ORIGINAL RESEARCH ARTICLE

Nurses' preparedness and hospital-associated factors of forensic nursing care at Kenyatta national hospital's accident and emergency department

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Abstract

A comprehensive response to violence, a global menace with consequences beyond medical interventions, is multipronged. The nursing profession has a duty to society through forensic nursing, a specialty that bridges the gap between the legal and health systems, in the fight against violence. In the face of increased incidences of victims/survivors of violence visiting hospitals primarily via Accident and Emergency (A&E) departments, forensic nursing preparedness, and associated hospital factors deserve scrutiny. This study sought to establish the level of preparedness to provide forensic nursing care among nurses working in the A&E department at Kenyatta National Hospital (KNH) and reveal hospital-related factors associated with it. The A&E department as the port of entry for victims/survivors of violence at KNH was purposively selected as the setting of the study. The department receives averagely 3000 patients a day, 24% of whom are potential forensic patients according to hospital patients' attendance registers. A convergent mixed-method research design was adopted. A sample of (n=81) nurses working at the A&E department of KNH selected through census method completed filling self-administered web-based modified Knowledge Questionnaire over Forensic Nursing Practice (KQFNP), over eight weeks. Key informant interviews were conducted and captured manually among seven (n=7) purposively selected section in-charges. The observational checklists were used to carry out a structural audit of the hospital factors. The Chi-square and Fisher exact tests of significance $p<.05$ were used to test the null hypothesis of no association between hospital factors and the level of nurses' preparedness to provide forensic nursing care at the A&E department of KNH. Binary logistic regression analysis was used to predict odds of preparedness, with findings presented using tables and a figure. Qualitative data were subjected to thematic analysis and presented in verbatim and narrations. Findings revealed that 18.5% (n=15) of study respondents had a high level of preparedness to provide forensic nursing care, this was reinforced by key informant (KI-1)*…"most nurses are ill-prepared to provide forensic nursing care, except for sexual assault cases…"*

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A structural audit of the department revealed a dearth of material resources needed to provide quality forensic nursing care except for sexual assault cases. Bivariate analysis using the Chi-square/fisher exact test of association revealed that among the hospital-related factors: recognition of the nurses 'contribution in forensic care by hospital administrators (fisher exact value =8.519; p value=0.012) and provision of forensic evidence collection kits (X2 value =8.637; df=2; p value=0.013) were significantly associated with preparedness. Binary logistic regression analysis revealed that those who were unsure of recognition by hospital administration of their contribution were 99.8% less likely to be prepared compared to those who were affirmative (COR= 0.150; 95% CI =0.035-0.638; P=0.010) while those who were unsure of the provision of forensic evidence collection kits were 99.8% less likely to be prepared compared to those who reported the kits were provided (COR= 0.117; 95% CI =0.023-0.584; P=0.009). The null hypothesis of no association between hospital factors and preparedness was rejected. The majority of study respondents had low levels of preparedness to provide forensic nursing care. Recognition of nurses' contribution in caring for forensic patients and the availability of evidence collection kits are significantly associated with preparedness. KNH's A&E department should adopt a system approach to preparedness by availing hospital resources supportive of preparedness to provide forensic nursing care.

Keywords: Emergency department, forensic nursing, hospital-related factors, preparedness, nurses

1.0 Introduction

The preparedness to respond holistically to violence which has become a major public health issue globally, is a priority for the world's health systems. The World Health Organization (WHO) (2019) defines 'violence' as the intentional use of physical force or power be it actual or threatened against self or another person with resultant injury, psychological harm, or even death. It takes various forms like physical, sexual, or psychological, and victims of violence often constitute forensic patients (Feizi Nazarloo et al., 2017). Forensic nursing as a subspecialty within nursing has a critical input in ensuring holistic care to both victims and perpetrators of violence. It extends care beyond clinical, through selected interventions like prioritization of collection and preservation of evidence for possible use in medico-legal cases (Emami et al., 2024).

