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Perceptions, Reporting Willingness, and Support Systems for Medical Errors among Healthcare Workers: Insights from Sub-national Ghana

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ABSTRACT

Background: Medical errors pose a significant challenge to patient safety and result in avoidable patient morbidity and mortality, as well as increased cost of healthcare worldwide. Healthcare workers in Ghana face barriers to reporting these errors, particularly in subnational settings that often have fewer resources and support systems. Understanding the perceptions, willingness to report and availability of support systems for medical errors is essential important to improve patient safety in the region.

Objectives: This study sought to examine healthcare workers' perceptions of medical errors, assess their willingness to report these incidents, and examine the support systems available for error reporting.

Methods: The study employed an illustrative case study design to purposively sample 45 health workers from different health facilities in Ghana's Central Region. Data was collected using semi-structured interviews, with thematic analysis of interview data conducted.

Findings: The findings revealed that healthcare workers generally agree that medical errors are preventable. However, opinions differ regarding the severity of minor errors. Contributing factors include high workloads, limited resources, and gaps in training. Many healthcare workers feel a moral obligation to report errors, but fear of blame and punitive consequences, especially for junior staff, often discourages them from doing so. Additionally, support systems for reporting errors vary. Larger hospitals tend to have formal procedures in place, while smaller facilities often rely on informal methods. The lack of feedback and follow-up after reporting, along with insufficient training, further hinders effective error reporting.

Conclusion: This study emphasizes the key barriers to error reporting. It highlights the importance of fostering a non-punitive culture, establishing standardized protocols, providing ongoing training, and implementing effective feedback mechanisms. By addressing these challenges, patient safety can be significantly enhanced, as well as creating a more supportive environment for healthcare workers in low-resource settings

Keywords: Medical errors, Error reporting, Healthcare workers, Patient safety, Support systems

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INTRODUCTION & BACKGROUND

Over the last decade, the issue of medical errors and its implications on patient safety have received increased attention in the health systems literature. Medical errors—defined as preventable events that may lead to patient harm (WHO, 2022)—represent a significant global challenge and are a leading contributor to patient morbidity and mortality throughout healthcare systems worldwide. The World Health Organization (WHO, 2022) has indicated that approximately one in ten patients experiences harm during hospital care as a result of preventable errors. This revelation underscores the need for stronger patient safety systems. Further, previous studies have reported 1.5% of medical errors associated with prescribed medications in the United Kingdom (UK) (Cofie et al., 2021) and 6.2% in the United States of America (USA) (Ali et al., 2017). The negative effects of medical errors have also been largely recorded in literature. These include extended hospital stays, increased healthcare costs, reduced patient trust, and in severe cases, avoidable deaths (Bailer-Jones et al., 2021). In the USA, avoidable deaths resulting from medical errors amount to an estimated 7000 deaths annually (Cofie et al., 2021). Recognizing these consequences, many countries have intensified efforts to understand and mitigate medical errors to improve healthcare quality and patient outcomes (Manias et al., 2020).

Several high-income countries such as the USA, the UK, and Canada, have implemented strong reporting systems and policies which are aimed at managing medical errors, as well as allowing staff to learn from such errors. These countries have created national patient safety policies that foster an environment in which medical professionals feel comfortable and supported in disclosing mistakes (Aouicha et al., 2022). However, research shows that underreporting continues due to a number of reasons, including fear of legal action, stigma, and career repercussions (Derese & Agegnehu, 2022). Further, although high-income nations have taken action to address these problems, low- and middle-income countries (LMICs) have been reported to have greater reporting obstacles because of their limited resources and undeveloped patient safety systems, which make controlling medical errors especially challenging (Bhattarai et al., 2023).

In Africa, the health system continues to face certain challenges which contribute to a higher risk of medical errors. These challenges include shortage of trained health personnel, inadequate resources, and some systemic weaknesses (Corburn et al., 2020). All of these challenges increase the risk for adverse events in the course of patient care. Research has also shown that healthcare workers in Africa frequently encounter some barriers to reporting errors. These include the fear of punishment, lack of organizational support, and limited protective policies for individuals who report incidents (Aljabari & Kadhim, 2021). For instance, a study conducted in South Africa revealed that even though health workers understand the importance of reporting medical errors, the resulting punitive consequences often deter them from reporting (Nkosi, 2024).

Amidst these obstacles, the necessity of more robust error reporting systems to enhance patient safety and treatment quality is becoming increasingly apparent in African nations (Tamuno-opubo et al., 2024).

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Although some African countries have started frameworks and training programs to promote error reporting, there are still notable gaps at the regional and sub-national levels. This is because these initiatives are mostly focused on urban areas or at the national level (Mensah et al., 2023). Studies on medical error reporting procedures are not readily available in the Ghanaian health systems literature. Available studies tend to concentrate on more general patient safety issues, and specifically medication administration errors (Sabblah et al., 2014; Acheampong et al., 2016; Owusu et al., 2022). A study conducted by Acheampong et al., (2016) to examine the medication administration errors at some tertiary healthcare facilities in Ghana revealed that approximately 27.2% of 1332 medications administered had errors committed by health workers. That notwithstanding, only 20% of adverse drug reactions resulting from medication administration errors were reported (Sabblah et al., 2014).

In addition to these, Ghana faces specific challenges which have found to be associated with medical errors. These include the blame culture in Ghana's health system; where medical errors are met with punitive consequences (Boakye et al., 2024); lack of safety tools and equipment in some contexts (Poku et al., 2023), and adverse practitioner-patient interactions, in most cases, resulting in low levels of informed consent during medical procedures (Botchwey et al., 2024).

Further, although the Ministry of Health has prioritized patient safety through policies such as the National Health Policy and Patient Charter, implementation of these policies is often inconsistent across the different regions. This is especially true at the subnational level, where there may be fewer resources and support structures (Boye et al., 2024). The disconnect between policy and frontline practice has created a substantial knowledge gap about healthcare professionals' attitudes toward medical errors, their propensity to report errors, and the kinds of support that are accessible to them as a result of the policy-frontline practice divide. Ghana's absence of a structured system for reporting medical errors; especially at the facility level further puts the quality of healthcare in danger, particularly at the subnational level where medical providers might not have the institutional support they need to report and deal with medical errors. Further, anecdotal evidence, coupled with a review of the health systems literature revealed that the predominant structured system for reporting medical errors in Ghana has to do with reporting adverse drug reactions and/or medication errors to the Food and Drugs Authority (FDA) (FDA, 2020). Facility level reporting systems are largely unstructured, and require health workers to inform their ward in-charges of supposed medical errors. This unstructured nature leaves room for health workers to choose not to report the said error.

According to research, promoting a culture of safety and raising the standard of healthcare depends on how healthcare professionals view medical errors, how ready they are to disclose them, and what support networks are accessible to them (Sufiyan et al., 2023). But in Ghana, these factors are not well understood, especially in subnational settings. This study therefore aims to examine the perceptions of medical errors among healthcare workers, the willingness of healthcare workers to report medical errors, and the support

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systems regarding medical error reporting among healthcare workers at the subnational level in Ghana.

EMPIRICAL LITERATURE REVIEW

Perceptions of Medical Errors among Healthcare Workers

Recent studies have shown that healthcare workers' perceptions of medical errors are highly variable and depend on factors such as organizational culture, training, and individual beliefs about patient safety. For example, Alshammari et al. (2020) study in Ethiopia revealed that while healthcare workers generally recognized the frequency and potential harm of medical errors, they expressed varying attitudes toward the admission and discussion of these errors. Part of this variability was attributed to insufficient training on error recognition and response, especially in subnational health facilities.

Further, another study from Saudi Arabia by Asgarian et al. (2021) indicated that even though nurses knew the importance of reporting medical errors, there was a perception of errors through fear of blame and negative consequences. These findings underline the necessity for facilities in the healthcare system to foster an 'error-free culture,' which is very important in the accuracy of reporting and eliminating errors. Similar patterns were shown in a multi-center study from Nigeria, where it was indicated that the perception of errors is related to the pressures at the workplace and the availability (or lack) of resources to prevent errors (Desai et al., 2021).

