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A critical review of patients' experiences and challenges with hysterosalpingography in Nigeria

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Abstract

Background: Hysterosalpingography (HSG) is a critical diagnostic tool for assessing female infertility, providing essential insights into tubal patency and uterine abnormalities. Despite its clinical importance, the procedure is associated with various patient challenges and experiences that can impact the overall quality of care. Understanding these experiences is crucial for improving HSG services, particularly in Nigeria, where healthcare disparities and infrastructural limitations are prevalent.

Objective: The objective of this review is to examine patients' experiences and challenges with HSG in Nigeria, identifying key areas for improvement in patient care and service delivery.

Methodology: This review synthesizes findings from existing literature on HSG experiences and challenges in Nigeria, focusing on studies conducted on patient-reported outcomes and healthcare provider perspectives. An electronic search for articles on hysterosalpingography published between 1992 and 2024 was conducted using PubMed, Cochrane Library, Google, and Semantic Scholar. This search was further refined through the use of advanced search techniques employing Boolean operators to increase specificity. Only articles written in English were included in this search.

Conclusion: The review revealed that patients undergoing HSG in Nigeria frequently encounter significant pain, anxiety and insufficient communication from healthcare providers. Financial, geographical, and cultural barriers further exacerbate these challenges, limiting access to HSG services for many women. To address these issues, a multifaceted approach is recommended, emphasizing enhanced patient education, effective pain management, and improved accessibility to HSG services. Stakeholders are called to prioritize patient-centred care and integrate patient feedback into continuous quality improvement initiatives. By doing so, the overall patient experience and health outcomes associated with HSG can be significantly improved in Nigeria.

Keywords: Patients' experiences and challenges, hysterosalpingography, Nigeria

Introduction

Hysterosalpingography (HSG) is a specialized radiographic procedure used primarily to investigate the shape of the uterine cavity and the patency of the fallopian tubes¹. It involves the injection of a radiopaque contrast medium through the cervix, which then flows into the uterine cavity and through the fallopian tubes. This process allows for detailed imaging that can reveal structural abnormalities, blockages or other issues that might contribute to infertility or other gynaecological problems^[1]. HSG is primarily indicated for the evaluation of infertility; the primary purpose of HSG is diagnostic, as it helps in identifying anatomical causes of infertility and planning appropriate interventions, be it medical or surgical. In therapeutic settings, HSG can sometimes have a therapeutic effect^[2]. The procedure's injection of contrast medium can occasionally open minor tubal blockages, improving fertility outcomes; this phenomenon, known as "therapeutic HSG", underscores the dual diagnostic and potential therapeutic roles of the procedure^[2].

Understanding patients' experiences and challenges with HSG is crucial for several reasons. First, the procedure is known to cause significant discomfort and anxiety, which can affect patient cooperation and the overall success of the procedure^[1]. Pain and anxiety management during HSG is a critical aspect of patient care, as negative experiences can deter patients from undergoing necessary follow-up treatments or repeat procedures if needed.

Moreover, patients' perceptions and emotional responses can impact their overall satisfaction with healthcare services and influence their health-seeking behaviour [3].

In the context of Nigeria, a critical review of patients' experiences and challenges with HSG is particularly pertinent. Nigeria, like many other developing countries, faces unique healthcare challenges, including limited access to specialized diagnostic procedures, cultural and socioeconomic barriers, and varying levels of healthcare infrastructure [4, 5]. Understanding the specific experiences and challenges faced by Nigerian women undergoing HSG can provide insights into how these factors impact their overall healthcare journey, adherence to treatment and ultimately, their reproductive health outcomes.

The objectives of this review article are multi-faceted. Firstly, it aims to synthesize existing literature on the experiences and challenges faced by patients undergoing HSG in Nigeria. This includes examining the physical and emotional discomfort associated with the procedure, the level of pre-procedure counselling and information provided and the impact of healthcare provider attitudes and competencies. Secondly, the review seeks to identify gaps in the current understanding and highlight areas where further research is needed. This includes understanding the socio-cultural factors that influence patients' experiences and how healthcare policies and practices can be improved to enhance patient care.

By critically reviewing patients' experiences and challenges with HSG in Nigeria, the article aims to contribute to the broader discourse on improving reproductive healthcare services in developing countries. It underscores the importance of patient-centred care approaches that take into account not only the clinical aspects of diagnostic procedures but also the emotional and psychological well-being of patients. The findings of this review are intended to inform healthcare providers, policymakers and researchers about the specific needs and challenges faced by Nigerian women, thus enabling the development of targeted interventions that can improve the overall patient experience and outcomes in reproductive health.

