

Practices of effective management of hypertensive emergencies among nurses on emergency outpatient department (EOPD) at Lubaga hospital, Kampala district: A descriptive cross-sectional study.

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Abstract

Introduction: Globally, hypertensive emergencies remain a major public health concern, contributing significantly to morbidity and mortality. In Uganda, the burden of hypertension is rising, and effective management of hypertensive emergencies in emergency outpatient departments (EOPD) is critical to prevent complications such as stroke, heart failure, and kidney failure. So this study accessed practices to effective management of hypertensive emergencies among nurses on emergency outpatient department at Lubaga hospital, Kampala district

Methodology: This study therefore aimed to establish the barriers to effective management of hypertensive emergencies among nurses on EOPD at Lubaga Hospital in Kampala District. The study employed a cross-sectional design using quantitative methods. A simple random sampling technique was used to select 44 respondents. Data were collected using structured questionnaires, checked for completeness, entered into Microsoft Excel, cleaned, and analyzed in SPSS. Results were presented in tables, charts, and graphs.

Findings: Regarding adherence to guidelines, 22 (50.0%) did not refer to any guideline, 31 (70.5%) reported unavailability of updated protocols, and 26 (59.1%) indicated that no CPD sessions were conducted at the facility. Concerning workload, 18 (40.9%) managed more than 30 patients per shift, 20 (45.5%) reported workload severely affecting their ability to manage cases, 28 (63.6%) had delayed treatment due to workload, and 38 (86.4%) recommended hiring more staff to improve care.

Conclusion: Nurses on EOPD at Lubaga Hospital faced significant barriers to effectively managing hypertensive emergencies. These included inadequate knowledge and skills, poor adherence to guidelines, high workload, and lack of continuing professional development.

Recommendations: Addressing these barriers through training, guideline dissemination, and staff recruitment is essential to improve the quality of emergency care for hypertensive patients.

Keywords: Barriers, Effective Management, Hypertensive Emergencies, Nurses at Emergency Out Patient Department, Lubaga Hospital.

Background of the study

Hypertensive emergencies, which are characterized by acute, severe elevations in blood pressure that can lead to organ damage and potential life-threatening complications, require immediate medical intervention. In clinical settings, particularly in Emergency Outpatient Department (EOPD) settings, nurses play a pivotal role in the timely management of these emergencies. Their responsibilities include assessing the patient, stabilizing their condition, administering prescribed medications, and providing patient education. Effective management is essential in reducing the risk of organ damage and improving patient outcomes (American Heart Association, 2020). However, the presence of several

barriers can impede the optimal management of hypertensive emergencies, especially in resource-constrained environments like Uganda.

Globally, hypertensive emergencies remain a significant health concern, contributing to high morbidity and mortality rates. According to the World Health Organization, approximately 7.5 million deaths annually are attributed to hypertension and its complications, including hypertensive emergencies (Himmelfarb et al., 2016). Effective management of these emergencies can significantly reduce complications such as stroke, heart failure, and kidney failure. However, research indicates that healthcare professionals, including nurses, face

several challenges in managing these emergencies effectively. A study by the American College of Cardiology found that 35% of nurses in the United States reported challenges in adhering to hypertensive emergency protocols, citing lack of training and high workloads as major barriers.

In developed countries, although healthcare infrastructure is generally robust, the management of hypertensive emergencies still faces significant hurdles. A study conducted in Japan found that 28% of nurses reported inadequate training on hypertensive emergency management, leading to delays in treatment and poorer patient outcomes (Fujiwara et al., 2023). Furthermore, in the United Kingdom, the National Institute for Health and Care Excellence (NICE, 2020) highlighted that inadequate staffing and excessive workloads were key factors contributing to suboptimal care in hypertensive emergencies. Despite advanced healthcare systems, these challenges suggest that nurse training and workload management are crucial components of improving care quality.

In Africa, hypertensive emergencies are a growing concern, with many healthcare systems facing significant challenges due to limited resources, inadequate training, and insufficient adherence to treatment protocols. A study by Oseni et al., (2024) in Nigeria found that only 50% of nurses had adequate knowledge of hypertensive emergencies, which directly impacted their ability to manage these conditions effectively. In Kenya, a study by Otambo et al., (2022) reported that 60% of healthcare workers in rural areas were unaware of updated treatment guidelines for hypertensive emergencies, leading to inconsistent management and adverse outcomes. These issues are particularly pronounced in low-resource settings where healthcare infrastructure is often underdeveloped.

