RESEARCH ARTICLE

Medication Safety in Rural Philippine Hospitals: Perspectives of Nurses

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Abstract

Background: Medication safety is a global priority, yet in the Philippines, particularly in rural hospitals, it remains underexplored. Nurses are at the frontline of safeguarding patients, often working under resource constraints.

Objective: This study explored nurses' perspectives on medication safety in rural Philippine hospitals, while focusing on systemic barriers, emotional and ethical challenges, and strategies employed to sustain safe practice. Methods: A qualitative design was used that employed focus group discussions (FGDs) and key informant interviews (KIIs) with staff nurses in rural hospitals. Thematic analysis was conducted to identify themes and subthemes emerging from participants' experiences.

Results: Three themes emerged: (1) Building Responsibility and Skills (accountability, verification, documentation, and mentorship); (2) Keeping Patients Safe and Reducing Mistakes (protecting patient care, overcoming systemic barriers); and (3) Handling Emotions and Challenges in Giving Medicine (coping with guilt, moral distress, and reliance on teamwork). Findings revealed that nurses sustain safety through vigilance and accountability but are constrained by chronic understaffing, interruptions, moral distress, and limited training access.

Conclusion: Medication safety in rural Philippine hospitals is shaped by nurses' competence, emotional resilience, and teamwork, but remained fragile without systemic supports. Implications included equitable workforce policies, supportive error-reporting cultures, and strengthened continuing professional development opportunities. Strengthening safety also required shifting from individual responsibility to organizational and system-level accountability.

Keywords: *Medication safety, rural hospitals, nurses, patient safety, Philippines, qualitative research*

Introduction

Medication safety is a cornerstone of quality health care and is, therefore, a global concern, with the World Health Organization (WHO) identifying medication-related harm as a leading cause of preventable patient injury (WHO, 2017; 2019). Globally, medication errors cause at least one death per day and millions of preventable injuries annually (Bates & Sakuma, 2024). In low- and middle-income countries (LMICs), these risks are magnified by resource constraints and fragile health systems. Research from Ghana, Nigeria, and Nepal demonstrated that rural hospitals in LMICs face overlapping challenges of staff shortages, high patient-to-nurse ratios, and lack of continuing education, which increase the risk of medication errors (Afaya et al., 2021; Jafaru & Abubakar, 2022; Mahat et al., 2024).

In the Philippine context, the urgency is heightened by systemic challenges in rural hospitals. Despite reforms under the Universal Health Care (UHC) law, health workforce inequities persist, with rural and geographically isolated areas facing shortages of trained personnel, poor infrastructure, and limited continuing education (Pepito et al., 2025). These systemic gaps force nurses to shoulder multiple responsibilities, including administrative, clinical, and even ancillary tasks. Limited pay, delayed benefits, and job insecurity further exacerbate burnout

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and attrition (Alibudbud, 2023). Moreover, the rise of telehealth, asserted Sangkula & Bangcola (2024), has expanded access but introduced new ethical challenges around privacy, training gaps, and infrastructure limitations.

Medication safety is central to the WHO's Global Patient Safety Challenge: Medication Without Harm, which seeks a 50% reduction in avoidable harm from medication by 2025 (WHO, 2019). Aligning with Sustainable Development Goal (SDG) 3 on universal health coverage, the Philippine nursing workforce plays a vital role in ensuring equitable and safe care. Yet, despite growing international research, gaps had remained in understanding how rural Filipino nurses experience and navigate medication safety in practice. Their voices are critical in shaping policies, training, and organizational culture that protect both patients and health workers.

This study, therefore, explored three research questions:

What systemic barriers do nurses encounter in rural Philippine hospitals?
How do nurses navigate emotional and ethical challenges linked to medication safety?
What strategies do nurses employ to ensure patient safety in resource-limited contexts?

By centering nurses' lived experiences, this study contributed to national and international patient safety literature, offering evidence for reforms in practice, education, and policy.

Methodology

Study Design

This study employed a descriptive qualitative design with phenomenological principles to capture nurses' lived experiences of medication safety (Polit & Beck, 2010). The approach allowed an in-depth exploration of meaning and context, focusing on the everyday realities of nurses in rural hospitals.

Setting and Participants

The study was conducted in three rural hospitals located in a mountainous region of the Philippines, characterized by geographical isolation, limited healthcare resources, and staffing challenges. Hospitals were secondary-level institutions with nurse-to-patient ratios exceeding national standards.