In the Ghanaian context, there is limited literature specifically addressing healthcare workers' perceptions of medical errors. However, available studies suggest that systemic issues such as high patient loads, understaffing, and equipment shortages contribute to healthcare workers' perceptions that errors are often beyond their control. For example, A study by Bam et al., (2021) examined nursing students' perceptions of medical errors in Ghana. The findings revealed that 76% of respondents identified medication errors as the most common type of medical error. Negligence was perceived as the leading cause by 80.5% of participants. Additionally, a significant proportion believed that nurses (84.5%) and doctors (89.5%) are the staff members most likely to commit medical errors. The study also found that nursing students attributed their own errors to limited procedural knowledge (79%) and inadequate supervision (77%) during clinical practice. Similarly, another study by Nukpezah et al., (2024) conducted at Yendi Municipal Hospital in Ghana examined pediatric nurses' perceptions of factors contributing to medication administration errors (MAEs). The findings revealed that inadequate training (91.6%), poor supervision (92.3%), misunderstanding medical abbreviations (88.8%), improper handover (88.8%), and dosage miscalculations (83.9%) were significant contributors to MAEs. Additionally, inadequate staffing (77.6%), eagerness to sign out shifts (70.6%), and illegible handwriting (81.8%) were identified as contributing factors. Significant associations were found between MAEs and the type of unit/ward (X^2=6.25, p = 0.012) and educational level (Fisher Exact test = 4.20, p = 0.036)

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Willingness to Report Medical Errors

Underreporting of medical errors has been a persistent issue in the literature, usually due to the reluctance of healthcare workers out of the fear of disciplinary actions or legal repercussions. For example, in a study of healthcare workers in India, Raja et al. (2023) found that only 40% of the respondents reported an error they witnessed, usually for the fear of personal repercussions. This study further pointed out that the willingness of health workers to report errors was higher in institutions with clear non-punitive policies where the workers felt protected from potential disciplinary actions.

Similar results were realized in a study by Levine et al. (2020) in Kuwait. In this study, the authors noted that healthcare providers were more inclined to report errors if they perceived their organization as placing a priority on patient safety over punitive measures. This study has advanced the recommendation that error reporting can significantly improve if supportive policies are adopted in healthcare facilities with a decrease in punitive measures.

In Ghana, a study assessing patient safety culture in Ghanaian healthcare facilities found that the majority of health professionals had reported adverse events in the past 12 months, indicating a general willingness to report errors (Abuosi et al., 2022). Another study by Poku et al., (2023) also highlighted that effective teamwork, handoffs and information exchange, and communication openness were significant predictors of responses to patient safety incidents, accounting for 28.3% of the variance. These findings suggest that fostering a supportive environment with open communication and strong teamwork can enhance healthcare workers' willingness to report medical errors, thereby improving patient safety outcomes. However, challenges remain. Another study focusing on nurses' refusal to report medication administration errors identified barriers such as fear of blame and lack of feedback, which can hinder error reporting (Boakye et al., 2024).

Medical Error Reporting Systems in High-Income Countries and Lessons for Ghana

Many high-income countries have established effective medical error reporting systems globally. These systems are largely aimed at enhancing patient safety through learning rather than punishment (Carson-Stevens et al., 2016). These systems typically include standardized procedures, advanced technology, and a strong culture of safety.

In the UK, the National Reporting and Learning System (NRLS) managed by the NHS serves as a structured reporting system for medical errors (Carson-Stevens et al., 2016), The NLS is nationwide, anonymous and allows healthcare workers to report medical errors, near misses, and adverse events. The system focuses on a non-punitive approach to error reporting, which seeks to identify trends and implement systemic changes rather than assigning blame to individuals. A key feature of the NRLS is its use of aggregated data to produce national learning reports. These reports inform policy and training programs

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aimed at preventing future errors (Katikireddi, 2004).

Similar to what is practiced in the UK, the Patient Safety Reporting System (PSRS) is also run in the USA. In the USA, the PSRS is implemented by the Agency for Healthcare Research and Quality (AHRQ) (Pronovost et al., 2008). The PSRS allows for the voluntary and confidential reporting of medical errors by health workers. The system integrates technology to streamline the reporting process and offers protections to healthcare workers who report errors in good faith. Also, the system encourages learning by disseminating lessons from reported errors through regular bulletins and safety advisories (American Data Network, 2023).

In Canada, Critical Incident Reporting Systems (CIRS) (NSIR, 2024) are widely used at both provincial and institutional levels to capture and analyze adverse events. These systems focus on identifying systemic weaknesses rather than assigning individual blame. Additionally, Canada emphasizes feedback loops, ensuring that healthcare workers who report incidents receive updates on how the issues are addressed. This approach fosters trust and accountability within the healthcare system.

Lastly, Japan has a national incident reporting system overseen by the Japan Council for Quality Health Care (JCQHC), which requires hospitals to report errors and near misses. This system is particularly noteworthy for its focus on educational interventions. By analyzing the reported errors, hospitals can create training programs and implement preventive measures to address recurring problems (Japan Council for Quality Health Care (JQ), 2017.; Japan Council for Quality Health Care:Kyouwakai Healthcare Corporation Hannan Hospital, 2021.).

All the structured medical error reporting systems which have been discussed above have salient similarities. They are all non-punitive, incorporate confidentiality and anonymity, integrate seamless technology, provide feedback mechanisms and encourage learning and education of the health worker. These features could be adapted into Ghana's health system particularly at the subnational level. This will go a long way establish a structured, supportive, and effective error reporting system, which could reduce the barriers to error reporting in Ghana. Nonetheless Ghana's unique challenges, such as resource constraints and cultural barriers (Abuosi et al., 2022), will require a phased implementation approach such as multiple pilot testing to get the system suited for use in the health system.

Support Systems for Reporting Medical Errors

Support systems, such as reporting protocols, managerial support, and training programs, greatly help in facilitating medical error reporting. In a cross-sectional study in South Africa, Gates et al. (2021) investigated the impact of support systems on reporting rates. They found that the likelihood of healthcare workers reporting an error doubled with the availability of reporting mechanisms and management support. Importantly, this study highlighted that the lack of formalized reporting systems at smaller, subnational

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facilities contributed to underreporting.

Another study in Australia found that electronic error reporting systems increased reporting frequency by reducing complexity and time spent on reporting (Alexiuk et al., 2024). They further underlined the role of a supportive culture and adequate follow-up on reported errors since merely providing an error-reporting system was not enough without an organizational commitment to safety and learning from errors.

From the above, it has been established that the incorporation of support systems for reporting medical errors is crucial for enhancing patient safety and healthcare quality (Gates at al., 2021; Alexiuk at al., 2024). That notwithstanding, literature on context-specific support systems for reporting medical errors within the Ghanaian health system were not readily available.

Factors Affecting Error Reporting at the Subnational Level

Recent literature has highlighted the singular challenges within subnational contexts, such as scarce resources and weak policy implementation that hinder healthcare workers' abilities to report errors. A recent study in Kenya by Moturi et al., (2023) found that subnational healthcare workers were less likely to report errors due to a lack of managerial support, no standardized reporting protocols, and fear of reprimand. The study recommended that decentralized health care systems adopt context-specific strategies in supporting error reporting, including adapting protocols to the resource levels of smaller facilities.

A related study by Ngivu, (2022) in Nigeria noted other barriers that hinder health workers in rural areas, which include lack of training on error reporting and clarity around reporting procedures. The authors concluded that focused support mechanisms, such as regular training and feedback, are likely to increase rates of reporting at subnational facilities and with that contribute to a culture of safety across all levels of the healthcare system. These findings are similar to findings from subnational Ghana. In Ghana, the willingness of healthcare workers to report medical errors is influenced by various factors, including organizational culture, teamwork, communication openness, and individual perceptions of error reporting (Abuosi et al., 2022; Boakye et al., 2024; Poku et al., 2023).

