ENSIGN GLOBAL UNIVERSITY

FACULTY OF PUBLIC HEALTH

DEPARTMENT OF COMMUNITY HEALTH

AWARENESS AND KNOWLEDGE OF POLYCYSTIC OVARIAN SYNDROME AMONG NURSES AT THE TEMA METROPOLIS IN THE GREATER ACCRA REGION OF GHAN

BY

[RHODALINE OHENE FENTENG]

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A THESIS SUBMITTED TO THE DEPARTMENT OF COMMUNITY HEALTH,

FACULTY OF PUBLIC HEALTH, ENSIGN GLOBAL UNIVERSITY IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE

MASTER OF PUBLIC HEALTH DEGREE

NOVEMBER, 2025

DECLARATION

I hereby declare that except for references to other people's work, which I have duly cited, this research project submitted to the Ensign Global University, Kpong, is the result of my investigation and has not been presented for another degree elsewhere.

Rhodaline Ohene Fenteng (247100303) … 7/10/2025

(Student) Signature Date

Certified by:

Dr. Edward Kofi Sutherland …… ……

(Supervisor) Signature Date

Certified by:

Dr. Stephen Manortey …… ……

(Head of Academics) Signature Date

DEDICATION

This work is dedicated to my beloved husband, Gideon Ansah Forkuo for his enormous encouragement and financial support that has brought me this far. Also, to my parents and siblings Irene, Frederick, Rosemary, Keziah and Daniel for the diverse roles they played in my academic journey.

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I am deeply grateful to Jehovah God for His abundant grace, wisdom, and strength which have sustained me throughout the course of my academic journey as a whole.

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May the Almighty God bless all who supported me in diverse ways to the completion of this thesis.

Definition of Terms

TERM	DEFINITION
Polycystic Ovary Syndrome (PCOS)	A common endocrine disorder among women of reproductive age, characterized by hormonal imbalance, irregular menstrual cycles, and multiple cysts on the ovaries. It is one of the leading causes of infertility and metabolic complications in women
Awareness	The ability of nurses to recognize or recall information about PCOS, including its symptoms, causes, effects, and management. In this study, awareness refers to whether the nurse has ever heard of PCOS and can generally describe it.
Knowledge	The depth of understanding nurses possess regarding PCOS, including its risk factors, diagnosis, complications, and treatment options. It reflects factual, conceptual, and procedural comprehension of the condition.
Rotterdam Criteria	The internationally accepted diagnostic criteria for PCOS, established by the European Society of Human Reproduction and Embryology (ESHRE) and the American Society for Reproductive Medicine (ASRM) in 2003. Diagnosis requires the presence of two out of three of the following: (1) Oligo- or anovulation, (2) Clinical or biochemical signs of hyperandrogenism, and (3) Polycystic ovaries visible on ultrasound, with exclusion of other causes of androgen excess.

LIST OF ABBREVIATIONS

PCOS - Polycystic Ovary Syndrome

BMI – Body Mass Index

KAP- Knowledge Attitude and Practice

AOR- Adjusted Odds Ratio

COR- Crude Odds Ratio

ABSTRACT

Introduction: Polycystic Ovary Syndrome (PCOS) is one of the most common endocrine disorders affecting women of reproductive age, with a global prevalence ranging from 6% to 20%. Despite its high prevalence and association with various reproductive, metabolic, and psychological complications, awareness and early detection remain limited, particularly in developing countries. Nurses, as frontline healthcare providers, play a vital role in health education and promotion, making their knowledge and awareness of PCOS essential to early diagnosis and patient support.

Objectives: This study aims to assess the level of awareness and knowledge of PCOS among nurses in the Tema Metropolis in the Greater Accra Region of Ghana.

Methods: An analytical cross-sectional study were conducted among registered nurses working in the Tema Metropolis. Participants were selected using multi-stage random sampling. Data were collected through a structured, self-administered questionnaire and analyzed using SPSS to generate descriptive and inferential statistics. Pearson's Chi square test and simple logistic were used to assess the association at the univariate level and Multiple logistic regression was used to assessed the strength of association at the multivariate level. Significance level was at 5%.

Results: The study included 260 nurses with 11 (4.26%) being enrolled nurses, 116 (44.96%) registered nurses, 89 (34.50%) midwives, and 44 (12.40%) were nurse specialists. About two thirds 179 (68.85%) were aware of PCOS. Of this, 60 (33.6%) demonstrated high knowledge, 76 (42.5%) demonstrated moderate knowledge, and 43 (24.1%) demonstrated low knowledge on the causes, symptoms, management of PCOS. Factors that influenced awareness are the work experience (AOR = 1.44, p = 0.04), Receiving formal training (AOR = 2.33, p = 0.03) and having interest in women reproductive health (AOR = 2.71, p = 0.01).

Conclusion: Although a majority of nurses in the Tema Metropolitan were aware of PCOS, a substantial proportion demonstrated only moderate to low knowledge regarding its causes, symptoms, and management. This highlights a critical need for the Ministry of Health to strengthen continuing education, training, and awareness campaigns to enhance nurses' knowledge and capacity in managing PCOS effectively

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CHAPTER ONE

INTRODUCTION

1.1 Background Information

Polycystic Ovary Syndrome (PCOS) is a prevalent endocrine disorder affecting an estimated 6% to 20% of women of reproductive age worldwide,(Bozdag et al., 2016; Lizneva et al., 2016). The syndrome is characterised by clinical features such as hyperandrogenism, ovulatory dysfunction, and the presence of polycystic ovaries (Rotterdam ESHRE/ASRM-Sponsored PCOS Consensus Workshop Group, 2004). PCOS is associated with significant reproductive, metabolic, and psychological consequences (Teede et al., 2018). These include infertility, menstrual irregularities, insulin resistance, type 2 diabetes, cardiovascular complications, depression, anxiety, and reduced quality of life (Teede et al., 2018; Escobar-Morreale, 2018; Brutocao et al., 2018). The pathophysiology of PCOS is multifactorial and not fully understood (Escobar-Morreale, 2018).. However, it is believed to be influenced by a complex interaction of genetic predisposition, hormonal imbalances, and environmental factors (Rosenfield & Ehrmann, 2016). The heterogeneous nature of the syndrome complicates its diagnosis and management, contributing to delays in detection and treatment (Azziz et al., 2016).

Globally, increasing awareness campaigns and research have sought to improve the early detection and management of PCOS (Manu et al., 2022)., but knowledge gaps persist particularly in low- and middle-income countries (LMICs), where access to specialized reproductive health services is limited (Manu et al., 2022). Nurses, especially those working in maternal and community health units, are often the first point of contact for women experiencing reproductive health issues. Their ability to recognize symptoms, provide accurate health information, and initiate appropriate referrals is essential in ensuring timely diagnosis and effective management of PCOS (Moran et al., 2020).

While awareness refers to general recognition or familiarity with PCOS, knowledge encompasses a deeper understanding of its causes, clinical presentation, risk factors, complications, and management options. Research indicates that even among healthcare professionals, knowledge of PCOS is often insufficient. A study by Ali et al. (2021) in Pakistan found that a significant proportion of nurses lacked comprehensive knowledge of PCOS, particularly regarding its metabolic and psychological implications. Similarly, studies in Nigeria and India have shown that while nurses may have heard of PCOS, their detailed understanding is limited, affecting their ability to provide holistic care (Akingbade et al., 2022; Gupta et al., 2020).

In Ghana, limited research has been conducted to assess the level of awareness and knowledge of PCOS among healthcare providers, particularly nurses. Existing studies tend to focus on the clinical and metabolic characteristics of PCOS among women rather than the preparedness of frontline health workers. For example, Owiredu et al. (2019) documented the hormonal and metabolic profiles of Ghanaian women with PCOS, identifying high levels of insulin resistance, obesity, and dyslipidemia. While these findings underscore the importance of early detection and multidisciplinary management, the study did not explore whether nurses and other healthcare providers are adequately informed to respond to such cases.

Antwi-Boasiako et al. (2021) also explored reproductive health challenges in Ghana, highlighting issues such as irregular menstruation and infertility symptoms commonly associated with PCOS. However, like previous research, this study did not investigate the competence or awareness levels of healthcare personnel tasked with managing these cases. Given the increasing burden of PCOS and the critical role of nurses in health promotion and disease prevention, there is a pressing need to assess their knowledge and awareness, particularly in urban areas such as Tema Metropolis.

1.2 Problem Statement

Polycystic Ovary Syndrome (PCOS) is a major global public health concern affecting an estimated 6% to 20% of women of reproductive age, depending on the diagnostic criteria applied (Bozdag et al., 2016; Lizneva et al., 2016). It is among the leading causes of female infertility and is associated with multiple comorbidities, including insulin resistance, obesity, type 2 diabetes, cardiovascular disease, and mental health disorders such as depression and anxiety (Teede et al., 2018; Escobar-Morreale, 2018). Despite its widespread impact, PCOS remains underdiagnosed and poorly managed worldwide. Studies from various regions such as Asia, Africa, and Latin America indicate that limited awareness among healthcare providers significantly contributes to delayed diagnosis and suboptimal patient outcomes (Rao et al., 2021; Manu et al., 2022).

Globally, nurses are recognised as frontline providers in reproductive and primary healthcare settings, yet research shows that many are inadequately trained to recognise and manage PCOS (Moran et al., 2020). A systematic review by Brutocao et al. (2018) emphasised that early identification by healthcare workers is crucial for minimising long-term complications. However, awareness among nurses remains low, particularly in low- and middle-income countries, where access to continuous professional education is often limited (Nisenblat & Norman, 2020).

In Ghana, the situation is no different. While studies have investigated the clinical and metabolic characteristics of PCOS among women (Owiredu et al., 2019; Agyekum & Owiredu, 2015), there is little empirical research assessing the knowledge, attitudes, and practices of nurses toward the condition. Most available reproductive health studies in Ghana do not address PCOS specifically, and there is a notable absence of national guidelines or structured training on PCOS for nursing professionals.

This knowledge gap is especially troubling in urban areas like Tema Metropolis, where nurses are often the first contact for patients experiencing reproductive health issues. Without sufficient

knowledge of PCOS, nurses may misinterpret symptoms, fail to provide timely referrals, or inadequately educate patients, thereby undermining early intervention efforts. Addressing this gap is essential for developing evidence-based educational interventions and improving women's reproductive health outcomes in both Ghana and similar settings globally.

1.3 The Rationale of the Study

Polycystic Ovary Syndrome (PCOS) is one of the most common endocrine disorders affecting women of reproductive age globally, yet it remains widely underdiagnosed and poorly managed, particularly in low- and middle-income countries (Teede et al., 2018; Escobar-Morreale, 2018). Nurses, as frontline healthcare workers, play a pivotal role in the early recognition, referral, and ongoing support of women with PCOS. However, emerging global literature suggests that many nurses lack sufficient knowledge of PCOS symptoms, diagnostic criteria, and its broader health implications (Rao et al., 2021; Moran et al., 2020).

In Ghana, where nurses are often the primary point of contact in reproductive healthcare, there is limited research on their awareness and knowledge of PCOS. Most existing studies concentrate on the clinical and metabolic characteristics of affected women (Owiredu et al., 2019; Agyekum & Owiredu, 2015), with minimal focus on the healthcare professionals who provide direct care. This presents a critical knowledge gap, as insufficient awareness among nurses may lead to missed diagnoses, inadequate patient education, and substandard care.

