Review Article

Patient safety initiatives and practices in Nigerian healthcare settings: A comprehensive analysis of current knowledge, challenges, and barriers

Addah Temple Tamuno-opubo[1], Tinuoye Jamiu Uthman[1], Adeniyi Victor Ojuope[2], Aanuoluwapo Blessing Adeleke[3], Joshua Oduyeru Oluwasegun[4], Levi Tuwleh[5]

[1]Department of Psychology, Faculty of Social Science, Olabisi Onabanjo University, Ago-Iwoye, Ogun State, [2]Department of Developmental Psychology, Elite Life Consulting, Abuja, Federal Capital Territory, [3]Department of Mental Health, Faculty of Clinical Science, Obafemi Awolowo University, [4]Department of Sociology and Anthropology, Faculty of Social Science, Obafemi Awolowo University, [5]Department of Community Health, Faculty of Clinical Science, Obafemi Awolowo University, Ile-Ife, Osun State, Nigeria.

*Corresponding author:

Addah Temple Tamuno-opubo,
Department of Psychology,
Faculty of Social Science,
Olabisi Onabanjo University,
Ago-Iwoye, Ogun State,
Nigeria.

tamuno.addah@oouagoiwoye.edu.ng

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ABSTRACT

The imperative of patient safety in healthcare takes a central stage, more so in the context of Nigeria. This review aims to provide a comprehensive understanding of the patient safety landscape in Nigeria, drawing on 12 empirical studies. This study aims to elucidate the multifarious challenges and barriers health-care professionals encounter in Nigeria concerning patient safety. Concurrently, it delves into the prevailing patient safety culture and the factors shaping it. This study used secondary data to conduct a systematic review of existing literature; 12 studies, spanning from 2015 to 2022, were meticulously examined. These explorations cover a broad spectrum of patient safety aspects in Nigeria, focusing particularly on the insights of nurses and doctors. Through the use of thematic analysis, the studies' synthesis illuminates a significant gap between the envisioned safety protocols and their on-ground realization. Exacerbating this challenge is the acute lack of resources, which invariably hampers the quality of care. In addition, barriers to effective communication and inadequate reporting mechanisms emerge as significant obstacles. The deficiencies in consistent training and education are also prominent, which stand as potential vulnerabilities in the system. The palpable need for heightened awareness, emphasis on recurrent training initiatives, and strict adherence to established safety guidelines are amplifying these concerns. It was, thus, concluded that the healthcare trajectory in Nigeria, as informed by this review, underscores a pressing need for systemic interventions to elevate patient safety standards. Such a transformative journey demands the concerted efforts of all stakeholders, fostering an environment that prioritizes patient safety and enhances the overall trust in Nigeria's healthcare system.

Keywords: Patient safety, Safety initiatives, Healthcare settings, Nigeria

INTRODUCTION

Patient safety is a crucial and inevitable component of healthcare, ensuring patients' well-being and improving healthcare results. The World Health Organization[1] states that patient safety initiatives work to reduce avoidable injuries, medical mistakes, and adverse events in healthcare settings. The procedures are universally recognized as an integral aspect of high-quality healthcare; however, the delivery systems for such care are inherently complex and susceptible to errors. Since it directly affects patient happiness, healthcare provider trust, and healthcare services' overall efficiency and efficacy, guaranteeing patient safety is an ethical and

strategic responsibility for healthcare systems.[2] Given the special difficulties the healthcare system in Nigeria faces, the significance of patient safety is made even more clear in these settings. To safeguard patients from potential damage and promote a culture of safety and excellence in healthcare delivery, a thorough investigation and improvement of patient safety measures in Nigerian healthcare settings are important.

Patient safety, sometimes referred to as "medical safety" and "healthcare safety," encompasses several aspects related to preventing harm and promoting well-being within the context of medical and healthcare settings. Patient safety, as defined by Emanuel *et al.*,[3] encompasses a set of protocols, guiding principles, and tactics devised to diminish the probability of patients encountering medical mistakes, adverse outcomes, and preventable injury throughout the provision of healthcare services. Patient safety involves a wide range of stakeholders, including healthcare professionals, patients, administrators, lawmakers, and regulators. The WHO established a comprehensive definition of patient safety in,[4] characterizing it as the mitigation of risks pertaining to healthcare that may result in avoidable injury, with the aim of reaching an acceptable threshold. According to Lt (2000),[5] the research "To Err Is Human" conducted by the American Institute of Medicine in 1999 states that a considerable number of medical errors can be linked to faulty systems and procedures rather than individual practitioners. The complexity of healthcare is influenced by several variables, including but not limited to inefficient and changeable processes, fluctuations in the case mix of patients, disparities in health insurance coverage, variations in provider education and experience, and a multitude of other contributing elements. The IOM in[6] has made significant contributions to the advancement of the concept of patient safety. According to the IOM, patient safety may be defined as the proactive measures taken to avoid any risk or injury to patients. The focal point of patient safety programs is to prioritize the protection of patients from avoidable damage resulting from medical errors, adverse events, or systemic deficiencies.[7]

Hughes[8] asserts that the fundamental components of patient safety encompass facilitating open dialogue and transparency between patients and healthcare professionals, utilizing evidence-based practices and guidelines, standardizing processes and procedures, and integrating technology and automation to mitigate errors. The concept of patient safety involves a wide range of factors within the healthcare domain, such as the safety of medicine administration, surgical procedures, infection prevention and control, effective communication and collaboration among healthcare practitioners, as well as the active participation of patients and their families in the care process.[9] Patient

safety extends beyond specific healthcare environments.[10] The primary goal of patient safety is to foster a culture of safety within healthcare institutions, wherein the sharing of information regarding errors and close calls is actively encouraged. By cultivating an environment free of blame, healthcare organizations can effectively identify underlying problems and implement appropriate corrective measures.[11] Healthcare systems may strive to optimize the delivery of high-quality treatment, improve patient outcomes, and foster patients' trust and confidence in the healthcare system with a primary focus on patient safety.