Context of hysterosalpingography in Nigeria

The adoption of HSG in Nigerian healthcare dates back to the mid-20th century, following global advancements in radiographic technology [6]. Initially introduced in teaching hospitals and tertiary medical centres, HSG quickly became an essential procedure for evaluating female infertility, a prevalent issue in the country. Early adoption was primarily driven by the need to address the high infertility rates, which are influenced by factors such as infections, untreated sexually transmitted diseases and complications from unsafe abortions [7]. Over the years, the adoption of HSG expanded beyond major cities to more regional hospitals, albeit at a slower pace. This expansion was facilitated by the increasing number of trained radiologists and gynaecologists, as well as investments in radiographic equipment by both government and private healthcare providers [7]. Despite these advancements, the dissemination of HSG services remains uneven across the country, reflecting broader disparities in healthcare infrastructure and resource allocation [8]. The utilization of HSG in Nigeria has seen a steady increase, correlating with the rising awareness of infertility issues and the availability of reproductive health services. Studies indicate that HSG is one of the most commonly performed radiographic procedures in gynaecology, especially in urban centres where healthcare facilities are better equipped [1, 7]. However, utilization rates exhibit significant regional disparities. In urban areas such as Lagos and Abuja, the demand for HSG is high due

to better access to healthcare services and a higher concentration of specialists [7]. Conversely, in rural areas and northern regions, utilization rates are lower. Factors contributing to this disparity include limited healthcare infrastructure, cultural and religious beliefs, and lower levels of awareness about infertility treatments [8].

Recent trends also show an increasing number of private healthcare providers offering HSG services; this shift is partly due to the inadequacies in public healthcare facilities and the growing middle class's preference for private healthcare [9, 10]. The increasing availability of HSG in private clinics has made the procedure more accessible to those who can afford it, although it also highlights the socio-economic difference in access to healthcare services.

The availability and accessibility of HSG services in Nigeria are influenced by several factors, including geographic location, economic status and healthcare policies [8]. In major cities and southern regions, HSG services are more readily available due to the higher concentration of healthcare facilities and professionals [10]. These areas benefit from better healthcare infrastructure, more advanced medical equipment and higher levels of government and private sector investment. In contrast, the northern and rural regions face significant challenges in accessing HSG services [11, 12]. The limited number of healthcare facilities equipped to perform HSG, combined with a shortage of trained radiologists and gynecologists, hampers service provision. Additionally, socio-cultural factors and lower levels of education contribute to reduced awareness and utilization of HSG in these areas [11].

Efforts to improve the accessibility of HSG services across Nigeria include government initiatives to upgrade healthcare facilities, train more specialists, and increase public awareness about infertility treatments; on-governmental organizations (NGOs) and international aid programs also play a crucial role in bridging the gap by providing funding, training and resources to underserved regions [8].

Patients' experiences with hysterosalpingography

Understanding patients' experiences with HSG is crucial for improving patient care and outcomes. Patients undergoing HSG frequently report varying degrees of pain and discomfort; the insertion of the cannula through the cervix and the injection of the contrast medium can cause cramping and pain, often described as similar to severe menstrual cramps [13, 14]. In Nigeria, these sensations are often exacerbated by inadequate pain management protocols [13]. Many patients do not receive sufficient pre-procedure pain relief, leading to heightened pain experiences during the procedure [1]. The level of pain perceived can vary based on individual pain thresholds, the skill and technique of the healthcare provider, and the patient's anxiety levels.

The emotional and psychological impacts of HSG on patients are profound [15]. Anxiety is a common pre-procedure experience, stemming from fear of the unknown, concerns about pain and anxiety about potential infertility diagnoses [1]. During the procedure, the pain and discomfort can lead to increased stress and anxiety, which may persist after the procedure is completed [3]. For many Nigerian women, the emotional burden is compounded by the cultural context where infertility carries significant stigma [16, 17]. The pressure to conceive and the societal expectations can lead to feelings of inadequacy and distress. A study highlighted that women often experience heightened psychological stress due to the potential implications of the HSG results on their social standing and marital