Results from this study can guide policy and educational interventions aimed at improving women's health outcomes through early diagnosis and management of PCOS. The findings of this study will be valuable for health education planners, nursing training institutions, policymakers, and reproductive health advocates. It will also provide baseline data for integrating PCOS-related content into nursing curricula and continuing professional development programs in Ghana and similar settings.

1.4 Conceptual framework

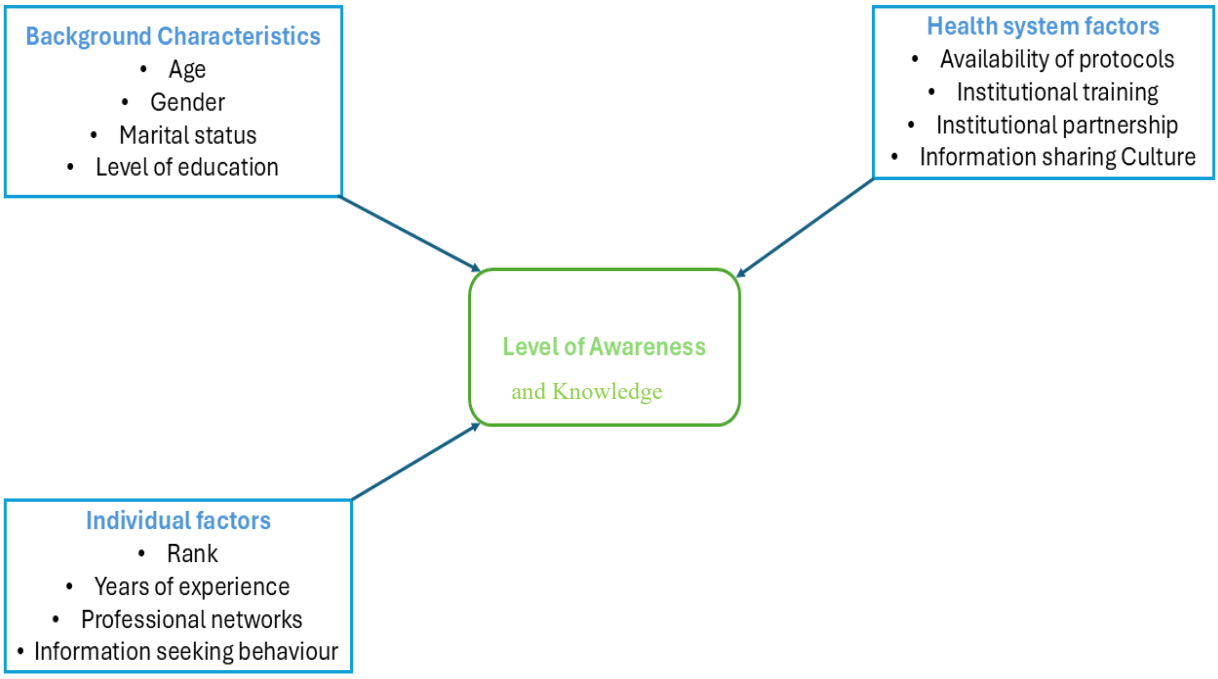

Figure 1: Conceptual framework

1.4.1 Narrative to Conceptual

This conceptual framework illustrates the key factors influencing the level of awareness and knowledge of Polycystic Ovary Syndrome (PCOS) among nurses. The framework is organized into three domains: background characteristics, individual factors, and health system factors, all of which interact to shape awareness.

Fundamental sociodemographic attributes such as age, gender, marital status, and level of education serve as baseline determinants of awareness. These characteristics influence the exposure, access to information, and general disposition of individuals toward health-related knowledge. For example, higher educational attainment may enhance the ability to comprehend and internalize medical concepts, while age and gender may affect exposure to reproductive health issues.

Personal and professional attributes also play a critical role in shaping awareness. These include rank within the nursing profession, years of experience, access to professional networks, and information-seeking behaviour. Nurses with longer years of experience or higher professional rank may encounter PCOS cases more frequently, thereby deepening their awareness. Similarly, belonging to professional networks or actively seeking information (e.g., through journals or online resources) enhances the likelihood of acquiring up-to-date knowledge about PCOS.

Institutional and systemic characteristics create an enabling environment for knowledge acquisition and dissemination. These include the availability of clinical protocols, institutional training opportunities, institutional partnerships, and an information-sharing culture. Facilities equipped with clear protocols and training programs provide structured learning avenues, while partnerships with academic institutions and NGOs may bring additional resources and expertise. A culture that encourages knowledge sharing among staff ensures that new information is diffused across the workforce, enhancing collective awareness.

By integrating these three domains, the framework underscores the multidimensional nature of PCOS awareness among nurses. Awareness does not arise in isolation; rather, it is shaped by an interplay of personal attributes, professional development, and institutional supports. Together, these factors provide a comprehensive lens for analyzing and improving knowledge and awareness of PCOS within the nursing profession.

1.5 Research Questions

1. What is the level of awareness of polycystic ovarian syndrome (PCOS) among nurses in Tema Metropolis?
2. What is the level of knowledge of PCOS, including its causes, symptoms, and complications, among nurses in Tema Metropolis?
3. What are the sources of information through which nurses learn about PCOS?

4. What factors are associated with the awareness and knowledge levels of PCOS among nurses?

1.6 General Objective

To assess the awareness and knowledge of PCOS among nurses in the Tema Metropolis of the Greater Accra Region, Ghana.

1.6.1 Specific Objectives

1. To determine the level of awareness of PCOS among nurses in within Tema Metropolis.
2. To assess nurses' knowledge regarding the causes, clinical features, complications, and management of PCOS.
3. To identify the sources of information through which nurses learn about PCOS.
4. To determine factors associated with the awareness and knowledge levels of PCOS.

1.7 Profile of Study Area

The study site refers to the specific physical locations where data collection and research activities will be conducted. Selecting a relevant and accessible site is critical for achieving the study objectives and ensuring the representativeness of the target population (Kumar, 2019). This study will take place in the Tema Metropolis, located in the Greater Accra Region of Ghana, a rapidly urbanizing area with a well-established healthcare system. The Tema Metropolitan Assembly is one of the 261 Metropolitan, Municipal, and District Assemblies (MMDAs) in Ghana, and among the 29 located within the Greater Accra Region (Sarpong et al., 2021).

Tema, the administrative capital, is a coastal city positioned about 25 kilometres east of Accra, the nation's capital. The Metropolis shares its boundaries to the northeast with Shai Osudoku District, to the southwest with Ledzokuku Municipal, to the northwest with Adentan and Ga East Municipalities, to the north with Akwapim South District, and to the south with the Gulf of Guinea. Ashaiman Municipal is an enclave completely surrounded by the Tema Metropolis. Covering a

land area of approximately 87.8 km², the Metropolis lies within the coastal savannah ecological zone (Mensah, 2018).

The choice of Tema Metropolis is based on the presence of a skilled and varied nursing workforce in an urban context where cases of PCOS are more likely to be encountered but potentially underrecognized. This setting will offer a practical and realistic environment to assess the awareness, knowledge and preparedness of frontline nurses in managing PCOS (TMA, 2018).

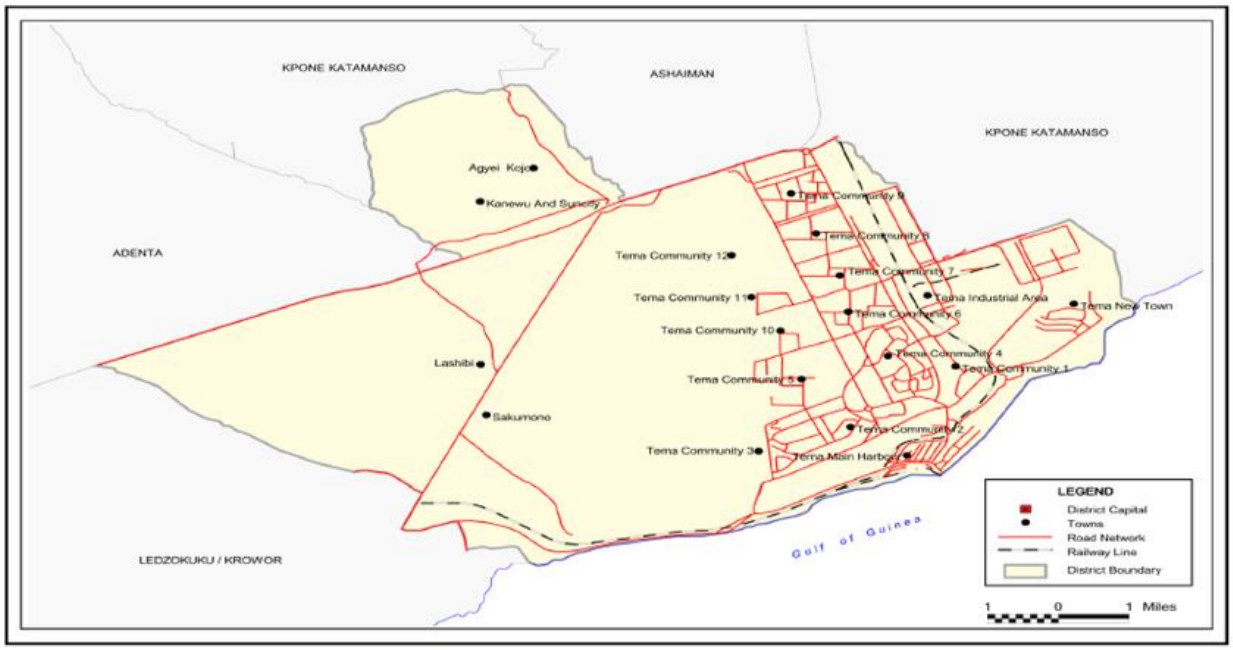

Figure 2: Map of Tema Metropolitan Assembly

Source: Ghana Statistical Service

1.8 Scope of study

This study focusses on the assessment of the level of awareness and knowledge of PCOS among nurses working in selected health facilities within the Tema Metropolis which is situated in the Greater Accra Region of Ghana. This study will employ a quantitative cross sectional design and data will be collected using a structured self-administered questionnaire. The target population will include registered nurses of all cadre who are actively engaged in clinical practice for not less than 6months. The study will examine repondents level of awareness and knowledge of PCOS in relation to the causes, signs and symptoms, risk factors, diagnosis and management options. As

well as their background characteristics, individual factors and health system factors which influences their level of awareness and knowledge of PCOS. Geographically, the study will be limited to Tema Metropolis and therefore findings will not be generalized to all nurses in Ghana.

1.9 .Organization of study

This study is organized into 6 chapters. Chapter One presents the background information, problem statement, the rationale of study, conceptual framework, research questions, general objectives, specific objectives, scope of study and organization of study. Chapter Two focuses on the literature review highlighting theoretical perspectives and empirical studies on PCOS awareness and knowledge among healthcare professionals. Chapter Three describes the methodology employed for the research which includes the study design, study population, inclusion and exclusion criteria, sample size, procedure used, data collected methods and instruments, pre-testing, data handling, statistical analysis. Chapter Four presents the results of the work which include the background characteristics, level of awareness on PCOS, level of knowledge of PCOS, participants' sources of information, their responses on factors that influences level of awareness on PCOS, also assessing the background characteristics associated with level of awareness on Polycystic Ovarian Syndrome, Assessing the factors associated with level of awareness on Polycystic Ovarian Syndrome and Factors influencing Level of Awareness on PCOS among Nurses. Chapter Five focuses on the discussion of Level of Awareness on PCOS among Nurses, Knowledge of PCOS, Source of information, Factors Influencing Awareness and Implications for Nursing Practice and Policy. Chapter Six provides the summary of findings, conclusions drawn from the study, and recommendations for policy, practice, and future research.