Participants were 16 registered nurses, purposively sampled to ensure diversity in age, gender, years of practice, and clinical

Table 1. *Participant Demographics*

Code	Age	Sex	Years in Practice	Hospital and Ward Assignment
N1	54	F	31	Medical, Pediatrics, OB-GYNE, Ward BoGH
N2	54	M	30	All wards BoGH
N3	39	M	15	All Wards/BoGH
N4	30	F	12	All Wards/BoGH
N5	49	F	24	Medical/Surgical, Pediatrics, OB-GYNE- LHMRH
N6	40	F	12	Medical/Surgical, Pediatrics, OB-GYNE- LHMRH
N7	52	F	20	All Wards- BDH
N8	33	F	3	Medical Ward /BoGH
N9	38	F	7	All Wards/ BDH
N10	52	F	5	All Wards/BDH
N11	35	F	3	All Wards / BoGH
N12	38	M	3	All Wards/ LHMRH
N13	47	F	23	All Wards/BoGH
N14	39	M	15	All Wards - LHMRH
N15	39	M	14	Medical/ICU-LHMRH
N16	38	F	13	Medical Ward to include ICU- BoGH

assignment. Inclusion criteria were: (1) currently employed in the hospital, (2) at least three years of experience, (3) direct involvement in preparing and administering medications, and (4) willingness to participate.

The 16 participants were mostly mid- to late-career nurses, ranging in age from 30 to 54 years, with hospital experience spanning 3 to 31 years. The majority were women, though several men were also represented, and they had worked across diverse ward assignments including medical, surgical, pediatrics, OB-Gyne, ICU, and all-ward rotations. They were drawn from different hospitals (BoGH, LHMRH, BDH), reflecting a varied but rich background in clinical practice.

Data Collection

Data was gathered between March and May 2024 through two focus group discussions (FGDs) with six participants each and four in-depth interviews (IDIs). Interviews lasted 45–90 minutes and were conducted in the local language. An unstructured guide began with the prompt: "Tell me your views about safe medication practices in your health facility." Probing questions encouraged elaboration. Audio recording and field notes captured the data, with permission from participants. Observations of clinical settings and non-verbal cues provided additional context.

Data Analysis

Analysis followed Colaizzi's (1978) seven-step method, as cited in Holloway and Galvin (2016). Transcripts were read repeatedly to gain familiarity, significant statements were extracted, and meanings were formulated. Codes were clustered into subthemes and synthesized into themes.

To enhance rigor:

Credibility: Member checking validated interpretations.
Dependability: An audit trail documented analytic decisions.
Confirmability: Peer debriefing and reflexive journaling minimized bias.
Transferability: Thick descriptions of the context support applicability in similar LMIC settings.

Reflexivity of the Researcher

As a nurse-researcher with prior experience in hospital settings, the researcher acknowledged potential biases in data collection and interpretation. Reflexive journaling was used to record assumptions, emotional reactions, and positionality throughout the study. During interviews, efforts were made to build rapport while maintaining neutrality. Peer debriefing further helped to challenge personal assumptions and ensure analytic transparency.

Ethical Considerations

Ethical clearance was obtained from the Institutional Review Ethics Committee. Written informed consent was secured. Pseudonyms protected participant identity. Confidentiality and voluntary participation were emphasized, and participants were assured of their right to withdraw at any time.

Findings and Discussion

To address the three guiding research questions, data was analyzed thematically, resulting in three major themes with corresponding subthemes that capture nurses' lived experiences of medication safety in rural hospitals. These themes highlighted systemic barriers, emotional and ethical challenges, and strategies that sustain safe practice despite resource constraints. Table 2 presented the themes, subthemes, and illustrative participant quotes, serving as an overview that grounds the subsequent discussion.

In sum, these themes and subthemes provided structured lens for examining how nurses in rural Philippine hospitals navigate systemic barriers, cope with emotional and ethical challenges, and employ strategies to sustain medication safety. Consistent with Braun and Clarke's (2006) approach to thematic analysis, the table serves as an analytic map that organizes participant voices into patterns of meaning, which are further elaborated in the succeeding discussion.

Systemic Barriers in Rural Hospitals

Theme: Keeping Patients Safe and Reducing Mistakes
Subtheme: Identifying and Overcoming Barriers

Participants consistently described systemic barriers that jeopardize safe medication practices. Workload pressures were most prominent: *"There are many instances that medication is given to wrong patients because of heavy workload."* Nurses reported difficulties adhering to prescribed times due to high patient volume: *"There are times that we do not follow standard time and we give medication late or early because of many patients that we handle."* Chronic understaffing often required double ward coverage, further compromising safety: *"There are times that we have double ward hence, there is a possibility that we do not give the medications on time."* Interruptions during preparation also disrupted concentration: *"While preparing, a colleague keeps on talking and your concentration is disrupted."* Broader

Table 2. *Themes, Subthemes, and Representative Quotes on Nurses' Experiences of Medication Safety in Rural Hospitals*

