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The abuse of ultrasonography: A critical review of the Nigerian situation

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Abstract

Ultrasonography, a widely used diagnostic tool, has experienced significant proliferation in Nigeria's healthcare landscape. However, alongside its increased availability comes a concerning trend of abuse, raising questions about ethical practice, patient welfare, and regulatory oversight. This abstract critically reviews the abuse of ultrasonography in Nigeria, examining key factors contributing to this phenomenon and its implications for healthcare delivery. Firstly, the proliferation of unqualified practitioners highlights a fundamental issue, with individuals lacking proper training and credentials performing ultrasound scans, leading to inaccurate diagnoses and patient harm. Secondly, the misuse of ultrasonography for gender determination purposes has led to sex-selective abortions, raising ethical concerns and perpetuating gender-based discrimination. Furthermore, diagnostic inaccuracies and misinterpretations due to inadequate training and expertise among practitioners pose risks to patient safety. The absence of a robust regulatory framework exacerbates these challenges, allowing unscrupulous practitioners to operate with impunity. Ethical considerations surrounding informed consent, patient confidentiality, and respect for patient autonomy are compromised in cases of ultrasound abuse. Addressing the abuse of ultrasonography in Nigeria requires coordinated efforts to strengthen regulatory mechanisms, enhance professional standards, and promote ethical practices. By acknowledging the root causes of abuse and fostering accountability in medical practice, Nigeria can ensure the safe and responsible use of ultrasonography for improved healthcare outcomes.

Keywords: Nigerian situation, review, abuse of ultrasound

Introduction

Ultrasonography, a non-invasive imaging technique, has revolutionized medical diagnosis and management worldwide, including in Nigeria^[1, 2]. However, alongside its widespread use comes a growing concern over its abuse, particularly within the Nigerian healthcare system^[3]. The abuse of ultrasonography refers to the inappropriate or excessive use of ultrasound imaging technology in medical or non-medical contexts. In medical settings, this could include performing unnecessary ultrasounds without a valid medical indication, which can expose patients to unnecessary risks and increase healthcare costs. Non-medical abuse of ultrasonography might involve its unauthorized use for purposes such as gender determination in regions where it's illegal, or for entertainment rather than diagnostic or therapeutic purposes. Such misuse can have ethical, legal, and sometimes harmful consequences^[4, 5]. The availability of ultrasonography has expanded significantly in Nigeria, with ultrasound machines becoming commonplace in healthcare facilities across the country^[6]. While this technology has undoubtedly enhanced diagnostic capabilities and improved patient care, there is mounting evidence to suggest that its misuse and abuse are becoming prevalent issues³. Several studies have shed light on the patterns and practices surrounding the use of ultrasonography in Nigeria^[6, 7].

Moreover, studies evaluating the accuracy and reliability of ultrasonographic assessments in Nigerian healthcare settings have identified shortcomings in training and expertise among practitioners^[8].

Mador assessed the performance of ultrasound in third-trimester fetal biometry, revealing challenges in diagnostic accuracy and interpretation that may compromise patient outcomes^[9]. Additionally, some studies explored the role of ultrasound in managing gynecological complaints, highlighting the need for standardized protocols and quality assurance measures^[10, 11].

Ethical considerations surrounding the use of ultrasonography in Nigeria have also come under scrutiny. Igbiniedion *et al.* and Chia *et al.* examined ethical dilemmas in ultrasound diagnosis and gender determination, underscoring the importance of upholding principles of informed consent, patient confidentiality, and respect for patient autonomy^[4, 12].

As such, the abuse of ultrasonography in Nigeria represents a multifaceted challenge with implications for patient safety, ethical practice and healthcare delivery. Addressing this issue requires a comprehensive understanding of the underlying factors contributing to abuse and concerted efforts to strengthen regulatory mechanisms, enhance professional standards, and promote ethical practices within the Nigerian healthcare system. This article critically examines the situation in Nigeria regarding the abuse of ultrasonography, shedding light on the various factors contributing to this phenomenon. Firstly, this research delves into the patterns and practices surrounding the use of ultrasonography in Nigerian healthcare settings. It seeks to uncover the prevalent trends, such as the frequency of ultrasonographic examinations, the types of conditions for which it is employed and the demographics of patients undergoing such procedures. Understanding these patterns is crucial for identifying potential areas of abuse and devising targeted interventions. Secondly, the review examines the multifaceted factors contributing to the misuse and abuse of ultrasonography in Nigeria. One prominent issue is the proliferation of unqualified practitioners who lack proper training and certification in ultrasonography. Additionally, the misuse of ultrasound for gender determination, often resulting in sex-selective abortions, exacerbates ethical dilemmas and societal inequalities. By scrutinizing these factors, the research aims to shed light on the root causes of abuse and formulate strategies for mitigating them. By addressing these research objectives, this study aims to provide a comprehensive understanding of the abuse of ultrasonography in Nigeria, highlighting areas for improvement in regulatory oversight, professional training and ethical practice within the Nigerian healthcare system.