The issue of patient safety is a significant cause for concern both internationally and inside the healthcare system of Nigeria.[12] Medical mistakes substantially influence global morbidity and death rates, including a broad range of preventable bad consequences.[13] The term "medical error" encompasses a wide spectrum of occurrences that exhibit varied levels of severity and the ability to cause damage to patients. The prevailing historical viewpoint of medical mishaps was that they were seldom incidents. The aforementioned viewpoint has undergone significant transformation over recent decades, and empirical evidence indicates its lack of veracity.[13] Medical mistakes and avoidable adverse events are pervasive issues on a worldwide scale. According to the WHO[14,15] a minimum of one adverse event is documented in about 300 patients globally. According to Iloh *et al.*,[16] patient safety events and accidents were identified as a significant contributor to disability on a global scale, ranking among the top 10 medical causes. These occurrences were estimated to have resulted in about 23 million disability-adjusted life years. A multitude of scholarly investigations and academic works have elucidated the pervasiveness of patient safety issues, underscoring the pressing need for enhancing healthcare systems to safeguard the welfare of patients. Patient safety risks in Nigerian healthcare settings are similar to those seen elsewhere. Noteworthy concerns include medication mistakes,[17] healthcare-associated infections,[18] and communication deficiencies[19] among healthcare professionals. The presence of these safety vulnerabilities may lead to negative consequences for patients' outcomes and have a substantial impact on the overall quality of healthcare services. Healthcare systems may strive to incorporate evidence-based practices, foster a culture of safety, and provide a safer milieu for patients and healthcare personnel by effectively addressing the pervasiveness of patient safety concerns. Efforts should be undertaken to prioritize patient safety in Nigeria as a means to reduce the occurrence of medical mistakes, enhance healthcare results, and eventually enhance the overall health and well-being of the Nigerian population.

The presence of substantial information gaps in patient safety procedures and activities within Nigerian healthcare

settings underscores the need for conducting a complete study through a systematic review. Numerous scholarly investigations and academic inquiries have been conducted about patient safety. However, there seems to be a dearth of comprehensive amalgamation and synthesis of this body of knowledge, resulting in fragmented and disjointed perspectives. The absence of a unified comprehension of patient safety concerns and efficacious treatments is a barrier to the advancement of evidence-based approaches aimed at improving patient safety within healthcare settings in Nigeria. Moreover, the presence of diverse study methodologies and data-gathering approaches across various studies might exacerbate the existence of information gaps and inconsistencies in the research outcomes. Through the implementation of a systematic review, researchers can collect and analyze up-to-date information, identify areas where knowledge is lacking, and cultivate a more all-encompassing comprehension of patient safety measures within healthcare settings in Nigeria. Policymakers, healthcare executives, and practitioners stand to gain valuable insights by acquiring a comprehensive understanding of the areas that need more investigation and advancement. This detailed analysis will empower them to devise targeted interventions and establish optimal protocols for the promotion of patient safety. Ultimately, it is essential to enhance patient safety protocols and guarantee the provision of secure and exemplary healthcare services in Nigeria to address the deficiencies in knowledge by doing a comprehensive systematic evaluation.

The objectives of this study are as follows: The systematic review aims to achieve two primary goals. The primary objective of this analysis is to evaluate the existing understanding of patient safety procedures and efforts within healthcare settings in Nigeria. Through a methodical examination of extant literature and research studies, the primary aim of this endeavor is to furnish a whole and all-encompassing depiction of the patient safety milieu inside the nation, discerning domains of proficiency as well as domains necessitating improvement. In addition, the purpose of this research is to ascertain the primary obstacles and hindrances to ensuring patient safety inside healthcare settings in Nigeria. This aim acknowledges the need to understand the obstacles that hinder the implementation of effective patient safety measures, such as limited resources, inadequate infrastructure, communication deficiencies, and cultural factors. This research aims to provide valuable insights that might inform the development of targeted treatments and efforts aimed at enhancing patient safety in healthcare settings in Nigeria by shedding light on these challenges. To foster a culture of safety and continuous improvement, it is essential to achieve these objectives since doing so would ultimately bolster patient outcomes and elevate the standards of healthcare provision in Nigeria. The primary objective of this study is to make substantial progress in enhancing patient safety within the Nigerian healthcare system. This will be achieved by a methodical evaluation of existing patient safety practices, identifying obstacles, and establishing a foundation for implementing initiatives that enhance practice and facilitate evidence-based policy-making.

