Nursing Care for Women Undergoing Hysterectomy

Haitham Naser Alanazi ¹, Maha Mofareh Alruwaili ², Fadhah Dhahawi M Alanazi ³, Abduljalil Saleh Ali Alquraynes ⁴, Othman Bakr Oudah Alkuraya ⁵, Mastorah Saleem Aldobyani ⁶, Noor Saqir Salem Alruwaili ⁷, Ahmed Faris Alanazi ⁸, Alotaibi, Fahad Musallam O ⁹, Saud Owaid Sulaiman Alanazi ¹⁰

- 1- Specialist Nursing, Taima General Hospital, Taima, Tabuk, Saudi Arabia
- 2- Nursing technician, Maternity and Children's Hospital in Arar, Saudi Arabia
 - 3- Nursing technician, North Medical Tower at Arar in Saudi Arabia
- 4- Nursing technician, Forensic Medical Services Center, Sakaka, Al-Jawf, Saudi Arabia.
- 5- Nursing technician, Forensic Medical Services Center, Sakaka, Al-Jawf, Saudi Arabia.
- 6- Nursing technician, Care Administration, Yanbu Al-Bahr, Medina Health Cluster, Saudi Arabia.
 - 7- Nursing technician, King Abdulaziz Specialist Hospital, Sakaka, Al-Jawf, Saudi Arabia
 - 8- Nursing, Ministry of Health Branch- Northern Border Region, Saudi Arabia
- 9- Nursing, Muqarr Shunaif Health Center, Public Health, Al-Taif Health Cluster, Taif, Saudi Arabia 10- Health assistant, Northern borders health cluster, Saudi Arabia

Abstract:

Nursing care for women undergoing hysterectomy is critical in ensuring both physical and emotional recovery post-surgery. Pre-operative education is essential; nurses should provide information about the procedure, potential risks, and recovery expectations. Assessing and addressing individual concerns and anxieties can help create a supportive environment. Nurses must also perform thorough assessments, including vital signs, laboratory tests, and patient history, to prepare for anesthesia and surgery. Developing a personalized care plan that outlines pain management strategies, mobility regimens, and wound care is vital for optimal recovery. Post-operative nursing care focuses on monitoring for complications such as infection, hemorrhage, and thromboembolic events. Nurses should encourage deep breathing exercises and early ambulation to facilitate recovery while providing education on signs of potential complications. Emotional support is equally important, as women may experience hormonal changes and emotional distress after the procedure. Providing resources for counseling or support groups can assist in addressing the psychological impact of surgery, enabling women to navigate their recovery with confidence and support.

Keywords: Hysterectomy, pre-operative care, post-operative care, pain management, emotional support, patient education, complications, recovery, nursing assessment, individualized care plan.

Introduction:

In the realm of women's health, the decision to undergo a hysterectomy is often predicated on various medical conditions that necessitate the surgical removal of the uterus. Hysterectomy can address an array of health issues, including but not limited to uterine fibroids, endometriosis, abnormal bleeding, and certain cancers. This procedure represents a significant intervention in a woman's life, not only affecting her physical health but also her emotional, psychological, and social well-being. As such, the nursing care provided to women undergoing this surgical procedure is of paramount

importance. Nurses play a critical role in delivering comprehensive pre-operative, intra-operative, and post-operative care that aims to ensure positive outcomes for their patients [1].

A hysterectomy is one of the most frequently performed surgical procedures among women in the United States, with millions of women undergoing the operation each year. Various types of hysterectomy—total, subtotal, and radical—differ based on whether additional structures are removed, influencing the complexity of care and the recovery trajectory for each patient. The implications of the procedure extend beyond the surgical intervention

itself, encompassing potential short- and long-term side effects, including hormonal changes, complications such as infection or blood clots, and socio-emotional impacts like anxiety and changes in body image. In this complex landscape, nursing professionals are at the forefront, tasked with guiding patients through the process, addressing individual needs, and fostering a supportive environment conducive to healing [2].

An essential aspect of nursing care for women undergoing a hysterectomy is patient education. Comprehensive education empowers women to make informed decisions about their health and treatment options. Nurses play a critical role in providing patients with knowledge related to the surgery's indications, the procedure itself, potential risks, and expected outcomes. Engaging in open dialogues with patients allows for the identification of fears and misconceptions, thereby enabling nurses to clarify information and reduce anxiety. Tailoring educational interventions to meet the specific needs of individual patients enhances understanding and encourages adherence to preoperative instructions, such as dietary modifications and activity restrictions [3].

Pre-operative nursing care extends beyond education and includes ensuring that patients are physically prepared for surgery. This involves comprehensive assessments that evaluate each woman's medical history, current medications, and potential risk factors for complications. Nurses must also emphasize the importance of psychological preparedness, recognizing that anxiety is a common response before surgical procedures. They can implement relaxation techniques and provide emotional support, thereby fostering a sense of control and confidence in patients facing their surgery [4].

During the intra-operative phase, nursing care shifts focus to assisting surgical teams while simultaneously advocating for the patient's needs. This includes the administration of anesthetics, monitoring vital signs, and providing emotional reassurance. Nurses must possess a keen understanding of surgical protocols and be prepared to respond to any complications that may arise, ensuring patient safety is always prioritized [5].

The post-operative phase presents unique challenges for nursing care. Immediately following surgery, women may experience pain, fatigue, and various physical and emotional adjustments. Effective pain management is a cornerstone of post-operative care, as inadequate pain control can significantly impede recovery. Nurses are responsible for assessing pain levels, administering analgesics, and employing non-pharmacological interventions, such as positioning and relaxation techniques, to promote comfort. Additionally, nurses must monitor for signs of complications, such as excessive bleeding or infection, providing timely interventions when necessary [6].

Another significant aspect of nursing care in the post-operative period includes addressing the emotional and psychological needs of patients. The experience of undergoing a hysterectomy can elicit feelings of loss, fear of change, and anxiety about future health. Nurses are uniquely positioned to provide holistic care by offering emotional support and facilitating connections to counseling services or support groups. This emotional component of care is crucial, as it lends itself to a more comprehensive recovery process and the overall well-being of the patient [7].

As the landscape of healthcare continues to evolve, the role of nurses in the perioperative management of hysterectomy patients remains indispensable. Evidence-based practices and ongoing research into the nursing care needed for women undergoing this procedure are essential to optimize care, improve patient outcomes, and elevate the standards of nursing practice. Understanding the nuances of how social determinants of health, cultural perceptions, and patient preferences intersect with surgical care provides a vital framework for improving nursing interventions [8].