A study by Butchart and Mikton (2014) revealed that injuries arising from violence are among the major reasons why individuals seek health care and account for over 9% of deaths globally. South Africa for example has high levels of violent crimes with poor prosecution and conviction rates. Statistics in South Africa showed that 50000-55000 rape cases were reported annually but only 7% were successfully prosecuted. The poor outcome of those prosecutions was partly attributable to poor collection and protection of medical evidence by health workers (McQuoid-Mason & Dada, 2011; Duma &De Villers, 2014). According to Kenya Demographic Health Survey (KDHS) report by

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Kenya National Bureau of Statistics (KNBS, 2023), 33 % of women aged between 15-49 years old were reported to have been physically violated, while 14% reported having been victims of sexual violence. Botchy et al., (2017) undertook a study to understand the pattern of injuries in Kenya with Kenyatta National Hospital (KNH) as the setting. The study revealed that the males are most affected (81.7%). The causes of injuries included road traffic accidents (41.7%), assaults (25.3%), and falls (18.9%). The study also showed that 1% of patients seen in KNH died in the emergency department during the study. A survey by Kamau et al. (2016) on sexual and gender-based violence (SGBV) in the SGBV clinic at KNH revealed that about 156 survivors visited the clinic during the one-month study period. These categories of patients require the services of a well-prepared professional forensic nurses to guarantee holistic care. Studies in countries like Sweden and the USA showed that nurses with good knowledge, appropriate attitudes and enabling hospital resources toward the integration of forensic principles in caring for trauma patients are assets to the institutions. There were better success rates of prosecution where trained nurses on aspects of forensics were involved in evidence collection, and even as expert witnesses, particularly in sexual assault-related cases (ENA, 2018). A study done on selected hospitals in Kenya by Ajema et al. (2018) established that the outcome of prosecuted cases of sexual and gender-based violence (SGBV) depended on the standardized collection, preservation, documentation, and storage of medical forensic evidence. Most SGBV cases were lost due to poor evidence collection by the ill-prepared health workforce. While standardized forensic evidence collection kits have been developed and adopted for use by the majority of countries across the globe the challenge of availability and accessibility for use when required remains. Which on certain occasions necessitates improvisation of kits by health care workers with potential for evidence contamination (Cunha et al., 2016).

The 69th resolution by the World Health Assembly (WHA) appreciating the economic and health consequences of violence, stressed the need to improve the capacity of healthcare workers to respond to violence against vulnerable members (WHO, 2024). The government of Kenya for instance has invested heavily in National forensic labs, which notwithstanding particularly concerning forensics, if nurses who mostly get into contact with such patients are not well prepared, the chain remains weak (Mageto et al., 2017). The current review of the literature revealed the paucity of studies focusing on the status of preparedness to provide forensic nursing, the system approach to the study of preparedness to provide forensic nursing with focus on hospital enabling factors, and the use of a more comprehensive study design of a mixed-method design particularly in KNH setting. Using a convergent mixed method design the study sought to establish the level of preparedness to provide forensic nursing care and reveal hospital-related factors associated with the preparedness. The findings of the study exposed the level of preparedness by nurses to safely handle forensic patients at KNH's A&E department and also revealed hospital factors supportive of preparedness to quality forensic care in the facility. A

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picture that would inform infrastructural and process adjustments to enhance quality of forensic nursing care at KNH's A&E department.

2.0 Methods and materials

2.1 Study setting

This was a single-site study that was conducted at KNH in its A&E department. KNH is the largest, level 6 public hospital in Kenya and is located in Nairobi City County. Emergency services, most of which result from trauma, are handled first at the A&E department of the KNH. Averagely 24% of patients seen in the A&E department of KNH daily, are trauma patients and they are potential forensic patients. The Nurses stationed at the department according the staff attendance register were approximately 130, none of them was trained in forensic nursing. The site is suitable for the study as in most cases potential forensic patients have forensic evidence lost or contaminated at the port of entry in the hospital set up. Therefore, preparedness of nurses working in such departments to provide forensic nursing care and prevent possible contamination or loss of forensic evidence is a necessity.

2.2 Research design

The study adopted a convergent mixed-method research design incorporating cross-sectional analytical and descriptive qualitative designs, for data complementary purposes (Creswell & Plano Clark, 2023).

2.3 Study population

The target population was nurses working at the KNH A&E department. Approximately 130 nurses work in the department, with some as staff nurses while others hold different leadership positions in the department as section heads. Qualified KNH nurses, currently working in the A&E department, and proficient in mobile technology were included in the study, while those on terminal leave, unwilling to voluntarily consent, or acutely ill were excluded.

2.4 Study variables

The study's independent variables were hospital-related factors: staffing, special rooms, recognition of the contribution by hospital administrators, support from other team members, provision of evidence collection kits, provision of documents for forensic cases, provision of in-service training on forensic aspects, networking with other institutions, and provisions of the camera, forensic nursing protocols. The dependent variable was preparedness to provide forensic nursing care, categorized into high and low levels. The indicators of preparedness were knowledge levels, attitude, and self-reported competencies. There were five areas and 25 items under knowledge over forensic nursing practice: concepts of forensic nursing (4 items), clinical scenarios with forensic contours (5 items), forensic traces (5 items), collection and perseveration of forensic evidence (6 items), and communication and documentation of forensic scenarios (5 items). The

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attitude levels were assessed using 7 items and self-reported competences were assessed using 5 items.