CHAPTER TWO

LITERATURE REVIEW

2.1 Prevalence of PCOS

Polycystic ovary syndrome (PCOS) represents a significant public health concern and is among the most prevalent endocrine disorders affecting women of reproductive age (Bozdag et al., 2016). It is estimated that 6–13% of women within this demographic are affected by the condition; however, up to 70% of cases remain undiagnosed, highlighting substantial gaps in detection and care (Salari et al, 2024). Globally it is estimated that in 2021, the prevalence of PCOS is 67.5 million with an incidence of 2.3million cases (Lin et al., 2025). In 2021, polycystic ovary syndrome (PCOS) was associated with a total of 610,000 disability-adjusted life years (DALYs), corresponding to an age-standardized rate of 7.6 per 100,000 women, representing a 27.58% increase since 1990 (Lin et al., 2025).

In sub-Saharan Africa, research on the prevalence of PCOS is limited, with reported rates ranging from 16% to 32% across various centers (Oriji & Onwuegbulam, 2019). The reported prevalence of polycystic ovary syndrome (PCOS) in sub-Saharan Africa ranges from 16% to 32%, significantly higher than the global estimates of 6% to 13% among women of reproductive age. This wide variation, coupled with the paucity of studies in the region, suggests potential methodological inconsistencies, including the use of varying diagnostic criteria and non-representative samples. Such disparities highlight a critical need for standardized, large-scale, population-based studies to accurately determine the burden of PCOS in sub-Saharan Africa.

Furthermore, the apparent gap in epidemiological data underscores the need to strengthen health systems to support early diagnosis, management, and prevention of PCOS-related complications in this population. In Ghana particularly, there is a gap in the knowledge of PCOS prevalence. Currently studies estimating the burden of PCOS is lacking. This implies that PCOS may be a

substantially underrecognized public health concern in the region, with implications for reproductive health, metabolic disorders, and long-term cardiovascular risk (Maya et al, 2018).

Prevalence varies across ethnic groups, with certain populations exhibiting higher susceptibility and experiencing more severe complications, particularly those related to metabolic dysfunction. The condition is associated with a broad spectrum of biological and psychological consequences. Notably, obesity, infertility, and altered body image commonly observed in individuals with PCOS can contribute to adverse mental health outcomes and may expose affected individuals to considerable social stigma. These factors underscore the need for improved awareness, early diagnosis, and comprehensive multidisciplinary management strategies.

2.2 Health professionals' level of Awareness and Knowledge on PCOS

2.2.1 Level of awareness of health professionals on PCOS

A consistent trend across multiple studies indicates that while a majority of health professionals and students have heard of PCOS, their knowledge is often moderate or inadequate. A study by Srour et al. (2024**)** found that 91.5% of female nurses in Lebanon had good knowledge of PCOS, yet only 39.6% demonstrated good health-related practices. Despite high awareness, nearly half were suspected to have PCOS based on symptoms, indicating a gap between knowledge and self-recognition. Similarly, Rehman et al. (2025) reported excellent knowledge in 92% of nurses from Bahawalpur, but highlighted that health educators were the main source of this knowledge, with only a minority getting information from peers or mass media.

On the contrary, Ferrao et al. (2022) observed that 87.4% of nursing students in Mangaluru had inadequate knowledge, stressing the need for structured teaching programs. Sunanda et al. (2016) and Thabet et al. (2021) similarly found that 76% and 82.9% of student nurses respectively had only moderate knowledge. Among medical students, Adhikari et al. (2023) found generally high levels of awareness, with 92.3% recognizing weight reduction as a key management strategy.

Another cross-sectional study conducted by Beulah et al, revealed that majority of auxiliary nurse and midwife students, had good knowledge of PCOS

2.2.2 Knowledge of Health professional on Symptoms, Risk Factors, and Complications of PCOS

Health professionals showed relatively good recognition of common PCOS symptoms, such as menstrual irregularities and obesity. Ahmad et al. (2025) noted that while typical symptoms were well-recognized, awareness of less common signs—such as frontal hair loss and sleep disturbances—was limited. Similarly, Arif et al. (2020) found low awareness scores among nurses and student nurses, although awareness was statistically associated with symptom recognition. Knowledge of PCOS complications, such as infertility, diabetes, and cardiovascular risks, remains inadequate. Jaber et al. (2022) reported that while most women were aware of PCOS, they lacked knowledge about its complications. Sasikala et al. (2021) found that only 70.45% of students were aware of long-term complications like metabolic syndrome, and fewer recognized links with hypertension and endometrial cancer.

Findings from Teede et al. (2025) highlight a global improvement in recognizing PCOS's reproductive, cardiometabolic, and psychological features following international guideline publications. However, knowledge gaps persist, with over 20% of respondents unaware of PCOS associations with non-alcoholic fatty liver disease, cardiovascular disease, and endometrial cancer.

2.3 Attitudes and Perceptions Toward PCOS

Attitudes toward PCOS management and disclosure were also examined. Adhikari et al. (2023) noted that most medical students would offer support and counselling to a friend with PCOS, though many believed patients would hide their diagnosis due to stigma. Similarly, Priya et al. (2019) found that only 38.4% of young female adults had adequate knowledge of PCOS, and knowledge scores were not significantly associated with demographic variables, suggesting

broader misconceptions. A unique perspective is presented by Teede et al. (2025), who explored attitudes toward renaming PCOS. A significant proportion of both patients and healthcare professionals supported a name change that reflects its metabolic and endocrine basis, with 84% agreeing to a consensus-driven process.

2.4 Factors influencing the level of Knowledge of Health professionals on PCOS

However, most students identified a lack of authentic materials as a major barrier to improving awareness. Social media and peer discussions were major knowledge sources, and gynaecologists were overwhelmingly chosen as the most suitable professionals for PCOS management.

Health professionals with higher levels of education or specialized training generally demonstrate superior PCOS knowledge. For instance, in a study among nurses in Lebanon, 91.5% had good knowledge of PCOS, though only 39.6% had good health-related practices, suggesting a gap between theoretical understanding and applied practice (Srour et al., 2024). Similarly, in an international survey, medical professionals showed increased recognition of the metabolic and reproductive dimensions of PCOS after dissemination of updated international guidelines (Teede et al., 2025). Medical students and interns in Nepal also showed a relatively high understanding of PCOS features and treatment modalities, though they lacked access to authentic awareness materials (Adhikari et al., 2023).

The source of PCOS-related knowledge significantly affects its depth and accuracy. Health educators and structured teaching were the most effective sources, compared to peers or media. A study from District Bahawalpur showed that 66.66% of nurses heard about PCOS from health educators, correlating with higher knowledge levels (Rehman et al., 2025). Similarly, in Mangaluru, knowledge significantly correlated with the primary source of information ($p = 0.012$), supporting the value of formal education (Ferrao et al., 2022). Hands-on experience with PCOS patients reinforces practical knowledge. In Teede et al.'s longitudinal study, the recognition of

PCOS features among health professionals improved over time with increasing guideline dissemination and clinical exposure (Teede et al., 2025). Ahmad et al. (2025) reported better knowledge of common symptoms (e.g., menstrual irregularities) but persistent gaps in understanding long-term risks such as cardiovascular disease and non-alcoholic fatty liver disease.

Some demographic factors appear to influence PCOS awareness. Jaber et al. (2022) found associations between education, occupation, marital status, and knowledge. However, other studies report no significant correlation between knowledge and variables such as age or menstrual regularity. For example, Priya et al. (2019) found no association between knowledge scores and socio-demographic variables like age or religion. Structural barriers within healthcare systems limit professionals' capacity to deliver PCOS-related education. Chhour et al. (2022) reported that endocrinologists and Ob/Gyns endorsed lifestyle modification as essential to PCOS care but struggled with limited access to allied health professionals and time constraints. They also cited difficulties in sustaining behaviour change among patients, reinforcing the need for multidisciplinary and individualized care models.

Many studies emphasized the necessity of planned teaching programs to fill knowledge gaps. Ferrao et al. (2022) highlighted the critical role of structured educational interventions in improving early diagnosis and management strategies. Ahmad et al. (2025) and Srour et al. (2024) both underscored the importance of refresher courses and in-service training to address misconceptions and enhance practical management. Cultural and attitudinal factors may also play a role. Adhikari et al. (2023) observed that 76.92% of young doctors believed PCOS patients might hide their diagnosis due to stigma, which could affect communication and case identification. Awareness efforts via social media were viewed positively by 85.47% of the participants, indicating a shift toward digital tools for knowledge dissemination (Ahmad et al, 2025).

2.5 Adverse outcomes of PCOS

Polycystic ovary syndrome (PCOS) has been consistently associated with a range of adverse pregnancy and long-term health outcomes. A large population-based cohort study by Roos et al. (2011) highlighted that women with PCOS are more likely to be obese (60.6% vs. 34.8%) and use assisted reproductive technologies (13.7% vs. 1.5%) compared to women without PCOS. Importantly, PCOS was significantly associated with 45% increased odds of pre-eclampsia, twofolds increased odds of preterm birth, and gestational diabetes. Additionally, the study realised that, infants of mothers with PCOS also faced 39% increased odds of being heavy weighted for gestational age, meconium aspiration increased by twofold, and having a low Apgar score at five minutes (Roos et al, 2011)

Expanding on complications, Peeva et al. (2023) investigated PCOS in the context of multiple gestations. They found that the condition significantly increased the likelihood of pregnancy complications such as pregnancy-induced hypertension by twofold, pre-eclampsia by threefold, and gestational diabetes by 36%. Neonatal risks also escalated, with five times increased chances of being small for gestational age and experiencing preterm delivery increased by nine folds. Obesity further exacerbated the maternal risk profile, especially for hypertensive disorders and wound complications (Peeva et al, 2023).

From a long-term health perspective, Morgan et al. (2012) reported that women with PCOS had a substantially higher risk of developing type 2 diabetes, with a crude incidence rate of 5.7 per 1000 person-years versus 1.7 among controls. Even after adjusting for body mass index (BMI), the hazard ratio remained elevated at 1.75, underscoring a strong metabolic component independent of weight alone. While risks for cardiovascular disease and overall cancer did not increase significantly after BMI adjustment, the risk for endometrial cancer was notably higher (Morgan et al, 2012).

In terms of maternal weight and metabolic control, Altieri et al. (2010) found that women with PCOS had a significantly later age at menarche, higher gestational weight gain (GWG) (15.5 kg vs. lower in controls), and were more likely to exceed Institute of Medicine GWG recommendations. These women also showed significantly higher rates of gestational diabetes (20%) and pregnancy-induced hypertension, with combined GDM-PIH rates of 6.7% (Altieri et al, 2010).