Pre-operative Assessment and Nursing Interventions:

Hysterectomy, the surgical removal of the uterus, is one of the most frequently performed major surgical procedures among women, often indicated for conditions such as uterine fibroids, endometriosis, abnormal bleeding, and cancer. Given its complexity and potential implications on a woman's reproductive health and psychological well-being,

comprehensive preoperative evaluation and effective nursing interventions are paramount [9].

diagnosis and may guide surgical planning. Imaging studies such as ultrasounds may also be employed to elucidate the pathology further [11].

Preoperative Evaluation

Preoperative evaluation serves as a foundation for planning and preparing patients for surgery. It involves a thorough assessment of the patient's medical, surgical, and psychosocial history, ensuring that all risk factors are identified and addressed [9].

1. Medical History Assessment

The initial stage of preoperative evaluation is to obtain a detailed medical history from the patient. Key elements include:

- Comorbidities: Conditions such as diabetes, hypertension, heart disease, and obesity can significantly affect surgical outcomes. The presence of these comorbidities necessitates careful management prior to surgery [10].
- Medication Review: An inventory of current medications, including over-the-counter products, herbal supplements, and anticoagulants, is vital. Adjustments may be required, particularly for those on blood thinners or medications affecting blood pressure.
- Allergies: Documentation of any known allergies plays a critical role in avoiding allergic reactions to medications or anesthetic agents during the procedure [10].

2. Physical Examination

A complete physical examination is mandated to assess the patient's overall health status. Particular attention should be placed on:

- Cardiovascular and Respiratory Systems: Evaluating the heart and lung function is vital, especially for patients with pre-existing conditions. Ankle-brachial index and pulse oximetry may be used to assess vascular and respiratory performance.
- **Pelvic Examination**: A thorough gynecological examination helps confirm the

3. Laboratory and Diagnostic Tests

Based on the clinical evaluation, certain laboratory tests and diagnostic imaging are conducted. These typically include:

- Complete Blood Count (CBC): Anemia could predispose the patient to higher risks of transfusion and postoperative complications.
- Coagulation Profile: Assessing the integrity of the coagulation system is crucial, particularly for patients on anticoagulant therapy.
- Urinalysis: To rule out urinary tract infections.
- **Pregnancy Test**: A critical evaluation for any woman of childbearing age to avoid unintended consequences [12].

4. Psychosocial Assessment

Hysterectomy can be a life-altering experience. Therefore, assessing the psychological and emotional readiness of the patient is of utmost importance. This may include:

- Discussions about the impact on fertility and menstruation.
- Evaluation of support systems at home and distress levels related to the upcoming surgery.
- Identifying any signs of anxiety and depression, which may require referral to a mental health professional [13].

Nursing Interventions

Effective nursing interventions play a crucial role in preoperative care, aiding not only in the preparation for the procedure but also in relieving patient anxiety and ensuring adherence to preoperative protocols.

1. Patient Education

Educating the patient about the upcoming procedure is essential. Nurses should provide information regarding:

- What to Expect During and After Surgery: Clear communication about what the patient will encounter, including anesthesia administration, surgical techniques, and recovery expectations, can reduce anxiety.
- **Postoperative Care**: Discussing potential postoperative symptoms such as pain, discharge, and activity restrictions, helps set realistic expectations.
- Medication Management: Instructing patients on the use of preoperative medications and when to cease anticoagulants can prevent complications during the surgical period [14].

2. Health Promotion and Risk Reduction

Nurses play a critical role in promoting patient health:

- **Nutritional Optimization**: Encouraging a healthy diet leading up to surgery, particularly one rich in iron and vitamins, can counteract anemia.
- Breathing Exercises and Mobilization: Advocating for deep breathing exercises and early mobilization can reduce the risk of postoperative complications such as pneumonia and venous thromboembolism (VTE) [15].

3. Psychosocial Support

Anxiety and fear are common emotional responses to surgery. Nursing interventions in this area may include:

- **Providing Emotional Support**: Active listening and offering reassurance can alleviate fear.
- Involving Family Members: Engaging family in discussions can help create a support network for the patient, further promoting emotional stability [16].

4. Preoperative Checklist

Implementing a comprehensive preoperative checklist is another critical intervention:

- **Verification of Identifiers**: Ensuring correct patient identification and the surgical site is essential in preventing adverse events.
- Lab Results Review: Confirming that all necessary lab results are available and within acceptable limits for surgery.
- **Consent Confirmation**: Ensuring that informed consent is obtained and documented [17].

Patient Education: Preparing Women for Surgery:

Hysterectomy, the surgical removal of the uterus, is one of the most common gynecological procedures performed in the United States. Each year, hundreds of thousands of women undergo this operation, often due to conditions such as fibroids, endometriosis, abnormal bleeding, pelvic pain, or cancer. Despite its prevalence, the decision to undergo a hysterectomy can be laden with anxiety, uncertainty, and a plethora of questions for the patient. Effective patient education is critical for preparing women for hysterectomy surgery, assisting them in making informed decisions, and helping them to navigate the emotional, physical, and psychological processes associated with this significant medical intervention [18].

To appropriately guide women through the preparatory process, it is essential to first elucidate what a hysterectomy entails. The procedure can vary in its scope and type. There are several kinds of hysterectomies: total hysterectomy (removal of the uterus and cervix), subtotal or partial hysterectomy (removal of the uterus while leaving the cervix intact), and radical hysterectomy (removal of the uterus, cervix, surrounding tissues, and possibly parts of the vagina) [19].

These procedures can be performed through various approaches, including abdominal, vaginal, or laparoscopic surgery. Each method has its advantages and disadvantages, such as recovery time, pain levels, and risks of complications. A comprehensive understanding of the procedure, tailored to individual patient needs and medical histories, is vital for alleviating anxiety and fostering trust in healthcare providers [20].

Preparation for a hysterectomy involves multiple dimensions, beginning with a thorough consultation

with a healthcare provider. During this initial phase, women may undergo a battery of tests to assess their overall health. Blood work, imaging studies, and other diagnostic tests can help ensure that the woman is in optimal condition for surgery, thereby reducing the likelihood of complications [20].

Patients should also be informed about the importance of openly discussing their medical histories and any medications they are currently taking. Certain medications, such as blood thinners, may need to be adjusted or suspended close to the surgery date. Furthermore, women should consider lifestyle modifications like ceasing smoking, maintaining a balanced diet, and engaging in regular exercise to improve surgical outcomes [21].