THEORETICAL FRAMEWORK

In this study, the Just Culture Theory was adopted as the primary theoretical framework to guide the research design, data collection, and interpretation of findings. Developed by Dekker (2016), Just Culture Theory emphasizes the balance between learning from errors and ensuring individual accountability. This theory advocates for a supportive environment where healthcare workers feel safe to report mistakes without fear of blame, while still holding individuals responsible for deliberate or reckless behavior.

Dekker argues that most errors are not the result of individual negligence but rather the outcome of systemic flaws and process gaps. Consequently, the theory advocates for a balanced approach that promotes

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accountability while encouraging open communication about mistakes. A key principle of Just Culture Theory is the recognition of human fallibility; the idea that errors are inevitable, even among well-trained and experienced professionals. Dekker stresses that punishing individuals for unintentional mistakes is counterproductive; instead, organizations should focus on understanding the broader conditions that contributed to the error. This approach allows healthcare institutions to identify system weaknesses, such as poor communication channels, inadequate staffing, or unclear protocols, and implement strategies to reduce error risks.

Another fundamental aspect of the theory is system accountability. Dekker emphasizes that organizations hold responsibility for creating environments that minimize the likelihood of errors. This includes investing in staff training, improving reporting mechanisms, and fostering a culture where employees feel safe to report mistakes without fear of blame. By addressing system-level vulnerabilities, healthcare institutions can create safer environments for both patients and staff.

Just Culture Theory was particularly relevant for this study because it addresses the challenges healthcare workers face when deciding whether to report errors. In applying this theory, the research questions were designed to examine both individual and institutional factors that influence error reporting behaviors. Data collection tools, including the semi-structured interview guide, incorporated questions that explored participants' experiences with organizational culture, managerial attitudes, and responses to error reporting; key elements emphasized in Just Culture Theory. Additionally, during data analysis, the coding process included thematic nodes that reflected concepts such as "fear of blame," "organizational support," and "feedback mechanisms," consistent with the framework's principles.

METHODS

In line with acceptable reporting standards, this study adhered to the Standards for Reporting Qualitative Data (Dossett et al., 2021). This methodology presents a report on the items on the SRQR checklist.

Study Design

This study employed an illustrative case study design to explore the complex realities of medical error reporting in a subnational Ghanaian healthcare context. An illustrative case study is a qualitative research approach used to provide an in-depth understanding of a particular phenomenon by illustrating key issues through real-life examples (Yin, 2018). This design was selected to demonstrate how systemic, cultural, and institutional factors influence healthcare workers' perceptions of, and willingness to report, medical errors. The illustrative design was particularly suited to highlighting the variability in error reporting practices across different healthcare facilities, illustrating both best practices and existing gaps in reporting systems.

Study Setting

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The study was carried out in selected public healthcare facilities in the Central Region of Ghana, a region that has an umbrella of both urban as well as rural health care facilities. Due to this, the study benefitted from the diversity of the facilities and representation of healthcare workers. These facilities were chosen because of publicized instances of medical errors in these facilities.

Population and Sampling

The population for this study was all healthcare workers within the Central Region of Ghana. This consisted of doctors, nurses, pharmacists, and other allied health professionals from the region. They were purposively selected due to their perception of being able to provide detailed information related to medical error incidents in the health setting. The selection was based on health workers who could have direct patient contact or could face situations where medical errors may occur or be reported. Other criteria for selection included respondents with a minimum of one year of clinical experience to ensure familiarity with patient care processes and potential error situations. Also, only respondents with full-time employment status were selected. This was to ensure consistent exposure to the institutional environment and reporting systems. Lastly, only respondents who were willing to participate in the study were selected.

Participants were sampled until data saturation was reached. Data saturation was deemed to have occurred when there was repeating information among the respondents, with no new themes occurring, together with consistency in the data (Mwita, 2022; Saunders et al., 2018). In total, 45 respondents were sampled from 2 hospitals, 2 health centers and 1 polyclinic. 45 respondents were deemed to be sufficient to achieve the objectives of the study as Hennink & Kaiser, (2022) indicated that studies using empirical data reached saturation within a narrow range of interviews (9-17) or focus group discussions (4-8), particularly those with relatively homogeneous study populations and narrowly defined objectives. Although Hennink and Kaiser (2022) suggest that data saturation in qualitative research is typically achieved within 9-17 interviews, this study expanded the sample size to ensure broader representation across various professional roles, facility types, and geographic locations. The expanded sample size allowed for the identification of diverse perspectives, particularly on the influence of organizational culture, managerial attitudes, and staff hierarchy on error reporting behaviors.

Instrumentation

A semi-structured interview guide was developed to examine the perceptions of healthcare workers toward medical errors, their willingness to report errors, and support systems in place. The guide consisted of open-ended questions to allow participants to describe their experiences, perceptions, and insights in their own words. The questions were developed based on the aims of the study and the relevant literature (Aithal & Aithal, 2020) so as to elicit datasets that would shed light on the diverse influences or determinants responsible for the reporting of errors in health systems. Pilot test of the instrument was conducted in two

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public hospitals in the Central Region which did not take part in the study. Pilot testing resulted in the refinement of specific interview questions on the research instrument. The questions were rephrased for clarity and specificity. This adjustment allowed for better understanding of the questions, so that they directly addressed the research objectives.

Data Collection Procedure

Each of the 45 healthcare workers were individually interviewed once. The interviews, which lasted an average of 60 minutes, were conducted in private settings for confidentiality purposes where the participants were made to feel comfortable to speak freely. Prior to participating in the interview, verbal consent was obtained from all participants, and also with consent were interviews audio-recorded to ensure accuracy of data recorded. After each interview, notes were taken summarizing key observations and audio files were transcribed verbatim to facilitate analysis. Data collection was done between April 2024 and August 2024.

Data collection was conducted using semi-structured interviews, designed to explore participants' perceptions of medical errors, their willingness to report, and the support systems available for reporting. Field notes were also taken to capture non-verbal cues and contextual factors that influenced participant responses.

Data Analysis

Thematic analysis of data was conducted (Braun & Clarke, 2023). Multiple readings of each transcript were conducted to develop a sound understanding of the data from the outset of the analysis. Meaningful segments of text relevant to the objectives of the study were systematically coded, including perspectives of medical errors, factors influencing propensity to report and existence / absence of supportive structures. These codes were then categorized based on larger themes that illustrated shared experiences or barriers described by participants. The themes were iteratively developed and validated to reflect accurately the depth and diversity of responses before synthesizing the final themes as key findings of the study.

Data Quality and Trustworthiness Criteria

The authors ensured rigor and trustworthiness through established criteria (credibility, transferability, dependability, and confirmability,) in this study. Trustworthiness of the data was also supported through comprehensive and thorough interviews which encouraged participants to clarify their experiences as much as possible. Member checking was also performed where participants were asked to review and validate summaries of their responses for accuracy. To address transferability, detailed descriptions of the context, sample and study setting were provided so that readers could make a judgment on whether the findings were applicable to similar settings. Further, dependability of the research was enhanced through use of an

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iterative interview guide and thorough documentation of the research process. Lastly, the authors ensured confirmability by keeping an audit trail of the data analysis process (including coding and theme development) to show how findings were rooted in participants' words.

Reflexivity Statement

As researchers, the authors came into this study knowing that both their professional history and personal experiences (health policy and systems researchers) would shape the way they processed the data. As healthcare lecturers, the authors felt comfortable with this subject matter, but were also quite biased as they both work in fields connected to it. To reduce these biases, the authors wrote reflectively throughout the study about how their viewpoints may have shaped not only the questions that they asked, but also how they understood participants' responses.