2.5 Sampling technique

A census method was adopted for the study whereby data were collected from every nurse working in A&E (n=130) who met the inclusion criteria. The method was informed by the fact that the calculated sample size was numerically close to the size of the target population. Section in-charges (n=7), were selected purposely due to their presumed vantage positions of leadership for qualitative data collection.

2.6 Data collection tools

The study deployed a researcher-modified web-based Knowledge Questionnaire over Forensic Nursing Practice (KQFNP) by Cunha et al. (2016), key informant interview guide, and observational checklist to collect data. KQFNP had five sections: respondents' demographic characteristics, hospital-related factors, knowledge of forensic nursing principles, attitudes towards forensic nursing practice and self-reported competencies. The key informant interview guide was based on the study's specific objectives. Observational checklist was based on list of basic material, infrastructural and process requirements for the provision of forensic nursing care

2.6 Data quality assurance

Pretesting of study tools was carried out two weeks before the date of actual data collection in the Sexual and Gender-Based Violence (SGBV) clinic at KNH. The structured questionnaire was pretested on eight (n=8) nurses who met the study inclusion criteria and the key informant interview guide was pretested on the clinic nurse in charge and her deputy. The observational checklist was also pretested at the same clinic. The information received from the pre-test was used to rework the tools to make them better at capturing the intended data. Two (2) research assistants were selected based on their fluency in the English language and basic computer package proficiency. They underwent training on how to guide and mobilize study participants for online administration of the structured questionnaires.

2.7 Data collection procedure

Formal written permission to collect data from nurses working in the A&E department at KNH was obtained from the Research and Programs Department of KNH before actual data collection. The lead investigator and the two research assistants familiarized themselves with the nursing staff working in the A&E department and their leadership. The objectives of the study were explained to the study participants. Informed consent was obtained from the study respondents. The principal investigator got authorization to mount the tool on the staff WhatsApp group wall where the study participants were recruited to fill out the structured questionnaires in a Google Forms format, and then submit them. The Google forms were designed with security settings allowing only one response per respondent, end-to-end encryption minus recording the emails or mobile

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numbers of the study respondents, ensuring de-identification of study respondents. The key informant interviews were conducted in secure and private rooms. The observational checklist was used to do a structural audit of the availability and accessibility of material resources for forensic care. Data from interviews and observational checklists were entered into the computer and kept under password-guided access. The hard copies were kept under lock and key in the lead researcher's cabinet.

2.8 Data management and analysis

Data analysis was guided by study-specific objectives and hypotheses. The Statistical Package for Social Sciences SPSS 28.0 (version) was used in descriptive and inferential statistical analysis. Demographic variables were analyzed in terms of frequencies and percentages. The knowledge, attitude, and self-reported competencies in forensic nursing had a total of 37 items. A correct response on knowledge of forensic nursing practice was coded 1, while an incorrect response was coded zero. In assessing attitude, the positive attitude was code 1 while the negative attitude was coded zero. For self-reported competencies, moderately and highly competent were code 1, while slightly and not competent were coded 0. Percentage scores of less than 75% on the 37 items were considered low levels of preparedness, while scores equal to or greater than 75% were considered high levels of preparedness. The cut-off levels reflected the position taken by Cunha et al., (2016) where they held that scores in knowledge of forensic practice of 74% and below were insufficient, factoring in the harmful consequences of contaminating or losing forensic evidence. To establishing associations between selected independent variables and levels of preparedness to provide forensic nursing, Chi-square/fisher's exact, binary logistic regression, and multivariate logistic regression tests were used. For the tests, a statistical significance level of < 0.05, at a confidence interval of 95% was adopted. Qualitative data were analysed into themes and sub themes and presented as verbatim and narrations.

2.9 Study limitations

The survey was a single-site study of a public hospital located in the capital city of Kenya, Nairobi. It would therefore be difficult for the findings to be generalized to the rest of the facilities in the country. The use of a structured questionnaire and interview guide minus the benefit of using an observational checklist on practice to establish the real-life performance of forensic nursing care made it difficult to establish the actual readiness to provide forensic care. The response rate was about 63%, indicating those who lack interest in the study might have not participated creating risk for response bias. The validity of data relied to a greater extent on the study respondents' honesty and truthfulness. They were encouraged to be as honest as possible, as the data would remain confidential. Some study respondents had problems maneuvering the web-based tool, due to a lack of internet and unfamiliarity with such applications, reducing the response rate. As much was feasible the principal researcher and research assistants were available to assist on the use technology. The researcher adopted triangulation, through mixed method design, to improve data validity.