Hysterectomy is not merely a physical procedure; it often brings psychological changes and emotional turmoil. As such, emotional preparation is a crucial aspect of patient education. Women may grapple with feelings concerning loss of fertility, changes in body image, and the impact on sexual function and menstrual cycles. Providing education about the potential emotional impacts of a hysterectomy, along with access to counseling or support groups, can empower women and help them process their feelings [22].

Educators should communicate openly about the common emotional responses following the surgery, such as grief, depression, anxiety, or changes in sexual desire. Understanding that these feelings are normal can provide reassurance. Conversely, healthcare providers should emphasize the necessity of reaching out for help if these feelings become unmanageable [22].

Proper education extends beyond preparation for the day of surgery; it includes insights into the surrounding recovery process. Women should have a realistic understanding of what to expect in the immediate postoperative period, including hospital stay duration, pain management, and limitations on physical activities. For example, after a vaginal or laparoscopic hysterectomy, recovery might be quicker with fewer restrictions, while abdominal surgery could necessitate additional care and downtime [23].

In addition, understanding post-surgery symptoms such as swelling, bruising, discharge, or increased emotional fluctuations can help patients demystify their experiences. Women should be informed about signs that may require medical attention, including fever, excessive bleeding, or intense pain—symptoms that may indicate complications.

Another crucial aspect of pre-surgical education is fostering a support network. Women should be encouraged to seek assistance from family and friends during both the recovery period and the emotional adjustment following surgery. Patients often benefit from open conversations with loved ones who can help provide physical assistance, offer emotional support, or accompany them to follow-up appointments [24].

Healthcare providers should also facilitate connections to resources such as community programs or online support groups to empower women as they navigate their experiences with hysterectomy and recovery [25].

Anesthesia Considerations and Nursing Responsibilities:

Hysterectomy, one of the most frequently performed surgical procedures in gynecology, involves the removal of the uterus and sometimes additional reproductive organs. While it can be life-changing for patients suffering from conditions such as fibroids, endometriosis, or malignancies, the process surrounding this operation, particularly in terms of anesthesia and nursing responsibilities, is complex and multifaceted. An understanding of these considerations is essential for ensuring patient safety, comfort, and optimal outcomes [26].

Anesthesia Considerations

1. Preoperative Assessment

The initial step in the anesthesia process involves a thorough preoperative assessment. An anesthesiologist or nurse anesthetist will evaluate the patient's medical history, current medications, and any allergies. Special attention is given to existing comorbidities, which may impact anesthetic choices. Conditions such as obesity, diabetes, and cardiovascular issues can complicate anesthesia management [27].

2. Anesthetic Techniques

For hysterectomy, anesthetic modalities typically include general anesthesia, regional anesthesia (spinal or epidural), or a combination of both. The choice of anesthetic technique depends on individual patient factors, the anticipated length of the surgery, and patient preferences:

- General Anesthesia is commonly employed for hysterectomies. Under general anesthesia, the patient is rendered unconscious and is monitored for vital signs throughout the procedure. This technique is particularly beneficial for surgeries that are expected to be lengthy or if the patient has a high level of anxiety regarding the surgery [28].
- Regional Anesthesia options, such as spinal or epidural anesthesia, can provide effective analgesia for lower abdominal surgeries, allowing the patient to remain awake during the procedure if desired. These methods involve the injection of anesthetic agents into the epidural or spinal spaces, leading to loss of sensation and motor function to the lower body. Advantages may include reduced postoperative pain and a shorter recovery time [28].

3. Anesthetic Agents

The selection of anesthetic agents is critical and must be tailored to the patient's medical profile and preferences. Commonly used agents include propofol for induction, inhalational agents for maintenance, and a variety of opioids for pain control. Adjuvants such as antiemetics, anxiolytics, or adjunctive local anesthetics may also be utilized to enhance comfort and prevent postoperative nausea and vomiting (PONV) [29].

4. Monitoring and Safety

During the procedure, constant monitoring of vital signs (heart rate, blood pressure, oxygen saturation) is essential to detect any complications. Specialized equipment is employed to track the patient's hemodynamics and ensure adequate oxygenation and ventilation [29].

Potential intraoperative complications related to anesthesia can include allergic reactions, awareness under anesthesia, or respiratory complications. The anesthesiology team must be prepared to address these uncertainties promptly, requiring thorough training and protocols in place [30].

5. Postoperative Care

Recovery from anesthesia, known as post-anesthesia care, occurs in a specially designated area where patients are monitored until they regain full consciousness and stable vital signs. This phase includes the administration of analgesics, assessment for complications like respiratory depression or bleeding, and evaluation of the patient's readiness for discharge [30].

Nursing Responsibilities

Nurses play a pivotal role in facilitating a safe and effective hysterectomy by overseeing patient care throughout the surgical journey.

1. Preoperative Education

Preoperative education is critical in alleviating patient anxiety and apprehension. Nurses are tasked with providing clear information about the surgical procedure, anesthesia options, and potential risks. Additionally, nurses should engage the patient in discussions about consent and expectations, ensuring they fully comprehend what to anticipate before, during, and after the surgery [31].

2. Preparation for Surgery

The nurse is responsible for preparing the patient physically and emotionally for surgery. This includes:

- Performing a physical assessment. A thorough assessment can provide insight into the patient's baseline health status and detect any changes that may require attention [32].
- Ensuring that all preoperative laboratory tests, imaging studies, and necessary documentation are completed and available for review by the surgical and anesthesia team.
- Confirming the surgical site in conjunction with the patient, which is essential for preventing errors.
- Establishing intravenous (IV) access for medication administration and providing preoperative medications as ordered by the anesthesiologist or surgeon [32].

3. Intraoperative Role

During the surgery, the nurse's role shifts to intraoperative responsibilities, which entail:

- Assisting the surgical team, maintaining a sterile field, and preparing instruments [33].
- Recording vital signs and any significant events that occur during the procedure.
- Administering medications as directed by the anesthesia provider and monitoring the patient's response [33].

4. Postoperative Care and Monitoring

Postoperative care begins immediately after surgery. The nurse is responsible for:

- Monitoring vitals and consciousness level in the post-anesthesia care unit (PACU), assessing for any signs of complications such as bleeding, infection, or adverse reactions to anesthesia [34].
- Providing thorough assessments of pain levels and administering prescribed analgesics while advocating for the patient's needs regarding pain control.
- Educating the patient on postoperative care, including wound care, activity restrictions, and signs/symptoms that warrant medical attention.