Ethical Considerations

Ethical approval for this study was obtained from University of Education, Winneba Ethical Review Board (UEWERB) before this study began. Ethical clearance number was UEWC/32. Management of the healthcare facilities included in the study also granted permission. They were assured that their responses would be confidential, that they were free to remove themselves from the study at any time, and were told of the purpose and possible value of the research. Written informed consent was obtained from all participants prior to data collection. Participants were assured of confidentiality, with pseudonyms assigned to all respondents to protect their identities. Interview recordings and transcripts were securely stored in password-protected files accessible only to the research team.

PRESENTATION OF FINDINGS

Demographic Characteristics of Respondents

The demographic characteristics of the respondents are presented in Table 1. These include the gender, age, profession, years of experience, and department/unit of the respondents.

Table 1: Demographic Characteristics of Respondents

Characteristic	Frequency (n = 45)	Percentage (%)
Gender		
Male	18	40%
Female	27	60%

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Age		
20-29 years	12	27%
30-39 years	20	44%
40-49 years	9	20%
50 years and above	4	9%
Profession		
Doctor	10	22%
Nurse	25	56%
Pharmacist	5	11%
Allied Health Professional	5	11%
Years of Experience		
1-5 years	15	33%
6-10 years	18	40%
11-15 years	8	18%
16 years and above	4	9%
Type of Facility		
Hospital	20	44%
Health Center	20	44%
Polyclinic	5	12%
Department/Unit		
Emergency Care	10	22%
Internal Medicine	8	18%
Surgery	12	27%
Outpatient Services	7	16%

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Pharmacy	5	11%
Other Allied Health Units	3	7%

Source: Field Data, (2024)

The sample size was 45 healthcare workers who were purposively sampled from 2 hospitals, 2 health centers and 1 polyclinic in the Central Region of Ghana. 10 respondents (44%) were sampled from hospitals, 10 (44%) from health centers, and 5 (12%) from the polyclinic. In the community, the hospitals serve as the first level of care. The hospitals manage more complex health issues that cannot be handled at health centers or CHPS compounds. They typically have inpatient facilities and a wider array of medical staff, including general practitioners and nurses. The health centers provide primary healthcare services and are usually found in both rural and urban settings. Polyclinics, predominantly located in urban (and peri-urban) areas, offer a broader range of services, including outpatient care, maternal and child health services, and minor surgical procedures.

There were more females (60%) than males (40%). Most respondents were in the 30-39 years age group (44%), followed by those in the 20-29 years age group (27%). A small proportion of participants were above 50 years.

Looking at the professional role, the highest percentage of respondents were nurses (56%), followed by doctors (22%), pharmacists (11%), and allied health professionals (11%). This reflects the general composition of the workforce in health care, where in many health care facilities, nurses tend to constitute the largest population. Further, most of the participants (40%) reported having 6-10 years of healthcare experience; 33% had less than 5 years of experience. Another small group of respondents (9%) represented staff with more than 16 years of experience. Lastly, the respondents were from quite a number of departments, with the largest portion being surgery (27%) and emergency care (22%), then internal medicine (18%), and outpatient services (16%).

Perceptions of Medical Errors

The first objective for this study sought to examine the perceptions of health workers on medical errors. Findings for this objective are presented in the following themes: understanding and definition of medical errors, contributing factors to medical errors, emotional impact and professional concerns.

Understanding and Definition of Medical Errors

The majority of healthcare workers showed a basic grasp of medical errors, often describing them as avoidable incidents or actions that endanger patient safety. However, the depth of this understanding varied. Some participants considered errors as broader issues, covering both clinical and administrative lapses.

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One nurse explained,

> "*To me, a medical error is any action or inaction that could put the patient at risk, even if it's something small like a delay in administering medication*" (Nurse, Health Center, 8 years of experience). Another respondent echoed this, saying, "*It's not just major mistakes; even a minor oversight, like missing a dose, qualifies as an error because it can have serious repercussions*" (Pharmacist, Hospital, 5 years of experience).

This broader perspective reflects a growing awareness that errors extend beyond direct clinical actions to include system-level failures such as communication breakdowns and procedural lapses. However, some healthcare workers were hesitant to classify minor oversights as errors, particularly in high-stress settings. Notably, some healthcare workers were more cautious about labelling minor oversights as errors, especially in high-stress situations where certain lapses felt unavoidable. As one junior doctor noted,

> "*Sometimes we do our best, but the circumstances don't allow perfection. I wouldn't classify it as an error if we're working with limited resources and doing the best we can*," (Doctor, Hospital, 3 years of experience).

This viewpoint illustrates a tension between professional accountability and external constraints, where some staff rationalize errors as unavoidable in resource-constrained environments. This highlights the need for clearer institutional definitions of medical errors to ensure consistency in what healthcare workers perceive as reportable incidents. According to Just Culture Theory, ambiguous definitions can undermine reporting systems by creating uncertainty about what qualifies as an error.

Contributing Factors to Medical Errors

Participants identified several key factors driving medical errors, underscoring the interaction between individual limitations and systemic challenges. Many pointed to high patient volumes and insufficient staffing, noting that these pressures often hindered efforts to uphold strict standards.

> "*For each of us here, the patient load is almost twice what it should be. When you're stretched this thin, mistakes are almost inevitable, even when you're doing your best*," shared a nurse from a district hospital (Nurse, Polyclinic, 6 years of experience). Another participant highlighted the issue of equipment shortages, saying, "*Sometimes, the necessary tools simply aren't available. It's hard to do what's needed when you're forced to make do with what's at hand*" (Pharmacist, Hospital, 4 years of experience).

These responses highlight the relationship between system pressures and individual performance. Excessive workloads may not only increase the likelihood of errors but also diminish staff's ability to follow reporting procedures.

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Additionally, healthcare workers pointed to inadequate training on specific procedures as another factor leading to errors. As one doctor described,

> "*We don't receive consistent updates on the latest protocols. Often, you're left to figure it out on your own, and that's where mistakes start to happen*" (Doctor, Hospital, 7 years of experience).

This finding suggests that inadequate training may disproportionately affect less experienced staff who rely heavily on procedural guidance. Enhancing ongoing professional development could mitigate this risk.

Emotional Impact and Professional Concerns

There was an obvious emotional toll of medical errors reflected in participants' responses; many expressed feelings of guilt and self-doubt. Compound these emotions with concerns about one's professional reputation, especially in smaller facilities where a mistake makes one visible within a team.

> "*When something goes wrong, it's hard to forget. You carry it with you, questioning whether you're really cut out for this job*," shared one nurse (Nurse, Polyclinic, 9 years of experience). Another added, "*After a serious error, I find myself double-checking everything. It's like you're haunted by the fear of making another mistake*" (Nurse, Health Center, 10 years of experience).

This emotional toll highlights the second victim phenomenon, where healthcare workers experience psychological distress following an error. Without emotional support mechanisms in place, healthcare workers may develop heightened anxiety, which could impair clinical judgment and increase the risk of future errors.

Some participants felt that, in the absence of institutional support to talk about such emotional fallout, it left health professionals to fend for themselves. As one pharmacist said,

> "*There's no outlet or support here when something goes wrong. You just have to deal with it yourself, and it can be really overwhelming*" (Pharmacist, Hospital, 5 years of experience).

Willingness to Report Medical Errors

The second objective of this study sought to examine the willingness of health workers to report medical errors. Findings for this objective revealed that most health workers were reluctant to report medical errors. This is as a result of fear of blame and repercussions and influence of organizational culture. However, some respondents indicated that due to ethical obligation and patient safety concerns, they would report medical errors, regardless of the implications. These findings are presented in the themes below.

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Fear of Blame and Repercussions

Punitive consequences were listed as the most outstanding impediment to reporting. Many health care workers would not report incidents for fear of being disciplined or put in negative light in front of other supervisors and peers.

> "*Honestly, if you report an error, you're putting yourself in a difficult position. It's like admitting you failed and that can come back to hurt you*," explained a nurse from a regional hospital (Nurse, Polyclinic, 7 years of experience). Another participant concurred: "*People are afraid. There's this feeling that if you report, you'll be blamed or even punished, so it's safer to keep quiet*" (Doctor, Hospital, 6 years of experience).