METHODS

Searching strategy and study identification procedure

The electronic literature databases MEDLINE, PsychINFO, and CINAHL were queried using a set of predetermined keywords and Boolean operators. The search terms used were as follows: (Nigeria*) and (patient/client safety) and (patient safety culture* or medical errors* or prevention of medical error* safety of patients* medical negligence*). The study focuses on the intersection between healthcare providers, patient safety, and Nigerian healthcare. Specifically, it examines the relationship between healthcare practices and current knowledge and the challenges and barriers faced in ensuring patient safety in Nigeria. The titles and abstracts of the publications obtained through this search were then assessed based on the predetermined inclusion and exclusion criteria. Further, an examination of research titles and abstracts was conducted by cross-referencing the reference lists of publications that successfully met the criteria of the screening test, as shown in Table 1.

Inclusion and exclusion criteria

The research identification procedure included the application of inclusion criteria, encompassing peer-reviewed journal articles, book chapters, or reports containing primary empirical data on the impact of patient safety culture on healthcare outcomes. This study only included research conducted inside Nigeria, focusing on Nigerian healthcare professionals. The inclusion criteria encompassed papers written in the English language and published throughout the timeframe of 2015–2023. The review rejected literature that did not meet the following criteria: publication in peer-reviewed journal articles, reports, or book chapters; inclusion in grey literature or secondary literature; inclusion of non-empirical data; material not written in English; material published before 2010; and studies that did not evaluate the patient.

Study selection

The process of selecting studies for the systematic review of "Patient Safety Practices and Initiatives in Nigerian Healthcare Settings: A Comprehensive Analysis of Current Knowledge, Challenges, and Barriers" is comprehensive, aiming to include only the most relevant and high-quality papers. The procedure began with an initial screening that included evaluating article titles, which was then followed

by a more comprehensive evaluation of the abstracts. The articles that were deemed relevant after conducting an analysis of their abstracts were then evaluated by a thorough examination of their entire texts. This evaluation aimed to determine their direct relevance and how well they aligned with the study goals.

The methodological rigor of these works is of utmost importance, in addition to their substance. Consequently, a comprehensive quality assessment was conducted using established methodologies such as the Critical Appraisal Skills Program (CASP) Checklist. The studies that met the predetermined quality standards were selected for inclusion. Moreover, to ensure thoroughness, the references of these chosen papers were thoroughly examined for possible inclusions and, when discovered, underwent the same rigorous review procedure. This approach, as illustrated in Figure 1, follows the method used by Moher *et al.*[30]

Data extraction

A data extraction spreadsheet was constructed using Microsoft Excel to aggregate data from the included studies. The data extraction headings were as follows: Author, the title of the article, year of publication, aims and objectives, sample population, sampling strategy, location and setting, design and method, outcome measures,

results, and study limitations. Information not directly fitting in the pre-defined categories was collated in an "other findings" column and processed separately. Other researchers cross-checked all spreadsheet data with hard copies to ensure data extraction accuracy. Discrepancies that were identified and did not have an immediate logical solution were agreed on through discussion and consensus.

Quality assessment

The assessment of the quality of each study was conducted using suitable methodologies. The Cochrane Risk of Bias Tool was employed to evaluate the risk of bias in quantitative research, whereas the CASP Qualitative Checklist was utilized for assessing bias in qualitative studies. Based on the aforementioned judgments, each study was categorized into one of three quality ratings: "high," "moderate," or "low."

RESULTS

Patient safety is paramount in the healthcare sector, acting as the linchpin that holds the trust and confidence of patients in the medical system. In Nigeria, as with many developing nations, the healthcare landscape is evolving rapidly, making it imperative to regularly assess the state of patient safety practices to ensure that they meet global standards.

Table 1: Overview of studies included in the systematic review (*n* = 12).

S/N	Source	Participants	Study Design and Sample Size	Objective	Main outcomes
1.	Ogbolu *et al.*[20]	Nurses	Cross-sectional	The associations between patient safety and nurse staffing and the nurse practice environment in high resource region in Nigeria.	The link between patient safety and nurse practice settings was found to be the most robust.
2.	Ogoina *et al.*[21]	Healthcare professionals	Cross-sectional	To access knowledge, attitude and practice (KAP) of standard precautions of infection control among HCWs of two tertiary hospitals in Nigeria is described.	A significant proportion of healthcare workers (HCWs) exhibited little understanding of injection safety and expressed dissatisfaction with insufficient resources to effectively implement standard safeguards.
3.	Ogundimu[18]	Healthcare professionals	Qualitative approach	To assess employees' perception of the culture of patient safety at 3 private hospitals within Lagos, Nigeria and to compare this with the outcome of U.S.	The United States exhibits a more robustly standardised patient safety culture in comparison to Nigeria.

(Contd...)