In a population-based linkage study in Massachusetts, Farland et al. (2022) found that women with a history of PCOS had a 51% higher risk of gestational diabetes and 25% increased risk of preeclampsia. PCOS was also linked to 17% increased risk of preterm birth and prolonged neonatal hospitalization (RR 1.23), even after adjusting for gestational age. Interestingly, the increased risk for gestational diabetes was particularly evident in women with BMI <30 kg/m², suggesting PCOS-related metabolic risks extend beyond obesity (Farland et al, 2022).

Lastly, Ni et al. (2022) investigated outcomes in women with PCOS undergoing frozen-thawed embryo transfer and found worse outcomes across several metrics. The PCOS group had shorter gestational age ($P<0.001$), lower birth weight, and higher risks of GDM, PIH, placenta abnormalities, stillbirth, and neonatal complications. Multivariable analysis showed that miscarriage was significantly associated with hormonal markers such as basal estradiol and progesterone, and parity, emphasizing the complex endocrine profile in PCOS pregnancies (Ni et al, 2022).

2.6 Conclusion

Knowledge of PCOS among health professionals is influenced by educational background, source of information, clinical experience, and systemic support. Despite widespread awareness of PCOS, important gaps remain in recognizing its long-term complications, psychosocial impacts, and holistic management strategies. Targeted educational interventions, clinical exposure, and policy-

level support for team-based care are critical to improving the competence and confidence of healthcare providers in managing PCOS effectively. Across diverse study designs and populations, PCOS consistently emerges as a significant risk factor for pregnancy complications including gestational diabetes, hypertensive disorders, preterm delivery, and adverse neonatal outcomes. Beyond pregnancy, PCOS is linked to long-term metabolic risks, especially type 2 diabetes and potentially endometrial cancer, even after adjusting for confounders such as BMI. These findings highlight the need for preconception counselling, careful prenatal monitoring, and long-term metabolic follow-up in women diagnosed with PCOS.

CHAPTER THREE

METHODOLOGY

3.1 Study Design

A study design was the overall plan or strategy that guides how the research is conducted to answer the research questions effectively. It defined how data will be collected, measured, and analyzed in a way that addressed the research objectives and minimized bias (Setia, 2016). For this study, an analytical cross-sectional design was used. This type of observational study that examined the relationship or association between an independent variable and an outcome at a single point in time. This design involved collecting data at a single point in time to describe the characteristics of a population or phenomenon. The choice of a cross-sectional design was appropriate because the study aimed to assess the current level of awareness and knowledge of PCOS among nurses without manipulating any variables or requiring long-term follow-up. This design is efficient, cost-effective, and widely used in health knowledge assessments (Setia, 2016).

3.2 Study Population

The study population are the specific group of individuals from whom data will be collected. It was carefully defined to align with the study's objectives (Creswell & Creswell, 2017). The study population comprised nurses working within the Tema Metropolitan Assembly. There were health institutions within the metropolis, providing a wide range of services, including reproductive and maternal healthcare. These nurses represented a critical component of Ghana's health workforce and were regularly involved in diagnosing, educating, and managing patients, including women of reproductive age.

Registered nurses are frontline professionals who often serve as the first point of contact in patient care. Their awareness and knowledge of Polycystic Ovary Syndrome (PCOS) were particularly crucial for early identification and appropriate referral or intervention. Nurses in primary and

secondary facilities such as the ones selected frequently encountered women presenting with symptoms of PCOS, including irregular menstruation, infertility, and weight gain (Teede et al., 2018). Hence, understanding the level of awareness among this group provided critical insights into potential training and policy gaps.

The study ensured a representative sample of nurses who were actively engaged in both preventive and curative care. This enabled the researcher to assess awareness and knowledge within a real-world healthcare delivery context, enhancing the practical relevance of the findings (Ghana Health Service, 2023).

3.3 Inclusion and Exclusion Criteria

Inclusion and exclusion criteria define the parameters that determine who is eligible or ineligible to participate in a study. These criteria helped ensure the sample was representative and relevant (Polit & Beck, 2017). For this research, inclusion criteria were: registered nurses who had been practising in the Tema Metropolis for at least six months and who consent to participate. Exclusion criteria included nurses on leave during data collection, student nurses, nursing assistants, and those who refused consent. The rationale for these criteria was to select participants with sufficient experience in clinical nursing practice and exposure to reproductive health cases while maintaining ethical standards of voluntary participation.

3.4 Sample Size

Sample size referred to the number of participants to be included in the study. It was required to be adequate to produce statistically reliable and valid results (Creswell & Creswell, 2017). The sample size for this study was calculated using the standard formula for determining a representative sample from a finite population. A statistically adequate sample size was determined to ensure valid and generalizable results.

The sample size estimation employed the formula:

$$n = \frac{Z^2 \cdot p(1-p)}{d^2}$$

Where:

- n is the required sample size,
- Z is the standard normal deviate at a 95% confidence level (1.96),
- p is the estimated proportion of nurses aware of PCOS (82.9%) (Thabet et al., 2021)
- d is the margin of error (0.05).

$$n = \frac{1.96^2 \cdot 0.829(0.171)}{0.05^2} \approx 218$$

To address the issue of non-response, a rate of 10% was considered. Thus, the minimum sample size required for this study was 240 nurses. However, the study recruited 260 nurses. This number ensured that the study results had a 95% confidence level and a 5% margin of error, making the findings both reliable and statistically valid (Kumar, 2024). Below is the number of participants recruited from the five selected facilities

Table 1: Number of participants recruited from the facilities

	Facility	Numbers of nurses working in the facility	Numbers recruited
1.	IMAH	164	61
2.	Nyaho	28	20
3.	Narh-Bita	155	139
4.	New Crystal	50	17
5.	Meridian	37	23
	Total	**434**	**260**

3.5 Procedures Used

Procedures describe the step-by-step processes through which the study was implemented, including participant recruitment, data collection, and data management (Creswell & Creswell, 2017). Multi-stage random sampling is a probability sampling technique where sampling was

carried out in two or more stages, usually moving from larger groups (clusters) to smaller groups, until the final sample is selected. This approach ensured representativeness in the final sample, improving the accuracy and generalizability of the results (Acharya et al., 2020).

For this study, the population of nurses was randomly selected after randomly selecting healthcare facility using a random number generator. A list of health facilities within the metropolitan was assigned numbers. Using an online random number generator, five facilities were selected. The selected facilities were then visited. At the facilities, nurses were randomly selected. They were asked to pick from an envelope with shuffled papers with "Yes" or "No" written on them. Where participants picked "Yes" they are enrolled into the study for consenting and participation. Where participants picked "No", they were excluded from the study Using this multistage approach, a sample size of 260 nurses was randomly selected.

3.6 Data Collection Methods and Instruments

Data collection methods specify how data were gathered, and instruments refer to the tools used (e.g., questionnaires, interviews) (Kumar, 2019). This study used a structured, self-administered questionnaire designed based on validated tools from previous PCOS awareness studies (Teede et al., 2018; Azziz et al., 2016). The questionnaire included demographic questions and items measuring Awareness on PCOS, knowledge of PCOS, causes, symptoms, complications, and individual information sources and health-related factors. Self-administered questionnaires were practical for busy healthcare professionals and helped minimise interviewer bias, enabling standardised data collection across a large sample.

3.7 Pre-testing

Pre-testing was a pilot trial of the data collection instrument conducted with a small subset of the target population to identify potential issues such as unclear questions or technical difficulties (Polit & Beck, 2017). In this study, the questionnaire was pre-tested among 20 nurses from a

neighbouring district (Ashaiman Municipality) with similar characteristics to Tema. This step helped refine the instrument, improved clarity, and ensure cultural appropriateness, thus increasing reliability and validity before the main study.

3.8 Data Handling

Data handling involved methods used to store, protect, and manage collected data securely to safeguard participant confidentiality and comply with ethical standards (World Medical Association, 2013). For this study, all questionnaires were anonymised by excluding identifiers. Paper copies were securely stored in locked cabinets, and electronic data were password-protected on secure computers. Only the research team have access to raw data. This approach protected participant privacy and ensures data integrity throughout the research process.

3.9 Statistical Analysis

Statistical analysis referred to techniques used to summarize and interpret collected data to answer research questions (Pallant, 2020). In this study, descriptive statistics such as frequencies, percentages, means, and standard deviations were used to describe participants' demographic characteristics and levels of PCOS awareness and knowledge. The level of knowledge was measured as percentage, where the correct responses were summed and divided total number of items under the domain. Using the Bloom's cut off for Knowledge, Attitude and Practice (KAP)(Alzahrani et al., 2022). The level of knowledge was categorised as High (80% - 100%), moderate (60% - 79%) and low (less than 60%) Inferential statistics, including Chi-square tests and logistic regression were used to analyse associations between nurses' characteristics (e.g., age, years of experience) and their awareness and knowledge levels. The significance threshold was set at $p < 0.05$. These analyses allowed the identification of significant predictors of PCOS knowledge, informing targeted interventions.

3.12 Ethical Issues

Ethical considerations in research refer to the principles and guidelines that protect the dignity, rights, and well-being of participants while ensuring the integrity and credibility of the research process (Resnik, 2018). Adherence to ethical standards was especially crucial when human subjects were involved, as it minimized potential harm, supported informed decision-making, and fostered public trust in scientific inquiry (World Medical Association, 2013).

The first step in addressing ethical concerns for this study was to obtain ethical clearance from the Research Ethics Committee of Ensign Global College, the academic institution under which the research was conducted. Permission was also formally sought from each facility included in the study. This approval ensured that the study design, data collection instruments, and procedures complied with both institutional and national ethical standards.

Informed consent was obtained from all participants before their involvement in the study. This involved providing participants with a clear explanation of the study's purpose, procedures, benefits, potential risks, and their rights including the right to refuse or withdraw from participation at any stage without penalty (Polit & Beck, 2017). This process safeguarded participants' autonomy and voluntary participation.

To maintain confidentiality and protect participants' privacy, all data collected were anonymized. No personal identifiers were used on the questionnaire, and responses were stored securely, accessible only to the research team. These measures aimed to minimise the risk of any breach of confidentiality or misuse of information (World Medical Association, 2013).

Recruitment was be conducted fairly and transparently. Participation was be entirely voluntary, and no form of coercion or undue influence was applied. Although nurses were not considered a vulnerable population, attention was paid to minimising any discomfort, particularly any anxiety

related to self-assessment of knowledge levels. The questionnaire was phrased in a neutral, non-judgmental manner to reduce potential embarrassment or stress.

The study posed minimal risk to participants, primarily in terms of possible discomfort if participants felt inadequately informed about PCOS. However, efforts were made to reassure participants that the study's intent was not to evaluate individual competence but to identify training needs to support professional development. This study also adhered to the ethical principles of the Declaration of Helsinki, which outlined best practices in conducting medical research involving human subjects (World Medical Association, 2013).

3.13 Strength and Limitations

3.13.1 Strength

Strengths of this study lies in its well-characterized sample of nursing cadres across the Tema metropolis and the combined use of awareness, knowledge items and multivariable analysis to identify independent predictors. Additionally, the study provides valuable insights into an under-researched area and established a baseline for further research.

3.13.2 Limitations

This study was a cross-sectional design which precluded causal inference. Additionally, awareness and knowledge were self-reported and may have been subject to social desirability or recall bias.

