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Original Article

### Preparedness and Nurse-Associated Factors of Forensic Nursing Care among Nurses at Kenyatta National Hospital's Accident and Emergency Department

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**Keywords:**  
*Accident and  
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The approach to the fight against violence, a global menace with both health and legal consequences, is multipronged. The discipline of nursing can effectively contribute through forensic nursing. This sub-speciality focuses on bridging the gap between legal and health systems for potential forensic patients. Establishing the level of preparedness of nurses to provide forensic nursing care and identifying nurse-related factors, particularly in Accident and Emergency (A&E) departments, in the face of high incidences of violence in our neighbourhoods should be prioritised. The A&E department, as the port of entry for victims/survivors of violence at Kenyatta National Hospital (KNH), was purposely selected for the study. A convergent mixed-method research design was employed for the study, whereby a sample of (n=81) respondents selected by a consecutive sampling technique completed filling a modified Knowledge Questionnaire over Forensic Nursing Practice (KQFNP), over eight weeks for quantitative data. Key informant interviews were conducted and data were captured manually among seven (n=7) purposely selected sections in charge of collecting complementary qualitative data. The Chi-square test of significance  $p < .05$  was used in hypothesis testing, while logistic regression analysis was used to predict determinants of preparedness, with findings presented using tables and figures. Qualitative data were transcribed, thematically analysed, and presented in verbatim and narrations. A majority (81.5%, n=66) of study respondents had a low level of preparedness to provide forensic nursing care, a finding reinforced by key informants (KI-1)... "Assessment and identification of forensic patients are limited to sexual assault clients. Our focus is basically on clinical care." The years of experience post-licensure (Fisher exact value= 9.838; p value= 0.006), training in forensic evidence collection and preservation (Fisher exact value= 9.933; p value= 0.002), and training in expert witnessing in the courts of law (Fisher exact value= 6.488; p value= 0.019) were statistically significantly associated with preparedness. Those trained in evidence collection and preservation, and expert witnessing were 6.8 times and 16.3 times more likely to be prepared compared to

untrained (COR= 6.750; 95% CI =2.018-22.582; P=0.002) and (COR= 16.250; 95% CI =1.557-169.618; P=0.020) respectively. The majority of nurses in the A&E department at KNH have low levels of preparedness to provide forensic nursing care. The years of experience post licensure, training in forensic evidence collection, and expert witnessing were statistically significantly associated with preparedness. Develop and implement targeted in-service educational initiatives to address gaps in formal training in forensic nursing. Tailor training interventions leveraging on identified demographic factors.

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## 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 and perpetrators often constitute forensic patients (Nazarloo et al., 2017). Forensic nursing as a subspecialty within nursing has a critical role in ensuring holistic care to both victims and perpetrators of violence. It entails the application of the nursing process in the management of patients where health care and legal services interface (Wyatt et al., 2011; Lynch & Duval, 2010). It extends care beyond clinical, through selected interventions like prioritisation of

collection and preservation of forensic evidence and expert witnessing in medicolegal cases (Lynch, 2011).

Globally, one in two children experiences physical, sexual, or psychological violence (WHO, 2019). The impact of such violence is perverse and severe. A study by Butchart et al. (2014) authenticated that injuries arising from violence are among the major reasons why individuals seek health care and account for over 9% of deaths globally. In the United States of America (USA), 37.2 million people seek emergency services due to injury-related causes annually (Centres for Disease Control and Prevention (CDC-USA), Ballesteros et al., 2016). A study in Sweden revealed that both men and women, at approximately 46% and 38% respectively, at some point in their lifespan, experienced sexual, physical, or psychological violence. Surprisingly, despite the documented adversarial impact of the violence, two-thirds of the

violence that occurred in Sweden was not reported to the police for investigations and possible prosecutions of the offenders (National Centre for Knowledge on Men's Violence against Women (NCK) (Holt et al., 2015; Monnat et al., 2015). Most violence victims constitute forensic cases, and the victims pass through the hands of healthcare workers primarily to seek medical care. But it should not be forgotten that the bodies of these patients could be crime scenes. The healthcare workers, therefore, must take great precautions not to tamper with evidence that puts justice for the victims and perpetrator in jeopardy. Studies in countries like Sweden and the USA showed that nurses with good knowledge and appropriate attitudes toward the integration of forensic principles in caring for trauma patients are assets to the institution. 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)

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). A study by Nielsen et al. (2015) revealed a positive association between sexual assault nurse examiners (SANE) training and the attitude and confidence in handling sexual assault survivors, indicators of preparedness to provide forensic nursing care.

According to the Kenya Demographic Health Survey (KDHS) (2019), 38 % of women aged between 15-49 years old were reported to have been physically violated, while 14% reported having been victims of sexual violence. The 2020 crime reports by the Ministry of Interior and Coordination, Police Department in Kenya revealed a rise of over 13% in cases of crime in that year compared to the previous year. Botchey et al. (2017) studied to understand the pattern of injuries in Kenyatta

National Hospital (KNH), revealing that males were most affected (81.7%), and 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 during the study died at the emergency department. A study by Kamau et al. (2016) in the sexual and gender-based violence (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 nurse to guarantee holistic care.

Despite high incidences of potential forensic patients visiting the A&E department at KNH, according to Botchey et al. (2017), a review of the literature revealed a paucity of studies focusing on preparedness in terms of knowledge of forensic nursing principles, attitudes towards forensic nursing practice, and self-reported competencies among nurses working at the department. Studies on underlying nurse-related factors associated with preparedness, be they demographic or special training with forensic contours, using a mixed-method design in the A&E department at KNH are scarce. Consequently, the a need to investigate the level of preparedness to provide quality forensic nursing care and associated nurse-related factors, particularly among nurses working in the Accident and Emergency Department at KNH which is the main public hospital in the capital city of Kenya, serving over 4 million populations, with a substantial burden of patients who are victims of violence was a gaping need. Considering the possible financial and psychological implications of the loss of forensic evidence for survivors and perpetrators of violence, which are associated with ill-preparedness to provide forensic nursing care, studies touching on such areas should be prioritised (Duffin, 2016). The government of Kenya and even other non-governmental organisations have invested in improving the capacity of the workforce to handle victims of violence (WHA, 2014). It is anticipated that knowledge of the level of preparedness would be eye-opening on how

forensic clients are potentially being handled by nurses in the department, which would necessitate improving preparedness and thus the quality of forensic nursing care. By identifying potential demographic and training variables having a positive correlation with preparedness, it is hoped that the hospital administrators will leverage the same to improve the quality of forensic nursing care.