Table 1: *(Continued).*

S/N	Source	Participants	Study Design and Sample Size	Objective	Main outcomes
4.	Aluko *et al.*[22]	Healthcare workers	Cross-sectional	To explore knowledge, attitude and perception of occupational hazard and safety practices.	A total of 89% of the participants demonstrated knowledge of hazards associated with healthcare facilities (HCF). Additionally, 70% of the participants were able to identify the risk associated with needle recapping correctly. All participants, accounting for 100% of the sample, expressed the importance of handwashing. Furthermore, a significant majority of 96.2% of the participants reported feeling at risk in their healthcare setting. In terms of immunisation, 64.2% of the participants had received Hepatitis B shots, while 87.2% had received Tetanus vaccinations. Approximately 52.1% of the participants reported consistently adhering to established protocols. Moreover, a substantial majority of 93.8% of the participants reported securely disposing of sharps. However, it is worth noting that 40% of the participants cited a lack of necessary equipment. There was no significant correlation found between occupation or level of education and handwashing behaviour.
5.	Fajemilehin *et al.*[23]	Perioperative Nurses	Cross-sectional	To assess various safety practices employed by nurses to ensure patients' safety in operating theatre.	The findings indicated that a significant majority (80.0%) of the participants from both state and federal institutions have a commendable level of understanding of safety protocols. The analysis of the questionnaire data indicated that the identification of patients at the red line, as a strategy to enhance patient safety in the operating room, had the highest average score.
6.	Nwosu *et al.*[24]	Surgeons	Cross – sectional	Patient safety awareness among healthcare professionals is known to impact this outcome.	There was a substantial correlation seen between the professional standing of the surgeons and their years of service and the assessment of patient safety problems.
7.	Ezeuko *et al.*[25]	Healthcare professional	Cross – sectional	To determine the practice gaps and challenges to effective PSC in Nnamdi Azikiwe University Teaching Hospital, (NAUTH) Nnewi, Nigeria.	The successful development of Patient Safety Culture (PSC) faces challenges stemming from deficiencies in either inadequate staffing levels or a punitive approach towards mistake reporting. The focus group discussion (FGD) revealed many obstacles, including a lack of training and re-training programs, which 61% of participants noted. Additionally, poor team spirit and limited staff capability were identified as issues by 56% of respondents. According to the findings of the KII, over 80% of respondents said that there was a lack of availability of essential components such as the Patient Safety Committee unit, patient safety guidelines/policies, or standard operating procedures (SOPs).

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Table 1: *(Continued).*

S/N	Source	Participants	Study Design and Sample Size	Objective	Main outcomes
8.	Iloh *et al.*[16]	Medical Doctors	Cross – sectional	The study was aimed at describing the experience, drivers, barriers and preventive measures for patient safety incidents and accidents in a cross-section of medical practitioners in Abia State, Southeast Nigeria.	The patient safety incident reporting system emerged as the prevailing preventative intervention. Physician stress and burnout emerged as the predominant catalyst for patient safety occurrences.
9.	Nnebe *et al.*[26]	Tertiary hospitals in Nigeria	Cross – sectional	To determine the factors affecting patient safety culture (PSC) practices in a tertiary hospital in Nigeria.	Factors that were shown to have an impact on Patient Safety Culture (PSC) include the acquisition of knowledge, the regularity of patient committee meetings, and the identification and reporting of mistakes.
10.	Kaware *et al.*[27]	Nurses	Survey	To determine the levels and factors that contribute to nurses' negative perceptions of patient safety culture in public health facilities.	The three factors and organisational learning exhibited a substantial correlation with the overall poor evaluations of patient safety culture.
11.	Abel *et al.*[28]	Healthcare professionals	Cross - sectional design	To assess patient safety culture among healthcare professionals in primary and secondary healthcare facilities in Ibadan Southwest local government area of Oyo State, Nigeria.	The results of the study indicated that the general view of patient safety culture was 72.1%. The characteristics of patient safety, namely Teamwork (88.5%) and Reporting Patient Safety Events (47.4%), had the greatest and lowest proportions of affirmative replies, respectively.
12.	Uzochukwu *et al.*[29]	Nigerian Healthcare facilities	Qualitative method	Inquiry into the complexities of primary healthcare (PHC) in Nigeria and effects on patients' safety across four PHC facilities in Enugu state in Southeast Nigeria.	The results of the research indicate that the primary healthcare (PHC) system in the study region is not operating at an ideal level in three key aspects. This suggests inadequate management of the intricate nature of the system, resulting in a heightened vulnerability of patients to potential damage.

This systematic review delves deep into the current status of patient safety practices and initiatives within Nigerian healthcare settings. By methodically examining the existing body of literature and research, we aim to offer an exhaustive overview of the patient safety terrain in Nigeria. Our objective is to highlight the commendable practices, pinpoint areas requiring improvement, and provide insights to inform future strategies and interventions. Ensuring that patient safety remains at the forefront of healthcare improvements in Nigeria is not just crucial; it is non-negotiable. The following were the themes generated based on the review:

Current state of knowledge on patient safety practices

The confluence of emerging infectious diseases, notably COVID-19, has heightened the emphasis on infection control. Health-care institutions and workers now more than ever realize that minimizing risk is not just about the immediate patient but extends to protecting the health and well-being of the caregivers themselves. Increased awareness plays a pivotal role in this paradigm shift. The previous era, which might have accepted certain levels of risk as inherent to healthcare, is fading. Now, both the public and professionals in the healthcare sector are recognizing that many instances of patient harm in clinical settings are preventable. This elevated consciousness is not just the result of tragic incidents or glaring mistakes but is a proactive approach fueled by data, advocacy, and patient testimonials. Informed patients can now play an active role in their care, voicing concerns, asking questions, and ensuring protocols are followed.