Research Question	Theme	Subtheme	Illustrative Quotes
RQ1. Systemic barriers in rural hospitals	Keeping Patients Safe and Reducing Mistakes	Identifying and Overcoming Barriers	"There are many instances that medication is given to wrong patients because of heavy workload." [N1, N9, N14, N15, N16] "There are times that we have double ward hence; there is a possibility that we do not give the medications on time." [N1, N2, N3, N4, N7] "While preparing, a colleague keeps on talking and your concentration is disrupted."[N8, N9, 10, N12_]
RQ2. Emotional and ethical challenges	Handling Emotions and Challenges in Giving Medicine	Managing Emotional and Practical Challenges	"Sometimes, after a medication error, you keep thinking about it." [N2, N4, N5, N15_] "You feel you do not know anything and you don't deserve to be a nurse."[N8, N11, 15, N16_] "I usually ask my colleagues if I do not know the drug."[N11, N12, N16_]
RQ3. Strategies that sustain safety in resource-limited contexts	Building Responsibility and Skills	Accountability and Protocols Verification and Documentation Continuous Learning and Mentorship	"Our license is at stake, hence we should be taking responsibility." [N1, N13, N9_] "Carrying out the doctor's order… preparing medications… confirming names, ages and the medication." [N1, N14, N15_] "Even if you have many years as a nurse, there are updates." [N1, N2, N5, N7, N13_] "We endorse any special management or medication to the next shift so as not to be forgotten." [N5, N7, N15, N16_]
	Keeping Patients Safe and Reducing Mistakes	Protecting Patient Care	"It is important to review the chart and the doctor's order before administration." [N7, N13, N1, N2, N5, N6_] "If you prepare the medication, you should be the one to administer it."[N11, N12_] "We should take note of increased breathing as a drug reaction." [N1, N10, N16_] "We should not be afraid to report if we had given the wrong medicine."[N4, N2, N6 _]

Note. *Quotes are anonymized by participant code (e.g., N1, N2) to protect confidentiality. Illustrative excerpts were selected to represent the breadth of responses across focus group discussions (FGDs) and in-depth interviews (IDIs).*

structural constraints included long hours, job insecurity, and variability in competence across staff.

These findings reflected global evidence that heavy workloads, inadequate staffing, and frequent interruptions are strongly linked to medication errors (Harris et al., 2022; Carthon et al., 2019). In LMICs, rural nurses often face disproportionate burdens due to inequitable workforce distribution (Blignaut et al., 2022). In the Philippines, nurse-to-patient ratios often exceed recommended standards, particularly in geographically isolated areas (Pepito et al., 2025). The link between workload and adverse outcomes highlighted the importance of workforce planning and nurse deployment policies. Moreover, interruptions during medication preparation resonate with Harris et al.'s (2022) meta-analysis, which confirmed that even minor disruptions can significantly increase error risk. Cultural barriers further compounded these systemic issues; while fear of blame and punitive responses discouraged open discussion of errors (Ramos & Calidgid, 2018; Kim et al., 2020).

Thus, systemic barriers in rural Philippine hospitals mirror global challenges but are intensified by chronic understaffing, inequitable deployment, and fragile institutional supports. Addressing these required structural reforms, including adequate staffing, supportive safety cultures, and investment in rural health infrastructure.

Emotional and Ethical Challenges

Theme: Handling Emotions and Challenges in Giving Medicine

Subtheme: Managing Emotional and Practical Challenges

Medication errors carried significant emotional tolls for nurses. Participants spoke of guilt and rumination: *"Sometimes, after a medication error, you keep thinking about it."* Moral distress and self-doubt were common: *"The feelings alone are a challenge."* and *"You feel you do not know anything and you don't deserve to be a nurse."* These accounts underscored the *second victim* phenomenon, where health workers suffer psychological harm after patient safety incidents (Wu, 2000; Cooper et al., 2018). More importantly, nurses also described team-based coping strategies, such as seeking guidance from colleagues: *"I usually ask my colleagues if I do not know the drug."*

The emotional dimension of medication safety is underlined in international literature. Mahat et al. (2024) documented how guilt, anxiety, and reduced self-confidence frequently follow medication errors, while Seys et al. (2019) emphasized the need for organizational support for second victims. The Philippine context adds layers of ethical strain: chronic understaffing and inadequate resources often force nurses into "moral compromises" when they cannot provide ideal care. Linking this to literature on missed nursing care, Filipino emergency nurses frequently report omissions due to workload pressures, with implications for both patient safety and professional well-being (Linking patient safety…, 2024).

These findings highlighted that emotional and ethical challenges are not peripheral but central to medication safety. Addressing them requires not only technical solutions but also institutional recognition of the psychological toll on nurses. Moreover, creating a supportive, non-punitive environment, with formal mechanisms for debriefing and emotional support, was discovered to be essential to sustain both staff well-being and safe care delivery.