## METHODS AND MATERIALS

### Study Setting

This was a single-site study that was conducted at KNH at its A&E department. KNH is the largest, level 6 public hospital in Kenya and is located in Nairobi City County. The A&E department is a busy department that attends to 200-500 patients daily, the majority of whom are trauma patients.

### Research Design

The study adopted a convergent mixed-method research design that is analytical, cross-sectional and qualitative descriptive to collect both quantitative and qualitative data related to the level of preparedness to provide forensic nursing care and associated nurse-related factors.

### Study Population

The target population was about 130 nurses working at the KNH A&E department, as was captured in the nursing staff register at the department, reviewed by the researcher. The study included qualified nurses, currently working in the A&E department at KNH, nursing staff able to use mobile technology and English language. On the other hand, the study excluded nurses who were on terminal leave, those who declined to voluntarily consent to participate in the study and the acutely ill.

### Study Variables

The study's independent variables were nurse-related factors, for example, age, gender, professional qualifications, designation, years of experience post licensure, years of working in the

accident and emergency department, and special training with forensic contours, for example, in SGBV, forensic evidence collections, forensic nursing, expert witnessing and forensic nursing documentation. The dependent variable was nurse preparedness to provide forensic nursing, which was divided into two categories: low and high levels of preparedness. The indicators of preparedness to provide forensic nursing care were: knowledge of forensic practice, attitude towards forensic nursing practice and self-reported competencies. Measuring of the variables preparedness to provide forensic nursing care factored in scores from 37 items: concepts of forensic nursing (4 items), clinical scenarios with forensic contours (5 items), forensics traces (5 items), collection and perseveration of forensic evidence (6 items), communication and documentation of forensic scenarios (5 items), attitude towards forensic nursing practice 7 items and self-reported competences 5 items. The scores were awarded as one (1) for items considered to reflect positive preparedness and zero (0) for items reflecting a lack of preparedness.

### Sample Size Determination

Fisher's (1988) formula was used. This technique allows a representative sample to be obtained from the target population in descriptive study designs (Chow et al., 2018).

Since the target population was less than 10,000, the sample size was adjusted using Yahame's (1967) formula

$$nf = n / (1 + n/N)$$

Where;

nf = the desired sample size when the population is less than 10,000

n = the desired sample size when the population is more than 10,000

N = the target population, which is 130 nurses

Hence  $nf = \frac{384}{97 \text{ respondents}}$

$$1 + 384 / 130$$

### Sampling Technique

A consecutive sampling method was adopted for the study, whereby data were collected from every nurse working in A&E who met the inclusion criteria until the required sample size ( $n=97$ ) was attained for quantitative data. Sections in charge were selected purposively due to their presumed vantage positions of leadership for qualitative data.

### Data Collection Tools

The study deployed a modified Knowledge Questionnaire over Forensic Nursing Practice (KQFNP) by Cunha et al. (2016) and a key informant interview guide to collect quantitative and qualitative data, respectively. KQFNP had five sections: respondents' demographic characteristics, special training with forensic nursing aspects, 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.

### Data Quality Assurance

KQFNP was pretested two weeks prior to the date of actual data collection in the Sexual and Gender-Based Violence (SGBV) clinic at KNH among 8 nurses who met the inclusion criteria. The key informant interview guide was pretested among 2 nurses, the department in charge and her deputy. The findings were used to rework the tools to improve their validity and reliability. Two (2) research assistants were selected based on their ability to use the English language and proficiency in mobile technology and training on how to guide and mobilise study participants for online administration of the structured questionnaires.

### 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, upon presentation of the Kenyatta National Hospital/ University of Nairobi Ethics and Research Committee (KNH/ UON-ERC) ethical review report and the permit to conduct research from the National Commission for Science, Technology and Innovation (NACOSTI). Informed consent was obtained from the study participant after going through the objectives of the study and elaborating on the benefits and possible risks associated with their participation. The principal investigator got authorisation to mount the tool on the staff WhatsApp group where the study participants got recruited to fill the structured questionnaires in a Google Forms format, then submit. The Google Forms were designed with security settings allowing only one response per respondent, end-to-end encryption, minus recording the emails or mobile numbers of the study respondents, ensuring respondents' anonymity. The key informant interview guides were employed to collect qualitative data from the section in-charges in the A&E department. The principal investigator ensured privacy and convenience for the respondents during the interview. The interview was guided by the study's specific objectives. The sessions took 10-20 minutes, and the responses were captured manually through pen and paper.

### 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 analysed in terms of frequencies and percentages. The knowledge, attitude and self-reported competencies scores of the respondents were analysed in terms of indices and percentage means. Out of the 37 items, respondents who scored 75% and above and those who scored 74% and below were considered highly prepared and lowly prepared, respectively, to provide forensic nursing. The cut mark partly reflects Cunha et al.'s (2016) judgment on what



constitutes sufficient knowledge versus insufficient knowledge over forensic nursing practice. The high cut-off is based on the grave consequences of contamination or loss of forensic evidence to society. To establish associations between selected independent variables and levels of preparedness to provide forensic nursing, Chi-square, binary logistic regression, and multivariate logistic regression tests were used. For the tests, a statistical significance level of  $< 0.05\%$  was adopted. The quantitative findings were presented using frequency distribution tables and a pie chart. The recorded data from the interviews were interpreted independently, followed by thematic analysis, and presented in narrations and verbatim.

