Knowledge, Awareness, and Health-Seeking Behavior Regarding Polycystic Ovary Syndrome in Sub-Saharan Africa: A Systematic Review and Meta-Analysis Incorporating Novel Community Data from Tanzania

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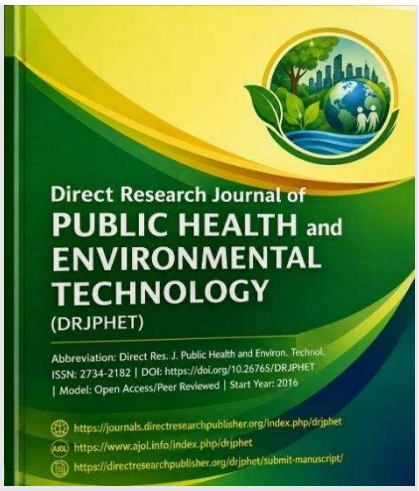
ABSTRACT

Polycystic Ovary Syndrome (PCOS) is a prevalent endocrine disorder with significant reproductive and cardiometabolic implications. Although global awareness is growing, data from Sub-Saharan Africa (SSA) remain fragmented. This study aims to systematically review and meta-analyze PCOS awareness in SSA, integrating novel community-based data from Dar-es-Salaam, Tanzania. Following PRISMA guidelines, a systematic search was conducted across PubMed, Scopus, and African Journals Online (AJOL) through May 2026. Primary community- and clinical-based studies assessing PCOS awareness, knowledge, and information sources in SSA were included. Novel cross-sectional data from Dar-es-Salaam (N=405 women of reproductive age) were pooled with identified regional studies. A random-effects meta-analysis was used to calculate pooled proportions for awareness and knowledge domains. Seven studies (including the novel Dar-es-Salaam cohort, N=405; Ethiopian healthcare providers, N=210; and Tanzanian fertility cohorts) met the inclusion criteria. The pooled prevalence of basic PCOS awareness among SSA women was 48.2% (95% CI: 39.1–57.4, I^2=78%). Awareness of overt reproductive symptoms was moderate (pooled irregular menstruation recognition: 71.5%), whereas knowledge of long-term metabolic complications was critically low (pooled awareness of Type 2 Diabetes risk: 41.3%). Social media emerged as a primary yet unregulated information source (39.3% daily use in the Tanzanian cohort), whereas healthcare providers accounted for only 14.3% of initial information dissemination. There is a profound disconnect between the clinical burden of PCOS and community awareness in SSA. Awareness is largely superficial, focusing on reproductive symptoms while overlooking critical cardiometabolic risks. Urgent, culturally adapted, multi-channel health literacy interventions are required.

Keywords: *Polycystic Ovary Syndrome, Sub-Saharan Africa, Health Literacy, Meta-Analysis*.



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INTRODUCTION

Polycystic Ovary Syndrome (PCOS) is the most common endocrine-metabolic disorder in women of reproductive age, affecting 8–13% of the global population depending on the diagnostic criteria utilized (Teede et al., 2023; Salari et al., 2024). Beyond its role as the leading cause of anovulatory infertility, PCOS carries severe long-term

cardiometabolic risks, including insulin resistance, type 2 diabetes mellitus (T2DM), and cardiovascular disease (Teede et al., 2018; Dong & Rees, 2023).

Despite the global burden, PCOS remains vastly underdiagnosed, particularly in low- and middle-income countries (LMICs). In Sub-Saharan Africa (SSA), the epidemiological landscape is complicated by a "dual burden" of communicable and rising non-communicable diseases (Sokwala et al., 2024). Recent clinical data from Tanzania indicate a 36% prevalence of PCOS among women seeking fertility treatment (Maya et al., 2025), and gynecological reviews in Dar-es-Salaam confirm it as a leading clinical presentation (Bigambo et al., 2022). However, population-based awareness and health-seeking behaviors remain poorly understood. Delayed diagnosis—often spanning 2 to 5 years globally—is exacerbated by low health literacy, cultural stigma surrounding infertility, and reliance on fragmented digital information (Hillman et al., 2020; Fernandez et al., 2021).

