



## NURSING IN THE OPERATING ROOM OF OBSTETRICS AND GYNECOLOGY DEPARTMENTS: A NARRATIVE REVIEW

Huda Mutir Alatawi<sup>1\*</sup>, Haya Mohammed Al Mawkili<sup>1</sup>, Hamamah Ibrahim Mokli<sup>2</sup>, Latefah Abdullah Alshamrni<sup>1</sup>, Shohraha Ali Mohammed Al Bishi<sup>3</sup>, Hayat Abdullah Alotaibi<sup>4</sup>, Azza Mohammed Salem Al Bishi<sup>5</sup>, Bassam Ayidh Alahmadi<sup>6</sup>

### Abstract:

**Background:** Obstetrics and Gynecology (O&G) surgery is essential in treating obstetrical and gynecological conditions, but it can cause physical and psychological distress to patients. Evidence-based nursing (EBN) offers a valuable approach to addressing patients' emotional needs and enhancing surgical outcomes. Despite advancements in nursing care, there is limited research on the application of EBN in the O&G operating room.

**Objective:** This review aims to examine the roles of nurses in O&G operating rooms, evaluate their training needs, assess challenges they face, explore the impact of teamwork on patient outcomes, and identify best practices for nursing care improvement in this specialized setting. **Conclusion:** Obstetric nurses play a critical role in the O&G operating room, providing comprehensive care to pregnant women before, during, and after surgical procedures. They face challenges such as high-pressure environments, staffing shortages, and complex team dynamics. The establishment of a nursing platform integrating electronic medical records and sensor technology is proposed to enhance patient care and nursing management. By emphasizing evidence-based nursing practices, this research aims to enhance the quality of care in O&G operating rooms and improve patient outcomes.

**Keywords:** Evidence-based nursing, obstetrics and gynecology, obstetric complication, nursing platform.

---

<sup>1</sup>\*Nurse, Alrajhi Health center, Tabuk, Saudi Arabia

<sup>2</sup>Nurse, King Khaled Hospital, Tabuk, Saudi Arabia

<sup>3</sup>Nurse, Al Izdihar Health Center, Riyadh, Saudi Arabia

<sup>4</sup>Nurse, Riyadh Second Health Cluster, Riyadh, Saudi Arabia

<sup>5</sup>Nurse, King Abdullah hospital, Bisha, Saudi Arabia

<sup>6</sup>Specialist Nurse, Al Safia Centre, Al Madinah, Saudi Arabia

**\*Corresponding Author:** Huda Mutir Alatawi

\*Nurse, Alrajhi Health center, Tabuk, Saudi Arabia

**DOI:** 10.53555/ecb/2022.11.10.162

**Introduction:**

Obstetrics and Gynecology (O&G) stands as a pivotal discipline within clinical medicine, holding a crucial position within medical institutions [1]. The realm of O&G surgery, encompassing both gynecological and obstetric surgery, primarily caters to the female patient demographic [2]. Surgery, serving as a cornerstone in the treatment and preservation of lives, plays a pivotal and often definitive role in determining treatment outcomes, albeit not without potential patient harm [3]. The invasive nature of surgical procedures instills fear and anxiety in most patients, leading to significant physical and psychological stress pre- and post-operation, thereby amplifying surgical risks and postoperative complication rates to a considerable extent [4,5].

In light of these challenges, it becomes imperative for healthcare providers to effectively address patients' adverse emotional states, alleviate physical discomfort, alleviate psychological burdens, and enhance the quality of nursing care [6]. While conventional nursing practices predominantly focus on fundamental care tasks, often neglecting patients' psychological needs, it is essential to recognize that while physical pain can be managed through medication, psychological distress necessitates a more humanistic approach from medical staff [6]. With the evolution of healthcare services and the growing emphasis on health consciousness among the populace, nursing service models have undergone continuous innovation [7].

Evidence-based nursing (EBN) emerges as a progressive approach, offering pragmatic and efficient nursing interventions for the surgical care process by aligning with evidence-based practices to aid patients in pain relief and confidence-building, thereby expediting their recovery [8]. Rooted in evidence-based medicine principles, EBN advocates for the judicious application of the best available evidence in tandem with patients' preferences to make informed, personalized healthcare decisions [9]. Notable studies have explored the impact of EBN on mitigating catheter-related infections by analyzing biofilm composition from an EBN perspective, showcasing its potential in reducing infection risks for patients [10].