In Sub-Saharan Africa, hypertensive emergencies are frequently exacerbated by poor healthcare infrastructure, insufficient nurse training, and inadequate access to medications. According to, nurses in many parts of Sub-Saharan Africa are often unable to deliver timely care due to high patient-to-nurse ratios, which delay diagnosis and treatment. A study conducted in Ghana by Konlan et al., (2020) revealed that 70% of nurses lacked sufficient knowledge of hypertensive emergencies, contributing to suboptimal patient outcomes. Furthermore, the excessive workload in these regions often leads to nurse burnout and increased stress, further compromising the quality of care. In East Africa, the management of hypertensive emergencies is similarly affected by gaps in nurse training and a lack of resources. A study conducted in Tanzania by Kisigo et al., (2022) found that 65% of nurses reported difficulties in managing hypertensive emergencies due to inadequate knowledge and insufficient adherence to clinical guidelines. In Uganda, a study by Namukwaya et al., (2022) noted that while hypertensive emergencies are common, the response from healthcare workers, particularly nurses, remains inconsistent. The study also highlighted the critical need for improving nurse training

and revising clinical protocols to enhance emergency care in hospitals.

In Uganda, hypertensive emergencies are becoming an increasing burden on the healthcare system, particularly in urban settings like Kampala. At Lubaga Hospital, a major private not-for-profit facility, nurses face several challenges in managing hypertensive emergencies. According to the Uganda Nurses and Midwives Council, only 55% of nurses are adequately trained in the management of hypertensive emergencies, leading to delays in treatment and increased risk of adverse outcomes. Despite the critical nature of hypertensive emergencies, limited research has been conducted on the barriers specific to the EOPD at Lubaga Hospital. So this study accessed practices to effective management of hypertensive emergencies among nurses on emergency outpatient department at Lubaga hospital, Kampala district

Methodology

Research design

A cross-sectional study design utilizing quantitative methods of data collection was used to assess barriers to the effective management of hypertensive emergencies among nurses in the Emergency Outpatient Department (EOPD) at Lubaga Hospital in Kampala District. This design was appropriate for collecting data at a single point in time and helped evaluate nurses' knowledge, adherence to clinical guidelines, and how workload influenced their management of hypertensive emergencies. The design was time-efficient, cost-effective, and suitable for the available resources and timeframe.

Study area

The study was conducted at Lubaga Hospital, a private-not-for-profit health facility located in Kampala District, Uganda. Lubaga Hospital offered comprehensive medical services and ran a busy Emergency Outpatient Department (EOPD) that regularly handled hypertensive emergencies. The hospital was chosen because of its high patient volume and the active role of nurses in frontline emergency care.

Study population

The study population consisted of all nurses working in the Emergency Outpatient Department (EOPD) of Lubaga Hospital. These nurses were responsible for triaging, stabilizing, and initiating management of patients presenting with hypertensive emergencies.

Sample Size Determination

The sample size was determined using Krijcie and Morgan (1970). The population of nurses working in the EOPD at Lubaga Hospital being 50, a sample size of 44 respondents was considered for the study.

Sampling Procedure

A simple random sampling technique was employed. A list of all nurses working in the EOPD was obtained from the hospital's human resources department. Each eligible nurse was assigned a number, and a random number generator was used to select participants until the sample size of 30 was reached.

Inclusion Criteria: Nurses working in the EOPD at

Lubaga Hospital, with at least 6 months of continuous work experience in the EOPD and who voluntarily consented to participate in the study

Exclusion Criteria: Nurses on leave or unavailable during the data collection period

Dependent Variable: Effective management of hypertensive emergencies

Research Instrument

Data were collected using a structured interviewer-administered questionnaire composed of both open- and close-ended questions. The questionnaire was divided into the following sections aligned with the study's specific objectives:

The questionnaire was pre-tested in a similar hospital setting to ensure clarity, relevance, and internal consistency.

Data Collection Procedure

After obtaining ethical approval, a letter of introduction was submitted to Lubaga Hospital administration. Eligible participants were identified with the help of hospital staff and provided with information about the study. After obtaining informed written consent, questionnaires were administered in a private and confidential setting. Completed questionnaires were securely stored and coded for analysis.

Data Management and Analysis

Completed questionnaires were checked for completeness and consistency before leaving the data collection site. Data were entered into Microsoft Excel, cleaned, and then exported to SPSS for analysis. Descriptive statistics such as frequencies, percentages, and means were used to analyze the data. Results were presented in the form of tables, charts, and graphs for easy interpretation.

Validity

The research instrument was reviewed by experts in emergency nursing and public health to ensure content validity and alignment with objectives.