5. Emotional Support

Nurses are vital in offering emotional support and reassurance during the recovery process. Recognizing that patients may experience varying emotional responses, the nurse can employ empathetic communication techniques to support the patient's mental well-being [34].

Post-operative Care: Monitoring and Management:

Hysterectomy, the surgical removal of the uterus, is one of the most common procedures in gynecology, often performed for conditions such as fibroids, endometriosis, or uterine cancer. With an estimated 600,000 hysterectomies performed annually in the United States alone, understanding the post-operative care associated with this procedure is vital for ensuring optimal recovery and minimizing complications. Effective post-operative care includes systematic monitoring of physiological

parameters, management of pain and other symptoms, prevention of infection, and psychological support, all of which work in concert to facilitate healing [35].

Before delving into post-operative care, it is essential to recognize the variations in hysterectomy types—abdominal, vaginal, and laparoscopic. Each type has unique implications for recovery. Abdominal hysterectomies generally involve larger incisions and a longer recovery period, while vaginal and laparoscopic approaches typically offer quicker recovery times but may still result in significant post-operative care needs [36].

Key components of surgical technique, including whether the cervix and/or ovaries are removed (total vs. subtotal hysterectomy), also influence the post-operative experience, particularly in hormone management and implications for future health.

Immediate Post-Operative Monitoring

After surgery, patients are typically monitored in a recovery area before being transferred to a hospital room or discharged. Immediate post-operative care includes:

1. Vital Sign Monitoring

Close monitoring of vital signs is crucial in the first few hours post-surgery to assess the patients' overall stability. Parameters such as heart rate, blood pressure, respiratory rate, and oxygen saturation should be checked frequently. Abnormalities may signal complications like hemorrhage, infection, or cardiovascular issues [37].

2. Pain Management

Hysterectomy can lead to significant postoperative pain. Effective pain management is crucial not only for patient comfort but also for promoting mobility and reducing the risk of complications such as deep vein thrombosis (DVT). Various pain management strategies may be employed:

• Pharmacological Interventions: Analgesics, ranging from non-steroidal anti-inflammatory drugs (NSAIDs) to opioids, may be used based on the severity of pain [38].

- Multimodal Analgesia: Combining different classes of medications may enhance pain relief while minimizing side effects [38].
- Patient-Controlled Analgesia (PCA): In some cases, PCA allows patients to self-administer analgesics when they feel the need, offering greater control over their pain management.

3. Fluid and Nutritional Status

Fluid intake and nutrition should be closely monitored, especially within the first 24-48 hours post-operatively. Intravenous fluids may be required initially, followed by a gradual transition to a regular diet as bowel function returns. Bowel activity may be delayed due to general anesthesia and medication, so healthcare providers should assess the presence of bowel sounds and the passage of gas as indicators of digestive recovery [39].

Long-term Recovery and Management

Once stabilized, patients typically transition into a recovery plan aimed at promoting holistic healing and preventing potential complications [40].

1. Activity Restrictions

Patients are generally advised to avoid heavy lifting (more than 10 pounds), strenuous exercise, and high-impact activities for at least six weeks post-surgery to allow adequate healing. Encouraging gentle ambulation within the first 24 hours can promote circulation, reduce the risk of DVT, and aid in gastrointestinal recovery [40].

2. Monitoring for Complications

Post-operative complications can include:

- **Hemorrhage**: Assessing for excessive bleeding or unusual discharge is critical during recovery [40].
- Infection: Signs such as fever, increased pain at the incision site, or unusual odors require immediate evaluation.
- **Urinary Issues**: Patients may experience urinary retention or incontinence, necessitating careful monitoring.

Healthcare providers should educate patients on warning signs and when to seek help, ensuring timely intervention if complications arise [40].

3. Psychological Support

The psychological aspects of recovery posthysterectomy can be significant, with many women experiencing emotional or psychological challenges. The loss of reproductive capability can trigger feelings of grief, anxiety, or depression. To address this, healthcare providers should facilitate access to mental health resources and support groups, promoting emotional well-being alongside physical recovery [41].

4. Hormonal and Sexual Health Considerations

For women undergoing total hysterectomy, hormone replacement therapy (HRT) may be needed if the ovaries are removed. The management of hormonal changes post-surgery can prevent symptoms like hot flashes, mood swings, and vaginal dryness, enhancing quality of life. Additionally, discussions about sexual health are crucial. Patients should be informed about potential changes in sexual function, the importance of intimacy, and strategies to address any concerns [41].

Ongoing Follow-Up

Follow-up appointments are essential for evaluating recovery progress and addressing any ongoing issues such as pain, hormonal symptoms, or complications. Depending on the surgical approach, these visits typically occur within six weeks post-operation. Continuous updates and education about wellness strategies can empower patients to take charge of their health in the post-operative phase [42].

Pain Management Strategies in the Postoperative Phase:

Hysterectomy, the surgical removal of the uterus, is one of the most common gynecological procedures performed in women, often indicated for conditions such as uterine fibroids, endometriosis, abnormal bleeding, and malignancies. While this surgery can provide significant relief from various health issues, including chronic pain and discomfort associated with these conditions, the postoperative period can also be accompanied by significant pain and discomfort. Effective pain management following a hysterectomy is crucial not only for patient comfort and satisfaction but also for reducing the risk of complications, promoting faster recovery, and enhancing overall quality of life [43].

Post-hysterectomy pain can result from a variety of factors including surgical trauma, tissue irritation, and the physiological changes that occur as a result of the removal of the uterus. Patients typically experience different types of pain during recovery, which can be categorized as acute pain, inflammatory pain, and sometimes chronic pain. Acute pain is expected immediately following surgery and gradually diminishes as healing progresses, while inflammatory pain can persist longer as the tissue repairs itself. Chronic pain, although less common, can occur and may require ongoing management strategies [44].

Effective pain management begins with a thorough preoperative assessment that includes taking a detailed medical history, evaluating the patient's psychological and emotional state, discussing previous pain experiences, and informing patients about what to expect post-surgery. Preoperative counseling allows patients to set realistic expectations regarding pain levels and recovery, thereby reducing anxiety and promoting a better postoperative experience [44].