relationships [18]. Post-procedure, the waiting period for results can also be a time of significant anxiety and emotional turmoil. Effective communication and counselling are essential components of patient care in HSG procedures [19, 20]. Many patients report receiving minimal information about what to expect during the procedure, the potential pain, and the significance of the results [21]. This lack of information can increase anxiety and reduce patient satisfaction. Pre-procedure counselling should ideally include detailed explanations about the procedure, potential sensations of pain, and steps to manage discomfort. During the procedure, continuous communication from the healthcare provider can help alleviate anxiety by informing the patient about what is happening at each stage and what to expect next [19]. However, in practice, such communication is often lacking, leaving patients feeling uninformed and anxious [20]. Post-procedure counselling is equally important [1, 15]. Providing information about the potential findings and discussing the next steps can help mitigate anxiety and emotional distress. Unfortunately, many patients in Nigeria report insufficient post-procedure communication, which leaves them feeling uncertain and stressed about their reproductive health status and the implications of their HSG results [18].

Challenges faced by patients during hysterosalpingography

Hysterosalpingography (HSG) remains an essential diagnostic tool for evaluating female infertility. However, patients undergoing HSG in Nigeria face numerous challenges, from accessing the services to coping with the procedure and its aftermath. Understanding these challenges is crucial for improving patient care and outcomes.

Financial constraints are a significant barrier to accessing HSG services in Nigeria [8], the cost of HSG, which includes fees for the procedure, contrast media, and any additional diagnostic tests, can be prohibitively high for many women, particularly those from low-income backgrounds. This financial burden is exacerbated by the fact that health insurance coverage is limited and out-of-pocket payments are the norm in the Nigerian healthcare system [22]. As a result, many women are unable to afford the procedure, delaying or entirely foregoing critical diagnostic evaluations for infertility.

Geographical barriers also significantly impact access to HSG services. While major cities like Lagos and Abuja have well-equipped hospitals offering HSG, rural areas and smaller towns often lack such facilities [11, 12]. Women in these regions may need to travel long distances to access HSG services, incurring additional costs and time away from work or family responsibilities. The limited availability of trained radiologists and gynaecologists in rural areas further exacerbates this issue, contributing to disparities in healthcare access and outcomes [23, 24].

Although HSG is generally considered safe, it is not without risks and potential complications. Common adverse effects include pain and cramping during and after the procedure, which can be severe for some patients [25]. Additionally, there is a risk of infection, particularly if sterile techniques are not strictly adhered to during the procedure [7]. Some patients may also experience allergic reactions to the contrast medium used in HSG [25]. In rare cases, more severe complications can occur, such as uterine perforation or damage to the fallopian tubes, which can lead to further reproductive health issues [25].

Healthcare Providers' Perspectives on Hysterosalpingography: Healthcare professionals performing

HSG often view it as a crucial diagnostic tool that significantly aids in the evaluation of infertility. Radiologists and gynaecologists recognize the value of HSG in providing clear images of the uterine cavity and fallopian tubes, which are vital for diagnosing structural abnormalities and tubal patency issues [26, 27]. Despite its importance, many healthcare providers acknowledge that the procedure can be uncomfortable and distressing for patients. They emphasize the need for empathy and effective communication to help alleviate patient anxiety and discomfort during the procedure [28]. Professionals also highlight the technical aspects of HSG that require skill and precision [29, 30]. Proper insertion of the cannula, correct administration of the contrast medium, and accurate interpretation of the X-ray images are critical for the procedure's success. Experienced providers are adept at minimizing patient discomfort while ensuring the diagnostic accuracy of the procedure [31]. Healthcare providers in Nigeria face several challenges in delivering quality HSG services [32]. One significant issue is the lack of adequate training and continuous professional development. Many radiologists and gynaecologists in rural areas or smaller healthcare facilities may not have received comprehensive training in HSG techniques, leading to variations in procedural quality and patient outcomes [19]. Additionally, resource constraints are a major challenge. Limited access to modern radiographic equipment, inadequate supplies of contrast media and insufficient sterilization facilities can compromise the quality of HSG services [8]. These limitations are particularly pronounced in public hospitals and rural healthcare centers, where funding and resources are often scarce. The high patient load in some facilities also poses a challenge. Overworked healthcare providers may not have sufficient time to provide thorough pre-procedure counselling and post-procedure follow-up, leading to gaps in patient care and communication [33]. This can increase patient anxiety and dissatisfaction with the procedure.