### 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 generalised 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, made it difficult to establish the actual readiness to provide forensic care. 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 manoeuvring the web-based tool, due to a lack of internet and unfamiliarity with such applications, reducing the

response rate. The researcher adopted triangulation to reduce the risk of having invalid data.

## RESULTS

### Socio-demographic Characteristics of the Study Respondents

Gender distribution revealed that 33.3% (n=27) of the study participants were male, and 66.7% (n=54) were female. In terms of professional qualifications, most of the study participants (66.7%, n=54) held KRM/KRN/KRCHN. Study participants' years of experience were diverse, with 23.5% (n=19) practising for below 5 years, 30.9% (n=25) for 5-9 years, and 45.7% (n=37) for 10 years and above. On the basis of designation, it was observed that the study participants who had NO III were 18.5% (n=15), NO II were 29.6% (n=24), a proportion equal to NO I, while the SNO was 22.2%. (n=18). Further, assessment of the study participants by age revealed that those who ranged between 21-30 years accounted for 17.3% (n=14), 31-40 years 45.7% (n=37) and 41-50 years 37.0% (n=30). In terms of religion, 71.6% (n=58) were Christian, while Pagan accounted for 3.7% (n=3). In residence, the study found 46.9% (n=38) of the study participants lived in peri-urban areas while 8.6% (n=7) lived in rural areas. Regarding years worked in the accident and emergency department, 72.8% (n=59) had 24 months and above, while 9.9% (n=8) had 12-23 months. On speciality training (38.3%, n=31) had undertaken training in Trauma and Emergency Nursing. Most of the study participants (37.0%, n=30) current role in the department was a theatre nurse (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
	<b>Total</b>	81	100.0
Highest professional qualification	MSCN	6	7.4
	BSCN	21	25.9
	KRM/KRN/KRCHN	54	66.7
	<b>Total</b>	81	100.0

Variables	Categories	Frequency (n)	Percentage (%)
Years of experience	Below 5 years	19	23.5
	5-9 Years	25	30.9
	10 years and above	37	45.7
	<b>Total</b>	81	100.0
Current designation	NO III	15	18.5
	NO II	24	29.6
	NO I	24	29.6
	SNO	18	22.2
	<b>Total</b>	81	100.0
Age in years	21-30 Years	14	17.3
	31-40 Years	37	45.7
	41-50 Years	30	37.0
	<b>Total</b>	81	100.0
Religion	Christian	58	71.6
	Muslim	12	14.8
	Pagan	3	3.7
	Others	8	9.9
	<b>Total</b>	81	100.0
Residence	Rural	7	8.6
	Urban	36	44.4
	Peri-urban	38	46.9
	<b>Total</b>	81	100.0
Years worked in the accident and emergency department	Below 12 months	14	17.3
	12-23 months	8	9.9
	24 months and above	59	72.8
	<b>Total</b>	81	100.0
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
	<b>Total</b>	81	100.0
Current role in the department	Theatre nurse	11	13.6
	Sexual assault nurse examiner	16	19.8
	Triage nurse	30	37.0
	Nurse educator	7	8.6
	Resuscitation nurse	8	9.9
	Nurse manager	9	11.1
	<b>Total</b>	81	100.0

### Training in Forensic Nursing and Related Aspects

Formal training in forensic nursing was recorded to be at 0% (n=0). Most of the study respondents, 81.5% (n=66), had heard about forensic nursing or

nurses. In the assessment of the training on aspects related to forensic nursing, significant disparities were observed among participating nurses. Notably, the highest proportions were evident in disaster management, with 65.4% (n=53) of nurses having received training in this domain. Furthermore, a substantial majority of 77.8% (n=63) of nurses reported having undergone training specifically addressing sexual and gender-based violence (SGBV), reflecting the prioritisation of this critical aspect of forensic nursing education. Conversely, other areas displayed lower rates of training uptake. Human rights training was reported by 24.7% (n=20) of nurses, while only 28.4% (n=23) had

received training in filing P3 and PCR forms, essential for legal documentation. Additionally, training in evidence collection and preservation was reported by a modest 25.9% (n=21) of nurses. Perhaps most notably, a mere 4.9% (n=4) of nurses reported training as expert witnesses in courts of law, indicating a significant gap in this specialised area of forensic nursing expertise. The majority of the study respondents (90.1%, n=73) had a history of cooperating with police when caring for a client. Eighty (98.8%) of the study respondents cared for a client who was exposed to violence, either a survivor or perpetrator of violence (Table 2).

**Table 2: Training in Forensic Nursing and Related Aspects**

Variables	Categories	Frequency (n)	Percentage (%)
Heard about forensic nursing or nurses	Yes	66	81.5
	No	15	18.5
	<b>Total</b>	<b>81</b>	<b>100</b>
Have you been trained in forensic nursing?	Yes	0	0
	No	81	100
	<b>Total</b>	<b>81</b>	<b>100</b>
Trained in Human Rights	Yes	20	24.7
	No	61	75.3
	<b>Total</b>	<b>81</b>	<b>100.0</b>
Trained in Disaster Management	Yes	53	65.4
	No	28	34.6
	<b>Total</b>	<b>81</b>	<b>100.</b>
Trained in SGBV	Yes	63	77.8
	No	18	22.2
	<b>Total</b>	<b>81</b>	<b>100</b>
Trained in Evidence collection and preservation	Yes	21	25.9
	No	60	74.1
	<b>Total</b>	<b>81</b>	<b>100.</b>
Trained in Filing P3 and PCR forms	Yes	23	28.4
	No	58	71.6
	<b>Total</b>	<b>81</b>	<b>100.</b>
Training in expert witness in the courts of law	Yes	4	4.9
	No	77	95.1
	<b>Total</b>	<b>81</b>	<b>100</b>
Cooperated with the police when caring for a client	Yes	73	90.1
	No	6	7.4
	Maybe	2	2.5
	<b>Total</b>	<b>81</b>	<b>100</b>
Cared for a client who was exposed to violence	Yes	80	98.8
	No	1	1.2
	<b>Total</b>	<b>81</b>	<b>100</b>