Patients should also be educated about the types of pain relief options available, setting the stage for informed choices regarding their pain management strategies. Additionally, a multidisciplinary approach involving gynecologists, anesthesiologists, and pain management specialists ensures a comprehensive pain management plan is established even before the surgery is performed [45].

Pharmacological Pain Management

Pharmacological strategies are a cornerstone of post-hysterectomy pain management. The use of analgesics is typically categorized into three levels: non-opioid analgesics, opioids, and adjuvant medications [46].

- 1. **Non-Opioid** Analgesics: Over-the-counter medications like acetaminophen and non-steroidal anti-inflammatory drugs (NSAIDs), such as ibuprofen and naproxen, are often recommended for mild to moderate pain. These medications are effective in reducing inflammation and can be started even before the surgery to establish a baseline of pain control.
- 2. **Opioids:** For moderate to severe pain, opioid medications like morphine, hydromorphone, and oxycodone may be prescribed. While effective in providing analgesia, opioids come with potential risks including dependence and side effects such as constipation, nausea, and sedation. Their use should be carefully monitored and ideally supplemented with non-opioid medications to minimize the necessary dosage [47].
- 3. Adjuvant Medications: This category includes medications that are not primarily designed for pain relief but can contribute to pain management. Antidepressants, such as amitriptyline, and anticonvulsants, like gabapentin, have been found to help manage neuropathic pain. Additionally, muscle relaxants may also be prescribed if muscle tension is contributing to discomfort post-surgery [48].

Non-Pharmacological Pain Management Strategies

Alongside pharmacological approaches, nonpharmacological strategies are crucial in providing comprehensive pain relief. These methods can complement medication and lead to better overall outcomes in terms of pain management and patient satisfaction.

- 1. **Physical Therapy and Rehabilitation:** Early mobilization and gentle physical therapy exercises can help improve overall mobility, strengthen muscles, and reduce pain levels. Physical therapists may employ techniques such as manipulation and the application of heat or cold therapy to alleviate discomfort [49].
- 2. **Cognitive Behavioral Therapy (CBT):** Psychological approaches, including CBT, can help patients cope with the emotional and psychological aspects of pain. Techniques such as relaxation training, guided imagery, and

mindfulness have shown promise in reducing perception of pain [50].

- 3. **Alternative Therapies:** Acupuncture, massage therapy, and chiropractic care may also provide relief for some patients. Evidence supporting these modalities is variable, but many patients report subjective improvements in pain control.
- 4. **Diet and Hydration:** Post-surgical recovery can be influenced by diet; hence, nutrition plays a key role in enhancing healing. A balanced diet rich in vitamins and minerals can support recovery, while adequate hydration helps prevent complications such as constipation, which can exacerbate pain [51].
- 5. Patient Education and Empowerment: Teaching patients about pain management techniques, recognizing pain scales, and communicating effectively with healthcare providers empowers them to be active participants in their recovery [51].

Monitoring and Follow-Up Care

Postoperative pain management requires continuous evaluation and adjustment of the treatment plan as needed. Regular follow-up appointments allow healthcare providers to assess pain levels, adjust medications, and address any concerns. Patient feedback is invaluable in tailoring the management plan to ensure that it remains effective and appropriate [51].

Addressing Psychological and Emotional Needs:

Hysterectomy, the surgical removal of the uterus, is one of the most common surgical procedures performed on women in the United States and around the world. It is often recommended to address a variety of gynecological issues such as fibroids, endometriosis, and certain cancers, or in cases of debilitating pain and excessive bleeding. While the physical implications of this surgery have been widely studied and documented, the psychological and emotional consequences remain an area that deserves greater attention. The transition that follows a hysterectomy can be profound and multifaceted, impacting a woman's mental health, sense of identity, relationships, and overall wellbeing. Therefore, it is critical to address these

psychological and emotional needs in order to support women through their recovery and adjustment [52].

The decision to undergo a hysterectomy can be fraught with emotional turmoil. For many women, the uterus symbolizes fertility and femininity. The removal of this organ can lead to feelings of loss, grief, and even a sense of diminished womanhood. As women navigate these feelings, they may also face the reality of no longer being able to conceive or carry a child, which can be particularly challenging for those who had previously hoped to expand their families. The emotional aftermath of a hysterectomy can manifest in various ways, including depression, anxiety, and feelings of isolation [52].

Moreover, the connection between physical and mental health underscores the importance of an integrated approach to healing. For instance, chronic pain, hormonal imbalances, or physical changes resulting from the surgery can exacerbate emotional distress. Women may confront challenges such as hot flashes, mood swings, and changes in libido, all of which can contribute to psychological strain. It is crucial for healthcare providers to understand that the experience of a hysterectomy extends beyond the operating table and into the emotional and psychological realms of a woman's life [53].

Psychological Impact: A Study in Diversity

The psychological responses to hysterectomy vary widely among individuals. While some women may experience relief from chronic pain or other debilitating symptoms, others may endure a sense of loss or regret. Research indicates that up to one-third of women report experiencing significant psychological distress following their surgery. Factors influencing this emotional landscape can include:

- 1. **Cultural and Societal Influences:** Perceptions of womanhood and fertility are heavily influenced by cultural narratives. In some cultures, the ability to bear children is deeply tied to a woman's identity, potentially intensifying feelings of loss and inadequacy post-hysterectomy [53].
- 2. **Personal History**: Women with a history of reproductive health challenges, trauma, or

previous surgeries may face heightened emotional reactions. Those who have wrestled with the decision to undergo the surgery may also carry ambiguity regarding their choice, leading to post-operative regrets or second-guessing [53].

3. **Support Systems**: The availability and quality of a supportive social network can greatly impact a woman's emotional recovery. Those with strong family ties and friendships may experience an easier transition than those who feel isolated or unsupported in their journey [53].

Mitigating the Emotional Burden: Practical Interventions

Recognizing the profound psychological and emotional needs of women post-hysterectomy is a crucial step towards facilitating their recovery. Here are several approaches that can help address these complex needs:

- 1. Comprehensive Pre-operative Counseling: Prior to the surgery, women should be provided with counseling that outlines potential physical and emotional outcomes. Understanding what to expect can help to mitigate anxiety, foster informed decision-making, and set realistic expectations. Discussions about the possibility of grief and loss should be part of this counseling process [54].
- 2. **Post-operative Support Groups**: Connecting with other women who have undergone similar experiences can be incredibly beneficial. Support groups provide a safe space for sharing feelings and experiences, offering validation and community. These groups can encourage open discussions about emotional responses, facilitate coping strategies, and build a sense of belonging.
- 3. Therapy and Professional Support: Engaging with a mental health professional specializing in women's health can provide essential support. Therapy options, whether individual or group-based, can help women process their feelings about surgery, their bodies, and their identities. Professionals may employ cognitive-behavioral therapy (CBT), mindfulness techniques, or other therapeutic modalities tailored to the individual's needs [54].