Furthermore, regular training has become an integral part of modern healthcare settings. As the field of medicine evolves, so do the challenges and risks associated with patient
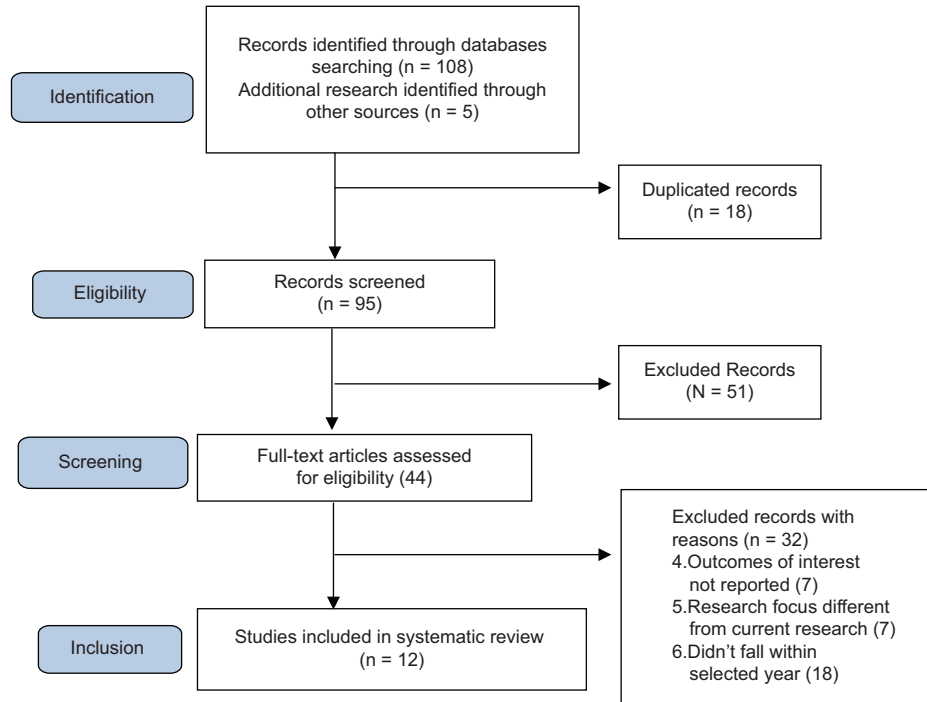
Figure 1: PRISMA flow diagram of studies included in the review. PRISMA: Preferred Reporting Items for Systematic reviews and Meta-Analyses.

care. Healthcare professionals must stay abreast of the latest methodologies, research, and best practices to ensure the safety of their patients. Such continuous education not only arms them with updated knowledge but also instills a culture of lifelong learning and adaptability, traits vital in the ever-evolving world of medicine. However, knowledge and training are only as effective as their practical application. Adhering to established safety protocols is paramount. These protocols, often developed through rigorous research and testing, lay down the best practices to ensure patient safety. However, their mere existence does not guarantee safety; it is their consistent application that makes the difference. Here lies a challenge – ensuring that every healthcare worker, irrespective of their role, adheres to these protocols at all times. Systemic checks, feedback mechanisms, and a culture of accountability are essential to ensure this adherence. In essence, the journey toward impeccable patient safety is a continuous one. The confluence of infection control practices, heightened awareness, regular training, and strict adherence to protocols form the bedrock of Nigeria's patient safety practices. Nevertheless, the dynamism of the healthcare sector demands constant vigilance, adaptability, and an unwavering commitment to the safety and well-being of all patients.

Patient safety initiatives in Nigerian Healthcare Settings

Nigerian healthcare settings are increasingly gravitating toward integrating robust patient safety measures rooted in global developments and local contingencies. Infection control, a globally recognized imperative, holds specific importance in Nigeria, especially given challenges such as crowded healthcare facilities, sporadic outbreaks of diseases like Lassa fever, and the recent experience with the COVID-19 pandemic. With the complexities of infectious diseases and the diversity of the Nigerian populace, localized strategies are being developed. These strategies range from enhancing hygiene practices in hospitals to creating awareness about the transmission of infectious diseases in local languages and formats that resonate with various communities.

The enhanced awareness of patient safety in Nigeria can be attributed to several factors. Media reports on medical oversights, health professionals' advocacy, and feedback from the patient community have created a more informed populace. Patients and their families are beginning to ask questions, seek clarity, and demand adherence to safety protocols. This change in the patient-doctor dynamic, from a traditionally hierarchical structure to a more collaborative one, is pivotal in driving patient safety initiatives.

Challenges and gaps in patient safety practices

The quest for impeccable patient safety practices in healthcare is an ongoing global endeavor, often hampered by distinct challenges. Resource constraints, training and education deficiencies, and communication and report barriers were the identified challenges hindering patient safety practices.

Among these challenges, resource constraints stand out prominently. Many health-care settings, especially in low-to-middle-income countries, grapple with outdated or insufficient facilities that might not adhere to modern safety standards. The absence of necessary medical equipment or reliance on outdated tools can compromise patient safety. Moreover, intermittent supply chains can lead to the unavailability of essential medical supplies or medications. Furthermore, adequate staffing is crucial. Overburdened health-care professionals can become prone to errors, whether due to fatigue, burnout, or the sheer volume of patients they cater to.