CHAPTER FOUR

RESULTS

4.1 Background Characteristics

Table 2 presents the background characteristics of 260 participants in the study. About a third, 81 (31.15%) were between 21 - 30 years, 88 (33.85%) between 31 - 40 years, 58 (22.31%) between 41 - 50 years and 33(12.69) were above 50years . Majority 187 (71.92%) were female and males were 73 (28.08). Regarding educational level, 12 (4.63%) had a certificate, 92 (35.52%) held a diploma, 124 (47.88%) were undergraduates, and 32 (11.97%) had postgraduate qualifications. About 42.31% were single, 133 (51.15%) were married and 17(6.54) were widowed/divorced. Concerning professional rank, 11 (4.23%) were enrolled nurses, 116 (44.62%) were registered nurses, 89 (34.23%) were midwives and 44 (16.93%) were nurse specialists. In terms of years of experience, 27 (10.38%) had one year or less, 108 (41.54%) had between 2 and 5 years, 69 (26.54%) had between 6 and 10 years, 38 (14.62%) had between 11 and 20 years, and 18 (6.92%) had more than 20 years of work experience.

Table 2: Background Characteristics of Participants

Variable	**Category**	**Frequency N**	**Percentage %**
Age	21 – 30years	81	31.15
	31 – 40years	88	33.85
	41 – 50years	58	22.31
	Above 50years	33	12.69
Sex	Female	187	71.92
	Male	73	28.08
Level of Education	Certificate	12	4.63
	Diploma	92	35.52
	Undergraduate	124	47.88
	Postgraduate	32	11.97
Marital status	Single	110	42.31
	Married	133	51.15
	Divorced/Widowed	17	6.54
Rank	Enrolled Nurse	11	4.23
	Registered Nurse	116	44.62
	Midwife	89	34.23
	Nurse Specialist	44	16.93

Years of Experience	A year or less	27	10.38
	2 – 5years	108	41.54
	6- 10years	69	26.54
	11- 20years	38	14.62
	More than 20years	18	6.92

4.2 Level of Awareness on Polycystic Ovarian Syndrome

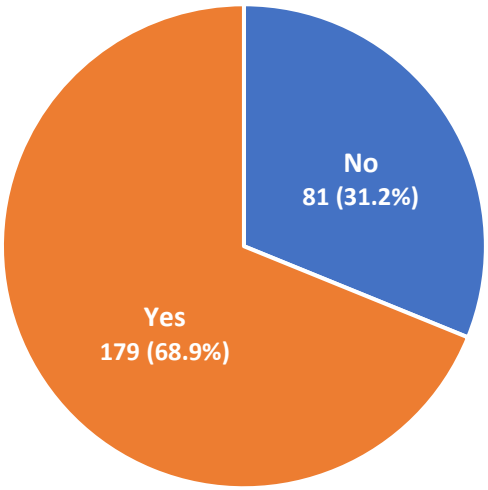

Figure 3: Level of Awareness on Polycystic Ovarian Syndrome

From the results in Figure 1, 81 (31.15%) were not aware of polycystic ovarian syndrome (PCOS), while 179 (68.85%) indicated that they were aware.

Table 3 presents participants level of awareness on Polycystic Ovarian Syndrome. In terms of familiarity with PCOS, 34 (18.99%) indicated they were not familiar, 90 (50.28%) reported being somewhat familiar, and 54 (30.17%) stated they were very familiar. Regarding patient encounters, 100 (55.87%) had not encountered a patient with PCOS, whereas 79 (44.13%) had encountered patients with PCOS.

When asked about their opinion on how common PCOS is among women in Ghana, 72 (40.22%) considered it not common, 71 (39.66%) regarded it as common, and 35 (19.55%) viewed it as very common. On awareness of PCOS among nurses within their facility, 131 (73.18%) felt it was inadequate, while 48 (26.82%) considered it adequate. Concerning confidence in educating

patients about PCOS, 58 (32.40%) reported lacking confidence, while 121 (67.60%) expressed confidence. Finally, the majority of respondents, 147 (82.12%), expressed interest in receiving further education on PCOS, with only 32 (17.88%) indicating no interest.

Table 3: Assessing Participants' Level of Awareness on Polycystic Ovarian Syndrome (N=179)

Variable	**Category**	**Frequency N**	**Percentage %**
How familiar are you with PCOS	Not Familiar	34	18.99
	Somewhat Familiar	90	50.28
	Very Familiar	54	30.17
	Non-response	1	0.56
Have you encountered a patient with PCOS	No	100	55.87
	Yes	79	44.13
In your opinion, how common is PCOS among women in Ghana?	Not Common	72	40.22
	Common	71	39.66
	Very common	35	19.55
	Non-response	1	0.56
Do you think awareness of PCOS among nurses in your facility is adequate?	No	131	73.18
	Yes	48	26.82
Do you feel confident in educating patients about PCOS?	No	58	32.40
	Yes	121	67.60
Would you be interested in receiving further education on PCOS?	No	32	17.88
	Yes	147	82.12

4.3 Level of knowledge on Polycystic Ovarian Syndrome

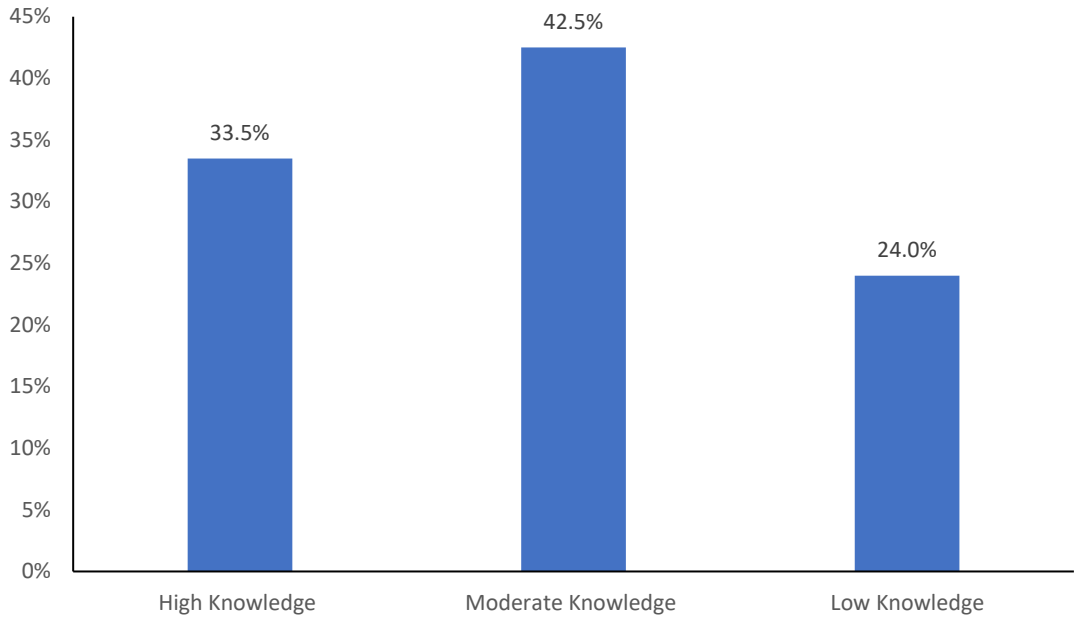

Figure 4: Level of knowledge of Participants who are aware of PCOS

Figure 3 presents the level of knowledge of participants who are aware of polycystic ovarian syndrome The distribution of knowledge levels among respondents showed that 60 (33.5%) demonstrated high knowledge, 76 (42.5%) demonstrated moderate knowledge, and 43 (24.0%) demonstrated low knowledge on the causes, symptoms, management of PCOS.

Table 4: Participants' responses to Knowledge on cause, treatment and management of PCOS (N=179)

Variable	Category	Frequency N	Percentage %
Can PCOS be cured?	No	24	13.41
	Yes	154	86.03
	Non-response	1	0.56
Which of the following complications is most consistently associated with long-t	Cervical cancer	30	16.76
	Endometrial Hyperplasia	51	28.49
	Hypothyroidism	8	4.47
	Osteoporosis	90	50.28
Which long-term health condition is not commonly associated with PCOS?	Cardiovascular disease	143	79.89
	Hyperthyroidism	14	7.82
	Non-alcoholic fatty liver	13	7.26
	Type 2 diabetes mellitus	7	3.91
	Non-response	2	1.12
Which hormone is often elevated in women with PCOS?	Oestrogen	7	3.91
	Progesterone	5	2.79
	Testosterone	166	92.74
	Non-response	1	0.56
Which of the following is a known risk factor for developing PCOS?	Anaemia	6	3.35
	Hypotension	1	0.56
	Obesity	149	83.24
	Smoking	23	12.85
Which of the following is a common visible sign of PCOS	Blue fingernails	0	0.00
	Excess facial/body hair	172	96.09
	Pale skin	2	1.12
	Swollen feet	1	0.56
	Non-response	4	2.23
Which of these is a recommended lifestyle change to help manage PCOS?	Drinking more coffee	1	0.56
	Eating more sugary snacks	36	20.11
	Regular water intake	4	2.23
	Regular exercise	138	77.09
Can women with PCOS still become pregnant?	No, they are always infertile	0	0.00
	Only after menopause	2	1.12
	Only if they use herbs	1	0.56
	Yes, but they may have difficulty	176	98.32
Which of the following is commonly used to diagnose PCOS?	Colonoscopy	2	1.12
	Endoscopy	0	0.00
	Pelvic ultrasound	177	98.88
Which of the following can help manage insulin resistance in PCOS?	Antibiotics	1	0.56
	High-sugar diet	1	0.56
	Iron supplements	3	1.68
	Metformin medication	174	97.21
Which one is a diagnostic criterion for PCOS?	Fecundity Criteria	1	0.56
	Pelvic assessment	168	93.85
	Rotterdam criteria	8	4.50
	Non-response	2	1.12

4.4 Participants' sources of information

Table 5 presents the sources of information on polycystic ovarian syndrome (PCOS) among nurses who reported awareness of the condition (N = 179). The findings indicate that the majority of respondents first learned about PCOS through their colleagues (31.84%) or classroom instruction (29.05%), suggesting that peer interactions and formal education are the predominant channels for PCOS-related knowledge acquisition. Online sources accounted for 17.32% of initial awareness, while workshops or seminars contributed to 14.53%. A smaller proportion of respondents reported books or journals (5.59%) as their primary source of information. Only a few participants (1.68%) indicated that their awareness stemmed from being personally diagnosed with the condition. These results underscore the importance of professional and educational platforms in disseminating information about PCOS among nurses.

Table 5: Participants' sources of information (N=179)

Variable	**Category**	**Frequency N**	**Percentage %**
How did you first hear about PCOS	Diagnosed with it	3	1.68
	Books/Journals	10	5.59
	Taught in class	52	29.05
	From colleagues	57	31.84
	Online	31	17.32
	Workshop/Seminar	26	14.53

4.5 Participant's responses on Factors that influence level of awareness on Polycystic Ovarian Syndrome

A total of 260 participants provided responses to factors that may influence their level of awareness on polycystic ovary syndrome (PCOS). Regarding reading habits, 36.92% reported that they often read textbooks or medical journals on reproductive health, while 62.31% did not. More than half (54.23%) indicated that they often look up medical information online, whereas 44.23% did not. In terms of formal training, 20.00% of participants reported having received formal training on reproductive health, while the majority (79.23%) had not. Concerning the specificity of nursing roles within their facilities, 39.23% indicated "Yes," 31.92% responded "Sometimes," and 28.08% answered "No."