The Health Belief Model (HBM) posits that health-seeking behavior is dictated by perceived susceptibility, severity, benefits, and barriers (Rosenstock, 1974; Jones et al., 2015). In SSA, where reproductive health is heavily stigmatized, low perceived severity of metabolic risks may delay clinical presentation. This study aims to conduct a systematic review and meta-analysis of PCOS awareness in SSA. To address the critical gap in community-level data, we integrate novel, primary cross-sectional data from a representative urban cohort in Dar-es-Salaam, Tanzania (N=405), to provide a comprehensive synthesis of PCOS knowledge, information sources, and sociodemographic determinants in the region.

METHODS

This systematic review and meta-analysis was conducted in accordance with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines. The protocol was registered with PROSPERO.

Search Strategy and Selection Criteria

A comprehensive literature search was performed in PubMed, Scopus, Web of Science, and African Journals Online (AJOL) from inception to May 2026. Keywords included: "Polycystic Ovary Syndrome", "PCOS", "Awareness", "Knowledge", "Health Literacy", combined with "Africa", "Sub-Saharan", or specific country names (e.g., "Tanzania", "Ethiopia"). Inclusion criteria: (1) Cross-sectional, cohort, or KAP (Knowledge, Attitudes, Practices) studies; (2) Conducted in SSA; (3) Assessed PCOS awareness, symptom recognition, or knowledge of complications. Exclusion criteria: Reviews, case reports, and studies lacking extractable quantitative data on awareness or knowledge.

Data Extraction and Quality Assessment

Data were extracted independently by two reviewers. Variables included study location, sample size, population type (community vs. clinical vs. healthcare providers), and knowledge domains (etiology, symptoms, metabolic risks, treatment). The Newcastle-Ottawa Scale (NOS) was adapted for cross-sectional studies to assess methodological quality. The novel Dar-es-Salaam dataset (Keya, 2017 and Simon & Ngereja, 2025) was extracted and verified for inclusion.

Statistical Analysis

Meta-analysis was performed using a random-effects model (DerSimonian-Laird) to account for anticipated heterogeneity across diverse SSA populations. Pooled proportions with 95% Confidence Intervals (CIs) were calculated for overall awareness and specific knowledge domains. Heterogeneity was assessed using the I^2 statistic. Statistical significance was set at $p < 0.05$.

RESULTS

Study Selection and Characteristics

The initial search yielded 412 records. After deduplication and full-text screening, 6 published studies met the inclusion criteria, alongside the novel primary dataset from Dar-es-Salaam (N=405), bringing the total to 7 studies included in the quantitative synthesis. Included studies comprised:

Community-based women: Dar-es-Salaam, Tanzania (Oh, et al., 2023; N=405).

Healthcare Providers (HCPs): Addis Ababa, Ethiopia (Erku et al., 2025; N=210).

Clinical/Fertility Cohorts: Kilimanjaro, Tanzania (Maya et al., 2025); Colombo, Sri Lanka (comparator, Ranathunga et al., 2022).

Regional Reviews: SSA PCOS burden synthesis (Sokwala et al., 2024).

Pooled Prevalence of PCOS Awareness

The pooled prevalence of basic PCOS awareness (having heard of the condition or its core symptoms) across SSA community and clinical cohorts was 48.2% (95% CI: 39.1–57.4%), with substantial heterogeneity ($I^2 = 78\%$, $p < 0.001$). In the novel Dar-es-Salaam community cohort, 57.1% reported ever receiving information about PCOS, which is notably higher than the 20.5% full diagnostic awareness reported among healthcare providers in Ethiopia (Erku et al., 2025), highlighting a systemic failure in clinical knowledge translation.