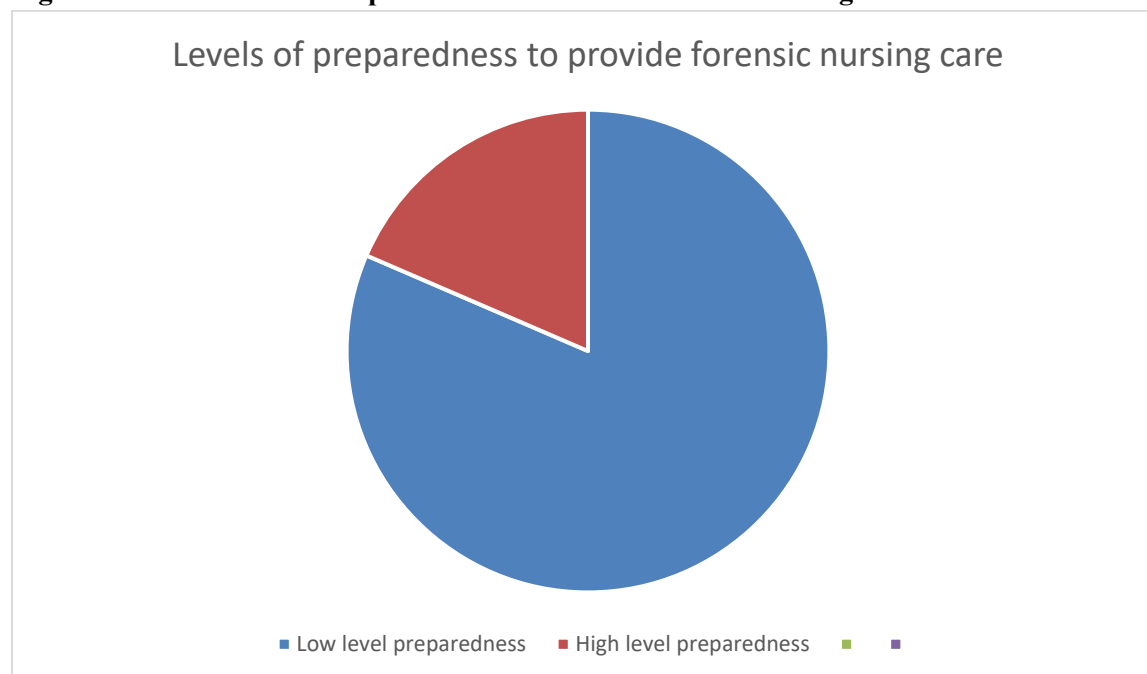


### Level of Nurse Preparedness to Provide Forensic Nursing Care

The level of nurse preparedness to provide forensic nursing care was determined by aggregating responses across three key categories namely: nurses' knowledge of the forensic nursing practice (knowledge of forensic nursing concepts, familiarity with clinical scenarios involving forensic elements, understanding of forensic traces, proficiency in the collection, storage, and preservation of forensic evidence, skills in communication and documentation of forensic

scenarios), attitude towards forensic nursing practice and self-reported competencies in forensic nursing. Each response within these categories was quantified as an index ranging from 0 to 1. These indices were then combined and converted into percentages. Nurses with percentage scores of 75% and above were deemed to have a high level of preparedness to provide forensic nursing care. The majority of the study participants (81.5%, n=66) were found to have a low level of preparedness, while (18.5%, n=15) were highly prepared. See Figure 1

**Figure 1: Level of Nurse Preparedness to Provide Forensic Nursing Care**



### Qualitative Data on Nurse Preparedness to Provide Forensic Nursing Care

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

Theme 1: Preparedness to provide forensic nursing care

This theme had one sub-theme: not sufficiently prepared for forensic nursing care.

Sub-theme 1: Not sufficiently prepared for forensic nursing care

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

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

Another participant added:

“Though nurses are open to engaging in forensic care, they are ill-equipped. Filling of certain documents, such as P3 and PCR forms, is specifically done by physicians.” KI,2

### ***Association between Nurses' Demographic Characteristics and Preparedness to Offer Forensic Nursing Care among the A&E Nurses at KNH***

The researchers aimed to examine the association between nurse-related factors and preparedness to offer forensic nursing. To assess the significance of

the associations between these factors and preparedness levels, chi-square/Fisher's 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 nurse-related factors: years of experience post-licensure (Fisher exact value = 9.838; p value = 0.006) and age in years ( $\chi^2$  value = 8.160, df=2; p value = 0.017) were statistically significantly associated with preparedness to provide forensic nursing care among nurses at the A&E Department of KNH (Table 3).

**Table 3: Chi-square/Fisher Exact Test of Association between Nurses' Demographic Characteristics and Preparedness to Provide Forensic Care among Nurses at the A&E Department of KNH**