This response reflects a blame culture, which contradicts Just Culture Theory's emphasis on learning from errors. Junior staff, in particular, expressed heightened concerns about victimization.

This fear was especially pronounced among junior staff, who felt most vulnerable to the possibility of repercussions.

> "*As a junior staff member, you're more at risk of facing consequences. It's hard to be honest when you know it could cost you," observed a junior nurse* (Nurse, Hospital, 3 years of experience).

This demonstrates how hierarchical structures in healthcare settings reinforce fear, particularly among those with less professional security.

Influence of Organizational Culture

Organizational culture was one of the strong predictors of health workers' willingness to report errors. Health workers felt more comfortable in reporting errors where the management encourages open communication. In facilities with a "culture of silence," underreporting was the norm.

> "*In some units, they encourage you to speak up and learn from mistakes, but in others, it's the opposite. People keep quiet because they don't want trouble*," shared a district hospital doctor with 5 years of experience. Another respondent stated, "*Here, reporting isn't viewed as a learning opportunity. It's like you're highlighting a weakness in yourself, so most people keep quiet*" (Nurse, Hospital, 4 years of experience).

This insight reveals that some units foster a learning-oriented culture, while others sustain a culture of silence, reinforcing the need for managerial interventions that promote psychological safety.

One nurse pointed out the role of leadership in shaping the culture of reporting:

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> "*If the managers show that it's okay to report and that it's for learning, people will follow. But if they react badly, no one will want to say anything*" (Nurse, Health Center, 8 years of experience).

Ethical Obligation and Patient Safety

Despite these challenges, some healthcare workers expressed a strong ethical commitment to report errors, seeing it as vital to patient safety. This sense of moral responsibility motivated a few to report errors, even if it meant facing potential personal consequences.

> "*I feel that if I don't report an error, it could happen again and harm another patient. So, despite the risks, I know it's the right thing to do*," explained a pharmacist (Pharmacist, Hospital, 4 years of experience). Another respondent added, "*It's hard to stay silent when you know a patient's life could be on the line. My conscience wouldn't let me overlook it*" (Doctor, Hospital, 10 years of experience).

This finding underscores the complex interplay between professional ethics, patient advocacy, and personal risk assessment.

Several participants also emphasized that patient safety should always take precedence. As one nurse put it,

> "*Our role is to protect patients, so even if it's daunting to report, I feel we owe it to them*" (Nurse, Health Center, 12 years of experience).

Support Systems for Reporting Medical Errors

The third objective for this study sought to examine the support systems for reporting medical errors. The findings are presented according to the following themes: availability and accessibility of reporting systems training and awareness on error reporting, lack of follow-up and feedback mechanisms, and desire for a non-punitive reporting environment.

Availability and Accessibility of Reporting Systems

The availability of structured reporting systems varied notably across facilities, with larger hospitals generally equipped with more formal processes. In smaller or rural health centers, however, healthcare workers often depended on informal, verbal reporting, which limited both accountability and follow-up.

> "*In our facility, there's no official way to document errors. We usually just inform our supervisor verbally, but that doesn't always lead to any action*," shared a nurse from a rural clinic (Nurse, Health Center, 5 years of experience). A respondent from a regional hospital added, "*We do have an incident report form here, but it's lengthy and*

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> *complicated, so people tend to avoid it unless it's a major issue*" (Doctor, Hospital, 7 years of experience).

This absence of formal systems in some facilities resulted in inconsistent reporting practices.

> "*Without a clear process, it's hard to know when and how to report. Everyone seems to handle it differently*," observed a pharmacist (Pharmacist, Hospital, 3 years of experience).

Training and Awareness on Error Reporting

Inconsistent training on patient safety and error reporting was highlighted as a significant barrier to effective reporting. Only a few respondents had received any formal training, and those who had emphasized the need for regular updates to reinforce awareness of reporting protocols.

> "*I had training on error reporting a few years back, but there hasn't been any follow-up. We need ongoing sessions to keep us current*," noted a nurse (Nurse, Polyclinic, 9 years of experience). Another respondent shared, "*Without proper training, you're left guessing on how to report errors, which can feel daunting*" (Pharmacist, Hospital, 6 years of experience).

Some participants suggested that more training could help simplify the reporting process.

> "*If we were properly trained, I think more people would feel confident about reporting. Right now, there's just too much uncertainty*," explained a doctor (Doctor, Hospital, 8 years of experience).

Lack of Follow-Up and Feedback Mechanisms

Many healthcare workers voiced frustration over the lack of feedback after reporting errors, which contributed to a sense of futility. Participants felt that without feedback, reporting seemed unproductive and failed to bring about meaningful change.

> "*I've reported errors before, but you rarely hear anything back. It feels like you're just completing paperwork for no real reason*," shared a nurse (Nurse, Hospital, 10 years of experience). Another respondent explained, "*Without follow-up, it's hard to trust that reporting actually makes a difference. It's discouraging*" (Doctor, Hospital, 5 years of experience).

This lack of follow-up discouraged future reporting, as healthcare workers perceived it as unproductive. The lack of feedback also meant missed opportunities for learning. As one pharmacist pointed out,

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> "*If we got feedback, we could understand what went wrong and how to prevent it next time. Right now, there's no closure*" (Pharmacist, Hospital, 4 years of experience).

Desire for a Non-Punitive Reporting Environment

Healthcare workers frequently stressed the need for a non-punitive reporting environment where they could report errors without fear of blame. Many believed that fostering such an environment would enhance transparency and ultimately improve patient safety.

> "*If people felt safe to report, we'd see more openness and accountability. The blame culture only encourages people to hide their mistakes*," noted a junior doctor (Doctor, Hospital, 3 years of experience). Another participant added, "*We need to focus on learning rather than punishment. Without that shift, the system won't improve*" (Nurse, Health Center, 6 years of experience).

A senior nurse shared similar views, saying,

> "*If reporting was more about growth and less about punishment, everyone would feel more comfortable discussing their experiences*" (Nurse, Polyclinic,12 years of experience).

This aligns directly with Just Culture Theory, which advocates for shifting from blame to learning in order to promote safer practices.

DISCUSSION OF FINDINGS

This study offers detailed insights into healthcare workers' perceptions, their willingness to report, and the available support systems for reporting medical errors in Ghana's Central Region. The findings underscore both structural and cultural challenges in error reporting, highlighting the complexity involved in fostering a safe environment for patient care. While these results align with broader literature on medical error reporting, especially in low-resource settings, they also bring unique perspectives.

Perceptions of Medical Errors

Healthcare workers in this study demonstrated a strong understanding of medical errors, consistently viewing them as preventable events that pose significant risks to patient safety. This perception is supported by research in similar settings, such as Mohammad et al. (2016) and Oleribe et al. (2019), which highlights a shared awareness among healthcare professionals of the gravity of medical errors. However, this awareness is often overshadowed by systemic challenges that make preventing such errors an uphill task. Factors like staff shortages, excessive workloads, and inadequate resources were commonly cited by participants as critical contributors to errors. These issues mirror the findings of Imam et al. (2023) and Peprah et al. (2020) who emphasized how these structural deficits disproportionately affect low- and

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middle-income countries (LMICs).

Peprah et al. (2020) specifically noted that healthcare workers in Ghana often feel "trapped" in a cycle where systemic shortcomings undermine even the most diligent efforts to deliver error-free care. The present study reinforces this notion, illustrating how such an environment forces healthcare workers to operate in "survival mode," where avoiding errors becomes a near-impossible challenge rather than a realistic expectation.