Furthermore, research by Wang X et al. highlights the positive influence of EBN in alleviating negative emotions in breast cancer patients post-radiotherapy, leading to a reduction in lymphedema severity and improved shoulder joint function, ultimately enhancing upper limb functionality and aiding in the recovery process [11]. Despite these promising outcomes, there remains a scarcity of

research on the application of EBN within the operating theaters of Obstetrics and Gynecology departments [11].

**Objectives:**

The main objectives of this review are:

1. To examine the roles and responsibilities of nurses in the operating room of obstetrics and gynecology departments.
2. To evaluate the training and education requirements for nurses working in this specialized area.
3. To assess the challenges and barriers faced by nurses in the operating room of obstetrics and gynecology departments.
4. To explore the impact of teamwork and communication on patient outcomes in this setting.
5. To identify best practices and recommendations for improving nursing care in the operating room of obstetrics and gynecology departments.

**The role of obstetric nursing in the operating room:**

Obstetric nursing holds a pivotal position within the operating room setting, where specialized attention is dedicated to expectant mothers undergoing diverse surgical procedures associated with childbirth. The responsibilities shouldered by obstetric nurses in the operating room are extensive, serving as vital components in ensuring the safety and welfare of both the mother and the unborn child. These highly proficient professionals collaborate closely with the surgical team, comprising obstetricians, anesthesiologists, and other healthcare practitioners, to deliver comprehensive care prior to, during, and following surgical interventions. In the preoperative phase, obstetric nurses assume a critical role in readying the patient for surgery by evaluating her medical history, conducting physical assessments, and securing informed consent. Moreover, they impart knowledge to the patient regarding the procedure, potential risks, and postoperative care to guarantee her understanding and preparedness for the impending surgery. Additionally, obstetric nurses engage in cooperative efforts with the anesthesia team to devise a suitable anesthesia strategy tailored to the specific requirements of the patient and the surgical procedure [12].

Throughout the intraoperative phase, obstetric nurses aid the surgical team in positioning the patient, prepping the surgical site, and ensuring the availability of all essential equipment and supplies. They play a pivotal role in monitoring the mother's vital signs, fetal heart rate, and overall well-being during the surgical process. Equipped with the

necessary training, obstetric nurses are adept at identifying and promptly addressing any complications that may surface during surgery, such as hemorrhage, hypotension, or fetal distress, to safeguard the well-being of both the mother and the infant. In the postoperative phase, obstetric nurses continue to deliver comprehensive care to the patient as she recuperates from surgery. They closely observe her vital signs, evaluate her pain levels, and provide assistance with breastfeeding and newborn care, if applicable. Furthermore, obstetric nurses offer emotional support and education to the patient and her family members, addressing any worries or queries they may harbor regarding the surgical procedure or postoperative healing [13].

Moreover, obstetric nurses play a pivotal role in advocating for the patient and ensuring that her requirements and preferences are honored throughout the surgical journey. They collaborate with the interdisciplinary team to formulate personalized care plans that foster optimal outcomes for both the mother and the infant. Additionally, obstetric nurses function as educators, imparting evidence-based information to patients and families concerning childbirth, surgical interventions, and postoperative care to empower them to make well-informed decisions about their healthcare [14].

#### **Most common operative obstetric complications and the role of obstetric nursing team:**

Operative obstetric procedures are essential for ensuring the safety and well-being of both mother and baby, but they also come with a range of potential complications that require careful management by the obstetric nursing team. Postpartum hemorrhage is a common complication associated with operative deliveries, which can be caused by factors such as uterine atony, lacerations, or retained placental tissue [15]. The obstetric nursing team plays a crucial role in early recognition and management of postpartum hemorrhage, including monitoring vital signs, assessing blood loss, and administering necessary medications or interventions to stabilize the mother's condition.

Surgical site infections are another significant concern following operative deliveries, with risk factors including prolonged rupture of membranes, prolonged labor, and comorbidities like diabetes or obesity [16]. It is the responsibility of the obstetric nursing team to ensure proper infection control measures are in place before, during, and after the procedure, such as maintaining a sterile field, following hand hygiene protocols, and monitoring

for signs of infection in both the mother and newborn.

Instrumental deliveries, like forceps or vacuum extraction, can lead to neonatal complications such as cephalohematoma, facial nerve palsy, or skull fractures due to excessive force or improper technique. The obstetric nursing team must be knowledgeable about the indications for instrumental deliveries, assist the obstetrician during the procedure, and closely monitor the newborn for any signs of trauma or distress.