Effective communication is another backbone of patient safety, but it comes with impediments. In some health-care systems, a rigid hierarchy can deter junior staff from voicing concerns or reporting potential errors. Fear of blame, professional repercussions, or legal actions might prevent health-care professionals from reporting mistakes or near-miss incidents. In addition, in the absence of a streamlined, anonymous, and user-friendly reporting system, many safety incidents might go unreported and, consequently, unaddressed. Continuous education, undeniably, is the linchpin of patient safety. However, some educational institutions might still follow an old curriculum that does not emphasize contemporary patient safety norms and practices. While theoretical knowledge is essential, the importance of hands-on training, simulations, and real-world scenario drills cannot be understated, as they instill confidence and preparedness in health-care professionals. Moreover, patient safety is not solely about clinical acumen. Soft skills such as effective communication, teamwork, and empathy play a pivotal role. Without training in these skills, there can be miscommunications, misunderstandings, and, ultimately, compromised patient safety.

DISCUSSION

Raising awareness is a pivotal step in the journey to improve patient safety. It is the platform upon which training initiatives and adherence to protocols can be built. An informed health-care workforce is better equipped to prevent mishaps and offer optimal care. Nwosu *et al.*[24] unveiled a striking finding in their study: a significant number of surgeons in Enugu, Nigeria, lacked awareness about patient safety. This lack of awareness among such a critical group of health-care professionals points toward the dire need for interventions to boost knowledge and awareness about patient safety principles in surgical settings.

Similarly, Ogoina *et al.*[21] investigation into the knowledge, attitude, and practice of standard precautions of infection control among hospital workers in two tertiary hospitals in Nigeria hinted at gaps in awareness. While the study aimed at evaluating adherence to precautions, understanding and awareness of why these precautions are essential form the bedrock of such practices. Their findings further emphasize the urgent need for widespread awareness campaigns and educational initiatives. Furthermore, Uneke *et al.*[31] study, which centered around promoting hand hygiene practices in a Nigerian teaching hospital, also touches on the theme of awareness. Although their focus was on promoting a specific practice, the need for such promotions underscores a potential lack of awareness about the importance of hand hygiene in preventing hospital-acquired infections. On a different yet related note, Manga *et al.*[32] exploration into the antibiotic prescribing habits of primary healthcare (PHC) workers in Northern Nigeria brings forth concerns regarding awareness of global antimicrobial resistance trends. Their study suggests that there is a need for increased awareness about judicious antibiotic use and its implications on patient safety and global health.

In the dynamic world of healthcare, where new diseases, technologies, and methods of treatment continuously emerge, training remains at the heart of patient safety. It serves as the bridge between theoretical knowledge and practical application, ensuring that health-care professionals are not just informed but also competent in their patient care activities. Fajemilehin *et al.*[23] embarked on a study to understand the safety practices employed by perioperative nurses in select tertiary health institutions in Nigeria. One could argue that the foundation of such safety practices is rooted in effective training. The study underscores the fact that the world of surgery is rapidly evolving, with new equipment, procedures, and safety protocols being introduced regularly. In such a fast-paced environment, perioperative nurses, who play a crucial role in ensuring surgical safety, must receive consistent and updated training. Their preparedness, accuracy, and confidence in handling surgical equipment and assisting surgeons can significantly influence the outcome of surgical procedures. Hence, the need for them to be continually updated with the latest safety practices cannot be overstated.

Delving into infection control, Ogoina *et al.*[21] assessed hospital workers' knowledge, attitude, and practice of standard precautions. Hospital-acquired infections pose a grave risk to patient safety, and their prevention hinges on the health-care professionals' knowledge and adherence to infection control protocols. While many may be aware of the basics, the nuances and updates in infection control can only be captured through regular training. The study's findings show that even with a basic understanding, the depth and breadth of knowledge, combined with the right attitude, are cultivated through structured training interventions. This not only equips hospital workers with the right tools but also reinforce the importance of these precautions in their day-to-day duties.

Shifting the focus to one of the most basic yet crucial aspects of patient safety, Uneke *et al.*[31] spotlighted the importance

of hand hygiene. The study indirectly emphasized the pivotal role of training by initiating a hand hygiene strengthening program in a Nigerian teaching hospital. Hand hygiene, though basic, is a practice that requires regular reinforcement. Hospital workers, in the midst of their hectic schedules, may inadvertently overlook this practice. Regular training sessions not only refresh their knowledge but also underscore its importance in preventing hospital-acquired infections. It becomes a reminder that such a simple act can significantly reduce the risk of transmitting infections.

Drawing from these studies, it is evident that training is not a one-off event in the healthcare sector. Instead, it is a continuous process that ensures that healthcare professionals stay updated, competent, and aware of the best practices, guaranteeing the highest level of patient safety. Consistent adherence to established safety protocols is a cornerstone of patient safety. A lapse in this can lead to a plethora of adverse patient outcomes ranging from mild discomforts to severe life-threatening situations. In the context of surgery, Nwosu *et al.*[24] pointed out a significant lack of patient safety awareness among surgeons in Enugu. Although their study primarily focused on awareness, the underlying implication is that unawareness can lead to non-adherence to safety protocols, putting patients at considerable risk during surgical procedures.