Reliability

Research assistants were trained on data collection. The questionnaire was pre-tested at another urban hospital and refined based on the feedback.

Ethical Considerations

Ethical clearance was obtained from the relevant Institutional Review Board and Lubaga Hospital administration. All participants provided informed written consent. Participation was voluntary, and no participant was coerced. Confidentiality was maintained by using anonymous data collection and secure data storage.

Results

Table 1: Socio-Demographic Characteristics of Nurses on EOPD (n = 44)

Variable	Category	Frequency	Percentage (%)
Gender	Male	15	34.1
	Female	29	65.9
	Prefer not to say	0	0.0
Age Group	18–25 years	9	20.5
	26–35 years	17	38.6
	36–45 years	12	27.3
	46 years and above	6	13.6
Highest Level of Nursing Education	Certificate	20	45.5
	Diploma	15	34.1
	Bachelor's degree	9	20.5
	Master's degree or above	0	0.0
Years of Nursing Experience	Less than 1 year	12	27.3
	1–3 years	17	38.6
	4–6 years	9	20.5
	7 years and above	6	13.6
Years Worked in EOPD	Less than 6 months	15	34.1
	6 months–1 year	12	27.3
	1–3 years	10	22.7
	More than 3 years	7	15.9
Attended Training on Hypertension Management	Yes	13	29.5
	No	31	70.5

The table shows the majority, 29 (65.9%) of the respondents were female, while 15 (34.1%) were male. Regarding age, most respondents 17 (38.6%) fell within the age group of 26–35 years, followed by 12 (27.3%) aged 36–45 years. Those aged 18–25 years constituted 9 (20.5%), while the least 6 (13.6%) were aged 46 years and above.

In terms of nursing education, the largest number, 20 (45.5%) had attained a certificate level, followed by 15 (34.1%) who had a diploma. Only 9 (20.5%) had a bachelor's degree, and none had a master's degree. Regarding years of nursing experience, the highest proportion 17 (38.6%) had worked for 1–3 years, followed by 12 (27.3%) with less than one year of experience.

Adherence of Nurses to Existing Guidelines

Table 3: Adherence of Nurses to Existing Guidelines (n = 44)

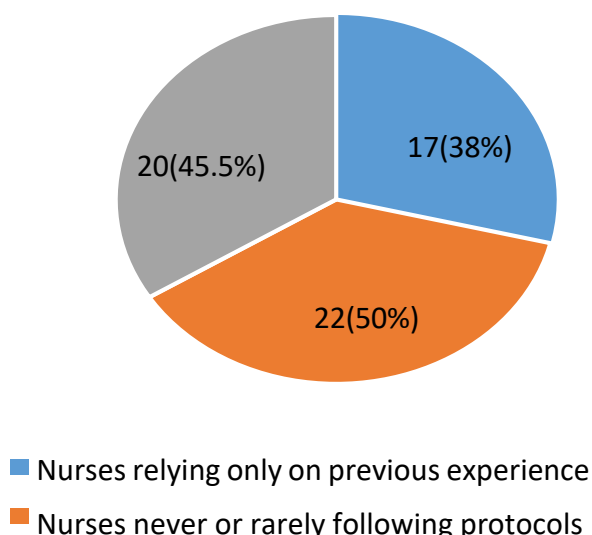
Variable	Category	Frequency	Percentage (%)
Guidelines Referenced	National Hypertension Guidelines	9	20.5
	Institutional protocols	7	15.9
	WHO guidelines	6	13.6
	I do not refer to any guideline	22	50.0
Frequency of Following Protocols	Always	7	15.9
	Sometimes	15	34.1
	Rarely	13	29.5
	Never	9	20.5
Barriers to Adherence	Lack of training	17	38.6
	Absence of printed protocols	12	27.3
	Time pressure	9	20.5
	Not familiar with guidelines	6	13.6
Accessibility of Updated Protocols	Yes	13	29.5
	No	31	70.5
Actions When Unsure	Consult senior nurse/doctor	15	34.1
	Refer to printed guideline	4	9.1
	Use previous experience	17	38.6
	Wait for a physician	8	18.2
Self-rated Compliance	High	6	13.6
	Moderate	12	27.3
	Low	20	45.5
	Not sure	6	13.6
Frequency of CPD Sessions	Monthly	3	6.8
	Quarterly	6	13.6
	Annually	9	20.5
	Not at all	26	59.1
Knowledge-related barriers	Lack of training on hypertensive emergencies	17	38.6
	Limited familiarity with guidelines	6	13.6
Resource-related barriers	No access to updated guidelines	31	70.5
	Absence of printed protocols	12	27.3
Workload and System Barriers	Time pressure during emergencies	9	20.5
	Lack of CPD sessions	26	59.1