Variable	Category	Level of preparedness		df	X <sup>2</sup> /Fisher exact Value	P value
		Low level of preparedness (n)	High level of preparedness (n)			
Gender	Male	23	4	1	$\chi^2$ value = 0.368	0.544
	Female	43	11			
Years of Experience post licensure	Below 5 years	19	0		Fisher exact value = 9.838	<b>0.006</b>
	5-9 Years	22	3			
	10 years and above	25	12			
Current designation	NO III	14	1		Fisher exact value = 7.164	0.056
	NO II	22	2			
	NO I	19	5			
	SNO	11	7			
Age in years	21-30 Years	14	0	2	$\chi^2$ value = 8.160	<b>0.017</b>
	31-40 Years	32	5			
	41-50 Years	20	10			
Residence	Rural	5	2	2	$\chi^2$ value = 0.677	0.713
	Urban	29	7			
	Peri-urban	32	6			
Religion	Christian	47	11		Fisher exact value = 1.969	0.583
	Muslim	11	1			
	Pagan	2	1			
	Others	6	2			
Highest professional qualification	MSCN	3	3		Fisher exact value = 5.130	0.060
	BSCN	16	5			
	KRM/KRN/KRCHN	47	7			
Years worked in the accident and	Below 12 months	13	1		Fisher exact value = 1.482	0.572
	12-23 months	7	1			
	24 months and above	46	13			

emergency department					
Speciality trained	Trauma and emergency nursing	25	6	Fisher exact value = 5.511	0.307
	Critical nursing	11	3		
	Peri-operative nursing	9	0		
	Midwifery	2	2		
	Renal	2	1		
	None	17	3		
Current role in the department	Theatre nurse	11	0	Fisher exact value = 5.728	0.293
	sexual assault nurse examiner	11	5		
	Triage nurse	25	5		
	Nurse educator	6	1		
	Resuscitation nurse	7	1		
	Nurse manager	6	3		
Cooperated with police when caring for a client	Yes	59	14	Fisher exact value = 0.327	1.000
	No	5	1		
	Maybe	2	0		
Cared for a client who was exposed to violence	Yes	65	15	Fisher exact value = 0.412	1.000
	No	1	0		
Heard about forensic nursing or forensic nurses	Yes	53	13	Fisher exact value = 1.130	0.734
	No	6	0		
	Maybe	7	2		

### ***Association between Nurses' Training in Forensic Nursing Aspects and Level of Preparedness***

A bivariate analysis using Chi-square/Fisher exact test of association revealed that training in human rights (Fisher exact value = 7.231; p value = 0.008), evidence collection and preservation (Fisher exact value = 9.933; p value = 0.002), filing P3 and PCR

forms (Fisher exact value = 12.066; p value = 0.001) and expert witnessing in the courts of law (Fisher exact value = 6.488; p value = 0.019) were statistically significantly associated with preparedness to provide forensic nursing care among nurses at A&E Department of KNH (Table 4).

**Table 4: Chi-square/Fisher Exact Test of Association between Training in Forensic Nursing Related Fields and Preparedness to Provide Forensic Nursing Care in the A&E at KNH**

Variable	Category	Level of preparedness		df	X <sup>2</sup> / Fisher exact Value	P value
		Low level of preparedness (n)	High level of preparedness (n)			
Trained in Human Rights	Yes	12	8	1	Fisher exact value = 7.231	<b>0.008</b>
	No	54	7			
Trained in Disaster Management	Yes	40	13	1	X <sup>2</sup> value = 3.670	0.055
	No	26	2			
Trained in SGBV	Yes	51	12		Fisher exact value = 0.054	1.000
	No	15	3			
Trained in Evidence collection and preservation	Yes	12	9		Fisher exact value = 9.933	<b>0.002</b>
	No	54	6			
Trained in Filing P3 and PCR forms	Yes	13	10		Fisher exact value = 12.066	<b>0.001</b>
	No	53	5			
Trained as an expert witness in the courts of law	Yes	1	3		Fisher exact value = 6.488	<b>0.019</b>
	No	65	12			

***Qualitative Data on Nurse-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:

**Theme 1:** Training on forensic aspects (e.g. gender-based violence, bills of rights)

The key informants believed that training on gender-based violence had a positive bearing on preparedness to offer forensic nursing.

“.....those trained in gender-based violence, particularly those who underwent sexual assault nurse examination training, are not only skilled in evidence collection but also seem to appreciate the importance of such service to clients....”KI 3

“..... Those trained in trauma and emergency tend to be more prepared, particularly when handling gunshot wound victims.”KI 4

**Theme 2:** Years of experience

The respondents provided varied opinions on the influence of years of experience on preparedness to provide forensic nursing. The majority, though, felt that the more years of experience in the accident and emergency, the higher the preparedness.

“.... senior nurses who have been working here for more than five years are more prepared. Experience is the teacher when it comes to forensic nursing. During our time, forensic nursing was not offered at pre-service. I am not aware whether they are offering it nowadays.” KI 6

“Years of experience do not have any influence; we need in-service training on forensic nursing practice.” KI 1

**Theme 3:** Position in the department

There was a general consensus among the key informants that the position of leadership influences the status of preparedness, with those high in the hierarchy more prepared than those low in the leadership hierarchy.

“It starts with them. In fact, filling of some forms is restricted to those high in the hierarchy ...but not all of them, some like the newly appointed ones are not that prepared...” KI 5

### **Independent Factors Associated with Preparedness to Offer Forensic Nursing Care among Nurses at the A&E Department of KNH**

Study participants who were trained in human rights were 5.1 times more likely to be prepared to offer nursing care than those who were not trained (COR

= 5.143; 95% CI = 1.562-16.934; P = 0.007). Study participants who were trained in evidence collection and preservation were 6.8 times more likely to be prepared to offer nursing care than those who were not trained (COR = 6.750; 95% CI = 2.018-22.582; P=0.002). Study participants who were trained in filling P3 and PCR forms were 8.2 times more likely to be prepared to offer nursing care than those who were not trained (COR = 8.154; 95% CI = 2.376-27.981; P = 0.001). Study participants who were trained as expert witnesses in the courts of law were 16.3 times more likely to be prepared to offer nursing care than those who were not trained (COR= 16.250; 95% CI = 1.557-169.618; P=0.020) (Table 5).