Justification for the review: Investigating the patterns and practices of ultrasonography in Nigerian healthcare settings

The abuse of ultrasonography in Nigeria represents a critical issue with far-reaching implications for healthcare delivery, patient safety and ethical practice. This research seeks to provide a comprehensive understanding of the factors contributing to the misuse and abuse of ultrasonography in the Nigerian healthcare system, thereby informing policy and practice interventions to address this pressing challenge. Firstly, studies such as Eze *et al.* and Ashaolu *et al.* have documented the patterns of ultrasonography requests and findings in Nigerian healthcare settings, highlighting the widespread utilization of this diagnostic modality^[13, 14]. However, there is a growing concern over the proliferation of unqualified practitioners performing ultrasound scans, as

noted by Balogun^[15], which raises questions about diagnostic accuracy and patient safety. Furthermore, the misuse of ultrasonography for gender determination purposes, as observed by Chigbu *et al.* has ethical implications and contributes to gender-based discrimination and sex-selective abortions^[16]. These unethical practices underscore the need for enhanced regulatory oversight and ethical guidelines surrounding the use of ultrasonography in Nigeria.

Additionally, studies evaluating the accuracy and reliability of ultrasonographic assessments in Nigerian healthcare settings, such as those by Aliyu *et al* and Lunsi *et al* have identified deficiencies in training and expertise among practitioners, leading to diagnostic inaccuracies and misinterpretations^[5, 17]. These findings highlight the importance of strengthening professional standards and quality assurance measures to ensure the safe and effective use of ultrasonography. Moreover, ethical considerations surrounding the use of ultrasonography in Nigeria, as explored by Chigbu *et al.*, underscore the need for upholding principles of informed consent, patient confidentiality, and respect for patient autonomy^[16]. Addressing these ethical dilemmas requires a concerted effort to promote ethical practice and ensure accountability among ultrasound practitioners.

Therefore, this research is justified by the urgent need to address the abuse of ultrasonography in Nigeria and its implications for patient care and ethical practice. By critically examining the factors contributing to abuse and identifying strategies for improvement, this research aims to inform evidence-based interventions to enhance the quality and safety of ultrasonography services in Nigeria.

Examination of factors contributing to the misuse and abuse of ultrasonography in Nigeria

The misuse and abuse of ultrasonography in Nigerian healthcare settings are influenced by various factors, including the proliferation of unqualified practitioners and the misuse of ultrasound for gender determination. This section aims to examine these factors, drawing insights from recent research in Nigeria.

1. **Proliferation of unqualified practitioners:** The proliferation of unqualified practitioners significantly contributes to the misuse of ultrasonography in Nigeria. Studies have highlighted the presence of untrained individuals performing ultrasound scans without proper credentials, leading to inaccurate diagnoses and patient harm^{3,17}. This phenomenon underscores the need for stringent regulatory measures to ensure that only qualified healthcare professionals are authorized to perform ultrasonography.
2. **Misuse of ultrasound for gender determination and sex-selective Abortions:** Another contributing factor to the abuse of ultrasonography in Nigeria is its misuse for gender determination purposes. Chigbu *et al.* documented a concerning trend of using ultrasound to determine foetal sex, often leading to sex-selective abortions and perpetuating gender-based discrimination^[16]. This unethical practice underscores the importance of enforcing regulations that prohibit the use of ultrasonography for non-medical purposes and promoting ethical standards among healthcare providers.

3. **Lack of regulatory framework:** The absence of a robust regulatory framework for ultrasonography practice in Nigeria exacerbates the problem of abuse. Weak enforcement of existing regulations and inadequate monitoring mechanisms allow unscrupulous practitioners to operate with impunity, compromising standards of care and patient trust^[8, 18].
4. **Ethical considerations:** Ethical considerations surrounding the use of ultrasonography in Nigeria also warrant attention. Issues such as informed consent, patient confidentiality, and respect for patient autonomy may be compromised in cases of ultrasound abuse, highlighting the importance of upholding ethical principles in medical practice^[19].

By examining these factors, this review also aims to identify the root causes of the misuse and abuse of ultrasonography in Nigeria and propose targeted interventions to address these challenges. Strengthening regulatory oversight, enhancing professional training, and promoting ethical practices are essential steps in safeguarding the appropriate use of ultrasonography and ensuring patient safety in Nigerian healthcare settings.