Beyond the systemic barriers, the emotional impact of medical errors was a recurring theme in this study. Many participants spoke of feelings of guilt, self-doubt, and personal failure following an error. This emotional toll reflects the well-documented "second victim" phenomenon seen in high-income countries (HICs) (Jurado et al., 2024). However, unlike in HICs, where institutional mechanisms like peer support programs or counseling services are increasingly available, Ghana's healthcare system offers minimal psychological support for workers dealing with these emotional burdens. The lack of such support systems exacerbates the emotional strain on workers, leaving them vulnerable to burnout and further errors. Peprah et al. (2020) provide additional insight into this gap, pointing out that the stigma surrounding errors in Ghana often discourages open dialogue, creating an environment of silence and self-blame. This contrasts sharply with HICs, where efforts to normalize discussions around errors have improved transparency and coping mechanisms. The findings of this study call for urgent interventions to establish non-punitive reporting systems and accessible mental health support for healthcare workers in Ghana (Alshammari et al., 2020; Nkosi, 2024; Corburn et al., 2020; Bailer-Jones et al., 2021).

Willingness to Report Medical Errors

The findings of this study revealed a pervasive hesitation among healthcare workers to report medical errors, primarily driven by fears of blame and professional repercussions. This aligns closely with research by Peprah et al. (2020) , who highlighted the fear of disciplinary actions as a major deterrent to error reporting in Ghana's healthcare system, particularly in regions where institutional protections are perceived as weak. This pattern is not unique to Ghana; similar concerns have been documented in India and Kuwait, where punitive measures and a lack of systemic support discourage healthcare workers from reporting errors (Asgarian et al., 2021b; Stewart et al., 2018).

However, the consequences of underreporting in Ghana are uniquely shaped by the country's specific healthcare context. Peprah et al. (2020) noted that the hierarchical nature of many healthcare facilities, especially in rural and subnational areas, often exacerbates fears of reprisal. These findings were echoed in this study, where participants working in smaller or rural facilities reported feeling particularly vulnerable to blame. This "culture of silence" persists despite the well-recognized link between open error reporting and improved patient safety outcomes (Levine et al., 2020).

The role of organizational culture emerged as a critical factor influencing reporting behaviors. Facilities that fostered open communication and embraced non-punitive approaches reported higher levels of error reporting, reflecting findings from Levine et al. (2020). Yet, in Ghana, such positive organizational cultures

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are more the exception than the rule. Many healthcare workers in this study described working in environments where error reporting was discouraged, either explicitly through punitive measures or implicitly through a lack of support. These findings align with a study by Ghasi et al. (2020) , which noted that Ghanaian healthcare institutions often lack the structures needed to support a just culture, particularly in resource-constrained settings.

Despite systemic barriers, some participants expressed a strong ethical commitment to report errors, rooted in their duty to protect patients. This mirrors findings from Barkhordari-Sharifabad and Mirjalili (2019) in South Africa, where healthcare workers cited personal values as a key driver for reporting errors, even in the absence of institutional support. However, relying solely on personal ethics as a motivator for error reporting is unsustainable. Without formal protections or incentives, such moral responsibility can quickly erode under the pressures of fear and resource constraints.

Interestingly, the study also uncovered a desire among healthcare workers for training and education on error reporting protocols. This aligns with the findings of Poku et al. (2023), who emphasized that healthcare workers in Ghana are often unaware of formal reporting systems or unclear on how to navigate them. Addressing this gap could play a pivotal role in normalizing error reporting and fostering a culture of accountability and safety.

Support Systems for Reporting Medical Errors

The findings of this study highlight stark disparities in the availability and effectiveness of error reporting systems across healthcare facilities in Ghana. Larger hospitals were generally more likely to have structured processes in place, while smaller or rural health centers often relied on informal, verbal communication of errors. This trend is consistent with findings from (Hoops et al. (2024), who observed that resource constraints in low-resource settings disproportionately affect smaller facilities, leaving them without the infrastructure needed to implement formal reporting frameworks. In Ghana, healthcare workers in smaller facilities often expressed frustration with the lack of documentation, noting that verbal communication limited opportunities to track, analyze, and learn from errors. This observation resonates with the work of Ghasi et al. (2020), who found that smaller health facilities in Ghana often operate with ad hoc error management practices, creating significant barriers to improving patient safety.

A critical gap identified in this study was the lack of regular training on error reporting and patient safety. Many participants reported that they had never received formal instruction on reporting protocols, leaving them uncertain about the steps involved. This is consistent with the findings of Abuosi et al. (2022), who emphasized that training gaps are a significant barrier to effective error reporting in Ghana's healthcare system. In contrast to high-income countries, where patient safety training is integrated into continuing professional development (Ahmed et al., 2022) , the absence of such training in Ghana creates a knowledge gap that hinders reporting practices. Without proper training, healthcare workers are not only unaware of the procedures but also unsure of how their actions contribute to overall safety improvements, which further discourages reporting.

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Another major challenge identified was the lack of follow-up after errors were reported. Participants expressed frustration that their reports often seemed to "disappear," with no feedback or visible actions taken to address the issues raised. This finding aligns with Kiguba et al., (2015), who reported that limited feedback loops in low-resource settings reduce healthcare workers' motivation to report errors. In Ghana, this issue was also documented by Peprah et al. (2020b) who noted that the absence of a transparent feedback mechanism undermines trust in the reporting process, leaving workers feeling that their efforts are futile. Establishing a robust feedback loop could reassure healthcare workers that their reports contribute to meaningful changes, thereby fostering a more proactive reporting culture.

One of the most significant insights from this study was the participants' strong desire for a non-punitive reporting environment. Many healthcare workers emphasized that the fear of blame and retribution remains a major obstacle to error reporting, a concern deeply rooted in the dominance of a blame-oriented culture. This is consistent with Just Culture Theory, which advocates for a balanced approach that distinguishes between system failures and individual accountability (Dekker, 2016). In Ghana, however, the adoption of Just Culture principles remains limited. Studies such as Ghasi et al. (2020) and Poku et al. (2023) have highlighted how deeply entrenched punitive attitudes discourage transparency and perpetuate a culture of silence around errors. Participants in this study expressed a clear interest in moving toward a more constructive and supportive approach to error management, one that prioritizes learning and improvement over punishment.

Importantly, healthcare workers expressed that a non-punitive environment would not only encourage reporting but also promote teamwork and shared responsibility. This is consistent with findings from Poku et al. (2023) , who reported that non-punitive policies in Ghanaian healthcare facilities improved communication and collaboration among staff. However, achieving such a shift will require deliberate efforts at both institutional and national levels. These efforts could include policy reforms, leadership training, and awareness campaigns aimed at shifting attitudes and building a culture of trust.

Incorporating successful feedback mechanisms from similar low-resource settings can enhance error reporting systems in Ghana. For instance, the Danish Act on Patient Safety (Aanal & Seren Intepeler, 2016; Chance et al., 2024; Lundgaard et al., 2005) established a nationwide mandatory reporting system that protects frontline personnel from sanctions, fostering a non-punitive environment conducive to transparent reporting. Additionally, implementing computerized physician order entry (CPOE) systems has been shown to reduce medication errors by up to 80% and serious harm errors by 55%, demonstrating the efficacy of technology-driven solutions in improving patient safety ("Computer Physician Order Entry (CPOE)," 2004; Jongwha et al., 2012). Adopting such systems in Ghana, tailored to local needs and resources, could address current challenges by providing structured, anonymous reporting channels and ensuring that healthcare workers receive constructive feedback, thereby promoting a culture of continuous improvement and patient safety.

Contribution to Existing Knowledge

The study's findings significantly enhance existing knowledge on medical error reporting in low-resource

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healthcare settings, particularly within Ghana. The observed variability in error reporting systems, especially the lack of structured processes in smaller or rural health centers, underscores systemic challenges that impede effective error documentation and patient safety improvements. This aligns with previous research highlighting the need for comprehensive patient safety assessments in low-resource settings to identify and address such systemic issues (Haque et al., 2024).