**Table 5: Binary Logistic Regression Analysis of Factors Associated with Preparedness to Offer Forensic Nursing Care among Nurses at the A&E Department of KNH**

Category	B	Df	COR	95% CI for EXP(B)		P value
				Lower	Upper	
<b>Years of Experience post-licensure</b>						
Below 5 years			Ref			
5-9 Years	19.210	1	220292022.300	.000	.	0.998
10 years and above	20.469	1	775427918.497	.000		0.998
<b>Age in years</b>						
21-30 Years			Ref			
31-40 Years	19.347	1	252417870.378	0.000	.	0.999
41-50 Years	20.510	1	807737185.208	0.000	.	0.998
<b>Trained in Human Rights</b>						
Yes	1.638	1	5.143	1.562	16.934	<b>0.007</b>
No			Ref			
<b>Trained in Evidence collection and preservation</b>						
Yes	1.910	1	6.750	2.018	22.582	<b>0.002</b>
No			Ref			
<b>Trained in Filing P3 and PCR forms</b>						
Yes	2.098	1	8.154	2.376	27.981	<b>0.001</b>
No			Ref			
<b>Trained as an expert witness in the courts of law</b>						
Yes	2.788	1	16.250	1.557	169.618	<b>0.020</b>
No			Ref			



### Multivariate Logistic Regression Analysis of Variables Which Were Significant Under Binary Logistic Regression

The factors that were significant after binary logistic regression were analysed further using multivariate

logistic regression to adjust for other factors which could have been confounding the outcome. None of the factors were significantly associated with preparedness to offer nursing care (Table 6).

**Table 6: Multivariate Logistic Regression Analysis of Factors Associated with Preparedness to Offer Forensic Nursing Care among Nurses at the A&E Department of KNH**

Category	B	df	AoR	95% CI for EXP(B)		P value
				Lower	Upper	
Trained in Human Rights						
Yes			Ref			
No	-1.160	1	0.314	.045	2.193	0.242
Trained in Evidence collection and preservation						
Yes			Ref			
No	-0.716	1	0.489	0.018	13.010	0.669
Trained in Filing P3 and PCR forms						
Yes			Ref			
No	-2.270	1	0.103	0.006	1.880	0.125
Trained as an expert witness in the courts of law						
Yes			Ref			
No	-16.498	1	0.000	0.000	.	0.997

## DISCUSSION

### 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) and Cucu et al. (2014) reported figures. The prevalent qualification of KRM/KRN/KRCHN at 66.7% is per the emphasis on comprehensive nursing education (Tallam et al., 2022). Notably, 45.7% of the nurses had accumulated over 10 years of post-basic qualification nursing practice, a significant proportion consistent with Hussin et al. (2018) and Nazarlou et al. (2015) observations. The distribution across designations (NO III, NO II, NO I, and SNO) reflects the hierarchical structure common in nursing organisations (Ohaeri et al.,

2019; Paarima et al., 2024). The 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) and Wakaba et al. (2014). The high Christian identification (71.6%) corresponds with the religious diversity noted in nursing populations globally by Murgia et al. (2025), 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.'s (2022) emphasis on specialised training in critical care, while the attention to Critical Nursing (17.3%) aligns with the increasing demand for expertise in managing complex cases (Rosa et al., 2025). These statistics collectively underscore the multifaceted composition of the nursing workforce, providing valuable insights into

both the diversity of qualifications and specific professional interests within the field.

### Training in Forensic Nursing and Related Fields

The survey findings on training, knowledge, and perceptions of forensic nursing among participants revealed significant gaps and disparities. No respondent 0% (n=0) reported having received formal training in forensic nursing, underscoring a consistent challenge in the limited accessibility of formal training opportunities in forensic nursing, despite it now being a nursing speciality recognised across the globe (Bektaş & Pakiş, 2021). The WHO and IAFN have urged inclusion of forensic content in both undergraduate and postgraduate nursing programs (Donaldson et al., 2020). The majority of participants lacked training in crucial areas, with 75.3% lacking human rights training, 74.1% lacking forensic evidence collection training, and 95.1% lacking expert witness testimony training. These figures align with the findings of Bektaş and Pakiş (2021), emphasising persistent gaps in specific training domains. However, the survey identified comparatively higher prevalence rates for disaster management (65.4%) and SGBV (77.8%) training, in line with the global emphasis on these areas in nursing education, as highlighted by Greasley (2022). A study in the USA by Wolf et al. (2022) revealed that 47.2 % of the study respondents in A&E departments had trained as sexual assault nurse examiners (SANE). SANE is the approximate version of SGBV in the Kenyan training setup.

### Level of Preparedness in Providing Forensic Nursing Care

The majority of the study participants (81.5%, n=66) were found to have a low level of preparedness, while (18.5%, n=15) were highly prepared, an indication of inadequate knowledge on forensic nursing principles, negative attitude towards forensic nursing practice and unsatisfactory self-reported competencies. The findings are in consonance with those of Donaldson (2020) and Cunha et al. (2016), who concluded that most nurses

working in the A&E departments had limited knowledge on forensic evidence collection, preservation, communication and expert witnessing.

### Association between Nurse-related Factors and the Level of Preparedness to Offer Forensic Nursing Care

The analysis revealed noteworthy patterns in nurses' preparedness for forensic care across various demographic and training-related factors. Gender-wise, 85.2% of males and 79.6% of females were measured to be lowly prepared, while 14.8% of males and 20.4% of females had high-level preparedness. The p-value for gender in Chi-Square/ Fisher exact was .544, indicating no significant difference, consistent with Maguire *et al.*, (2018)'s findings, suggesting gender may not predict preparedness for forensic care, but in disagreement with Nazarloo et al., (2017) which revealed that males were significantly more prepared to care for forensic patients compared with females. In terms of years of nursing practice, all respondents with less than 5 years of experience were less prepared, compared to 67.6% with 10 years and above, with a p-value of .008, indicating significance. This aligns with Bektaş and Pakiş (2021) findings, indicating trends in preparedness across experience categories. Regarding current designation, 61.1% of SNOs were highly prepared, with a p-value of .006, indicating significance. The findings reflect the fact that assigning certain roles, like maintaining the chain of custody and witnessing as experts, tends to be for staff in higher designations. Studies by Wolf et al. (2022) reached the same conclusion. Age demonstrated potential significance ( $p = .017$ ). 66.7% aged 41-50 were highly prepared. That could be because age and years of experience tend to go hand in hand in most cases. Religion, area of residence, department experience, nursing sub-specialties training, coordination with law enforcement, caring for survivors or perpetrators of violence, and awareness of forensic nursing did not show statistically

