNDROME(PCOS): A META-ANALYSIS OF GEOGRAPHIC, ETHIC AND DIAGNOSTIC VARIATION

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Polycystic ovary syndrome (PCOS) affects approximately 6–20% of reproductive-aged women globally, with menstrual irregularities-oligomenorrhea (cycles exceeding 35 days) and amenorrhea (absence of menstruation for three or more months) representing its core diagnostic features. These irregularities are often the first and most distressing signs for patients. Nevertheless, precise global prevalence estimates and variations across geographic regions and ethnicities remain inadequately characterized, limiting the development of culturally sensitive diagnostic approaches. Without this understanding, we risk applying a one-size-fits-all framework to a condition that manifests differently across the world.

This study aimed to determine the pooled global prevalence of oligomenorrhea and amenorrhea in PCOS and to assess variability by geographic region, ethnicity, and diagnostic criteria (Rotterdam, NIH).

Following PRISMA guidelines, a systematic search of PubMed, EMBASE, Web of Science, and Scopus (1990–2026) was conducted for studies reporting oligomenorrhea and/or amenorrhea prevalence in women diagnosed with PCOS using standardized criteria. Subgroup analyses were performed according to geographic region, ethnicity, and diagnostic criteria.

Across 47 eligible studies spanning 28 countries, we found that oligomenorrhea affects approximately 75–85% of women with PCOS, while amenorrhea affects 30–50%. Geographic variation was not statistically significant: Europe 76.2%, North America 81.3%, Asia 79.5%, Middle East 77.1%, Latin America 82.4%. However, a more nuanced story emerged when we looked beneath the surface. Striking ethnic variation appears in associated features: East Asian women demonstrate oligomenorrhea rates comparable to Caucasian populations but have a 3-to-4-fold lower prevalence of hirsutism, indicating potential diagnostic under-recognition. This means that relying solely on visible signs of hyperandrogenism may lead to missed or delayed diagnoses in this population, inadvertently excluding them from timely care. Classical PCOS phenotypes (Rotterdam phenotypes A and B) showed near-universal oligomenorrhea (97–100%), whereas ovulatory phenotype C had a prevalence of only 5–12%. No significant differences were observed by diagnostic criteria (Rotterdam 79.2%, NIH 76.8%).

In essence, menstrual irregularity represents a universal feature of PCOS that transcends geographic boundaries, with oligomenorrhea emerging as the predominant pattern. Although geographic regions do not significantly alter prevalence, ethnicity profoundly influences phenotypic expression; particularly hyperandrogenic features; necessitating culturally sensitive diagnostic approaches. This has a direct clinical implication: menstrual history remains the most accessible and powerful screening tool, but it must be interpreted alongside an awareness of how PCOS presents differently across ethnic groups. These findings support a precision medicine framework by enabling accurate diagnosis, culturally attuned care, and improved outcomes for millions of women with PCOS worldwide. Ultimately, this work moves us closer to a model of care that treats the individual, not just the diagnosis-recognizing that a woman's experience of PCOS is shaped by her ethnicity, geography, and lived reality.