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3.0 Results

3.1 Response rate

The sample size of 81 participants out of 130 nurses took part in the study resulting in a response rate of 63.0%.

3.2 Socio-demographic characteristics of the study respondents

The majority of study respondents were females 66.7% (n=54). In terms of professional qualifications, most were holders of diplomas in nursing (66.7%, n=54). Years of post-licensure experience, a majority of respondents were above 10 years at 45.7% (n=37). Based on designation, it was observed that the study respondents who had Nursing Officer III were least represented at 18.5% (n=15), and by age those between 31-40 years 45.7% (n=37) were the majority. Most of the study respondents were Christians and residing in what they considered as peri-urban areas of the Nairobi metropolis. Most had worked in the department for more than 2 years and had undertaken training in trauma and emergency nursing. As indicated in Table 1

Table 1: Socio-demographic characteristics of the study population

Variables	Categories	Frequency (n)	Percentage (%)
Gender	Male	27	33.3
	Female	54	66.7
Highest professional qualification	MSCN	6	7.4
	BSCN	21	25.9
	KRM/KRN/KRCHN	54	66.7
Years of experience	Below 5 years	19	23.5
	5-9 Years	25	30.9
	10 years and above	37	45.7
Current designation	NO III	15	18.5
	NO II	24	29.6
	NO I	24	29.6
	SNO	18	22.2
Age in years	21-30 Years	14	17.3
	31-40 Years	37	45.7
	41-50 Years	30	37.0
Religion	Christian	58	71.6
	Muslim	12	14.8
	Pagan	3	3.7
	Others	8	9.9
Residence	Rural	7	8.6
	Urban	36	44.4
	Peri-urban	38	46.9
	Below 12 months	14	17.3

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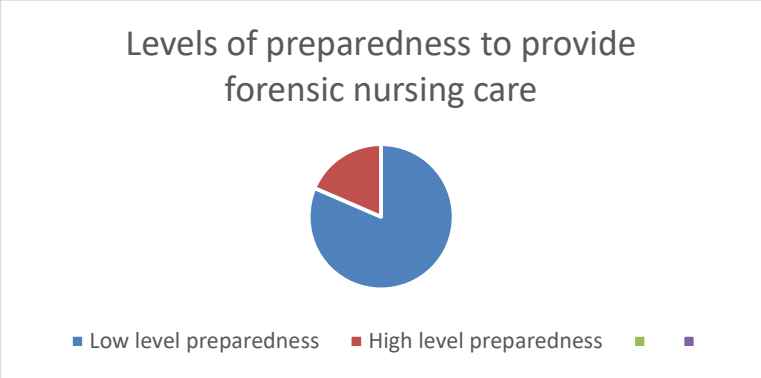
Years worked in the accident and emergency department	12-23 months	8	9.9
	24 months and above	59	72.8
Specialty trained	Trauma and emergency nursing	31	38.3
	Critical nursing	14	17.3
	Peri-operative nursing	9	11.1
	Midwifery	4	4.9
	Renal	3	3.7
	None	20	24.7

3.3 Level of nurse preparedness to provide forensic nursing care

On the 37 items considered in measuring the level of preparedness to provide forensic nursing 81.5% (n=66) had scores less than 75%, and only 18.5% (n=15) had scores of 75% and above. See figure 2

Figure 2: Level of Nurse Preparedness to Provide Forensic Nursing Care



3.4 Qualitative data on nurse preparedness to provide forensic nursing care

The qualitative data was gathered through in-depth interviews conducted among section in-charges in the Accident and Emergency department using semi-structured key informant interview guide. The following theme was generated:

Theme 1: Preparedness to provide forensic nursing care

This theme had two sub-themes: highly prepared on forensic nursing care and low preparedness on forensic nursing care

Participants complained not sufficiently prepared on forensic nursing care. In particular, one participant said:

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"*Nurses are not sufficiently prepared. Assessment and identification of forensic patients are limited to sexual assaults clients. Other categories of forensic patients are not routinely assessed. Our focus is basically on clinical care*." KI,1

Another participant said: "*Though nurses are open to engaging in forensic care, they are ill-enabled. Filling of certain documents such as P3 and PCR forms are reserved for physicians*." KI,7

3.5 Availability of hospital-related factors and bivariate analysis of nurse preparedness in forensic nursing care in the A&E at KNH