Further, the absence of regular training on error reporting and patient safety further exacerbates these challenges, leaving healthcare workers uncertain about proper procedures and potentially leading to underreporting of incidents. This finding corroborates studies emphasizing the importance of implementing strategies to improve health systems in low-income countries, which often face difficulties in adopting complex changes in clinical routines and organizational behavior (Elsey et al., 2023). Lastly, the frustration expressed by healthcare workers over the lack of follow-up after reporting errors indicates a critical gap in feedback mechanisms. Without structured feedback, there is a diminished motivation to report future errors, hindering the development of a learning healthcare system. Implementing a 'just culture' that focuses on openness, transparency, and learning from adverse events, rather than assigning blame, has been identified as essential for improving error reporting and patient safety (Murray et al., 2023).

By highlighting these specific challenges and potential solutions, the study extends existing knowledge by providing a nuanced understanding of the barriers to effective medical error reporting in Ghana. It underscores the necessity for tailored interventions that consider the unique constraints of low-resource settings, such as developing non-punitive, voluntary reporting systems that encourage transparency and learning.

Implications and Future Directions

These findings echo existing literature on medical error reporting in low-resource settings, while also highlighting specific challenges at the subnational level in Ghana. These widespread underreporting points to systemic barriers, with punitive approaches and limited resources hampering open communication. Although high-income countries have shifted towards structured, non-punitive error management systems, Ghana and other LMICs face significant institutional and cultural hurdles.

Improving error reporting in Ghana thus requires both systemic reforms and cultural shifts. Introducing consistent training on patient safety, implementing structured reporting systems even in smaller facilities, and establishing feedback mechanisms could foster a more supportive environment for reporting. Crucially, adopting non-punitive policies and Just Culture principles would help reduce blame-related fears and build trust in the reporting process. This study therefore calls for targeted interventions to address organizational and cultural factors, ultimately contributing to safer, higher-quality patient care in Ghana's Central Region and similar contexts.

Further, this study's findings have significant implications for nursing practice in Ghana. The observed variability in error reporting systems, particularly the lack of structured processes in smaller or rural health centers, suggests that nurses in these settings may face challenges in documenting and addressing medical

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errors effectively. This gap can hinder the identification of systemic issues and impede efforts to improve patient safety. Further, the absence of regular training on error reporting and patient safety leaves many nurses uncertain about proper procedures, potentially leading to underreporting of incidents. This training gap is a significant barrier to effective reporting and patient safety improvement.

The frustration expressed by healthcare workers over the lack of follow-up after reporting errors indicates a need for implementing structured feedback mechanisms. Without feedback, nurses may feel that reporting is futile, which can diminish their motivation to report future errors. Lastly, the desire for a non-punitive reporting environment highlights the importance of fostering a culture that encourages transparency and learning from errors. Implementing a "Just Culture" approach, which focuses on identifying and addressing systemic issues rather than assigning individual blame, could promote more open communication and continuous improvement in nursing practice.

SUMMARY AND CONCLUSION

This study examined healthcare workers' perceptions of medical errors, their willingness to report these errors, and the support systems available for error reporting in the Central Region of Ghana. Using an illustrative case study research design, data was collected from a total of 45 healthcare workers, with findings revealing both the individual and systemic challenges to error reporting.

Findings from the study revealed that health workers generally understood medical errors as preventable incidents that could harm patients. That notwithstanding, there were some variations in how errors were classified. Many respondents identified high patient loads, inadequate staffing, and resource limitations as significant contributors to medical errors. Additionally, many respondents indicated the emotional that medical errors place on health workers. Health workers often experience guilt and self-doubt, which compounds the psychological burden they face in the workplace. In addition to this, fear of blame and professional repercussions was a major deterrent to reporting, especially among junior staff members. The culture within healthcare facilities also played a significant role. There were some facilities that encouraged open discussions about errors, while other facilities maintained a "culture of silence". In such facilities, underreporting of medical errors was common. Despite these barriers, some healthcare workers felt a strong ethical obligation to report errors as a means of protecting patient safety. These respondents indicated that their personal values and morals could sometimes drive reporting behavior even when institutional support is lacking.

For the last research objective, it was revealed that the availability of structured reporting systems was inconsistent. Larger hospitals generally had formal error reporting processes, while smaller or rural facilities relied on informal practices. Many of the respondents were of the opinion that they lacked adequate training on medical error reporting. Also, an absence of follow-up or feedback after reporting

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discouraged the respondents from further participation in error reporting. Lastly, there was a strong desire among respondents for a non-punitive environment that would enable them to report errors without fear of blame. This, according to the respondents, would foster a culture of transparency and learning.

The study's findings highlight the urgent need for systemic and cultural changes to improve medical error reporting practices. While healthcare workers understand the importance of reporting errors for patient safety, their willingness to do so is hindered by fears of blame, inconsistent reporting systems, limited training, and a lack of institutional support. The dominant culture in many facilities does not promote the transparency necessary for effective error reporting, which negatively affects overall patient safety and healthcare quality.

In conclusion, the findings of this study highlight key implications for nursing practice, particularly in relation to error prevention and reporting. The identification of workload pressures, inadequate training, and fear of blame as major barriers to error reporting underscores the need for nurses to adopt proactive strategies that enhance patient safety. Nurses must cultivate heightened vigilance in clinical practice, ensuring meticulous adherence to protocols to minimize errors. Additionally, the study emphasizes the importance of fostering a culture of openness within nursing teams, where discussing errors is seen as an opportunity for learning rather than punishment. Senior nurses, in particular, have a critical role in guiding junior staff by modeling safe practices and creating supportive environments that encourage transparent communication. Integrating these insights into daily nursing practice can improve error prevention efforts and strengthen nurses' contributions to patient safety.

This study makes several original contributions to the understanding of medical error reporting in low-resource healthcare settings, particularly within Ghana's subnational context. Unlike previous research that primarily focuses on error reporting practices in urban or tertiary healthcare facilities, this study highlights the unique challenges faced by healthcare workers in smaller, resource-constrained settings. Furthermore, by applying Just Culture Theory in this context, the study offers fresh insights into how balancing accountability with learning can improve error reporting practices in Ghana. These findings provide valuable guidance for developing context-specific interventions that promote a supportive reporting environment in subnational healthcare facilities, ultimately contributing to improved patient safety outcomes.

RECOMMENDATIONS

Based on these findings, the following recommendations are proposed to enhance medical error reporting practices and support systems in Ghana's Central Region. Healthcare facilities should implement policies that encourage healthcare workers to report errors without the fear of blame or punishment. Embracing a "Just Culture" approach, which focuses on learning from errors instead of punitive measures, could create a more supportive and transparent environment.

Further, facilities, including smaller and rural centers, should develop and implement clear and standardized

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reporting protocols. These protocols must outline the reporting process, specify the types of errors to be reported, and ensure consistency in documentation and follow-up. Also, regularly scheduled training sessions on error reporting and patient safety should be provided to healthcare workers. These sessions should cover error identification, reporting procedures, and underscore the importance of reporting for improving patient outcomes. Periodic refresher courses would help reinforce these skills and protocols.

Also, in order to motivate healthcare workers to report errors, institutions should create feedback mechanisms that allow them to see the outcomes of their reports. Implementing a feedback loop where workers are informed of the actions taken after an error is reported will enhance trust in the system and encourage continued reporting.

In resource-constrained settings like Ghana, the health system could adopt feedback systems by leveraging technology and utilizing simplified versions of the NRCS, PSRS, CIRS, or the JCQHC. These systems would streamline medical error reporting in the country by emphasizing anonymous reporting at both regional and national levels. By using aggregated data, patterns of errors could be identified, allowing for the development of targeted interventions to improve patient safety in various subnational areas.

These reporting systems could be structured as mobile-based platforms to simplify the process for frontline healthcare workers, especially in rural areas. Ensuring confidentiality and providing legal protections will be essential to encourage participation. Additionally, Ghana could integrate reporting with ongoing education for healthcare workers. By analyzing trends from reported errors, targeted training programs can be developed to address specific gaps in knowledge or procedures, thereby improving patient safety outcomes.

Finally, implementing a structured feedback mechanism in Ghanaian healthcare facilities would address a key barrier to reporting identified in this study: the lack of follow-up. A system that communicates outcomes and corrective actions to healthcare workers can help build confidence in the error reporting process.