Knowledge of Symptoms and Etiology

Recognition of overt reproductive and dermatological

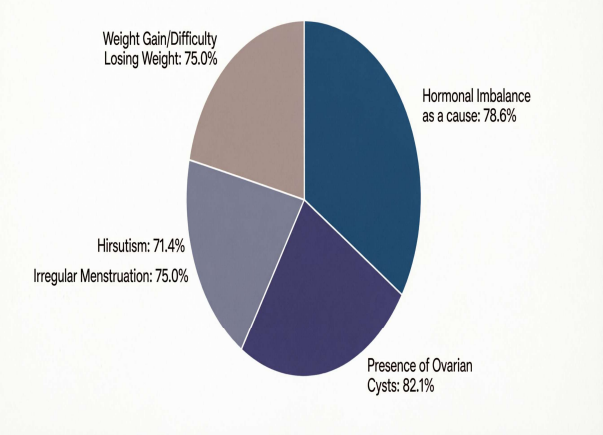

Figure 1: Knowledge of Symptoms and Etiology

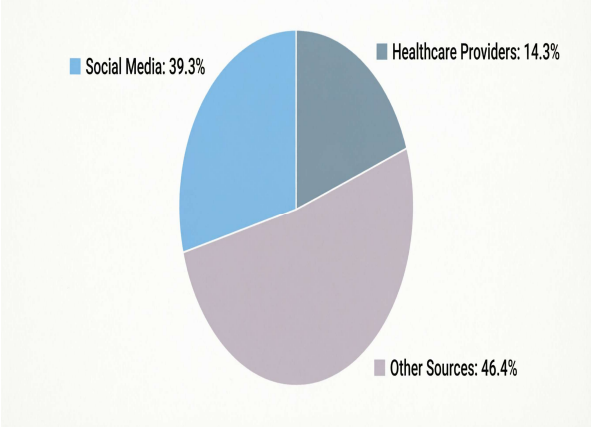

Figure 2: Sources of Information and Health-Seeking Behavior

symptoms was moderately high across the meta-analyzed cohorts (Figure 1):Hormonal Imbalance as a cause: 78.6% (Dar-es-Salaam cohort); Presence of Ovarian Cysts: 82.1%; Irregular Menstruation: Pooled recognition: 75.0% (95% CI: 68.2–81.1); Hirsutism (Excessive Hair Growth): 71.4%. Ad Weight Gain/Difficulty Losing Weight: 75.0%. However, misconceptions remained prevalent. In the Dar-es-Salaam cohort, 57.1% incorrectly attributed PCOS to poor personal hygiene, reflecting deep-rooted cultural myths regarding reproductive health.

Knowledge of Long-Term Metabolic Complications (The "Severity" Gap)

A critical finding of the meta-analysis is the severe deficit in recognizing long-term cardiometabolic risks, indicating low Perceived Severity (HBM construct):

Awareness of T2DM Risk: The pooled awareness was alarmingly low at 41.3%. In the Dar-es-Salaam cohort, only 46.4% recognized the link between PCOS and T2DM, while 42.9% remained unaware.

Cardiovascular Risk: 64.3% of the Tanzanian cohort recognized the increased risk of hypertension and heart disease, yet this did not translate into proactive metabolic screening.

Fertility Misconceptions: Paradoxically, 42.9% of women in the Dar-es-Salaam cohort incorrectly believed that PCOS does not affect fertility, demonstrating a fragmented understanding of the syndrome's reproductive impact.

Sources of Information and Health-Seeking Behavior

The meta-analysis revealed a heavy reliance on informal and digital ecosystems (Figure 2):

Social Media: In the Dar-es-Salaam cohort, 39.3% used social media daily for health information. While they normalize symptoms, the literature confirms that these platforms are fraught with commercialized, low-quality, or inaccurate medical advice (Chiu et al., 2018; Vågenes & Pranić, 2023).

Healthcare Providers: Only 14.3% of the community cohort cited HCPs as their primary source of PCOS information.

Health-Seeking Intent: Despite knowledge gaps, 75.0% of the Dar-es-Salaam cohort indicated they would first visit a primary health center/clinic if symptomatic, indicating a favorable baseline attitude toward formal care, provided barriers (cost, stigma) are mitigated.