The structured questionnaire revealed a mixed availability of hospital-related resources required in the provision of forensic nursing. The study respondents reported adequacy of staff at the department at 21% (n=17), availability of special rooms for caring forensic patients at 39.5% (n=32), hospital administration recognizing the contribution of nurses in the provision of forensic nursing care at 29.6% (n=24), other health care supporting their contribution in caring forensic patients was reported at 28.4% (n=23), availability of forensic evidence collection kits at 38.3% (n=31), provision of documentations was reported at 23.5% (n=19), hospital offering in-service training on forensic nursing aspects was reported at 28.4% (n=23), provision of linkages with other stakeholders in the care of forensic patients was reported at 33.3% (n=27), and availability of material resources such as cameras, envelopes, cabinets and protocols was reported at 25.9% (n=21). To assess the significance of the associations between these factors and preparedness levels, chi-square/fisher exact tests were performed. A p-value less than a chosen significance level (0.05) indicates a statistically significant association between the factor and preparedness level. Among the hospital-related factors: availability of special rooms for caring for forensic patients (X2 value =10.822; df=2; p value= 0.004); hospital administration recognizes the contribution of nurses in providing forensic nursing (fisher exact value =8.519; p value=0.012); other health team members in the A&E department supportive of nurses' involvement in forensic care (fisher exact value =8.493; p value=0.012); hospital administration provides forensic evidence collection kits for use (X2 value =8.637; df=2; p value=0.013); hospital administration provides forms for documenting forensic cases (X2 value =9.402; df=2; p value=0.009) and hospital administration provide linkages with other stakeholders to facilitate the provision of the forensic nursing (X2 value =9.766; df=2; p value= 0.008) were statistically significantly associated with preparedness to provide forensic nursing care among nurses at A&E Department of KNH. Shown in Table 2.

Table 2: Chi-Square/ Fisher exact test of association between hospital-related factors and preparedness to provide forensic care among nurses at A&E department of KNH

Variable	Category	Level of preparedness		df	X^2/ fisher exact value	P value
		Low level of preparedness (n)	High level of preparedness (n)			

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Adequate staff	Yes No Maybe	11 15 40	6 3 6		Fisher exact value =3.860	0.124
Availability of special rooms for caring for forensic patients	Yes No Maybe	21 12 33	11 3 1	2	X^2 value =10.822	0.004
Hospital administration recognizes the contribution of nurses in providing forensic nursing	Yes No Maybe	16 10 40	8 4 3		Fisher exact value =8.519	0.012
Other health team members in the A&E department supportive of nurses' involvement in forensic care	Yes No Maybe	16 10 40	7 5 3		Fisher exact value =8.493	0.012
Hospital administration provides forensic evidence collection kits for use	Yes No Maybe	21 9 36	10 3 2	2	X^2 value =8.637	0.013
Hospital administration provides forms for documenting forensic cases	Yes No Maybe	19 11 36	10 3 2	2	X^2 value =9.402	0.009
Hospital offer training on forensic nursing aspects to nurses in the department	Yes No Maybe	16 8 42	7 2 6		Fisher exact value =3.386	0.152
Hospital administration provides linkages with other stakeholders to facilitate the provision of the forensic nursing	Yes No Maybe	17 10 39	10 2 3	2	X^2 value =9.766	0.008
Hospital administration provide material resources like cameras, envelopes, cabinets, and	Yes No Maybe	15 11 40	6 4 5		Fisher exact value =3.941	0.139

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protocols for forensic nursing

3.6 Qualitative data on hospital-related factors associated with preparedness to offer forensic nursing care among nurses at the A&E department of KNH

The qualitative data was gathered through in-depth interviews conducted among unit in-charges in the Accident and Emergency department. The following themes were generated:

3.6.1 Theme 1: Adequate staffing

There was concurrence among key informants that adequate staffing has a positive influence on preparedness to provide forensic

"*This is a fast-paced department and if you are few in the unit, where will you get time to take pictures of burns, and gunshots, instead of focusing on saving life?*" KI 2

"*Adequate staffing may increase the likelihood of practicing forensic nursing, but even if have adequate staffing but less trained, the difference might be negligible*." KI 6

3.6.2 Theme 2: Resource availability (forensic kits)

The respondents concurred that resources for forensic nursing are important and need to be availed to the nurses. They reported that, this has been restricted only to sexual assault forensic kit.