Those with 4–6 years of experience were 9 (20.5%), while the minority 6 (13.6%) had more than 7 years of experience. Concerning duration of work in the Emergency Outpatient Department (EOPD), the majority 15 (34.1%) had worked for less than 6 months, 12 (27.3%) had worked for 6 months to 1 year, 10 (22.7%) had 1–3 years of experience, while the least 7 (15.9%) had more than 3 years. Most respondents 31 (70.5%) had never attended any in-service training or workshop on hypertension management, while only 13 (29.5%) had attended such training, highlighting a major skills gap that may affect effective management of hypertensive emergencies.

The table shows the majority 22 (50.0%) of nurses reported that they did not refer to any guideline when managing hypertensive emergencies, followed by 9 (20.5%) who used national guidelines, 7 (15.9%) who relied on institutional protocols, and the least 6 (13.6%) who used WHO guidelines. Regarding frequency of following protocols, most respondents 15 (34.1%) sometimes followed guidelines, followed by 13 (29.5%) who rarely did, 9 (20.5%) who never followed protocols, while only 7 (15.9%) always adhered. In terms of barriers, the majority 17 (38.6%) reported lack of training, followed by 12 (27.3%) citing absence of printed protocols, 9 (20.5%) reporting time pressure, while 6 (13.6%) said they were unfamiliar with guidelines. Concerning accessibility, the majority 31 (70.5%) said updated protocols were not available at their workplace, while 13 (29.5%) acknowledged availability. On actions taken when unsure, most nurses 17 (38.6%) relied on previous experience, followed by 15 (34.1%) who sought guidance from senior

staff, 8 (18.2%) who waited for a physician, and the least 4 (9.1%) who consulted printed guidelines. For self-rated compliance, the majority 20 (45.5%) rated their compliance as low, followed by 12 (27.3%) moderate, 6 (13.6%) not sure, and minority 6 (13.6%) reporting high compliance. Regarding CPD sessions, the majority 26 (59.1%) reported that no sessions were held at all, followed by 9 (20.5%) who said sessions occurred annually, 6 (13.6%) quarterly, and the least 3 (6.8%) monthly. The leading barrier was lack of access to updated guidelines, reported by the majority 31 (70.5%) of respondents, followed by 26 (59.1%) who said that no continuing professional development sessions were conducted at the facility. Knowledge gaps were also evident, with 17 (38.6%) citing lack of training and another 6 (13.6%) unfamiliar with guidelines. Regarding resource challenges, 12 (27.3%) reported lack of printed protocols, while 9 (20.5%) noted that time pressure during emergencies prevented adherence.

Figure 2: Shows Practice-related gaps



From figure 2 in terms of practice gaps, a notable number 17 (38.6%) relied solely on previous experience, while 22 (50.0%) never or rarely followed guidelines, and 20 (45.5%) rated their compliance as low, indicating widespread challenges in standardized care delivery

Impact of Nurse Workload on Management of Hypertensive Emergencies

Table 4: Nurse Workload and Its Influence on Management (n=44)

Variable	Category	Frequency	Percentage (%)
Average patient load per shift	Less than 10	4	9.1
	10–20	10	22.7
	21–30	12	27.3
	More than 30	18	40.9
Effect of workload on ability to manage	Severely affects	20	45.5
	Moderately affects	13	29.5
	Slightly affects	8	18.2
	Does not affect	3	6.8

Table 4: Nurse Workload and Its Influence on Management (continued)

Variable	Category	Frequency	Percentage (%)
Aspects of workload that impact most	High number of patients	9	20.5
	Inadequate staffing	12	27.3
	Long shifts	7	15.9
	All of the above	16	36.4
Delayed treatment due to workload	Yes	28	63.6
	No	16	36.4
How hypertensive emergencies are prioritized	Based on severity	16	36.4
	First come, first served	10	22.7
	As directed by physician	13	29.5
	Based on equipment availability	5	11.4
Belief that hiring more staff would improve care	Yes	38	86.4
	No	6	13.6

The table shows the majority 18 (40.9%) of respondents reported handling more than 30 patients per shift, showing a very heavy workload, followed by 12 (27.3%) who handled 21–30 patients. A smaller number 10 (22.7%) managed 10–20 patients, while the minority 4 (9.1%) attended to less than 10 patients per shift.