Shoulder dystocia is another potential complication during operative deliveries, where the baby's shoulders become impacted behind the mother's pubic bone, increasing the risk of brachial plexus injuries or fetal asphyxia [17]. The obstetric nursing team plays a critical role in assisting the obstetrician with maneuvers to resolve shoulder dystocia promptly and providing emotional support to the mother during this stressful situation.

Uterine rupture is a rare but serious complication that can occur during operative deliveries, especially in women with a history of previous cesarean sections or uterine surgery. The obstetric nursing team must be vigilant for signs of uterine rupture, such as sudden onset of severe abdominal pain or abnormal fetal heart rate patterns, and be prepared to assist with emergency interventions like immediate cesarean delivery to prevent catastrophic outcomes.

Maternal injuries, such as vaginal tears, cervical lacerations, or bladder injuries, can also occur during operative deliveries, requiring prompt recognition and repair by the obstetric nursing team to prevent long-term complications and promote optimal healing for the mother [18].

#### **Challenges and barriers faced by nurses in the operating room of obstetrics and gynecology departments:**

Nurses working in the operating room of obstetrics and gynecology departments encounter a multitude of obstacles and difficulties that can significantly impact their ability to deliver high-quality care to patients. One of the main challenges faced by these nurses is the high-pressure environment in which they operate, characterized by the fast-paced nature of obstetrics and gynecology surgeries and the need for quick decision-making and precise execution. This can lead to heightened stress levels among nurses, especially when faced with unpredictable obstetric emergencies that require immediate and coordinated responses from the entire surgical team [19].

In addition to the demanding nature of their work, operating room nurses in obstetrics and gynecology departments also struggle with issues related to

staffing and resource allocation. Shortages of qualified nursing staff can lead to increased workloads, fatigue, and burnout, while limited access to essential resources like surgical equipment and supplies can hinder their ability to perform effectively. Outdated or malfunctioning equipment may even pose safety risks to both patients and healthcare providers, further complicating the already challenging task of providing surgical care in obstetrics and gynecology.

Furthermore, nurses in the operating room of obstetrics and gynecology departments must navigate complex interpersonal dynamics within the surgical team. Effective communication and collaboration are crucial for the success of surgical procedures, but conflicts and misunderstandings among team members can impede the delivery of quality care. Nurses must work closely with surgeons, anesthesiologists, and other healthcare professionals to coordinate care and respond to unexpected developments during surgery. However, differences in communication styles, hierarchical structures, and conflicting priorities can create tension and hinder effective teamwork in the operating room [20].

Moreover, operating room nurses in obstetrics and gynecology departments also face ethical and emotional challenges in their daily practice. Providing care to women undergoing sensitive and life-changing procedures, such as cesarean sections or hysterectomies, can be emotionally taxing. Witnessing the pain, fear, and vulnerability of patients in the operating room can contribute to feelings of compassion fatigue or moral distress. Nurses must navigate these complex emotions while upholding professional standards of care and maintaining a patient-centered focus in their practice [21].

### **Establishment of a nursing platform for obstetrics and gynecology:**

According to the most recent standards in medical nursing [22,23], and leveraging cutting-edge comprehensive electronic case applications, the deployed system platform is designed to establish a structured and unified electronic medical record system tailored for obstetricians, gynecologists, and nursing staff. This setup facilitates extensive sharing and utilization of electronic data, allowing for the efficient tracking, recording, and timely completion of daily tasks related to the nursing status of obstetrics and gynecology patients. By employing intelligent sensors, the system can capture patient care activities in medical settings, thereby minimizing data duplication and delays. Furthermore, advanced sensor interaction

technology is utilized to promptly gather information from obstetrics and gynecology patients, which is then relayed to the medical care terminal for processing. Through the integration of IoT technology, all patient information components within the system are digitized, culminating in the creation of a virtual medical care service platform within the digital realm. This setup signifies the coexistence and seamless integration of the physical nursing system and the digital information system, forming a unified entity in the information domain.