Quality of care and patient satisfaction in hysterosalpingography

Patient-centred care is a critical aspect of healthcare quality, particularly in procedures like hysterosalpingography (HSG), which can be physically and emotionally challenging [34]. In Nigeria, the assessment of patient-centred care in HSG facilities often reveals significant gaps [34]. Many facilities lack the necessary infrastructure and resources to provide optimal care, leading to variations in the quality of services offered. The focus on patient comfort and effective communication is frequently inadequate, with many patients reporting insufficient information about the procedure, its risks and its benefits. This lack of comprehensive counselling can increase patient anxiety and discomfort, highlighting the need for improved training and protocols for healthcare providers [19].

Patient satisfaction surveys and feedback mechanisms are essential tools for evaluating and improving the quality of care in HSG services [35, 36]. However, in many Nigerian healthcare facilities, these tools are either underutilized or poorly implemented. Where surveys are conducted, they often reveal low satisfaction levels, primarily due to pain and discomfort during the procedure, inadequate communication, and long waiting times [36]. Feedback mechanisms are crucial for identifying specific areas where care can be improved, yet many facilities lack systematic approaches to gather and analyze patient feedback effectively. Implementing regular and structured patient satisfaction surveys can provide valuable insights into the patient experience and highlight areas needing

attention, such as pain management and patient education [35]. The experiences of patients during HSG procedures have a significant impact on healthcare outcomes and adherence to follow-up care [3]. Negative experiences, such as high levels of pain, poor communication, and inadequate support, can lead to reduced trust in healthcare providers and reluctance to undergo future medical procedures [1, 3]. This can be particularly detrimental in the context of infertility treatment, where adherence to diagnostic and therapeutic protocols is crucial for successful outcomes. Positive patient experiences, on the other hand, foster trust and cooperation between patients and healthcare providers, enhancing adherence to treatment plans and improving overall health outcomes [1].

Ethical considerations in Hysterosalpingography

Hysterosalpingography (HSG) is a sensitive diagnostic procedure that raises several ethical considerations. Ensuring ethical practices is vital to maintaining patient trust and upholding the standards of medical care [15]. This discussion covers informed consent practices, confidentiality and privacy concerns, and the ethical dilemmas associated with managing adverse events and unexpected findings, particularly in the Nigerian context [20].

Informed consent is a fundamental ethical requirement in medical procedures, including HSG [37]. It involves providing patients with comprehensive information about the procedure, its purpose, potential risks, benefits and alternatives, ensuring that they can make an informed decision about their care. Many patients report receiving minimal information before the procedure, leaving them unprepared for the potential discomfort and risks involved [19]. This lack of adequate informed consent can undermine patient autonomy and trust in the healthcare system. To address this, healthcare providers must ensure that informed consent processes are thorough, involving clear and empathetic communication tailored to the patient's level of understanding.

Confidentiality and privacy are crucial ethical considerations, especially in procedures related to reproductive health, where the potential for stigma and personal sensitivity is high [18]. In the Nigerian context, maintaining confidentiality can be challenging due to crowded healthcare facilities and inadequate infrastructure, which may not provide private spaces for patient consultations and procedures [38]. Breaches of confidentiality can lead to significant psychological distress and social repercussions for patients. It is imperative that healthcare facilities implement stringent policies and practices to ensure patient information is kept confidential and that privacy is maintained throughout the HSG process.

HSG procedures can sometimes result in adverse events or reveal unexpected findings, posing ethical dilemmas for healthcare providers [39]. Adverse events, such as severe pain, allergic reactions or infections, require immediate and effective management to mitigate harm. Ethically, providers must be prepared to inform patients about these risks beforehand and handle any complications with transparency and competence [39]. Unexpected findings, such as the discovery of serious reproductive health issues, also present ethical challenges. Providers must balance the need to convey critical health information with sensitivity and support, ensuring that patients are fully informed about their condition and the implications for their fertility and overall health. This requires not only medical expertise but also skills in compassionate communication and psychological support.

Recommendations for improving patients' experiences and addressing challenges

Hysterosalpingography (HSG) is a pivotal diagnostic tool for assessing female infertility, but it presents several challenges that impact patient experiences. Addressing these challenges requires a multi-faceted approach focusing on enhancing patient education and counselling, improving pain management strategies, and tackling accessibility and affordability barriers. Effective patient education and counselling before HSG are crucial for reducing anxiety and improving the overall patient experience. Many patients in Nigeria report insufficient information and preparation for the procedure, leading to heightened anxiety and discomfort. To address this, healthcare providers should implement comprehensive pre-procedure counselling sessions that cover the following. Patients should receive a thorough explanation of what HSG entails, including the steps of the procedure, what to expect in terms of sensations and potential discomfort, and the purpose of the test. Clear communication about the potential risks and benefits of HSG helps patients make informed decisions and sets realistic expectations. Providing clear guidelines on how to prepare for the procedure, such as whether to eat beforehand, any medications that should be avoided, and what to bring to the appointment, can help reduce anxiety. Information on what to expect after the procedure, including possible side effects and signs of complications, is essential for post-procedure comfort and safety [14].