Moving to the perioperative settings, Fajemilehin *et al.*[23] took a closer look at the safety practices employed by perioperative nurses in southwestern Nigeria. Their study showed the critical importance of adhering to safety procedures to mitigate the risks associated with surgical interventions. Infection control, another significant domain in patient safety, was highlighted by Ogoina *et al.*[21] Their study assessed the knowledge, attitude, and practice of standard precautions of infection control among hospital workers in two tertiary hospitals in Nigeria. Adherence to these standard precautions is not only vital for the health and safety of the patients but also crucial for the healthcare providers to prevent potential healthcare-associated infections.

Emphasizing further infection control, Uneke *et al.*[31] spotlighted the role of hand hygiene, a foundational and universally acknowledged safety protocol in healthcare. Their study underscored the need for robust promotion of hand hygiene practices in Nigerian teaching hospitals, suggesting potential lapses in this basic yet critical safety measure. Finally, antibiotic resistance, a burgeoning global concern, can stem from non-adherence to established prescription protocols. Manga *et al.*[32] sounded alarms about the antibiotic prescribing habits among PHC workers in Northern Nigeria. Their findings allude to the crucial need for stringently following established guidelines and protocols for prescriptions to prevent drug resistance and ensure patient safety.

A robust healthcare system is fundamentally anchored on the effective implementation of safety protocols. However, when gaps and inconsistencies manifest in practice, they may compromise the integrity of patient care, leading to avoidable risks and mishaps. Ogbolu *et al.*[20] shed light on this concern, focusing on the challenges nurses in Nigeria face regarding patient safety. While their study chiefly revolved around nurses, the implications reverberate across the health-care spectrum, underscoring the possibility that non-adherence to safety guidelines can imperil patient health, especially in low-resource settings. Delving deeper into specific health-care environments, Ezeuko *et al.*[25] provide a discerning analysis of the practice gaps and associated challenges in a tertiary hospital in Nigeria. Their insights underscore the fissures in patient safety culture, suggesting that despite the existence of safety protocols, the actual practice on the ground often deviates from these established norms. Such inconsistencies not only jeopardize patient health but also erode trust in the health-care system.

An overarching view provided by Konlan and Shin[33] in their systematic review further cements this concern. By examining patient safety across various health-care institutions in Africa, they reiterate the challenges in communication among health-care professionals – a foundational aspect of implementing safety protocols. Inefficient or flawed communication can lead to misunderstandings, missed steps, and uncoordinated care, all of which can significantly endanger patient safety. Finally, the narrative review by Muhammad-Idris *et al.*[34] on disasters and hospital safety in Nigeria offers a holistic perspective. By emphasizing the challenges faced in disaster scenarios, such as the large gap between policy and actual implementation, they illustrate the dire consequences of these practice gaps. Events like the flood of 2012, which had severe repercussions on the health sector, show that the nation remains vulnerable to magnified health crises during disasters without effectively addressing these challenges in implementing safety protocols.

In a world of ever-evolving medical advancements and sophisticated healthcare interventions, resource constraints emerge as a formidable barrier, often hindering the optimal delivery of care and compromising patient safety. This challenge is pronounced in settings where the infrastructure is still developing, and financial, human, and material resources are limited. Starting with Ogbolu *et al.*,[20] the study accentuates that resource constraints are palpable even in crucial disciplines such as maternal, neonatal, and child health nursing. As highlighted by the study, the low-resource settings in Nigeria can lead to gaps in patient safety, with nurses often grappling to provide quality care amidst these constraints. These limited resources can range from inadequate medical supplies to the shortage of trained personnel, all translating to compromised care standards.

Iloh *et al.*[16] also emphasize this issue, particularly targeting medical doctors. Their research in Southeast Nigeria points out that limited resources, especially in areas with insufficient advanced medical equipment or high patient-to-doctor ratios, can amplify safety incidents. Such constraints often force medical professionals to make challenging decisions, sometimes at the expense of patient safety. Kaware *et al.*'s[27] situational analysis among nurses also emphasizes the theme of resource constraints. Even though their primary focus was on patient safety culture, the backdrop of their study is set in public hospitals in Katsina, a region where resource challenges are considerable. These challenges can indirectly influence the safety culture, with nurses potentially having to navigate their duties amidst shortages or under-equipped facilities.

Taking a broader perspective, Konlan and Shin,[33] in their systematic review, while examining the status of patient safety across African healthcare institutions, touch on resource constraints as a recurring challenge. Institutions struggling with limited resources often find it challenging to implement modern safety protocols or ensure continuous training of their staff, thus heightening the risk to patient safety. In essence, these studies collectively illustrate the domino effect of resource constraints in Nigeria's health-care sector. While the immediate implications are on health-care delivery, the cascading effect influences patient safety, professional morale, and overall trust in the healthcare system. Addressing resource constraints is thus paramount, not just for the immediate improvement of patient care but for the long-term resilience and reputation of the health-care sector in Nigeria.

Effective communication and efficient reporting mechanisms are quintessential pillars of healthcare that, when optimized, lead to improved patient outcomes and safety. When these systems are deficient or malfunctioning, patient safety can be gravely compromised, making it imperative to address and rectify them in health-care settings. Starting with Ezeuko *et al.*'s[25] exploration of the tertiary hospitals in Nigeria, one of the pivotal concerns was communication gaps. A hospital's functionality is contingent on the seamless transmission of vital information, and any hindrance in this flow can lead to significant gaps in patient safety. In this particular setting, the study showed how barriers to effective communication often resulted in practice gaps, reflecting the adverse implications such impediments can have on care quality and patient outcomes.