"*There are no resources, even budgetary allocation which used to be there has been withdrawn nowadays. Look even sexual violence victims are required to pay for the examinations*." K1 5

3.6.3 Theme 3: Recognition by administration

'*…Sexual assault nurse examiners (SANE) are recognized, their opinion is recognized in sexual assault cases only. In other forms of forensic cases, nurses are not involved. Currently, there is no leadership in the organogram recognizing forensic nurse…but who is even trained in that forensic nursing, it is not in Kenya, may be western countries*."KI4

3.7 Independent factors associated with preparedness to offer forensic nursing care among nurses at A&E department of KNH

The factors that were significant after chi-square/fisher exact tests were analyzed further using binary logistic regression and a summary of the findings were presented in table 17. Study respondents who reported maybe they had availability of special rooms for caring for forensic patients were 99.9% less likely to be prepared to offer nursing care than those who said yes (COR= 0.058; 95% CI =0.007-0.481; P=0.008). Study participants who reported maybe the hospital administration recognized the contribution of nurses in providing forensic nursing were 99.8% less likely to be prepared to offer nursing care than those who said yes (COR= 0.150; 95% CI =0.035-

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0.638; P=0.010). Study participants who reported maybe the other health team members in the A&E department were supportive of nurses' involvement in forensic care were 99.8% less likely to be prepared to offer nursing care than those who said yes (COR= 0.171; 95% CI =0.039-0.747; P=0.019). Study participants who reported maybe the hospital administration provided forensic evidence collection kits for use were 99.8% less likely to be prepared to offer nursing care than those who said yes (COR= 0.117; 95% CI =0.023-0.584; P=0.009). Study participants who reported maybe the hospital administration provided forms for documenting forensic were 99.8% less likely to be prepared to offer nursing care than those who said yes (COR= 0.106; 95% CI =0.021-0.532; P=0.006). Study participants who reported maybe the hospital administration provided linkages with other stakeholders to facilitate the provision of the forensic nursing were 99.8% less likely to be prepared to offer nursing care than those who said yes (COR= 0.131; 95% CI =0.032-0.536; P=0.005). As shown in table 3

Table 3: Binary logistic regression analysis of factors associated with preparedness to offer forensic nursing care among nurses at A&E department of KNH

Category	B	df	COR	95% CI for EXP(B) Lower	Upper	P value
Availability of special rooms for caring for forensic patients						
Yes	Ref					
No	-0.740	1	0.477	0.111	2.056	0.321
Maybe	-2.850	1	0.058	0.007	0.481	0.008
Hospital administration recognized the contribution of nurses in providing forensic nursing						
Yes	Ref					
No	-0.223	1	0.800	0.190	3.366	0.761
Maybe	-1.897	1	0.150	0.035	0.638	0.010
Other health team members in the A&E department were supportive of nurses' involvement in forensic care						
Yes	Ref					
No	0.134	1	1.143	0.284	4.604	0.851
Maybe	-1.764	1	0.171	0.039	0.747	0.019
Hospital administration provides forensic evidence collection kits for use						
Yes	Ref					
No	-0.357	1	0.700	0.155	3.163	0.643

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Maybe	-2.148	1	0.117	0.023	0.584	0.009
Hospital administration provides forms for documenting forensic cases						
Yes	Ref					
No	-0.657	1	0.518	0.117	2.296	0.387
Maybe	-2.249	1	0.106	0.021	0.532	0.006
Hospital administration provide linkages with other stakeholders to facilitate the provision of the forensic nursing						
Yes	Ref					
No	-1.079	1	0.340	0.062	1.875	0.216
Maybe	-2.034	1	0.131	0.032	0.536	0.005

3.8 Multivariate logistic regression analysis of variables which were significant under binary logistic regressing

The factors that were significant after binary logistic regression were analyzed further using multivariate logistic regression to adjust for other factor which could have been confounding the outcome. None of the factors were significantly associated with preparedness to offer nursing care (Table 4).

Table 4: Multivariate logistic regression analysis of factors associated with preparedness to offer forensic nursing care among nurses at A&E department of KNH

Category	B	df	AoR	95% CI for EXP(B) Lower	Upper	P value
Availability of special rooms for caring for forensic patients						
Yes	Ref					
No	-73.624	1	0.000	0.000		0.996
Maybe	-36.143	1	0.000	0.000		0.996
Hospital administration recognized the contribution of nurses in providing forensic nursing						
Yes	Ref					
No	-0.150	1	0.861	0.009	83.224	0.949
Maybe	-55.617	1	0.000	0.000	.	0.997