- 4. Education on Sexual Health and Body Image: Post-hysterectomy, the body undergoes changes that may affect sexual health and body image. Providing education and counseling regarding these changes is crucial. This might include discussions on re-establishing intimacy, understanding hormonal changes, and addressing concerns about body image. Comprehensive sexual health resources can empower women to navigate their new realities and maintain fulfilling relationships [54].
- 5. **Encouraging Self-care and Holistic Approaches**: Practices that promote self-care—such as mindfulness, yoga, meditation, and journaling—can be instrumental in enhancing emotional well-being. Encouraging women to engage in hobbies, connect with nature, and seek out activities that bring joy can assist in mitigating feelings of depression and anxiety [54].
- 6. **Follow-up Care and Check-ins:** Regular follow-ups with health care providers can facilitate open conversations about ongoing emotional or psychological needs. Creating a space for women to voice their concerns can help identify those requiring additional intervention, ensuring they receive appropriate support [55].

Long-term Care and Support Following Hysterectomy:

A hysterectomy is a surgical procedure that involves the removal of a woman's uterus and, in some cases, other reproductive organs, such as the ovaries and fallopian tubes. This procedure is typically undertaken to address various medical conditions, including uterine fibroids, endometriosis, chronic pelvic pain, abnormal bleeding, or certain cancers. Following the surgery, the importance of long-term care and support cannot be overstated, as physical, emotional, and psychological well-being is crucial in aiding recovery and maintaining quality of life [55].

Hysterectomy can be performed via several surgical methods, including abdominal hysterectomy, vaginal hysterectomy, and laparoscopic hysterectomy. Each technique comes with its respective risks and benefits, influencing recovery processes and long-term outcomes. Patients might experience various physical changes post-surgery,

depending on whether the ovaries were preserved, as the removal can induce immediate menopause, with accompanying symptoms such as hot flashes, night sweats, and psychological changes [55].

The procedure also alters the hormonal balance of the body, particularly if the ovaries are removed. Hormonal changes can lead to a variety of physical symptoms, including vaginal dryness, changes in libido, and emotional fluctuations. These changes are particularly relevant in the context of long-term care, where adjustment and management strategies play a vital role in a woman's health and well-being [56].

The immediate recovery period following a hysterectomy generally involves rest and limited physical activity. However, the long-term implications are where ongoing care becomes critical. Regular follow-ups with healthcare providers are essential to monitor physical health, manage any chronic conditions that might arise, and discuss the potential need for hormone replacement therapy (HRT) if the ovaries were removed [56].

Physical therapy can be extraordinarily beneficial after hysterectomy, helping to strengthen pelvic floor muscles, which can weaken as a result of surgery. Women might also need guidance on resuming physical activities safely. This may include targeted exercises to enhance pelvic strength, flexibility, and overall fitness. These physical activities can assist in managing weight, improving mood, and reducing the risk of chronic diseases such as cardiovascular issues, which become even more relevant if a woman experiences early menopause [56].

A hysterectomy can trigger a spectrum of emotional responses, including feelings of sadness, loss, or anxiety. Mental health following such a significant surgical procedure can be affected by physical changes, hormonal shifts, and alterations in self-identity. Therefore, psychological support is crucial during the long-term recovery period [57].

Support groups can provide valuable community resources where women can share their experiences, fears, and triumphs. These groups can foster a sense of belonging and reassurance, helping individuals feel less isolated. Moreover, professional counseling or therapy can facilitate emotional processing,

coping strategies, and techniques to manage mood swings and anxiety levels [57].

Long-term care also encompasses social support systems that can play a pivotal role in recovery. Family and friends can often provide valuable emotional backing during the recovery process. Maintaining an open line of communication with loved ones about needs and feelings is crucial, as it fosters understanding and strengthens bonds [58].

Women may need to make lifestyle adjustments to accommodate their health and well-being post-hysterectomy. This can include dietary changes to ensure adequate nutrition, particularly focusing on calcium and vitamin D to support bone health, especially if hormone levels shift. Mental and emotional well-being can also benefit from practices such as yoga, mindfulness, or meditation, which aid stress reduction and foster overall well-being [58].

Engaging in meaningful activities, hobbies, or interests can significantly enhance quality of life. Many women find joy in reconnecting with passions that may have been sidelined due to discomfort from pre-existing medical issues. Volunteering, joining clubs, or pursuing continued education can also provide a sense of purpose and fulfillment [58].

Educating oneself about the changes and challenges that may arise post-hysterectomy is an empowering step toward effective long-term care. Women must have access to information regarding their surgical options and post-operative care to make informed decisions about their health. Advocacy for one's health care—understanding symptoms, asking questions, and seeking second opinions—is crucial in navigating the post-operative landscape [59]

Moreover, healthcare providers should be proactive in offering resources and information. The establishment of comprehensive care pathways that address the multifaceted needs of women post-hysterectomy can improve outcomes significantly. Personalized care plans that encompass physical health, emotional support, and lifestyle modifications should be a standard aspect of post-operative care protocols [59].

Conclusion:

In conclusion, effective nursing care for women undergoing hysterectomy is essential for promoting

optimal recovery and enhancing patients' overall well-being. By focusing on comprehensive preoperative education, individualized assessments, and post-operative monitoring, nurses play a pivotal role in minimizing complications and alleviating patients' anxieties surrounding the procedure. Furthermore, addressing both the physical and emotional needs of patients helps to foster a supportive environment that encourages healing and promotes informed decision-making. As healthcare providers, it is crucial to remain vigilant about the unique challenges faced by women posthysterectomy and to advocate for their long-term health and wellness. By implementing evidencebased practices, nurses can make a significant impact on the recovery journey of these patients, ultimately contributing to improved quality of life and satisfaction with their care.