With respect to availability of protocols for women's health management, 33.46% of respondents noted that such protocols were available, while 65.38% stated they were not. For information sharing among staff at the workplace, 37.69% reported that it occurred, 38.85% indicated "Sometimes," and 22.69% responded "No." On partnerships with academic institutions or NGOs, 8.46% of participants reported such partnerships existed, 35.77% indicated "Sometimes," while 55.77% responded "No." Regarding access to professional networks or mentors specializing in reproductive health, 49.23% of respondents reported having such access, compared with 48.46% who did not. Availability of educational resources within participants' facilities was reported by 24.23%, while 73.08% indicated non-availability. Interest in women's health was expressed by the majority of participants (82.31%), with 16.15% reporting no interest. Finally, when asked if their facilities were equipped to diagnose PCOS, 38.46% responded "Yes," while 60.38% indicated "No."

Table 6 : Participants' responses to factors that may influence Level of Awareness on PCOS

Variable	Category	Frequency N	Percentage %
Often read textbook or medical journal on Reproductive health	No	162	62.31
	Yes	96	36.92
	Non-response	2	0.77
Use the internet to look up medical information such as PCOS	No	115	44.23
	Yes	141	54.23
	Non-response	4	1.54
Received any formal training on Reproductive Health topics	No	206	79.23
	Yes	52	20.00
	Non-response	2	0.77
Nursing roles are specific in my facility	No	73	28.08
	Sometimes	83	31.92
	Yes	102	39.23
	Non-response	2	0.77
Availability of protocols for women health management	No	170	65.38
	Yes	87	33.46
	Non-response	3	1.15
There is significant information sharing among staff at the workplace	No	59	22.69
	Sometimes	101	38.85
	Yes	98	37.69
	Non-response	2	0.77
Partnerships with academic institutions or NGOs to provide reproductive health services	No	145	55.77
	Sometimes	93	35.77
	Yes	22	8.46
Nurses have access to professional networks or mentors specializing in reproductive health?	No	126	48.46
	Yes	128	49.23
	Non-response	6	2.31
Educational resources readily available in your facility	No	190	73.08
	Yes	63	24.23
	Non-response	7	2.69
Interested in women health	No	42	16.15
	Yes	214	82.31
	Non-response	4	1.54
Facility equipped to diagnose PCOS?	No	157	60.38
	Yes	100	38.46
	Non-response	3	1.15

4.5.1 Assessing the background characteristics associated with level of awareness on Polycystic Ovarian Syndrome

Table 7 results showed the factors influencing participants' level of awareness on polycystic ovarian syndrome (PCOS). A total of 260 participants were assessed for factors influencing their level of awareness on polycystic ovary syndrome (PCOS). For age, among those aged 21–30 years, 24 participants were not aware while 55 were aware; among 31–40 years, 26 were not aware and 61 were aware; in the 41–50 years group, 19 were not aware and 39 were aware; and among those above 50 years, 12 were not aware and 17 were aware ($\chi^2 = 1.462$, $p = 0.691$).

By sex, 52 females were not aware and 135 were aware, while 29 males were not aware and 44 were aware ($\chi^2 = 3.477$, $p = 0.062$). Regarding level of education, among those with a certificate, 3 were not aware and 9 were aware; for diploma holders, 22 were not aware and 69 were aware; for undergraduates, 43 were not aware and 80 were aware; and for postgraduate participants, 13 were not aware and 18 were aware ($p = 0.192$). For marital status, 33 single participants were not aware and 76 were aware; 42 married participants were not aware and 90 were aware; and 6 divorced/widowed participants were not aware while 11 were aware ($\chi^2 = 0.194$, $p = 0.907$).

By rank, 1 enrolled nurse was not aware and 10 were aware; 33 registered nurses were not aware and 82 were aware; among midwives, 30 were not aware and 59 were aware; among nurse specialists, 15 were not aware and 17 were aware; and among those in the ($p = 0.135$). Concerning years of experience, among participants with a year or less of experience, 4 were not aware and 22 were aware; for 2–5 years, 44 were not aware and 63 were aware; for 6–10 years, 18 were not aware and 50 were aware; for 11–15 years, 3 were not aware and 15 were aware; for 16–20 years, 5 were not aware and 15 were aware; and for more than 20 years, 7 were not aware and 11 were aware ($p = 0.044$).

Table 7: Assessing the factors influencing Participants' level of Awareness on PCOS

Variable	Category	Awareness		χ^2	p-value
		Not Aware	Aware		
Age	21 – 30years	24	55	1.462	0.691
	31 – 40years	26	61		
	41 – 50years	19	39		
	Above 50years	12	17		
Sex	Female	52	135	3.477	0.062
	Male	29	44		
Level of Education	Certificate	3	9		0.192
	Diploma	22	69		
	Undergraduate	43	80		
	Postgraduate	13	18		
Marital status	Single	33	76	0.194	0.907
	Married	42	90		
	Divorced/Widowed	6	11		
Rank	Enrolled Nurse	1	10		0.135
	Registered Nurse	33	82		
	Midwife	30	59		
	Nurse Specialist	17	24		
Years of Experience	A year or less	4	22		**0.044**
	2 – 5years	44	63		
	6- 10years	18	50		
	11- 15years	3	15		
	16 – 20years	5	15		
	More than 20years	7	11		

4.5.2 Assessing the factors associated with level of awareness on Polycystic Ovarian Syndrome

From table 8, several factors were significantly associated with participants' level of Awareness on polycystic ovarian syndrome (PCOS). Regarding reading habits, among those who had not read about reproductive health in a textbook or medical journal, 78 were not aware and 84 were aware, whereas among those who had, 3 were not aware and 93 were aware ($\chi^2 = 56.731$, $p < 0.001$). For internet use to look up medical information, 64 participants who did not use the internet were not aware and 51 were aware, while among those who did, 17 were not aware and 124 were aware ($\chi^2 = 55.66$, $p < 0.001$). With respect to formal training on PCOS, 78 participants without training were not aware and 128 were aware, while 3 participants with training were not aware and 49 were aware ($\chi^2 = 19.86$, $p < 0.001$).

Concerning specificity of nursing roles, 33 respondents who answered "No" were not aware and 40 were aware; among those who answered "Sometimes," 41 were not aware and 42 were aware; and among those who answered "Yes," 7 were not aware and 95 were aware ($\chi^2 = 47.45$, $p < 0.001$). For availability of protocols for women's health management, 72 participants who reported "No" were not aware and 98 were aware, while 6 who reported "Yes" were not aware and 81 were aware ($\chi^2 = 34.225$, $p < 0.001$). On information sharing among staff, 24 participants who reported "No" were not aware and 35 were aware; among those who answered "Sometimes," 49 were not aware and 52 were aware; and among those who reported "Yes," 7 were not aware and 91 were aware ($\chi^2 = 43.139$, $p < 0.001$). With respect to partnerships with academic institutions or NGOs, 31 respondents who answered "No" were not aware and 114 were aware; among those who reported "Sometimes," 47 were not aware and 46 were aware; and among those who responded "Yes," 3 were not aware and 19 were aware ($\chi^2 = 25.90$, $p < 0.001$). On access to professional networks or mentors specializing in reproductive health, 65 participants who answered "No" were not aware

and 61 were aware, whereas 11 who answered "Yes" were not aware and 117 were aware (χ^2 = 55.974, $p < 0.001$).

For availability of educational resources on PCOS in the facility, 71 participants who reported "No" were not aware and 119 were aware, while among those who reported "Yes," 44 were not aware and 59 were aware ($\chi^2 = 21.827$, $p < 0.001$). With respect to interest in women's health, 33 participants who answered "No" were not aware and 9 were aware, while 46 who answered "Yes" were not aware and 168 were aware ($\chi^2 = 53.606$, $p < 0.001$). Finally, for facility equipment to diagnose PCOS, 66 participants who reported "No" were not aware and 91 were aware, while 14 who reported "Yes" were not aware and 86 were aware ($\chi^2 = 22.401$, $p < 0.001$).

Table 8 : Assessing the factors influencing Participants' level of Awareness on PCOS

Variable	**Category**	**Awareness**		χ^2	**p-value**
		Not Aware	**Aware**		
Often read textbook or medical journal on Reproductive health	No	78	84	56.731	**< 0.001**
	Yes	3	93		
Use the internet to look up medical information such as PCOS	No	64	51	55.66	**< 0.001**
	Yes	17	124		
Received any formal training on reproductive health topics	No	78	128	19.86	**< 0.001**
	Yes	3	49		
Nursing roles are specific in your facility	No	33	40	47.45	**< 0.001**
	Sometimes	41	42		
	Yes	7	95		
Availability of protocols for women health management	No	72	98	34.225	**< 0.001**
	Yes	6	81		
There is significant information sharing among staff at the workplace	No	24	35	43.139	**< 0.001**
	Sometimes	49	52		
	Yes	7	91		
Partnerships with academic institutions or NGOs to provide reproductive health-specific services	No	31	114	25.90	**< 0.001**
	Sometimes	47	46		
	Yes	3	19		
Nurses have access to professional networks mentors specializing in reproductive health	No	65	61	55.974	**< 0.001**
	Yes	11	117		
Educational resources readily available in your facility	No	71	119	21.827	**< 0.001**
	Yes	44	59		
Interested in women health	No	33	9	53.606	**< 0.001**
	Yes	46	168		

Facility is equipped to diagnose PCOS	No	66	91	22.401	**< 0.001**
	Yes	14	86		

4.5.3 Factors influencing Level of Awareness on PCOS among Nurses

The multivariate analysis identified several factors that significantly influenced participants' awareness of PCOS. It was realised that the years of experience of the nurse influences their awareness to PCOS. Nurses with more than 20 years of experience were 1.44 times more likely to be aware about PCOS compared to those with a year or less of experience (AOR = 1.44, p = 0.04). Similarly, receiving formal training on PCOS influenced the level of awareness of nurse about PCOS. It was realised that participants who had received formal training on PCOS were more than twice as likely to be aware about PCOS (AOR = 2.33, p = 0.03). In addition, having interest in women's health was associated with the awareness of nurses about PCOS. The findings of the study revealed that respondents who expressed an interest in women's health were 2.71 times more likely to be aware about PCOS compared with those without such interest (AOR = 2.71, p = 0.01).

These findings highlight that both professional and personal factors contribute to PCOS knowledge among nurses. Specifically, greater clinical experience, exposure through formal training, and personal interest in women's health all play a crucial role in improving awareness. This suggests that knowledge of PCOS is not only shaped by structured educational opportunities but is also reinforced by long-term practice and individual motivation.