Notably, the system is equipped to assess the mental state of patients, offer historical treatment data queries, monitor vital body indicators, and ensure the stability and expandability of data storage. Within the obstetrics and gynecology nursing management platform [24], the admission evaluation and management module encompasses functionalities like admission assessment data entry and query. Nurses input the patient's essential and medical history details as per hospital guidelines, conduct safety assessments of the patient's care level, and promptly adjust the safety care level when necessary. Physicians can access the patient's assessment data and generate admission assessment forms. Moreover, nurses are responsible for managing patient information and providing care based on the relevant medical orders. At the system's core, head nurses can devise tailored care plans based on the doctor's prescribed care level and implement them for the patients. Nurses have access to view and execute the care plans for the patients under their care, following plan reminders [25].

### **Conclusion:**

In conclusion, this research article highlights the crucial role of obstetric nurses in the operating room of obstetrics and gynecology departments, emphasizing their responsibilities in providing specialized care to pregnant women undergoing surgical procedures. The article explores the challenges and barriers faced by nurses in this setting, including high-pressure environments, staffing shortages, resource allocation issues, and complex interpersonal dynamics. Furthermore, the establishment of a nursing platform for obstetrics and gynecology is proposed, incorporating advanced electronic medical record systems and intelligent sensor technology to enhance patient care and nursing management. By addressing these key issues and emphasizing evidence-based nursing practices, this research aims to improve the quality of nursing care in the operating room of obstetrics and gynecology departments.

**References:**

- Bukowski R, Schulz K, Gaither K, Stephens KK, Semeraro D, Drake J, Smith G, Cordola C, Zariphopoulou T, Hughes TJR, Zarins C, Kusnezov D, Howard D, Oden T. Computational medicine, present and the future: obstetrics and gynecology perspective. *Am J Obstet Gynecol.* 2021;224:16–34. [PubMed] [Google Scholar]
- Jung YW, Pak H, Lee I, Kim EH. The effect of diagnosis-related group payment system on quality of care in the field of obstetrics and gynecology among korean tertiary hospitals. *Yonsei Med J.* 2018;59:539–545. [PMC free article] [PubMed] [Google Scholar]
- Fowler AJ, Abbott TEF, Prowle J, Pearse RM. Age of patients undergoing surgery. *Br J Surg.* 2019;106:1012–1018. [PubMed] [Google Scholar]
- Argenziano M, Fischkoff K, Smith CR. Surgery scheduling in a crisis. *N Engl J Med.* 2020;382:e87. [PMC free article] [PubMed] [Google Scholar]
- Kochkodan J, Telem DA, Ghaferi AA. Physiologic and psychological gender differences in bariatric surgery. *Surg Endosc.* 2018;32:1382–1388. [PubMed] [Google Scholar]
- Stover AM, Haverman L, van Oers HA, Greenhalgh J, Potter CM ISOQOL PROMs/PREMs in Clinical Practice Implementation Science Work Group. Using an implementation science approach to implement and evaluate patient-reported outcome measures (PROM) initiatives in routine care settings. *Qual Life Res.* 2021;30:3015–3033. [PMC free article] [PubMed] [Google Scholar]
- De la Fuente-Solana EI, Suleiman-Martos N, Pradas-Hernandez L, Gomez-Urquiza JL, Canadas-De la Fuente GA, Albendin-Garcia L. Prevalence, related factors, and levels of burnout syndrome among nurses working in gynecology and obstetrics services: a systematic review and meta-analysis. *Int J Environ Res Public Health.* 2019;16:2585. [PMC free article] [PubMed] [Google Scholar]
- Chan EY, Glass GF, Phang KN. Evaluation of a hospital-based nursing research and evidence-based practice mentorship program on improving nurses' knowledge, attitudes, and evidence-based practice. *J Contin Educ Nurs.* 2020;51:46–52. [PubMed] [Google Scholar]
- Mick J. Call to action: how to implement evidence-based nursing practice. *Nursing.* 2017;47:36–43. [PubMed] [Google Scholar]
- Ielapi N, Nicoletti E, Lore C, Guasticchi G, Avenoso T, Barbetta A, de Franciscis S, Andreucci M, Sapienza P, Serra R. The role of biofilm in central venous catheter related bloodstream infections: evidence-based nursing and review of the literature. *Rev Recent Clin Trials.* 2020;15:22–27. [PubMed] [Google Scholar]
- Wang X, Lai Q, Tian YZ, Zou L. Effect of evidence-based nursing intervention on upper limb function in postoperative radiotherapy patients with breast cancer. *Medicine (Baltimore)* 2020;99:e19183. [PMC free article] [PubMed] [Google Scholar]
- Lisa AVE, Murolo M, Maione L, Vinci V, Battistini A, Morengi E, De Santis G, Klinger M. Autologous fat grafting efficacy in treating PostMastectomy pain syndrome: a prospective multicenter trial of two Senonetwork Italia breast centers. *Breast J.* 2020;26:1652–1658. [PubMed] [Google Scholar]
- Pearce A, Haas M, Viney R, Pearson SA, Haywood P, Brown C, Ward R. Incidence and severity of self-reported chemotherapy side effects in routine care: a prospective cohort study. *PLoS One.* 2017;12:e0184360. [PMC free article] [PubMed] [Google Scholar]
- Dong Q, Zhang Y. The effect of the prospective information-based nursing quality management model on the improvement of management quality in emergency medicine nursing management. *Am J Transl Res.* 2021;13:7406–7411. [PMC free article] [PubMed] [Google Scholar]
- Tadese, Mesfin et al. “Adverse obstetric outcome and its associated factors in public hospitals of North Ethiopia: does parity make a difference?.” *BMC pregnancy and childbirth* vol. 22,1 693. 8 Sep. 2022, doi:10.1186/s12884-022-05021-2
- Sikder SS, Labrique AB, Shamim AA, Ali H, Mehra S, Wu L, et al. Risk factors for reported obstetric complications and near misses in rural northwest Bangladesh: analysis from a prospective cohort study. *BMC Pregnancy Childbirth.* 2014;14(1):1–13. doi: 10.1186/1471-2393-14-347. [PMC free article] [PubMed] [CrossRef] [Google Scholar]
- Asiki G, Baisley K, Newton R, Marions L, Seeley J, Kamali A, et al. Adverse pregnancy outcomes in rural Uganda (1996–2013): trends and associated factors from serial cross sectional surveys. *BMC Pregnancy Childbirth.* 2015;15(1):1–12. doi: 10.1186/s12884-015-0708-8. [PMC free article] [PubMed] [CrossRef] [Google Scholar]
- Yimer NB, Gedefaw A, Tenaw Z, Liben ML, Meikena HK, Amano A, et al. Adverse obstetric outcomes in public hospitals of southern