References:

- 1. Cohen SL, Vitonis AF, Einarsson JI. Updated hysterectomy surveillance and factors associated with minimally invasive hysterectomy. JSLS 2014;18:e2014.00096. doi: 10.4293/JSLS.2014.00096
- Callegari LS, Katon JG, Gray KE, Doll K, Pauk S, Lynch KE, et al. Associations between race/ethnicity, uterine fibroids, and minimally invasive hysterectomy in the VA health care system. Womens Health Issues 2019;29:48–55. doi: 10.1016/j.whi.2018.08.005
- Bower JK, Schreiner PJ, Sternfeld B, Lewis CE. Black-White differences in hysterectomy prevalence: the CARDIA study. Am J Public Health 2009;99:300–7. doi: 10.2105/AJPH.2008.133702
- Wright JD, Herzog TJ, Tsui J, Ananth CV, Lewin SN, Lu YS, et al. Nationwide trends in the performance of inpatient hysterectomy in the United States. Obstet Gynecol 2013;122:233–41. doi: 10.1097/AOG.0b013e318299a6cf
- 5. Mehta A, Xu T, Hutfless S, Makary MA, Sinno AK, Tanner EJ, et al. Patient, surgeon, and hospital disparities associated with benign hysterectomy approach and perioperative complications. Am J Obstet Gynecol 2017;216:497.e1–10. doi: 10.1016/j.ajog.2016.12.020

- 6. Brett KM, Higgins JA. Hysterectomy prevalence by Hispanic ethnicity: evidence from a national survey. Am J Public Health 2003;93:307–12. doi: 10.2105/ajph.93.2.307
- Rahkola-Soisalo P, Brummer T, Jalkanen J, Sjöberg J, Sintonen H, Roine RP, et al. Hysterectomy provides benefit in health-related quality of life: a 10-year follow-up study. J Minim Invasive Gynecol 2020;27:868–74. doi: 10.1016/j.jmig.2019.08.009
- Jacoby VL, Autry A, Jacobson G, Domush R, Nakagawa S, Jacoby A. Nationwide use of laparoscopic hysterectomy compared with abdominal and vaginal approaches. Obstet Gynecol 2009;114:1041–8. doi: 10.1097/AOG.0b013e3181b9d222
- Palmer JR, Rao RS, Adams-Campbell LL, Rosenberg L. Correlates of hysterectomy among African-American women. Am J Epidemiol 1999;150:1309–15. doi: 10.1093/oxfordjournals.aje.a009962
- Bower JK, Schreiner PJ, Sternfeld B, Lewis CE. Black-White differences in hysterectomy prevalence: the CARDIA study. Am J Public Health 2009;99:300-7. doi: 10.2105/AJPH.2008.133702
- 11. Marks NF, Shinberg DS. Socioeconomic differences in hysterectomy: the Wisconsin longitudinal study. Am J Public Health 1997;87:1507–14. doi: 10.2105/ajph.87.9.1507
- Erekson EA, Weitzen S, Sung VW, Raker CA, Myers DL. Socioeconomic indicators and hysterectomy status in the United States, 2004. J Reprod Med 2009;54:553– 8.
- 13. Ravi P, Sood A, Schmid M, Abdollah F, Sammon JD, Sun M, et al. Racial/ethnic disparities in perioperative outcomes of major procedures: results from the national surgical quality improvement program. Ann Surg 2015;262:955–64. doi: 10.1097/SLA.0000000000001078
- 14. Bougie O, Singh SS, Chen I, McCarthy EP. Relationship between race/ethnicity and hysterectomy outcomes for benign gynecologic conditions. J Minim Invasive

- Gynecol 2019;26:456–62. doi: 10.1016/j.jmig.2018.05.017
- 15. Brett KM, Marsh JV, Madans JH. Epidemiology of hysterectomy in the United States: demographic and reproductive factors in a nationally representative sample. J Womens Health 1997;6:309–16. doi: 10.1089/jwh.1997.6.309
- Wu JM, Wechter ME, Geller EJ, Nguyen TV, Visco AG. Hysterectomy rates in the United States, 2003. Obstet Gynecol 2007;110:1091–5. doi: 10.1097/01.AOG.0000285997.38553.4b
- 17. Kjerulff K, Langenberg P, Guzinski G. The socioeconomic correlates of hysterectomies in the United States. Am J Public Health 1993;83:106–8. doi: 10.2105/ajph.83.1.106
- 18. Abenhaim HA, Azziz R, Hu J, Bartolucci A, Tulandi T. Socioeconomic and racial predictors of undergoing laparoscopic hysterectomy for selected benign diseases: analysis of 341487 hysterectomies. J Minim Invasive Gynecol 2008;15:11–5. doi: 10.1016/j.jmig.2007.07.014
- 19. Traylor J, Koelper N, Kim SW, Sammel MD, Andy UU. Impact of surgical wait time to hysterectomy for benign gynecologic disease. J Minim Invasive Gynecol 2021;28:982–90. doi: 10.1016/j.jmig.2020.08.486
- 20. Bashshur RL, Homan RK, Smith DG. Beyond the uninsured: problems in access to care. Med Care. 1994;32(5):409–419.
- 21. Ayanian JZ, Kohler BA, Abe T, Epstein AM. The relation between health insurance coverage and clinical outcomes among women with breast cancer. N Engl J Med. 1993;329(5):326–331.
- 22. Pappas G, Hadden WC, Kozak LJ, Fisher GF. Potentially avoidable hospitalizations: inequalities in rates between US socioeconomic groups. Am J Public Health. 1997;87(5):811–816.
- Jencks SF, Benedict MB. Accessibility and effectiveness of care under Medicaid. Health Care Financ Rev. December 1990; Spec No: 47–56.

- 24. Young GJ, Cohen BB. The process and outcome of hospital care for Medicaid versus privately insured hospital patients. Inquiry. 1992;29(3):366–371.
- Roetzheim RG, Pal N, Gonzalez EC, Ferrante JM, Van Durme DJ, Krischer JP. Effects of health insurance and race on colorectal cancer treatments and outcomes. Am J Public Health. 2000;90(11):1746– 1754.
- Kleinman JC, Gold M, Makuc D. Use of ambulatory medical care by the poor: another look at equity. Med Care. 1981;19(10):1011–1029.
- Weissman JS, Gatsonis C, Epstein AM. Rates of avoidable hospitalization by insurance status in Massachusetts and Maryland. JAMA. 1992;268(17):2388– 2394
- 28. Department of Health and Human Services. Patterns of health care utilization in the Medicaid population. Report to Congress. 1991.
- Braveman P, Schaaf VM, Egerter S, Bennett T, Schecter W. Insurance-related differences in the risk of ruptured appendix. N Engl J Med. 1994;331(7):444– 449.
- Shekelle PG, Kahan JP, Bernstein SJ, Leape LL, Kamberg CJ, Park RE. The reproducibility of a method to identify the overuse and underuse of medical procedures. N Engl J Med. 1998;338(26):1888–1895.
- 31. Short PF, Lefkowitz DC. Encouraging preventive services for low-income children. The effect of expanding Medicaid. Med Care. 1992;30(9):766–780.
- 32. Merrick NJ, Houchens R, Tillisch S, Berlow B, Landon C. Quality of hospital care of children with asthma: Medicaid versus privately insured patients. J Health Care Poor Underserved. 2001;12(2):192–207.
- 33. Zeger SL, Liang KY, Albert PS. Models for longitudinal data: a generalized estimating equation approach. Biometrics. 1988;44(4):1049–1060.
- 34. Yergan J, Flood AB, Diehr P, LoGerfo JP. Relationship between patient source of