Table 9: Strength of association between factors and Level of Awareness to PCOS

Variable	Category	COR	p-value	AOR	p-value
Years of Experience	A year or less	Ref		Ref	
	2 – 5years	0.26	0.02	2.01	0.33
	6- 10years	0.51	0.26	1.51	0.58
	11- 15years	0.91	0.91	0.29	0.27
	16 – 20years	0.55	0.42	0.43	0.47
	More than 20years	0.29	0.09	**1.44**	**0.04**
Often read textbook or medical journal on Reproductive health	No	Ref		Ref	
	Yes	28.79	< 0.01	1.01	0.23
Use the internet to look up medical information such as PCOS	No	Ref		Ref	
	Yes	9.15	< 0.01	1.80	0.26
Received any formal training on reproductive health topics	No	Ref		Ref	
	Yes	9.95	< 0.01	**2.33**	**0.03**
Nursing roles are specific in your facility	No	Ref		Ref	
	Sometimes	0.85	0.60	0.97	0.95
	Yes	11.20	< 0.01	2.61	0.13
Availability of protocols for women health management	No	Ref		Ref	
	Yes	9.92	< 0.01	1.12	0.88
There is significant information sharing among staff at the workplace	No	Ref		Ref	
	Sometimes	0.73	0.34	1.53	0.45
	Yes	8.91	< 0.01	2.81	0.19
Partnerships with academic institutions or NGOs to provide PCOS-specific	No	Ref		Ref	
	Sometimes	0.27	< 0.01	0.45	0.12
	Yes	1.72	0.41	1.10	0.93
Nurses have access to professional networks mentors specializing in reproductive health	No	Ref		Ref	
	Yes	11.33	< 0.01	1.00	0.96
Educational resources readily available in your facility	No	Ref		Ref	
	Yes	8.80	< 0.01	1.56	0.61
Interested in women health	No	Ref		Ref	
	Yes	13.39	< 0.01	**2.71**	**0.01**
Facility is equipped to diagnose PCOS	No	Ref		Ref	
	Yes	4.46	< 0.01	1.52	0.49

CHAPTER FIVE

DISCUSSION

5.1 Introduction

The demographic analysis showed that the majority of participants were young to middle-aged, female, and highly educated, with most holding at least a diploma or undergraduate qualification. Despite this relatively strong educational background, more than one-third of participants reported limited familiarity with PCOS, with 31.15% indicating they had never heard of the condition. This suggests that PCOS has not received adequate emphasis in either nursing education or professional practice, despite its high prevalence and impact on women's reproductive health globally.

5.2 Level of Awareness on PCOS among Nurses

The findings presented in Figure 1 reveal that 179 participants (68.85%) reported awareness of polycystic ovarian syndrome (PCOS), whereas 81 participants (31.15%) indicated they were not aware. This distribution demonstrates a moderate level of awareness among nurses within the study setting, with approximately one-third lacking prior knowledge of the condition. Such a knowledge gap is particularly noteworthy, given the pivotal role nurses play as primary points of contact in women's health care delivery in Ghana.

The observed awareness rate (68.85%) is encouraging but falls short of the levels reported in studies conducted in more resource-endowed health systems, where awareness among nurses and other healthcare professionals tends to be considerably higher (Teede et al., 2018; Boyle et al., 2020). Conversely, it aligns more closely with findings from other sub-Saharan African contexts, where structural and educational challenges have contributed to limited professional knowledge of reproductive endocrine disorders, including PCOS (Alemayehu et al., 2022; Olamijulo et al., 2017).

The proportion of respondents reporting a lack of awareness (31.15%) is of particular concern. Given that PCOS is one of the most common endocrine disorders among women of reproductive age globally (Azziz et al., 2016), limited awareness among frontline providers has direct implications for timely diagnosis, patient education, and long-term management of the condition. Moreover, considering the chronic and multifaceted nature of PCOS—which encompasses metabolic, reproductive, and psychological dimensions—failure to recognize the condition early may contribute to delayed interventions and an increased risk of comorbidities, including infertility, diabetes mellitus, and cardiovascular disease (Conway et al., 2014).

5.3 Knowledge of PCOS

The finding that over one-third (33.5%) of participants displayed high knowledge is encouraging, as it demonstrates that a segment of the nursing workforce is well informed about PCOS and its clinical implications. This aligns with evidence from other studies in both high- and middle-income contexts, which have shown that subsets of health professionals, particularly those with specialized training or clinical exposure, tend to demonstrate strong knowledge of reproductive health disorders (Mosanya et al., 2025; Srour et al., 2024). Such knowledge is critical for timely identification, patient counselling, and initiation of appropriate management strategies.

However, the predominance of respondents with only moderate knowledge (42.5%) and the notable proportion with low knowledge (24.0%) warrant critical attention. The presence of knowledge gaps in nearly two-thirds of the sample suggests that while awareness of PCOS exists, as reported in Figure 1, this awareness may not consistently translate into comprehensive understanding of its multifactorial aetiology, clinical manifestations, and evidence-based management approaches.

These findings have important implications for clinical practice. PCOS is a heterogeneous disorder associated not only with reproductive concerns, such as infertility and menstrual irregularities, but also with long-term metabolic risks including obesity, insulin resistance, and cardiovascular

disease (Azziz et al., 2016; Conway et al., 2014). Nurses with low or moderate knowledge may not fully appreciate these complexities, potentially leading to underdiagnosis, mismanagement, or inadequate patient education. This underscores the need for systematic training programs that go beyond surface-level awareness and equip nurses with comprehensive, evidence-based knowledge.

5.4 Source of information

The finding that most nurses first learned about polycystic ovarian syndrome (PCOS) through colleagues (31.84%) and classroom instruction (29.05%) highlights the pivotal role of professional and academic environments in shaping awareness of women's health conditions. Peer-to-peer learning is a common and effective form of knowledge dissemination in healthcare settings, as nurses often rely on colleagues for practical insights and updates on clinical issues (Feng et al., 2024; Jassim et al., 2022). Similarly, formal education remains a foundational source of health information, particularly for topics integrated into nursing curricula, such as reproductive and endocrine disorders (Isangula et al., 2023). The prominence of online platforms (17.32%) and workshops or seminars (14.53%) as additional sources suggests a growing trend toward digital and continuing professional education. Online health resources have become increasingly influential in enhancing health professionals' understanding of conditions like PCOS, given their accessibility and the availability of evidence-based materials (Bussey & Sillence, 2019; Maita et al., 2024). Workshops and seminars also play a crucial role by offering interactive opportunities for skill development and up-to-date knowledge exchange (Mukurunge et al., 2021)

Conversely, the relatively low proportion of nurses citing books or journals (5.59%) or personal diagnosis (1.68%) as sources of awareness may indicate limited engagement with self-directed academic literature outside structured learning or professional discussions. This aligns with studies showing that nurses often prefer collaborative or experiential learning methods over solitary academic reading for continuous professional development (Eskiyurt & Özkan, 2024). Overall,

these findings emphasize the importance of integrating PCOS-related content into nursing education and providing accessible professional training opportunities to strengthen awareness and management competencies.

5.5 Factors Influencing Awareness

The multivariate analysis provides critical insights into the determinants of nurses' awareness of polycystic ovarian syndrome (PCOS) within the Tema Metropolitan context. Three factors emerged as statistically significant: years of professional experience, receipt of formal training, and expressed interest in women's health. Together, these findings underscore the multidimensional nature of professional knowledge acquisition and highlight the importance of both structural and individual-level drivers of awareness.

First, years of professional experience was found to be a significant predictor of awareness. Nurses with more than 20 years of experience were 1.44 times more likely to be aware of PCOS compared to those with one year or less of experience. This finding suggests that experiential learning accrued over a long career trajectory contributes to awareness, possibly through cumulative clinical encounters, exposure to diverse patient populations, and informal peer-to-peer learning. This is consistent with studies in similar contexts, where longer professional tenure has been positively associated with knowledge and awareness of chronic and reproductive health conditions (Tumwine et al., 2020). However, reliance on years of experience as a determinant of knowledge may also highlight systemic weaknesses in pre-service training and structured continuing education, since awareness appears to accumulate passively rather than being uniformly instilled across all career stages.

Second, formal training on PCOS emerged as a robust predictor of awareness, with participants who had undergone training being more than twice as likely to be aware of PCOS compared to their counterparts without such training. This finding underscores the transformative role of

structured, evidence-based educational interventions in shaping professional knowledge. It resonates with evidence from studies indicating that targeted training programs significantly enhance healthcare providers' knowledge, confidence, and clinical competence in managing PCOS (Duhan et al., 2024; Ismayilova & Yaya, 2022). The implication is therefore clear that formalized, standardized training, both at pre-service and in-service levels, constitutes a powerful lever for bridging knowledge gaps and ensuring equitable competence among nurses, irrespective of their length of practice.

Third, interest in women's health was strongly associated with awareness. Nurses who expressed such interest were 2.71 times more likely to be aware of PCOS compared to those without this orientation. This finding illustrates the role of intrinsic motivation and professional orientation in shaping awareness and engagement with reproductive health issues. It aligns with self-determination theory in health professional education, which posits that intrinsic interest in a subject enhances engagement, retention of knowledge, and pursuit of additional learning opportunities (Adams et al., 2017). Comparable findings have been reported in reproductive health research, where health workers with declared interest in maternal and child health demonstrated greater knowledge of conditions such as endometriosis, infertility, and other gynaecological disorders (Jonas et al., 2017). Importantly, this suggests that fostering professional interest, through mentorship, specialization pathways, and career development incentives, may play a critical role in strengthening workforce capacity in women's health.

Taken together, these findings highlight both systemic and individual-level determinants of awareness. Structural enablers such as formal training can produce immediate and equitable improvements in knowledge, while experiential and motivational factors contribute incrementally over time. Importantly, the data suggest that reliance on experience alone is insufficient, as it may perpetuate generational disparities in awareness. Instead, deliberate strategies—such as integrating PCOS modules into nursing curricula, offering continuous professional development programs,

and creating specialization opportunities in women's health—are essential to ensure that all nurses, regardless of tenure or personal interest, are adequately equipped to recognize and respond to PCOS.

From a broader perspective, these results reflect the global challenge of PCOS under-recognition among health professionals, particularly in low- and middle-income countries, where reproductive health training often prioritizes maternal mortality and infectious disease burdens at the expense of chronic gynaecological and endocrine disorders (Hillman & Dale, 2018; Ismayilova & Yaya, 2022). By empirically identifying factors that shape awareness, this study contributes to evidence-based strategies for strengthening nursing education and practice, ultimately improving the early detection and holistic management of PCOS in Ghana and similar settings.

5.6 Implications for Nursing Practice and Policy

These findings highlight an urgent need to strengthen PCOS-related education within both pre-service nursing curricula and in-service professional development programs. Given that most respondents expressed willingness to receive further training, interventions such as targeted workshops, seminars, and integration of PCOS into continuing professional education could significantly improve awareness and knowledge. Additionally, the health system in Ghana should prioritize developing clinical protocols, expanding access to diagnostic equipment, and fostering collaborations with academic and non-governmental organizations to enhance capacity.

Improving nurse knowledge of PCOS is particularly important given their frontline role in reproductive health services. Nurses are often the first point of contact for women with reproductive concerns and are well-positioned to provide early counselling, screening, and referrals. Enhancing their knowledge could therefore contribute to earlier diagnosis, better management, and improved outcomes for women with PCOS.

CHAPTER SIX

CONCLUSIONS AND RECOMMENDATIONS

6.1 Introduction

This study explored the level of awareness and knowledge of polycystic ovarian syndrome (PCOS) among nurses in the Tema Metropolitan Assembly, Ghana, and identified factors associated with awareness. The findings highlight important gaps in PCOS knowledge and reveal professional and personal factors that influence awareness levels.