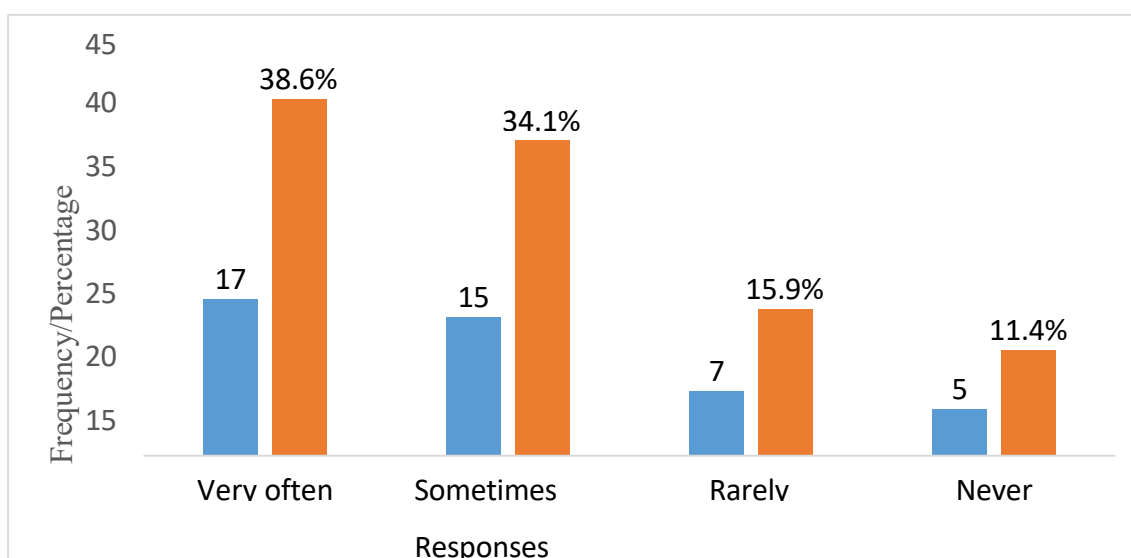
Regarding the effect of workload on hypertensive emergency management, most respondents 20 (45.5%) stated that workload severely affected their ability to manage cases, followed by 13 (29.5%) who said it moderately affected them. A few 8 (18.2%) reported that workload slightly affected them, and the least 3 (6.8%) mentioned no effect.

On workload aspects that affected them most, the majority 16 (36.4%) reported all of the above factors (high patient numbers, inadequate staffing, long shifts), followed by 12 (27.3%) who identified inadequate staffing. Those citing

high patient numbers were 9 (20.5%), while the minority 7 (15.9%) mentioned long shifts.

Concerning treatment delays, the majority 28 (63.6%) acknowledged that they had delayed treatment due to workload, whereas 16 (36.4%) reported they had not experienced such delays. Most respondents 16 (36.4%) reported that they prioritized hypertensive emergencies based on severity, followed by 13 (29.5%) who managed cases as directed by a physician. A smaller number 10 (22.7%) used a first come, first served approach, while the least 5 (11.4%) prioritized based on equipment availability, indicating challenges with resources. Regarding staffing needs, the majority 38 (86.4%) believed that hiring more staff would improve hypertensive emergency care, while only 6 (13.6%) felt it would not, showing a clear staffing gap.

Figure 3: Shows frequency of fatigue/burnout affecting judgment.



From figure 3 concerning burnout, the majority 17 (38.6%) experienced fatigue very often, followed by 15 (34.1%) who experienced it sometimes. A smaller number 7 (15.9%) experienced burnout rarely, while the minority 5 (11.4%) reported never experiencing clinical fatigue.

Discussion

Socio-demographic characteristics of respondents.

The majority 65.9% of the respondents were female. This could be because nursing is a profession that is traditionally female-dominated in many countries, including Uganda. This finding is in agreement with a study by Dulas & Brysiewicz (2018) conducted in South Africa, which revealed that most nurses working in emergency care units were female, reflecting the gender structure of the nursing workforce. The similarity in both studies is likely because the nursing profession across Africa continues to attract more females due to historical gender roles and training patterns within the health sector.