Iloh *et al.*'s[16] research into patient safety among medical doctors in Southeast Nigeria further solidified the theme of communication barriers. Their study revealed that communication was the most commonly identified barrier to patient safety. This means that crucial information about a patient's health status, treatment plans, or other essential health-care processes might be lost in translation, leading to potential mishaps or misunderstandings that could compromise patient health. Furthermore, Konlan and

Shin's[33] systematic review, which paints a broader picture of patient safety across African healthcare establishments, echoes the same sentiment. Communication barriers frequently emerge as significant impediments, making it challenging to maintain uniformity in patient care and ensure that all health-care providers are on the same page regarding treatment protocols and patient history.

On the aspect of reporting, Iloh *et al.*[16] highlight the critical importance of a patient safety incident reporting system. Such a system is vital for learning from past mistakes and making necessary amendments. In their study, it was recognized as the most common preventive measure. This accentuates the pressing need for robust reporting systems to document, assess, and rectify any lapses in patient care. However, the absence or inefficiency of such systems can lead to recurring mistakes, with health-care professionals deprived of the opportunity to learn and improve.

Education and training form the backbone of any professional sphere, and this holds especially true for healthcare, where the stakes involve human lives. Consistent training and timely education updates are paramount to ensuring that health-care professionals are equipped with the latest knowledge and skills to ensure patient safety. When there are deficiencies in these areas, it creates vulnerabilities in the healthcare system that can lead to compromised patient care and safety. Ogbolu *et al.*'s[20] study of nurses in Nigeria shed light on a critical issue: many of the nurses reported that they never received any patient safety training. This stark revelation underscores the risk posed to patients when healthcare professionals lack foundational knowledge about best practices for ensuring safety. This gap in training can lead to inadvertent errors or oversight, which can have serious repercussions for patients.

Similarly, Kaware *et al.*,[27] in their situational analysis of nurses in Katsina Public Hospitals, emphasized the role of knowledge and awareness in shaping patient safety culture. Their study elucidated that a lack of awareness about safety culture among nurses could be attributed to education and training deficiencies. This again echoes the sentiment that continuous training is crucial in fostering a culture that prioritizes and ensures patient safety.

Ezeuko *et al.*,[25] in their examination of a tertiary hospital in Nigeria, pinpointed the challenges related to practice gaps. One can infer that these practice gaps might stem from a lack of proper training and education on patient safety protocols. When healthcare professionals are not adequately trained or educated about the nuances of patient care safety, it creates a domino effect where these gaps in knowledge translate to gaps in practice. Muhammad-Idris *et al.*[34] delved into hospital safety, particularly in disasters. Their research emphasized the glaring deficiency in knowledge and education concerning the Hospital Safety Index (HSI). In disaster-prone regions like Nigeria, where calamities such

as floods and insurgencies are not uncommon, the lack of proper knowledge about hospital safety during such events can be detrimental. Proper training and education on HSI become imperative to ensure that hospitals remain functional and can provide care during and after disasters.

Recommendations

To enhance patient safety in the Nigerian health-care landscape, it is imperative to invest in strengthening infrastructure, ensuring the availability of essential equipment, and maintaining adequate staffing levels. Institutions must foster a culture of open communication, dismantling hierarchical barriers, and encouraging transparent reporting of errors without fear of retribution. Moreover, continuous, hands-on training and education must be prioritized, integrating both clinical acumen and essential soft skills. Collaborative efforts across all tiers of healthcare are essential to cultivating an environment that champions patient safety at its core.

CONCLUSION

In the intricate landscape of Nigerian healthcare, patient safety stands as an imperative, yet its realization is often hindered by systemic, cultural, and practical challenges. Resource constraints, whether in infrastructure, equipment, or workforce, can strain the system, rendering it prone to errors. Similarly, the intricacies of communication barriers, driven by hierarchical norms and fears of repercussion, can inhibit the transparent flow of crucial safety information. Meanwhile, gaps in contemporary training and education underscore the pressing need to constantly evolve in response to the dynamic nature of medicine and patient care. Ultimately, the journey toward holistic patient safety requires an unwavering commitment to addressing these challenges. It mandates a collective endeavor where every stakeholder, from a novice nurse to a seasoned physician, actively participates in creating an environment where every patient is treated with the highest standards of care and safety.

Ethical approval

The Research and Human Resource Committee of the Faculty of Social Sciences, Obafemi Awolowo University, Ile-Ife, Osun State, Nigeria, gave their approval for the study. This was obtained after the lead author completed his course on 'Introduction to Ethics' with Training and Resources in Research Ethics Evaluation on 25/03/2023, with reference number REV: 20230217.

Declaration of patient consent

Patient's consent not required as there are no patients in this study.

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Conflicts of interest

There are no conflicts of interest.

Use of artificial intelligence (AI)-assisted technology for manuscript preparation

The authors confirm that there was no use of artificial intelligence (AI)-assisted technology for assisting in the writing or editing of the manuscript, and no images were manipulated using AI.

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