significant associations with preparedness ( $p > .05$ ), consistent with Jae-Woo's (2021) findings and pointed to the high risk of possible loss of crucial forensic evidence, as mere having worked with law enforcement officer did not confer appreciable advantage in terms of preparedness. A profound correlation emerged between human rights training and preparedness. Impressively, 85.0% of nurses who underwent human rights training were highly prepared, reflecting a robust association ( $p = .004$ ) and echoing the conclusions drawn by Gandhi *et al.* (2018). Similarly, disaster management training, while not meeting conventional significance levels, displayed a notable trend. Approximately 58.5% of nurses who received disaster management training were deemed highly prepared, signalling a promising link ( $p = .055$ ) and aligning with the assertions made by Wang *et al.* (2023) concerning the pivotal role of such training. Conversely, despite its recognised importance, sexual and gender-based violence (SGBV) training failed to exert a significant influence on preparedness levels. Only 52.3% of nurses who underwent SGBV training were adequately prepared, with the lack of statistical significance ( $p = .819$ ) echoing the contextual variability noted by Backe (2020). A substantial majority, comprising 90.0% ( $n = 63$ ), expressed not being trained in evidence collection and preservation. Similarly, a staggering 91.4% ( $n = 63$ ) felt ill-equipped to handle the filing of P3 and PCR forms. Both disparities were statistically significant ( $p = .001$  and  $p < .001$ , respectively), underscoring the critical need for specialised training in these areas. Furthermore, a significant proportion, amounting to 84.4% ( $n = 65$ ), reported not being trained expert witnesses in courts of law, a finding supported by statistical significance ( $p = .003$ ) and consistent with the conclusions drawn by Williams *et al.* (2022).

## CONCLUSIONS

The study concludes that there existed gaps in formal training in forensic nursing and related aspects among nurses in the Accident and

Emergency department at Kenyatta National Referral and Teaching Hospital. Again, it concludes that most nurses working in the A&E department of KNH have a low level of preparedness to offer forensic nursing care to their clients based on a combination of factors, including insufficient knowledge, unsatisfactory attitude towards forensic nursing practice, and self-reported incompetence on integral aspects of forensic nursing care. Further, the study concludes that certain demographic characteristics, such as years of experience and age of nurses, are positively correlated with the level of preparedness to provide forensic nursing care. Finally, in-service training in forensic evidence collection, expert witnessing, and forensic nursing documentation significantly enhances preparedness to provide forensic nursing.

## Recommendations

- Formal training in forensic nursing should be encouraged. It could be the missing link in the preparedness to provide forensic nursing among accident and emergency nurses at Kenyatta National Hospital.
- Focus on providing specialised training in human rights, disaster management, evidence collection, and expert witnessing to enhance nurses' preparedness in forensic nursing care.
- Tailor training interventions are based on demographic factors, recognising that certain variables like gender and years of experience in accident and emergency may not confer benefit in terms of preparedness to provide forensic nursing care.

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### 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)

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### REFERENCES

- Backe, E. L. (2020). Capacitating care: activist anthropology in ethnographies of gender-based violence. *Feminist Anthropology*, 1(2), 192-198.
- Ballesteros, M., Thigpen, S., Faul, M., Kresnow, M. J., & Middlebrooks, J. (2016). 161 An evaluation of CDC's web-based injury statistics query and reporting system (WISQARS). *Injury prevention*, 22, A59.
- Bektaş, G., & Pakiş, I. (2021). Awareness of Forensic Cases Among Nurses: A Descriptive, Cross-Sectional Study. *Journal of Forensic Nursing*, 17(3), 182-187.
- Botchey, I.M., Hung, Y.M., & Hassan, S. (2017). Understanding Pattern of Injury in Kenya: Analysis of a trauma registry data from Kenyatta National Referral Hospital. *Research Gate Journal* 54(9), 2017 Sep 2, 456-458
- Butchart, A., & Mikton, C. (2014). Global status report on violence prevention, WHO; Geneva.
- Chow, J. T., Turkstra, T. P., Yim, E., & Jones, P. M. (2018). Sample size calculations for randomized clinical trials published in anesthesiology journals: a comparison of 2010 versus 2016. *Canadian Journal of Anesthesia/Journal canadien d'anesthésie*, 65(6), 611-618.
- Chowdhury, S., Almarhabi, M., Varghese, B., & Leenen, L. (2022). Trauma resuscitation training: An evaluation of nurses' knowledge. *Journal of Trauma Nursing*, 29(4), 192-200.
- Cucu, A., Daniel, I., Paduraru, D., & Galan, A. (2014). Forensic nursing emergency care. *Romanian Journal of Legal Medicine*, 22(2) 133-136.  
<https://doi.org/10.4323/rjlm.2014.133>
- Cunha, M., Libório, R., & Coelho, M. (2016). Knowledge questionnaire over forensics nursing practices. *Procedia Social Behavioral Science journal*
- Donaldson, A. E. (2020). New Zealand emergency nurses' knowledge of forensic science and its application to practice. *International Emergency Nursing*, 53(9), 100854.  
<https://doi.org/10.1016/j.ienj.2020.100854>
- Duffin, J. (2016). Pondering miracles, medical and religious. The New York Times, A21.
- Emergency Nursing Association (2018). Position statement; Forensic Evidence Collection. <homepage on the internet>
- Gandhi, S., Poreddi, V., Nikhil, R. S., Palaniappan, M., & Math, S. B. (2018). Indian novice nurses' perceptions of their role in caring for women