The majority 38.6% of respondents were aged 26–35 years. This could be because many nurses enter the workforce soon after qualification, which results in a younger workforce in emergency departments. This finding is in agreement with a study by Ndung'u et al. (2022) in Kenya, which revealed that most nurses handling hypertensive emergencies were in the early stages of their careers and fell within the youthful age bracket of below 40 years. The similarity between the studies could be because emergency outpatient departments (EOPD) demand more energetic and younger staff who can manage the fast-paced, high-pressure work environment. The majority 45.5% had attained a certificate in nursing. This could be because certificate-level training is the most common entry point into nursing practice in Uganda, and many health facilities still depend heavily on certificate nurses due to shortages of highly trained staff. This result is in disagreement with a study by Dulas & Brysiewicz (2018) conducted in South Africa, which revealed that most nurses managing hypertensive emergencies had at least a diploma-level qualification. The difference in the results could be because South Africa has a higher proportion of nurses with advanced training due to better educational infrastructure and stronger professional development systems compared to Uganda.

The majority 38.6% had 1–3 years of nursing experience. This could be because many nurses are still early in their careers and EOPDs often rely on younger nurses with fewer years of practice due to staff turnover and shortages. This finding is in agreement with a study by Siame et al. (2025) in Zambia, which showed that a substantial proportion of emergency nurses had fewer years of working experience and often lacked confidence in managing

hypertensive emergencies. The similarity may be because health facilities in low-resource settings continuously experience turnover, resulting in EOPDs being staffed predominantly by relatively inexperienced nurses.

The majority 34.1% had worked in the EOPD for less than 6 months. This could be because emergency departments frequently rotate staff or deploy new employees due to high workload and staff shortages. This finding is in agreement with a study by Monakali et al. (2018) conducted in South Africa, which reported that many nurses working in emergency units had short durations of placement due to frequent rotations and transfers caused by understaffing. The similarity is likely because emergency departments in many African countries experience high staff turnover and use temporary deployment strategies to maintain service provision.

The majority 70.5% had never attended any in-service training or workshop on hypertension management. This could be because continuing professional development opportunities are limited, and facilities may not prioritize hypertension emergency management training due to resource constraints. This finding is in agreement with a study by Katende et al. (2019) conducted in Uganda, which revealed that a large proportion of nurses were unaware of updated hypertension management guidelines due to lack of training. The similarity between the studies could be because many health facilities in low- and middle-income countries lack structured, frequent, and accessible training programs, leading to persistent knowledge gaps among nurses managing hypertensive emergencies.

Adherence of Nurses to Existing Guidelines

The majority 50.0% of nurses reported that they did not refer to any guideline when managing hypertensive emergencies. This could be because guidelines may not be easily accessible or nurses may lack confidence in interpreting them. This is in agreement with a study by Okoli et al. (2021) done in Nigeria, which revealed that 59% of nurses were not consistently following clinical guidelines during hypertensive crises. The similarity in the studies is because both settings experience challenges related to insufficient training and limited access to updated guideline materials, making nurses rely on informal practices instead of standardized protocols.

The majority 34.1% sometimes followed guidelines during management of hypertensive emergencies. This could be because inconsistent availability of protocols and high workloads make it difficult to maintain strict adherence. This is in agreement with a study by Reddy et al. (2020) conducted in India, which revealed that 38% of nurses deviated from or were unaware of the national hypertension management guidelines. The similarity between the 7 studies arises because nurses in busy emergency outpatient departments often lack adequate

institutional support to consistently follow formal guideline recommendations.

The majority 38.6% reported lack of training as their main barrier to guideline adherence. This could be because many healthcare facilities do not conduct regular refresher courses or offer specialized training on hypertensive emergency management. This is in agreement with a study by Katende et al. (2019) done in Uganda, which revealed that 67% of nurses were unaware of the latest guidelines due to lack of proper training. The similarity is because both studies highlight limited continuing professional development opportunities as a key contributor to poor guideline knowledge in low-resource settings.

The majority 70.5% indicated that updated guidelines were not available at their workplace. This could be because many facilities in low-resource environments lack printed or digital copies of updated protocols, and distribution systems for clinical guidelines are often weak. This is in agreement with a study by Vedanthan et al. (n.d.) done in Kenya, which revealed that nurses in rural and resource-poor settings had lower adherence due to lack of access to relevant guidelines. The similarity could be because both contexts share systemic resource limitations that hinder guideline dissemination and availability.

The majority 38.6% relied on previous experience when unsure of what to do during hypertensive emergencies. This could be because in the absence of guidelines and adequate training, nurses fall back on personal experience as a practical and immediate solution. This is in agreement with a study by Katende et al. (2019) in Uganda, which revealed that nurses often relied on personal experience or outdated practices instead of standardized guidelines. The similarity is because lack of accessible and updated guidelines forces nurses in many African settings to depend on experiential knowledge rather than evidence-based protocols.