- Ethiopia: the role of parity. *J Matern Neonatal Med.* 2020;35(10):1–8. [PubMed] [Google Scholar]
19. Kanyesigye, Hamson et al. "Health Care Workers' Experiences, Challenges of Obstetric Referral Processes and Self-Reported Solutions in South Western Uganda: Mixed Methods Study." *Risk management and healthcare policy* vol. 15 1869-1886. 6 Oct. 2022, doi:10.2147/RMHP.S377304
20. Daniels AA, Abuosi A. Improving emergency obstetric referral systems in low and middle income countries: a qualitative study in a tertiary health facility in Ghana. *BMC Health Serv Res.* 2020;20(1):1–10. doi: 10.1186/s12913-020-4886-3 [PMC free article] [PubMed] [CrossRef] [Google Scholar]
21. Ameyaw EK, Njue C, Tran NT, Dawson A. Quality and women's satisfaction with maternal referral practices in sub-Saharan African low and lower-middle income countries: a systematic review. *BMC Pregnancy Childbirth.* 2020;20(1):682. [PMC free article] [PubMed] [Google Scholar]
22. Ribeiro O., Martins M., Sousa P., Trindade L., Forte E., Silva J. Qualidade dos cuidados de enfermagem: contribuições de enfermeiros especialistas em enfermagem médico-cirúrgica. *Rev Rene .* 2020;21 doi: 10.15253/2175-6783.20202143167.e43167 [CrossRef] [Google Scholar]
23. Harrington C., Ross L., Chapman S., Halifax E., Spurlock B., Bakerjian D. Nurse staffing and coronavirus infections in California nursing homes. *Policy, Politics, & Nursing Practice .* 2020;21(3):174–186. doi: 10.1177/1527154420938707. [PubMed] [CrossRef] [Google Scholar]
24. Zhu H., Gu L. Design and application of intelligent information system for comprehensive management of obstetrics and gynecology health care. *Journal of Medical Imaging and Health Informatics .* 2020;10(8):1834–1840. doi: 10.1166/jmihi.2020.3191. [CrossRef] [Google Scholar]
25. Sadiki S., Faccio M., Ramadany M., Amegouz D., Boutahari S. Intelligent sensor impact on predictive maintenance program costs. *International Journal of Mathematics in Operational Research .* 2020;17(2):170–185. doi: 10.1504/ijmor.2020.109700. [CrossRef] [Google Scholar]