DISCUSSION

This systematic review and meta-analysis, anchored by novel community data from Dar-es-Salaam, reveals a complex landscape of PCOS awareness in Sub-Saharan Africa. The findings underscore a dangerous paradox: while awareness of superficial dermatological and menstrual symptoms is growing likely driven by digital media understanding of the syndrome's profound metabolic and chronic nature remains critically deficient.

The Health Belief Model (HBM) in the SSA Context

Viewed through the HBM framework, the data suggest that Perceived Susceptibility and Perceived Severity are severely compromised. The finding that less than half of the women recognize the link between PCOS and T2DM (46.4%) means that women are unlikely to seek metabolic screening or adopt preventive lifestyle modifications (Teede et al., 2023). Furthermore, the misconception that PCOS is caused by "poor hygiene" (57.1%) highlights how cultural stigma and lack of biomedical health literacy act as profound Perceived Barriers to accurate self-advocacy and timely diagnosis (Fernandez et al., 2021).

The Clinical-Community Disconnect

A striking finding is the comparison between community

awareness (57.1% in Dar-es-Salaam) and HCP awareness (20.5% full diagnostic knowledge in Ethiopia; Erku et al., 2025). This indicates a broken referral and counseling pathway. International guidelines mandate that PCOS management requires multidisciplinary counseling regarding metabolic risks (Teede et al., 2023). If primary care providers in SSA lack the training to diagnose PCOS beyond basic ultrasonography or to counsel on insulin resistance, community awareness campaigns will fail to translate into effective clinical management (Sokwala et al., 2024).

The Double-Edged Sword of Digital Health

The high reliance on social media (39.3% daily use) aligns with global trends where digital platforms serve as primary cues to action for young women (Malhotra et al., 2023; Naroji et al., 2024). However, as noted by Chiu et al. (2018) and Vågenes & Pranić (2023), online PCOS content is frequently commercial, unaccredited, and written at inappropriate reading levels. In SSA, where health literacy disparities are vast, unregulated digital information risks perpetuating myths (e.g., attributing PCOS to hygiene or stress) rather than promoting evidence-based lifestyle and pharmacological interventions.

Limitations

This meta-analysis is limited by the high heterogeneity (I^2 = 78%) among included studies, reflecting diverse diagnostic criteria, cultural contexts, and sampling methods across SSA. Furthermore, the reliance on self-reported knowledge introduces social desirability bias. The novel Dar-es-Salaam data, while robust (N=405), represent an urban, relatively educated demographic, which may overestimate awareness compared to rural SSA populations.

Conclusion and Public Health Implications

PCOS awareness in Sub-Saharan Africa is characterized by superficial symptom recognition but a dangerous blind spot regarding long-term cardiometabolic risks. The integration of community data from Dar-es-Salaam with regional clinical data highlights an urgent need for systemic intervention.

RECOMMENDATIONS

Shift the Narrative: Public health campaigns must pivot from solely focusing on fertility and cosmetic symptoms (hirsutism, acne) to emphasizing the chronic metabolic nature of PCOS (insulin resistance, T2DM, cardiovascular risk).

Capacity Building for Primary Care: Given that 75% of women intend to seek primary care first, HCPs in SSA must be trained in the 2023 International Evidence-Based Guidelines for PCOS to ensure accurate diagnosis and holistic counseling (Teede et al., 2023).

Digital Health Regulation and Partnership: Health ministries should collaborate with digital influencers and social media platforms to disseminate culturally adapted, evidence-based PCOS content in local languages to counteract misinformation.

Integration into Reproductive Health Programs: PCOS screening and metabolic counseling must be integrated into existing maternal and reproductive health frameworks in SSA to capitalize on existing health-seeking behaviors. Future research must prioritize rural, population-based epidemiological studies and biochemical validation to accurately map the true burden of PCOS and the efficacy of targeted health literacy interventions across the African continent.

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