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Other health team members in the A&E department were supportive of nurses' involvement in forensic care						
Yes	Ref					
No	76.077	1	1095757793707195600000000000000000.000	0.000	.	0.997
Maybe	59.373	1	6099660294787703000000000000.000	0.000	.	0.996
Hospital administration provides forensic evidence collection kits for use						
Yes	Ref					
No	74.514	1	2295616885018876800000000000000.000	0.000	.	0.996
Maybe	1.395	1	4.034	0.032	505.897	0.572
Hospital administration provided forms for documenting forensic cases						
Yes	Ref					
No	3.997	1	54.458	0.098	30398.980	0.215
Maybe	0.001	1	1.001	0.001	1359.082	1.000
Hospital administration provide linkages with other stakeholders to facilitate the provision of the forensic nursing						
Yes	Ref					
No	-0.970	1	0.379	0.012	12.194	0.584
Maybe	-74.267	1	0.000	0.000	.	0.997

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4.0 Discussion

4.1 Response rate

The response rate of 63.0% attained while was sufficient for analysis according to Kothari (2004), who reported that a response rate of 50% or above is adequate, reflected less enthusiasm from about 40% of the study respondents. Chances of response biases were considered reality.

4.2 Socio-demographic characteristics

The study's revelations regarding the demographic and professional attributes of the nursing cohort illuminate a diverse and nuanced profile within the profession. The gender distribution, with 33.3% male and 66.7% female nurses, mirrors national and international trends, aligning with Hacimusalar et al. (2020) reported figures. The prevalent qualification of KRM/KRN/KRCHN at 66.7% reflects the emphasis on comprehensive nursing education (Tallam et al., 2022). Notably, 45.7% of the nurses have accumulated over 10 years of post-basic qualification nursing practice, a significant proportion consistent with Hussin et al. (2018) observations. The distribution across designations (NO III, NO II, NO I, and SNO) reflects the hierarchical structure common in nursing organizations (Ohaeri et al., 2019; Paarima et al., 2020). Age distribution, with 45.7% in the 31-40 range, aligns with the middle-age profile commonly observed in nursing demographics, supported by Kahiga (2018). The high Christian identification (71.6%) corresponds with the religious diversity noted in nursing populations globally by Murgia et al. (2022), while the prevalence of nurses residing in peri-urban areas (46.9%). Regarding training, the focus on Trauma and Emergency Nursing (38.3%) is consistent with Chowdhury et al. (2022) emphasis on specialized training in critical care. These statistics underscore the multifaceted composition of the nursing workforce, providing valuable insights into the diversity of qualifications and specific professional interests

4.3 Level preparedness in providing forensic nursing care

Most of the study participants (81.5%, n=66) had a low level of preparedness, indicating inadequate knowledge of forensic nursing principles, negative attitudes towards forensic nursing practice, and unsatisfactory self-reported competencies. This finding was consistent with those of Donaldson (2020) and Cunha (2016) who concluded that nurses working in the A&E departments had limited knowledge of forensic evidence collection, preservation, communication, and expert witness. Han and Lee (2022) study's findings of low level of preparedness and competency of nurses in providing forensic nursing care aligned with the findings of this study. The low level of preparedness was reflected by low knowledge on forensic nursing principles, and unsatisfactory self-reported competencies on basic forensic procedures

4.4 Availability of hospital-related factors supporting forensic nursing practice as reported by study respondents

The structured questionnaire revealed the unenviable availability of hospital-related resources required for forensic nursing care. The study respondents reported adequacy of staff at the

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department at 21% (n=17), availability of special rooms for caring forensic patients at 39.5% (n=32), hospital administration recognizing the contribution of nurses in the provision of forensic nursing care at 29.6% (n=24), other health care supporting their contribution in caring forensic patients was reported at 28.4% (n=23), availability of forensic evidence collection kits at 38.3% (n=31), provision of documentations was reported at 23.5% (n=19), hospital offering in-service training on forensic nursing aspects was reported at 28.4% (n=23), provision of linkages with other stakeholders in the care of forensic patients was reported at 33.3% (n=27), and availability of material resources such as cameras, envelopes, cabinets and protocols were reported at 25.9% (n=21). The findings point to the neglect in the provision and accessibility of supportive materials for forensic nursing care in the accident and emergency departments. The structural audit confirmed that sorry state of affairs. Agesa (2020) stressed the need for a multi-sectoral approach in dealing with medico-legal cases through networking across sectors of safe homes for victims of sexual abuse, legal support institutions like the Federation of Women Lawyers, Medico-Legal Units and the National Police Services. Unlike in Kenya, in the USA, the contributions of forensic nurses particularly forensic nurse examiners (FNE), have been recognized by both US prosecutors and the American College of Emergency Physicians (ACEP) (Lynch, 2011). Rahmqvist et al. (2019) in a study at selected emergency departments in Turkey established that policy documents and protocols often were available to guide the care of forensic patients contrary to this study's findings. A study by Feizi Nazarloo et al. (2017) on the other hand revealed a sorry state of affairs whereby a majority of their study participants indicated the absence of protocols to guide the provision of forensic care, in agreement with this study's findings. Turkey for example, as reported by Kalayci et al. (2014) had their nurses assuming forensic responsibilities for many years without a well-defined scope and legal backup. The chain of custody for forensic evidence must be maintained at all phases, by availing proper channels of communications and special forensic documentation (de Oliveira Ribeiro & Dixe, 2020). The working areas for forensic nurses should be well defined and improved for quality forensic evidence collection and preservation (Soleimani, et al., 2017) findings which point to reduced quality of forensic in the study's setting as respondents reported inadequate special spaces for forensic nursing care. A survey conducted by Dror et al. (2012), concluded that the poor success rate of prosecutions related to sexual violence was due to inadequate resources including protocols to guide the collection and preservation of forensic evidence. Provision of process and structural factors associated with provision of forensic nursing care is a necessity. Nurses working in accident and emergency departments need to be provided with forensic kits, networking with other stakeholders and recognitions of contribution in bridging the gap between health and legal systems