Assessment of the diagnostic accuracy and reliability of ultrasonographic assessments in Nigerian healthcare facilities

Ensuring the diagnostic accuracy and reliability of ultrasonographic assessments is crucial for providing quality healthcare services in Nigeria. This section aims to assess the diagnostic accuracy and reliability of ultrasonography in Nigerian healthcare facilities, drawing insights from recent research. Research conducted by Eze *et al.* provides valuable insights into the diagnostic accuracy of ultrasonographic assessments, particularly in the context of foetal biometry. Their study evaluated the performance of ultrasonography in assessing third-trimester foetal biometry at three tertiary hospitals in Nigeria, highlighting both the strengths and limitations of this imaging modality^[13]. By examining the agreement between ultrasonographic measurements and clinical outcomes, Eze *et al.*'s study contributed to our understanding of the reliability of ultrasonography in Nigerian healthcare settings.

Furthermore, Aimua *et al.*, Fawole and Adenuga explored the role of ultrasound in managing gynecological complaints in a Nigerian hospital. Their study assessed the diagnostic accuracy of ultrasonography in identifying gynecological pathologies and guiding clinical management decisions^{20,21}. By comparing ultrasonographic findings with histopathological results, Akinnibosun-Raji *et al.* provided valuable insights into the reliability of ultrasound as a diagnostic tool in the Nigerian context^[22].

By assessing the diagnostic accuracy and reliability of ultrasonographic assessments in Nigerian healthcare facilities, this research aims to identify areas for improvement in clinical practice, training, and quality assurance. Understanding the strengths and limitations of ultrasonography is essential for optimizing its use and ensuring optimal patient care in Nigeria.

Exploration of ethical considerations surrounding the use of ultrasonography in Nigeria

Ultrasonography, a widely used diagnostic tool, raises important ethical considerations in Nigerian healthcare

settings. This section aims to explore these ethical considerations, including issues related to informed consent, patient confidentiality, and respect for patient autonomy, drawing insights from recent research.

Chigbu *et al.* conducted a study that delved into the ethical dilemmas surrounding ultrasound diagnosis and gender determination in obstetric practice in Nigeria. Their research highlighted the complexities involved in obtaining informed consent for ultrasound procedures, particularly when gender determination is requested^[16]. Furthermore, Chigbu *et al.* examined the challenges of maintaining patient confidentiality and respecting patient autonomy in the context of ultrasound imaging, emphasizing the need for ethical guidelines to guide clinical practice.

In addition to Chigbu *et al.* study, Agbata *et al.* study investigated the ethical implications of ultrasonography requests and findings in Nigerian healthcare settings^[7]. Their research underscored the importance of ensuring that patients are adequately informed about the risks and benefits of ultrasound procedures, as well as the potential limitations of diagnostic imaging^[7]. Moreover, Chigbu *et al.* study highlighted the need for healthcare providers to uphold principles of patient confidentiality and respect for patient autonomy when performing ultrasound scans.

By exploring the ethical considerations surrounding the use of ultrasonography in Nigeria, this research aims to promote ethical awareness among healthcare providers and policymakers. Addressing issues related to informed consent, patient confidentiality, and respect for patient autonomy is essential for ensuring that ultrasonography is used responsibly and ethically in Nigerian healthcare settings.

Recommendation and Conclusion

The abuse of ultrasonography in Nigeria presents significant challenges to healthcare delivery, patient safety, and ethical practice. Through a critical review of the Nigerian situation, this study has shed light on various aspects of this complex issue, drawing insights from recent research.

Firstly, the proliferation of unqualified practitioners performing ultrasound scans without proper training or credentials poses a serious risk to patient safety. Studies have highlighted the need for stringent regulatory measures to address this challenge and ensure that only qualified healthcare professionals are authorized to perform ultrasonography^[23].

Secondly, the misuse of ultrasonography for gender determination purposes has ethical implications, including the perpetuation of gender-based discrimination and sex-selective abortions. Addressing this issue requires the enforcement of regulations prohibiting the use of ultrasound for non-medical purposes and promoting ethical standards among healthcare providers.

Furthermore, the diagnostic accuracy and reliability of ultrasonographic assessments in Nigerian healthcare facilities have been evaluated, revealing both strengths and limitations of this imaging modality. Understanding these factors is crucial for optimizing the use of ultrasonography and ensuring optimal patient care.

Lastly, exploring the ethical considerations surrounding the use of ultrasonography has highlighted the importance of obtaining informed consent, maintaining patient confidentiality, and respecting patient autonomy. Upholding ethical principles is essential for promoting patient-centered

care and safeguarding the rights and dignity of individuals undergoing ultrasound procedures.

In conclusion, addressing the abuse of ultrasonography in Nigeria requires a multi-faceted approach, encompassing regulatory reforms, professional training, and ethical guidelines. By addressing the root causes of abuse and promoting responsible use of ultrasonography, Nigeria can ensure safer and more ethical healthcare practices for its citizens.

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