Strategies for Sustaining Safety in Resource-Limited Contexts

Theme 1: Building Responsibility and Skills

Subthemes: Accountability and Protocols; Verification and Documentation; Continuous Learning and Mentorship

Nurses emphasized accountability as foundational: *"Our license is at stake, hence we should be taking responsibility."* Protocols such as the "12 rights" of medication administration were consistently referenced, though strict adherence was sometimes difficult: *"Yes, we follow protocol, but there are times that it is not followed—it's case to case."* Documentation and verification practices, such as countersigning medication sheets, were embedded safeguards. Nurses detailed systematic checking processes: *"Carrying out the doctor's order… preparing medications… confirming names, ages and the medication."* Continuous learning was viewed as vital: *"Even if you have many years as a nurse, there are updates."* Nurses also valued mentorship: "*They teach you not to predetermine—you have to read the medicine and the chart and ask if you do not know."* Peer collaboration through endorsements across shifts reinforced continuity: *"We endorse any special management or medication to the next shift so as not to be forgotten."*

These strategies resonated with global evidence that vigilance, verification, and continuous learning are central to medication safety (Rodziewicz et al., 2023; Gillespie et al., 2019). Mentorship and peer collaboration were particularly

crucial in rural settings where formal training may be less accessible (Mohebi et al., 2024). While individual accountability is essential, the heavy reliance on nurses' personal vigilance highlighted systemic gaps. International studies suggest that safe medication practices are best sustained when institutional supports—such as simulation-based training, structured handovers, and resilient safety cultures. All these said supports consequently complement individual competencies (Elgwad et al., 2022; Hughes & Quinn, 2022).

Theme 2: Keeping Patients Safe and Reducing Mistakes
Subtheme: Protecting Patient Care

Protective strategies included careful chart review: *"It is important to review the chart and the doctor's order before administration."* Familiarity with medications and ownership of the dose were emphasized: *"If you prepare the medication, you should be the one to administer it."* Vigilance in monitoring reactions was highlighted: *"We should take note of increased breathing as a drug reaction."* Transparency was also noted: *"We should not be afraid to report if we had given the wrong medicine."*

These practices aligned with WHO (2017, 2019) recommendations on redundancy, vigilance, and error reporting as safeguards against harm. However, the reliance on manual and paper-based documentation in rural hospitals had underscored the vulnerability of such systems compared to electronic supports in urban settings (Kavanagh, 2017; Leung et al., 2020). The importance of transparency reflected the need for non-punitive cultures to encourage reporting and learning (Afaya et al., 2021; Kim et al., 2020).

In short, nurses sustained medication safety in resource-limited contexts through accountability, vigilance, peer support, and resilience. Yet, these individual strategies cannot substitute for system-level interventions such as supportive reporting cultures, equitable access to continuing education, and adequate staffing.

Conclusion and Recommendations

This study explored medication safety in rural Philippine hospitals through three guiding questions. Findings highlighted the multidimensional nature of safe medication practice, shaped by systemic constraints, emotional and ethical challenges, and nurses' proactive strategies.

For the systemic barriers, nurses faced chronic understaffing, heavy workloads, frequent interruptions, and insecure employment, which compromise adherence to safe practices. These findings called for policy reforms on equitable workforce deployment, improved nurse-to-patient ratios, and investment in rural hospital infrastructure.

In line with emotional and ethical challenges, nurses experienced guilt, moral distress, and self-doubt following medication errors, thereby reflecting the second victim phenomenon. Furthermore, addressing such phenomenon required supportive, non-punitive organizational cultures and mechanisms for debriefing and emotional support.

For the strategies to sustain safety, nurses employed vigilance, accountability, documentation, mentorship, and teamwork to uphold safety. While these strategies reflected resilience and professionalism, they are fragile without systemic support. Strengthening continuing professional development, structured handovers, and non-punitive reporting systems is, therefore, crucial.

Medication safety in rural Philippine hospitals demands coordinated action across practice, education, and policy. At the practice level, hospitals must safeguard protected time for medication administration, reduce interruptions, and foster team-based cultures that normalize collaboration and reporting. In education, both undergraduate curricula and continuing professional development should emphasize resilience, mentorship, and simulation-based training to prepare nurses for the unique complexities of rural care. At the policy level, reforms are urgently needed to address inequitable nurse-to-patient ratios, strengthen rural health infrastructure, and align national strategies with the WHO's *Medication Without Harm* framework. Hence, these measures underscored that ensuring safe medication practices is not merely an individual responsibility but a collective, system-wide commitment to protecting patients and supporting the nurses who care for them.

Future research should compare rural and urban hospitals, evaluate interventions such as resilience programs or workload management, and include patient and family perspectives on medication safety. By centering nurses' voices, this study underscored that medication safety is not only a technical process but a systemic, emotional, and ethical endeavor requiring coordinated reforms in practice, education, and policy.

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