- who have experienced intimate partner violence. *British journal of nursing*, 27(10), 559-564.
- Greasley, A. (2022). Development of a Programme for Nurses to Manage Survivors of Sexual and Gender-Based Violence in Primary Health Settings (Master's thesis, University of the Witwatersrand, Johannesburg (South Africa)).
- Hacimusalar, Y., Kahve, A. C., Yasar, A. B., & Aydin, M. S. (2020). Anxiety and hopelessness levels in COVID-19 pandemic: A comparative study of healthcare professionals and other community samples in Turkey. *Journal of Psychiatric Research*, 129, 181-188.
- Holt, M. K., Vivolo-Kantor, A. M., Polanin, J. R., Holland, K. M., DeGue, S., Matjasko, J. L., Wolfe, M., & Reid, G. (2015). Bullying and suicidal ideation and behaviors: A meta-analysis. *Pediatrics journal*, 135(2), 496-509. doi:10.1542/peds.2014-1864
- Hussin, E. O. D., Wong, L. P., Chong, M. C., & Subramanian, P. (2018). Factors associated with nurses' perceptions about the quality of end-of-life care. *International nursing review*, 65(2), 200-208.
- Kahiga, K. W. (2018). Factors influencing the job satisfaction of nurses working in obstetric units in public hospitals in Kenya.
- Kamau, J. W. (2016). Female survivors of sexual violence: cultural and socioeconomic factors that influence first visits to the SGBV clinics at Kenyatta National Hospital (Doctoral dissertation, University of Nairobi).
- KNBS (2019). Kenya Demographic and Health Survey, KNBS, Nairobi.
- Lynch VA. (2011). Forensic nursing science: Global strategies in health and justice. *Egypt Journal of Forensic Science*. 2011: 1(2): 69–76
- Lynch, V. A., & Duval, J. B. (2010). *Forensic nursing science*. Elsevier Health Sciences
- Maguire, B. J., O'Meara, P., O'Neill, B. J., & Brightwell, R. (2018). Violence against emergency medical services personnel: A systematic review of the literature. *American journal of industrial medicine*, 61(2), 167-180.
- McQuoid-Mason, D. J., & Dada, M. A. (2011). *AZ of medical law*. Juta and Company Ltd.
- Monnat, S. M., and Chandler, R. F. (2015). Long-term physical health consequences of adverse childhood experiences. *The Sociological Quarterly*, 56(4), 723-752. doi:10.1111/tsq.12107
- Nazarloo, L. F., Sedghi Sabet, M., Jafaraghaee, F., Kazemnezhad Leyli, E., Rahbar Taromsari, M., & Jolly, A. (2017). Emergency department nurses' knowledge of forensics nursing. *Journal of Holistic Nursing and Midwifery*, 27(3), 27–36. <https://doi.org/10.18869/acadpub.hnmj.27.3.27>
- Nielson, M. H., Strong, L., & Stewart, J. G. (2015). Does sexual assault nurse examiner (SANE) training affect the attitudes of emergency department nurses toward sexual assault survivors? *Journal of Forensic Nursing*, 11(3), 137– 143. <https://doi.org/10.1097/JFN.0000000000000081>
- Oh, J. W., & Ynag, H. J. (2021). A study of forensic nursing competence, ethical decision-making confidence, and nursing professional value among nursing students. *Annals of the Romanian Society for Cell Biology*, 25(1), 846-853.
- Ohaeri, B., Owolabi, G., & Ingwu, J. (2019). Skilled health attendants' knowledge and practice of pain management during labour in health care facilities in Ibadan, Nigeria. *European Journal of Midwifery*, 3, 3.



- Oliveira Rosa, J. (2025). Being a nursing mentor in the intraoperative neurosurgical theatre. *Journal of Perioperative Practice*, 17504589251320824.
- Paarima, Y., Kisinna, A. A., & Ofei, A. M. A. (2024). Perceived organizational politics: Implications for nurses' stress and job satisfaction. *International Journal of Africa Nursing Sciences*, 20, 100686.
- Tallam EC, Kaura D, Mash R. (2022). Self-perceived competency of midwives in Kenya: A descriptive cross-sectional study. *Afr J Prim Health Care Fam Med*. Dec 14;14(1):e1-e9. doi: 10.4102/phcfm.v14i1.3477. PMID: 36546487; PMCID: PMC9772721.
- Wakaba, M., Mbindyo, P., Ochieng, J., Kiriinya, R., Todd, J., Waudu, A., ... & English, M. (2014). The public sector nursing workforce in Kenya: a county-level analysis. *Human resources for health*, 12, 1-16.
- Wang, K., Huang, M., Zhang, G., Yue, H., Zhang, G., & Qiao, Y. (2023). Dynamic feature queue for surveillance face anti-spoofing via progressive training. In *Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition* (pp. 6372-6379).
- Williams, J. P., Downing, N., & Miyamoto, S. (2022). The purpose, process, and advancement of forensic nursing standards. *Journal of Forensic Nursing*, 10-1097.
- Wolf, L. A., Perhaps, C., & Delao, A. (2022). Educational needs of U.S. emergency nurses related to forensic nursing processes. *Journal of Trauma Nursing*, 29(1), 12- 20. <https://doi.org/10.1097/JTN.0000000000000627>
- World Health Assembly. (2014). Strengthening the role of the health system in addressing violence, in particular against women and girls, and children. In: *Sixty-seventh World Health Assembly*, Geneva, 19–24 May 2014. Resolutions and decisions, annexes. Geneva: World Health Organization; 2014. Available from: [http://apps.who.int/gb/ebwha/pdf\\_files/WHA67/A67\\_R15-en.pdf](http://apps.who.int/gb/ebwha/pdf_files/WHA67/A67_R15-en.pdf) [cited 2016 Mar 23].
- World Health Organization. (2019). *World Health Statistics 2019: Monitoring health for sustainable development goals*
- Wyatt, J.P., Squires, T., Norfolk, G., and Payne-James. (2011). *Oxford handbook of forensic medicine*, Oxford University Press; Oxford.