4.5 Association between hospital-related factors and preparedness to provide forensic care

The data analysis revealed noteworthy insights into the factors that influenced nurses' preparedness for forensic nursing care. While there was no significant association observed between adequate staffing levels and preparedness (fisher exact value =3.860; p value=0.124),

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other studies, such as those by Wei et al. (2024) emphasize the critical role of staffing levels in maintaining patient safety and quality of care. These findings support the notion that sufficient staffing alone without adequate training and resources might not guarantee adequate preparedness to provide forensic nursing care. The provision of special rooms for forensic patients was significantly associated with preparedness (X2 value =10.822; df=2; p value= 0.004), emphasizing the importance of designated spaces. The significance of providing special rooms for forensic patients is corroborated by studies like those by Smith (2023), which highlight the importance of dedicated spaces for effective patient management and care forensic patients. Recognition of nurses' contributions and support from other health team members in the A&E department showed trends suggesting positive impacts on preparedness (fisher exact value =8.519; p value=0.012; fisher exact value =8.493; p value=0.012), respectively. The findings aligns with the emphasis on healthcare professionals' morale and engagement as among factors that contribute to a positive work environment, potentially influencing overall preparedness (Wulandar & Dara, 2023).The availability of forensic evidence collection kits and documentation forms was statistically associated with preparedness (X2 value =8.637; df=2; p value=0.013; X2 value =9.402; df=2; p value=0.009), respectively. The statistically significant association between the provision of forensic evidence collection kits, documentation forms, and preparedness aligns with literature emphasizing the importance of proper tools and documentation in forensics (Butler, 2023). Linkages with stakeholders were highly significantly associated with preparedness (p = 0.008). Indicating availing the opportunities to network with other agencies in the fight against violence is integral. The highly significant association between establishing linkages with stakeholders and preparedness is consistent with research on healthcare collaboration (Kelishami *et al.,* 2020).

5.0 Conclusions

In conclusion, the majority of nurses working in the Accident and Emergency Department of Kenyatta National Hospital have a low level of preparedness to provide forensic nursing care to their clients, except to those who are victims of sexual abuse. It is worth noting that recognizing nurses' contributions, provision of resources supporting forensic nursing, and establishing collaborations with stakeholders were identified as potential contributors to enhanced preparedness. That notwithstanding no single factor after controlling for possible confounders was predictive of preparedness, pointing to system nature of preparedness. These findings underscore the need for a comprehensive approach addressing staffing, infrastructure, training, and collaborative relationships to ensure effective forensic nursing care in hospital settings.

6.0 Recommendations

i. Conduct in-service training on forensic nursing aspects to improve knowledge levels
ii. Sensitize all nurses in A&E departments on the available resources supportive of forensic nursing practice

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iii. Avail material resources supportive of forensic nursing practice for example forensic kits to nurses in the A&E department at KNH
iv. Improve supportive supervision and recognition to improve positive attitudes toward forensic nursing
v. Provide adequate staffing levels, designated spaces for forensic patients and networking with other stakeholders

7.0 Organization

The Management and KNH A&E nursing staff of Kenyatta National Hospital for the research in their hospital.

7.1 Ethical Clearance

This was received from the Kenyatta National Hospital/ University of Nairobi Ethics and Research Committee (KNH/ UON-ERC) (approval no: P844/11/2022). The permit to conduct research was granted by the National Commission for Science, Technology and Innovation (NACOSTI) (license no. NACOSTI/P/23/25132)

7.2 Disclosure

None.

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