Pain and discomfort are significant concerns for patients undergoing HSG [14]. Effective pain management strategies can greatly enhance patient comfort and satisfaction. The review article notes that many patients experience significant pain during the procedure, often due to inadequate pain management. To improve pain management, administering pain relief medications, such as non-steroidal anti-inflammatory drugs (NSAIDs), before the procedure can help manage pain effectively. Inserting a local anaesthetic into the cervix can significantly reduce pain during the insertion of the cannula and the injection of the contrast medium.

Ensuring that the procedure is performed by well-trained and experienced healthcare professionals can minimize discomfort through gentle handling and efficient technique. Providing ongoing communication during the procedure, explaining each step as it happens, and responding promptly to any signs of discomfort can help patients feel more in control and less anxious. Accessibility and affordability are major barriers to HSG services in Nigeria [8]. Many patients face financial constraints and geographical challenges that limit their access to this essential diagnostic tool. To address these barriers, implementing subsidized HSG services, particularly in public hospitals, can make the procedure more affordable for low-income patients. Government and non-governmental organizations can collaborate to fund these subsidies. Increasing the number of healthcare facilities equipped to perform HSG, especially in rural and underserved areas, can reduce the need for patients to travel long distances. This expansion should include training healthcare professionals in these areas to perform the procedure.

Deploying mobile health units equipped to perform HSG in remote areas can improve accessibility. These units can travel to underserved regions, providing on-site diagnostic services. Encouraging health insurance schemes to cover HSG procedures can alleviate financial burdens. Policies should be put in place to ensure that both public and private health insurance plans include diagnostic procedures like HSG.

Future research should focus on comprehensively understanding patient experiences and outcomes related to hysterosalpingography (HSG). The review article highlights significant gaps in the current literature, particularly regarding the psychological and emotional impacts of the procedure on patients in Nigeria [20]. Studies exploring these aspects can provide deeper insights into patient needs and help develop more patient-centred care approaches. Additionally, research should investigate the long-term outcomes of patients who undergo HSG, assessing the effectiveness of the procedure in improving fertility rates and identifying any delayed complications or health issues that may arise post-procedure.

The lack of standardized protocols and guidelines for HSG in Nigeria has led to inconsistencies in the quality of care and patient experiences. Developing and implementing standardized protocols can ensure that all healthcare providers follow best practices, leading to improved procedural outcomes and patient safety. These guidelines should encompass detailed steps for pre-procedure counselling, pain management and post-procedure care. Additionally, training programs and continuous professional development should be established to ensure that healthcare providers are well-equipped to adhere to these standards.

Incorporating patient feedback into quality improvement initiatives is crucial for enhancing the overall care experience in HSG procedures. The review article emphasizes the importance of systematic patient satisfaction surveys and feedback mechanisms. Healthcare facilities should establish robust systems for collecting and analysing patient feedback, using this data to identify areas needing improvement. Regularly updating practices based on patient input can help address specific concerns, improve communication strategies, and enhance pain management protocols. This continuous feedback loop ensures that patient voices are central to the quality improvement process, leading to more responsive and effective healthcare services.

Conclusion

The review of patients' experiences and challenges with hysterosalpingography (HSG) in Nigeria has revealed significant insights. Patients commonly report pain, discomfort, and inadequate communication during the procedure, highlighting the need for improved patient-centred care. Accessibility and affordability barriers further compound the challenges faced by patients seeking HSG services.

Patient-centred care and continuous quality improvement are imperative for enhancing HSG services. Healthcare providers must prioritize patient well-being by implementing standardized protocols, enhancing communication practices, and addressing barriers to access. Additionally, ongoing training and professional development can equip providers with the skills necessary to deliver high-quality, empathetic care.

Stakeholders, including healthcare institutions, policymakers and professional organizations, must prioritize patient satisfaction and well-being in HSG procedures. This requires collaborative efforts to improve infrastructure, expand access to services, and integrate patient feedback into quality improvement initiatives. By prioritizing patient-centred care, stakeholders can ensure that HSG procedures are not only clinically effective but also respectful of patients' experiences and needs.

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