6.2 Summary of Findings

The findings of this study presents 81 (31.15%) respondents not aware of polycystic ovarian syndrome (PCOS), where as 179 respondents (68.85%) indicated that they were aware of the condition. The distribution of knowledge levels among those aware of PCOS revealed that 60 participants (33.5%) demonstrated high knowledge, 76 (42.5%) had moderate knowledge, and 43 (24.0%) exhibited low knowledge regarding the causes, symptoms, and management of PCOS. Most nurses learned about PCOS through colleagues (31.84%) and classroom instruction (29.05%), followed by online sources (17.32%) and workshops or seminars (14.53%). Fewer nurses gained information from books or journals (5.59%) or personal diagnosis (1.68%).

Further analysis demonstrated that years of professional experience significantly influenced awareness of PCOS. Nurses with more than 20 years of experience were 1.44 times more likely to be aware of PCOS compared to those with one year or less of experience. Similarly, formal training on PCOS was found to be a significant determinant of awareness, with nurses who had received such training being more than twice as likely to be aware of PCOS as their untrained counterparts. Additionally, interest in women's health was positively associated with PCOS awareness; nurses who expressed an interest in women's health were 2.71 times more likely to be aware of PCOS compared with those without such interest.

6.3 Conclusion

In conclusion, this study demonstrates that while a majority of nurses in the Tema Metropolitan Assembly have some awareness of PCOS, significant knowledge gaps remain, particularly regarding its complications and long-term health implications. Both individual factors (experience, training, interest in women's health) and institutional factors (protocols, mentorship, educational resources) influence awareness. Addressing these gaps through structured training, institutional support, and policy interventions will be essential to improving reproductive health outcomes among women in Ghana.

6.4 Recommendations

6.4.1 Recommendations for Policy

- Considering the results that nearly a quarter of nurses have low knowledge of PCOS and a third are not aware of PCOS, the Ministry of health, Ministry of education, Ghana Health Service and other relevant institutions should update current curriculum on the training of nurses on PCOS

6.4.2 Recommendations for future research

- Future research work could evaluate the effectiveness of focused educational interventions such as., workshops, online modules on nurse knowledge and patient outcomes,
- Researchers could conduct studies to explore barriers to uptake of PCOS protocols at facility level, and Implementation research linking training to clinical practice changes (referrals, diagnostic uptake, counselling) would be particularly valuable.

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APPENDIX A: Informed Consent

INFORMED CONSENT

AWARENESS AND KNOWLEDGE OF POLYCYSTIC OVARIAN SYNDROME AMONG NURSES IN THE TEMA METROPOLIS IN THE GREATER ACCRA REGION OF GHANA.

INTRODUCTION AND INFORMED CONSENT FORM TO PARTICIPANT

Dear Respondent,

My name is Rhodaline Ohene Fenteng. I am a student at Ensign Global University, Kpong. I am conducting a research to assess the awareness and knowledge of PCOS amongst nurses in the Tema Metropolis. This is an academic work which could be used to educate, train nurses and formulate policies to address PCOS. I would very much appreciate it if you could spare some time to answer this questionnaire.

Polycystic Ovary Syndrome (PCOS) is a common hormonal disorder that affects women of reproductive age. It can cause irregular menstrual cycles, excessive hair growth, acne, weight gain and infertility. If left unmanaged, PCOS can lead to serious health problems like type 2 diabetes, heart disease and depression. Hence, early detection and proper management are important in reducing its impact.

The purpose of this study is to assess how well nurses in selected health facilities within the Tema Metropolis know about Polycystic Ovarian Syndrome (PCOS). The findings will help inform strategies for education, training and policy formulation to enhance nurses ability to identify and manage PCOS.

Confidentiality

The information you share will not be disclosed to anyone outside this research team. Your name will not be written, your response to the questionnaire will be made anonymous. Every information from this research will be kept private and under lock and key.

Risks

There are no known physical or psychological risk associated with this study. However, if you are not comfortable answering the questionnaire, you may stop at anytime

Benefits

You will not be given anything for participating in this survey. However, your participation and responses will contribute to improving awareness and knowledge of PCOS among nurses. This may ultimately improve patient care and outcomes.

Duration

If you agree to participate, you will be asked to complete a questionnaire which should take approximately 10-15 minutes. The questions will cover your demographic information, awareness, knowledge and sources of information with regards to PCOS.

Compensation

There is no monetary compensation for participating in this study.

Statement of Consent

I have read the information provided above. I understand the purpose of the study, the procedures involved and my rights as a participant. All my questions have been answered to my satisfaction. I voluntarily agree to take part in this research.

Participant's Name: …….

Signature: ……

Date: ……..

Researcher's Name: …….

Signature: ……..

Date: ……..

APPENDIX B: Structured Questionnaire

PARTICIPANT ID: | | | | |

Structured Questionnaire

Study Title: *Awareness and knowledge of polycystic ovarian syndrome among nurses at the Tema Metropolis in the Greater Accra region of Ghana.*

Dear Respondent,

You are invited to participate in a research study titled "Awareness and knowledge of polycystic ovarian syndrome among nurses at the Tema Metropolis in the Greater Accra region of Ghana" This study is being conducted as part of an academic research project. It aims to evaluate the level of awareness, knowledge, and perceptions of PCOS among nurses working in selected healthcare facilities within the Tema Metropolis.

Your participation is entirely voluntary, and all responses will be treated with the strictest confidentiality. The information you provide will be used solely for academic purposes and to inform future training and policy interventions related to women's reproductive health. The questionnaire will take approximately 10–15 minutes to complete. Please answer all questions honestly and to the best of your knowledge.

Instructions: Please tick [✓] the most appropriate option or provide a short response where necessary. All information will be kept confidential and used for academic purposes only.

Section A: Socio-demographic and Professional Characteristics

1. Age: .....
2. Gender: [ ] Male [ ] Female
3. Marital Status: [ ] Single [ ] Married [ ] Divorced [ ] Widowed
4. Educational Qualification: [ ] Certificate [ ] Diploma [ ] Bachelor's Degree [ ] Postgraduate
5. Rank/Position: [ ] Enrolled Nurse [ ] Registered Nurse [ ] Midwife [ ] Nurse Specialist [ ] Other: _____
6. Years of Practice: [ ] <1 year [ ] 1–5 years [ ] 6–10 years [ ] 11–15 years [ ] Over 15 years
7. Current Facility: [ ]

Section B: Level of awareness of PCOS among nurses.

8. Have you heard of Polycystic Ovarian Syndrome (PCOS)? Yes [ ] No [ ]

1. How did you first hear about PCOS? (Choose one)
    - Formal education [ ]
    - Workshop/Seminar [ ]
    - Colleagues [ ]
    - Internet/Online platforms [ ]
    - Books/Journals [ ]
    - Others (specify): _____
2. How familiar are you with PCOS?
    - Very familiar [ ]
    - Somewhat familiar [ ]

- Not familiar [ ]

3. Have you ever encountered a patient with PCOS? Yes [ ] No [ ]

4. In your opinion, how common is PCOS among women in Ghana?

   Very common [ ] Common [ ] Not common [ ]

5. Do you think awareness of PCOS among nurses in your facility is adequate?

   Yes [ ] No [ ]

6. Would you be interested in receiving further education on PCOS? Yes [ ] No [ ]

Section C: Knowledge of Causes, Symptoms, Complications, and Management of PCOS

7. Can PCOS be cured? Yes [ ] No [ ]

8. What management strategies are used in PCOS? (Tick all that apply)

   - Lifestyle modification (diet/exercise) [ ]
   - Hormonal therapy [ ]
   - Fertility treatment [ ]
   - Psychological counselling [ ]
   - I don't know [ ]

9. Do you feel confident in educating patients about PCOS? Yes [ ] No [ ]

10. Which of the following complications is most consistently associated with long-term PCOS?

    A. Osteoporosis

    B. Endometrial hyperplasia and cancer

    C. Hypothyroidism

    D. Cervical cancer

11. Which long-term health condition is NOT commonly associated with PCOS?

    A. Non-alcoholic fatty liver disease

B. Hyperthyroidism

C. Type 2 diabetes mellitus

D. Cardiovascular disease

12. Which hormone is often elevated in women with PCOS?

A. Estrogen

B. Testosterone

C. Progesterone

D. Prolactin

13. Which of the following is a known risk factor for developing PCOS?

A. Obesity

B. Anemia

C. Smoking only

D. Low blood pressure

14. Which of the following is a common visible sign of PCOS?

A. Pale skin

B. Excess facial or body hair

C. Swollen feet

D. Blue fingernails

15. Which of these is a recommended lifestyle change to help manage PCOS?

A. Regular exercise

B. Drinking more coffee

C. Reducing water intake

D. Eating more sugary snacks

16. Can women with PCOS still become pregnant?

A. No, they are always infertile

B. Yes, but they may have difficulty

C. Only if they use herbs

D. Only after menopause

17. Which of the following is commonly used to diagnose PCOS?

A. Chest X-ray

B. Pelvic ultrasound

C. Endoscopy

D. Colonoscopy

18. Which of the following can help manage insulin resistance in PCOS?

A. High-sugar diet

B. Metformin medication

C. Antibiotics

D. Iron supplements

19. Which one is a diagnostic criterion for PCOS

A. Apgar score criteria

B. Pelvic assessment criteria

C. Rotterdam criteria

D. Fecundity criteria

20. Which hormone is often elevated in women with PCOS?

A. Estrogen

B. Testosterone

C. Progesterone

D. Prolactin

Section D: Factors influencing knowledge in PCOS

21. Have you ever read about PCOS in a textbook or medical journal? Yes [ ] No [ ]

22. Do you use the internet to look up medical information such as PCOS? Yes [ ] No [ ]

23. Have you received any formal training on PCOS? Yes [ ] No [ ]

24. How frequently do you discuss PCOS with colleagues?
    Frequently [ ] Occasionally [ ] Rarely [ ] Never [ ]

25. Do your patients ever ask about PCOS? Yes [ ] No [ ]

26. What source do you trust most for PCOS-related information? (Choose one)
    Medical textbooks [ ] Research articles [ ] Colleagues [ ] Internet [ ] Workshops [ ]

27. Are educational resources on PCOS readily available in your facility? Yes [ ] No [ ]

28. Are you interested in women health? Yes [ ] No [ ]

29. Is your facility equipped to diagnose PCOS? Yes [ ] No [ ]

Thank you for your participation!

APPENDIX C: Ethical Clearance

ENSIGN GLOBAL
UNIVERSITY

OUR REF: ENSIGN/IRB/EL/SN-303/03
YOUR REF:

August 4, 2025

INSTITUTIONAL REVIEW BOARD SECRETARIAT

Rhodaline Ohene Fenteng
Ensign Global University
Kpong.

Dear Rhodaline,

ETHICAL CLEARANCE TO UNDERTAKE POSTGRADUATE RESEARCH

At the General Research Proposals Review Meeting of the *INSTITUTIONAL REVIEW BOARD (IRB)* of Ensign Global University held on Friday, August 1, 2025, your research proposal entitled **"Awareness and Knowledge of Polycystic Ovarian Syndrome among Nurses in the Tema Metropolis in the Greater Accra Region of Ghana"** was considered.

You have been granted Ethical Clearance to collect data for the said research under academic supervision within the IRB's specified frameworks and guidelines.

We wish you all the best.

Sincerely,

Dr. (Mrs.) Rebecca Acquaah-Arhin
IRB Chairperson

22416504:Rhodaline_Ohene_Fenteng_Final_Thesis_Work_Cor...

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