The majority 45.5% rated their compliance with guidelines as low. This could be because inconsistent training, lack of supervision, and limited guideline availability reduce nurses' ability to adhere to recommended standards. This is in agreement with a study by Siko (2016) done in South Africa, which revealed that 45% of nurses were not fully compliant with international guidelines due to heavy workloads and inadequate oversight. The similarity is because emergency departments across the region face similar systemic issues—staff shortages, high patient loads, and weak monitoring—that hinder compliance.

The majority 59.1% indicated that no continuing professional development (CPD) sessions were conducted at the facility. This could be because resource shortages and limited administrative prioritization prevent the organization of regular CPD programs. This is in agreement with a study by Adu-Bonsaffoh et al. (2022) conducted in Ghana, which revealed that lack of standardized procedures and

training limited nurses' adherence to hypertensive emergency guidelines. The similarity in the studies is because facilities in low- and middle-income countries often lack structured CPD frameworks, which results in inadequate skill enhancement for nurses.

The majority 70.5% identified lack of access to updated guidelines as the leading barrier. This could be because many health systems do not invest in producing or supplying regularly updated treatment protocols to lower-level facilities. This is in agreement with a global analysis by Posen et al. (2022), which found that many nurses in low- and middle-income countries struggle to apply guidelines due to poor accessibility and logistical barriers. The similarity may be because both local and international contexts highlight systemic distribution challenges that hinder effective guideline implementation.

The majority 59.1% indicated that no CPD sessions were conducted, contributing to knowledge gaps. This could be because emergency departments may lack funding, trainers, or institutional commitment to regular education programs. This is in agreement with a study by Mwangoka et al. (2018) done in Tanzania, which revealed that nurses rarely adhered to recommended drug protocols partly due to inadequate supervision and training. The similarity is because both settings suffer from insufficient ongoing education, leading to poor application of evidence-based practices.

The majority 27.3% reported lack of printed protocols as a resource challenge, and 20.5% noted time pressure as a barrier to adherence. This could be because emergency settings are busy environments where limited resources and urgent cases make it difficult to follow written protocols even when available. This is in agreement with findings by Siko (2016) in South Africa, which revealed that work overload and understaffing contributed to nurses failing to apply evidence-based guidelines. The similarity arises because institutional constraints such as workload pressure and lack of guideline materials affect emergency nurses across the region.

The majority 38.6% relied solely on previous experience and 50.0% never or rarely followed guidelines, while 45.5% rated their compliance as low, indicating widespread practice gaps. This could be because poor training, inadequate supervision, and lack of guidelines force nurses to depend on personal judgement instead of standardized protocols. This is in agreement with a study by Adu-Bonsaffoh et al. (2022) in Ghana, which revealed that absence of standardized procedures contributed to inconsistent application of guidelines. The similarity in the studies is because inconsistent institutional support and weak clinical governance lead to poor adherence to recommended hypertensive emergency management

8 practices.

Impact of nurse workload on management of hypertensive emergencies

The majority 18 (40.9%) of respondents reported handling more than 30 patients per shift, indicating a very heavy workload. This could be because emergency departments in Uganda are often understaffed and receive high patient inflows, forcing nurses to manage large caseloads. This finding is in agreement with a study by Charan et al. (2025) done in India, which revealed that 72% of nurses reported extremely high patient numbers that significantly hindered their ability to manage hypertensive emergencies. The similarity in the studies is because both settings experience high patient-to-nurse ratios and limited staffing, which places heavy workload burdens on emergency nurses in low-resource health systems.

The majority 20 (45.5%) stated that workload severely affected their ability to manage hypertensive emergencies. This could be because excessive workload reduces the time available for nurses to perform proper assessment, monitoring, and adherence to treatment guidelines. This is in agreement with a study by Trousselard et al. (2016) done in the United States, which revealed that 68% of nurses reported that workload was a major factor contributing to errors in managing hypertensive crises. The similarity between the studies is because emergency departments worldwide face high stress, multitasking demands, and time pressure, which compromise clinical decision-making and management of critical patients.

The majority 16 (36.4%) reported that all workload-related factors (high patient numbers, inadequate staffing, long shifts) affected them most. This could be because multiple workload pressures combined create cumulative strain, lowering efficiency and limiting nurses' ability to follow emergency protocols. This finding is in agreement with a study by Kabunga et al. (2024) done in Uganda, which revealed that high patient numbers and inadequate staffing directly increased stress and forced nurses to take shortcuts when managing hypertensive emergencies. The similarity is because nurses in both studies experience multiple overlapping workload challenges that reduce the quality of hypertensive emergency care.