- payment and the intensity of hospital services. Med Care. 1988;26(11):1111–1114.
- 35. Anonymous. Access of Medicaid recipients to outpatient care. N Engl J Med. 1994;330(20):1426–1430.
- 36. Park RE, Fink A, Brook RH, et al. Physician ratings of appropriate indications for three procedures: theoretical indications vs indications used in practice. Am J Public Health. 1989;79(4):445–447.
- 37. Sixth Ominibus Budget Reconciliation Act of 1986 (PL99–509: Section 943[I]).
- 38. Weissman J, Epstein AM. Case mix and resource utilization by uninsured hospital patients in the Boston metropolitan area. JAMA. 1989;261(24):3572–3576.
- 39. Kjerulff KH, Guzinski GM, Langenberg PW, Stolley PD, Moye NE, Kazandjian VA. Hysterectomy and race. Obstet Gynecol. 1993;82(5):757–764.
- 40. Cohen SL, Ajao MO, Clark NV, Vitonis AF, Einarsson JI. Outpatient hysterectomy volume in the United States. Obstet Gynecol 2017;130:130–7.
- 41. Kjerulff KH, Guzinski GM, Langenberg PW, Stolley PD, Moye NE, Kazandjian VA. Hysterectomy and race. Obstet Gynecol 1993;82:757–64.
- 42. Ranjit A, Sharma M, Romano A, Jiang W, Staat B, Koehlmoos T, et al. Does universal insurance mitigate racial differences in minimally invasive hysterectomy? J Minim Invasive Gynecol 2017;24:790–6.
- 43. Qi AC, Peacock K, Luke AA, Barker A, Olsen MA, Joynt Maddox KE. Associations between social risk factors and surgical site infections after colectomy and abdominal hysterectomy. JAMA Netw Open 2019;2:e1912339.
- 44. Waldman I, Wagner S, Kulaylat AS, Deimling TA. Physical well-being and route of benign hysterectomy. Womens Health Issues 2018;28:456–61.
- 45. Price JT, Zimmerman LD, Koelper NC, Sammel MD, Lee S, Butts SF. Social determinants of access to minimally invasive hysterectomy: reevaluating the relationship between race and route of

- hysterectomy for benign disease. Am J Obstet Gynecol 2017;217:572.e1–10.
- 46. Hakim RB, Benedict MB, Merrick NJ. Quality of care for women undergoing a hysterectomy: effects of insurance and race/ethnicity. Am J Public Health 2004;94:1399–405.
- 47. Traylor J, Simon M, Tsai S, Feinglass J. Patient and hospital characteristics associated with minimally invasive hysterectomy: evidence from 143 Illinois hospitals, 2016 to 2018. J Minim Invasive Gynecol 2020;27:1337–43.
- 48. Smith AJB, AlAshqar A, Chaves KF, Borahay MA. Association of demographic, clinical, and hospital-related factors with use of robotic hysterectomy for benign indications: a national database study. Int J Med Robot 2020;16:e2107.
- 49. Dessources K, Hou JY, Tergas AI, Burke WM, Ananth CV, Prendergast E, et al. Factors associated with 30-day hospital readmission after hysterectomy. Obstet Gynecol 2015;125:461–70.
- 50. Morgan DM, Swenson CW, Streifel KM, Kamdar NS, Uppal S, Burgunder-Zdravkovski L, et al. Surgical site infection following hysterectomy: adjusted rankings in a regional collaborative. Am J Obstet Gynecol 2016;214:259.e1–8.
- 51. Nguyen NT, Merchant M, Ritterman Weintraub ML, Salyer C, Poceta J, Diaz L, et al. Alternative treatment utilization before hysterectomy for benign gynecologic conditions at a large integrated health system. J Minim Invasive Gynecol 2019;26:847–55.
- 52. Wallis CJD, Cheung DC, Garbens A, Kroft J, Carr L, Nathens AB, et al. Occurrence of and risk factors for urological intervention during benign hysterectomy: analysis of the national surgical quality improvement program database. Urology 2016;97:66–72.
- 53. Wang E, Glazer KB, Howell EA, Janevic TM. Social determinants of pregnancy-related mortality and morbidity in the United States: a systematic review. Obstet Gynecol 2020;135:896–915.

- 54. Zaritsky E, Ojo A, Tucker L-Y, Raine-Bennett TR. Racial disparities in route of hysterectomy for benign indications within an integrated health care system. JAMA Netw Open 2019;2:e1917004.
- 55. Kjerulff KH, Langenberg PW, Rhodes JC, Harvey LA, Guzinski GM, Stolley PD. Effectiveness of hysterectomy. Obstet Gynecol 2000;95:319–26.
- 56. Pepin KJ, Cook EF, Cohen SL. Risk of complication at the time of laparoscopic hysterectomy: a prediction model built from the National Surgical Quality Improvement Program database. Am J Obstet Gynecol 2020;223:555.e1–7.
- 57. Swenson CW, Kamdar NS, Levy H, Campbell DA, Morgan DM. Insurance type and major complications after hysterectomy. Female Pelvic Med Reconstr Surg 2017;23:39–43.
- 58. Sanei-Moghaddam A, Kang C, Edwards RP, Lounder PJ, Ismail N, Goughnour SL, et al. Racial and socioeconomic disparities in hysterectomy route for benign conditions. J Racial Ethnic Health Disparities 2018;5:758–65.
- Wright JD, Ananth CV, Lewin SN, Burke WM, Lu YS, Neugut AI, et al. Robotically assisted vs laparoscopic hysterectomy among women with benign gynecologic disease. JAMA 2013;309:689–98.