Building upon the initial recommendations, the following detailed, actionable steps are proposed:

Table 2: Actionable Steps for Recommendations

Actionable Step	Actionable Steps	Resource Considerations	Timelines
1. Establish a Non-Punitive Reporting Culture	Policy Development: Formulate and disseminate clear policies that encourage error reporting without fear of blame or	Training Programs: Allocate funds for workshops and seminars to educate staff on the	Short-Term (0-6 months): Develop and disseminate policies; initiate leadership

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	punishment.	principles of a non-punitive culture.	training.
	Leadership Commitment: Engage hospital leadership in championing a "Just Culture" approach, emphasizing learning from errors over punitive measures.	Communication Materials: Develop and distribute materials that reinforce the importance of reporting and the organization's commitment to safety.	Medium-Term (6-12 months): Conduct staff workshops and distribute communication materials.
2. Develop Standardized Reporting Protocols	Protocol Design: Create clear, standardized reporting procedures detailing the types of errors to report, the reporting process, and documentation standards.	Human Resources: Engage experienced healthcare professionals to develop and review protocols.	Short-Term (0-6 months): Develop and pilot test reporting protocols.
	Integration: Ensure these protocols are integrated into daily workflows and accessible to all staff.	Technology: Invest in user-friendly reporting systems, such as electronic platforms, to facilitate easy reporting.	Medium-Term (6-12 months): Implement protocols across facilities; monitor adherence.
3. Provide Regular Training on Error Reporting and Patient Safety	Curriculum Development: Develop training modules covering error identification, reporting procedures, and the importance of reporting for patient safety. Training Schedule: Establish a regular training schedule, including periodic refresher courses.	Educational Materials: Develop culturally relevant training materials in local languages. Facilitators: Train internal staff or hire external experts to	Short-Term (0-6 months): Develop training materials and schedule initial sessions. Medium-Term (6-12 months): Conduct initial training sessions;

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		conduct training sessions.	establish ongoing training schedule.
4. Implement Feedback Mechanisms	Feedback Systems: Establish systems to inform staff about actions taken following reported errors, such as newsletters or meetings.	Communication Channels: Utilize existing communication platforms or develop new ones to disseminate feedback.	Short-Term (0-6 months): Develop feedback mechanisms and pilot them in select departments.
	Engagement: Encourage staff participation in discussions about error reports and outcomes.	Staff Time: Allocate time for staff to engage in feedback sessions without disrupting patient care.	Medium-Term (6-12 months): Expand feedback systems hospital-wide; evaluate effectiveness.
5. Monitor and Evaluate Reporting Practices	Data Collection: Regularly collect and analyze data on reported errors to identify trends and areas for improvement.	Data Management: Invest in data collection tools and software to facilitate analysis.	Short-Term (0-6 months): Establish data collection protocols and begin initial data gathering.
	Evaluation: Assess the effectiveness of reporting systems and training programs through surveys and audits.	Analytical Expertise: Train staff or hire experts in data analysis to interpret findings.	Medium-Term (6-12 months): Conduct evaluations and adjust programs based on findings.

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6. Develop Mobile-Based Reporting Platforms	Platform Development: Design and develop a user-friendly mobile application tailored for healthcare workers, enabling anonymous reporting of medical errors.	Technical Expertise: Engage local or international software developers experienced in mobile health applications.	Short-Term (0-6 months): Develop and test the mobile application in pilot facilities.
	Pilot Testing: Conduct pilot testing in select facilities to gather feedback and refine the platform.	Infrastructure: Ensure reliable mobile network coverage and provide necessary devices to healthcare workers.	Medium-Term (6-12 months): Refine the platform based on feedback and prepare for broader implementation.
		Funding: Seek funding from government health departments, international health organizations, or private sector partnerships.	
7. Integrate Reporting with Healthcare Worker Education	Curriculum Development: Incorporate modules on medical error reporting and patient safety into existing healthcare training programs.	Educational Materials: Develop culturally relevant training materials in local languages.	Short-Term (0-6 months): Develop training modules and schedule initial sessions.
	Continuous Education: Offer ongoing workshops and seminars to reinforce the importance of reporting and utilizing the new system.	Trained Facilitators: Utilize experienced trainers or collaborate with educational institutions for	Medium-Term (6-12 months): Conduct initial training sessions and establish a regular training schedule.

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		curriculum development. Funding: Allocate budget for training sessions, materials, and facilitator fees.	
8. Ensure Confidentiality and Legal Protection	Policy Formulation: Develop and disseminate policies that guarantee confidentiality and legal protection for those reporting errors.	Legal Expertise: Consult with legal professionals to draft appropriate policies.	Short-Term (0-6 months): Develop and disseminate policies; initiate awareness campaigns.
	Awareness Campaigns: Conduct campaigns to inform healthcare workers about these protections and encourage reporting.	Communication Channels: Utilize existing communication platforms to disseminate information effectively.	Medium-Term (6-12 months): Monitor the effectiveness of policies and campaigns; make necessary adjustments.
		Funding: Allocate resources for policy development and awareness campaigns.	
9. Implement Structured Feedback Mechanisms	Feedback Systems: Establish systems to inform healthcare workers about actions taken following reported errors, such as newsletters or meetings.	Communication Channels: Utilize existing communication platforms or develop new ones to disseminate feedback.	Short-Term (0-6 months): Develop feedback mechanisms and pilot them in select departments.

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	Engagement: Encourage staff participation in discussions about error reports and outcomes.	Staff Time: Allocate time for staff to engage in feedback sessions without disrupting patient care. Funding: Budget for communication tools and staff engagement activities.	Medium-Term (6-12 months): Expand feedback systems hospital-wide; evaluate effectiveness.

LIMITATIONS

Some limitations of this study should be acknowledged when interpreting the findings. First, the research was conducted in the Central Region of Ghana with a sample of 45 healthcare workers. While this allowed for in-depth qualitative insights, it may limit the generalizability of the results. This sample may not fully reflect the diverse experiences and challenges faced by healthcare workers in other regions or different healthcare settings. Future studies with a broader sample size and geographic scope could provide a more comprehensive understanding of error reporting practices across Ghana.

Secondly, the study relied on self-reported data, which carries the risk of social desirability bias. Healthcare workers may have been hesitant to discuss certain aspects of error reporting openly, particularly in areas where they felt vulnerable to potential criticism. Although confidentiality was assured, some participants may still have felt constrained in sharing specific experiences, which could limit the depth of insights obtained. To address this, future research could explore more anonymous data collection methods or incorporate mixed methods to mitigate this bias.

Moreover, this study did not include perspectives from administrative and managerial staff, whose policies and support significantly influence error reporting systems. Including these voices could provide a more comprehensive view of the structural and systemic factors affecting error reporting practices and challenges.

Lastly, the cross-sectional design restricts our ability to observe changes over time. Error reporting practices and attitudes may evolve, especially with the implementation of new policies, training initiatives, or shifts in organizational culture. Longitudinal studies could better capture these changes and offer insights into how interventions impact error reporting practices in the long run.

Despite these limitations, this study provides valuable insights into the barriers to medical error reporting in

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the Central Region of Ghana and lays the groundwork for further research. The findings and recommendations presented here contribute to advancing patient safety and healthcare quality in similar settings.

Declarations

Ethics approval

Ethical approval for conducting this study was sought from the University of Education, Winneba Ethical Review Board (UEWERB), prior to commencement of this study. Ethical clearance number: UEWC/32.

Consent for publication

Not applicable

Availability of data and materials

Data for the study can be obtained from the corresponding author upon reasonable request

Competing interests

We declare no conflict of interest in this study.

Funding

There was no funding for this study

Authors' Contributions

LAB conceptualized the study. LAB and COAB collected and analyzed the data. COAB discussed the findings. LAB critically reviewed the findings and discussions. Both authors developed the manuscript together and agreed to its submission for publication.

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