The majority 28 (63.6%) acknowledged that they had delayed treatment due to workload. This could be because high workload slows triage processes and reduces the time available to stabilize hypertensive emergency cases promptly. This finding is in agreement with a study by Monakali et al. (2018) done in South Africa, which revealed that 58% of nurses experienced delayed interventions during hypertensive emergencies due to overwhelming workloads. The similarity is because emergency units in both countries struggle with understaffing and high patient volumes that make timely response difficult.

Most respondents 16 (36.4%) reported prioritizing hypertensive emergencies based on severity. This could be because nurses rely heavily on triage systems when overwhelmed with high caseloads to ensure the most critical patients are attended to first. This finding is in agreement with a study by Galson et al. (2019) done in Tanzania, which revealed that nurses in emergency settings used severity-based prioritization because workload made it difficult to attend to all patients promptly. The similarity is because triage-based prioritization becomes necessary in resource-limited, high-pressure emergency departments with overwhelming workloads.

The majority 38 (86.4%) believed that hiring more staff would improve hypertensive emergency care. This could be because increasing the number of nurses would reduce workload, enhance adherence to treatment protocols, and allow timely management of emergencies. This finding is in agreement with WHO (2023) global reports, which state that the shortage of nurses contributes to compromised emergency care and recommend increased staffing to reduce stress and improve patient outcomes. The similarity is because both the current study and WHO recognize inadequate staffing as a key barrier affecting nurses' ability to manage hypertensive emergencies effectively.

The majority 17 (38.6%) experienced fatigue very often, indicating high levels of burnout. This could be because persistent heavy workload, long shifts, and high-stress emergency situations exhaust nurses physically and mentally. This finding is in agreement with Galson et al. (2019) done in Tanzania, which found that 54% of nurses experienced burnout due to overwhelming workloads in emergency units. The similarity is because emergency nurses in both contexts face constant pressure, inadequate staffing, and high patient demands, all of which lead to frequent clinical fatigue.

Study Limitations

Response bias: Nurses may have provided socially desirable responses. Confidentiality assurance helped reduce this.

Limited generalizability: Results may not have applied to nurses in other departments or hospitals.

Conclusions

Findings on socio-demographic characteristics showed that the nursing workforce was mostly female, with 65.9% of respondents being women. A large number were young and less experienced, with 38.6% aged 26–35 years and 38.6% having only 1–3 years of experience. Additionally, 70.5% had never attended in-service training on hypertension management, indicating limited professional exposure.

Concerning adherence to guidelines, the study showed that compliance was generally low. About 68% did not consistently follow standard treatment

protocols, 73% did not monitor blood pressure at the recommended intervals, and 57% rarely used national or hospital guidelines. Moreover, 70.5% lacked access to updated guidelines, and 70% reported inadequate training as a major barrier to adherence.

Recommendations

To the Ministry of Health:

The Ministry of Health should organize regular in-service training and continuous professional development sessions on hypertensive emergency management. They should ensure that updated clinical guidelines are accessible at all health facilities and recruit additional staff to reduce workload and improve quality of care.

To the Health Workers:

Health workers should actively participate in training sessions, update their clinical knowledge regularly, and adhere strictly to established guidelines when managing hypertensive emergencies. They should also seek guidance from senior staff when unsure.

To the Respondents:

Nurses should follow standardized protocols consistently, prioritize cases based on severity, and report any barriers to effective management. They should also rely less on personal experience and more on evidence-based practices to improve patient outcomes.

Nursing Implications

Nurses need to enhance their knowledge and confidence in identifying and managing hypertensive emergencies to reduce delays and improve patient outcomes. Regular training and adherence to guidelines are essential.

low adherence to protocols highlights the need for nurses to consistently follow standardized guidelines, which ensures safe and effective management of hypertensive crises.

Heavy patient loads and understaffing negatively affect care quality. Nurses should advocate for adequate staffing and utilize triage systems to prioritize patients based on severity.

Nurses should engage in lifelong learning, attend CPD sessions, and regularly update their clinical knowledge to maintain competency in emergency

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List of Abbreviations

EOPD: Emergency Outpatient Department

UHPAB: Uganda Health Professions Assessment Board

UNMEB: Uganda Nurses and Midwives Examination

WHO: World Health Organization

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Author contributions

Namutale Ritah conceived the study, developed the research proposal, designed the data collection tools, conducted data collection, performed data analysis, and drafted the manuscript.

Data availability: Data is available upon request.

Informed consent: All the participants consented to this study.

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