Original Research Article

Assessment of Use of Medical Forensic Evidence in Investigation and Prosecution Process of Defilement Perpetrators, A Case Study of Ruiru Sub-County, Kenya

Abstract

Background: Defilement has been recognized as one of the crimes in which such a ceiling in evidential presentation is critical. According to WHO statistics, More than 95 million children are abused annually, Whereby Africa is the most affected continent leading. Defilement incidences are alarming globally, regionally, and locally. There are new cases of defilement reported every week with 83 % emanating from a well-known perpetrator to the survivor.

Objective: The study aimed to assess the use of medical forensic evidence in the investigation and prosecution process of defilement perpetrators, A case study of Ruiru Sub-County, Kenya.

Method: Research was conducted using an analytical cross-sectional approach. Sixty-six participants in the study were chosen using a stratified random sampling technique. The techniques used to collect the data were both qualitative and quantitative. The strength of the relationship between the dependent and independent variables was assessed using the Pearson correlation. The threshold for statistical significance was set at 0.05.

Results: There was a significant correlation between Compliant with set standards against investigation and the prosecution of defilement incidences(p=.005). There was a significant Correlation between the Availability of tools against investigation and the prosecution of defilement incidents(p=.000). Concerning, Correlation between knowledge of the guardians against investigation and prosecution of defilement Incidences there was no significant association(p=.630).

Conclusion: From this research, compliance with set standards and procedures for evidence admissibility of defilement evidence was adequate. Study respondents had good knowledge of the use of medical forensic evidence during the investigation and prosecution of defilement incidences. The study concluded that most of the facilities and officers are not equipped with materials for the collection of evidence.

Keywords: *Crime, Defilement, Perpetrator, and Prosecution*.

1. INTRODUCTION

Defilement remains to be a devastating incident for abused children with deleterious emotional, social, educational, and physical health outcomes that are injurious to the affected child, their families, and the community as a whole [1]. According to UNAID, Globally an estimated 736 million women almost one in three have been subjected to intimate partner violence, non-partner sexual violence, or both at least once in their life and this constitutes 30 percent of women aged 15 and older[2]. More than 640 million or 26 percent of women aged 15 years and older have been subjected to intimate partner violence. Approximately 87,000 women were killed worldwide, 50,000 of whom were killed by their intimate partners or family members, in the year 2017; while an estimated 137 women are killed by a member of their family daily[3]. At least 200 million women and girls, aged 15–49 years, have undergone female genital mutilation in 31 countries where the practice is concentrated[4]. Among children, up to 1 billion

children aged 2–17 years, have experienced physical, sexual, or emotional violence or neglect in the past year globally. 15 million adolescent girls have experienced forced sex[4].

Towards the attainment of sustainable development goals and especially in good children's health has been significantly affected by child abuse which is rampant in Africa. Annually more than 95 million cases of childhood abuse are reported, with Africa leading this specific problem [5]. For instance, a study conducted in South Africa[6], reported more than 18 cases of child abuse being reported at cape town, whereby 34% of the reported cases were physical abuse,16% accounted for emotional abuse, and lastly, 20% accounted for sexual abuse. In another study conducted in Switzerland, one in every five children has experienced child abuse in the majority of African nations. In West and East Africa, child abuse is rampant and accounts for 33% of the cases[7].

There is a legal framework locally and internationally that grants rights to minors sanctioning their justice and health care [8]. Through good operational healthcare system equipped with adequate medical supplies, medical equipment, and enough skilled healthcare providers is the only way to quality healthcare systems [9]. Nevertheless, research work has noted few studies have focused on sexual reproductive health services giving focus on those under 18 years' right to privacy are scarce, and the verdicts that are trusted to protect those under 18 from sexual abuse are delicately administered [10]. Investigation of victims of sexual violence involves a sequence of proficiencies in clinical history taking, adequate physical investigation, assortment, and safeguarding of significant physical evidence for criminological evaluation. Enhanced and good medics' capacity in managing sexual offenses, in the collection, and safeguarding of physical evidence, adequate analysis, reporting and adequate conclusion of the investigation process are key for sexual violence cases[11]

Kiambu County records between 30 and 40 cases every month, According to Annual Crime Reports [12], Ruiru police station records between three to seven cases of defilement every week as per their occurrence book. This study looked into the disconnect between the Police Station Ruiru and Ruiru Level four hospital from the time of incidence and reporting by the caregiver. Sexual violence offenses have been covered in the Kenya Sexual Offences Act 2006. It is estimated that the overall number of sexual violence cases presented to the court of law in Kenya is 25%. This low outcome is associated with dismal skills among health workers and investigative agencies to collect, assess and organize evidence from victims promptly and ineffectively[11]. From the above background literature the evidence collection for medical forensic evidence in the investigation prosecution process of the perpetrator of defilement is weak hence the need for this study.

2. METHODOLOGY

2.1 Research Design

An analytical cross-sectional study design was adopted. According to Mugenda & Mugenda[13], this design was regarded as appropriate because data was collected at one point in time. The research design also gave a snapshot of the level of compliance with set standards and procedures for evidence admissibility of defilement evidence logs gathered by the Guardians, Gender Police Officer, and clinicians in Ruiru Level Four Hospital Kenya. The study design applied both qualitative and quantitative techniques. This was important for triangulation. Both primary and secondary data were utilized in this research.

2.2 Study Area

The study site was a Ruiru level four hospital situated in Ruiru sub-county in Kiambu County. The sub-county measures 292 square km with a population of 445,000[14]. Among the thirteen sub-counties of

Kiambu County, Ruiru Sub-county has the largest population making it most appropriate for the study [14]. The high population is characterized by greater diversity and numerous socio-cultural and economic activities such as industrial factories, and coffee and tea farms where the middle and low-income population works. The high number of employees in the estates, factories, and farms makes the residents dwell informal settlement areas in small overly crowded areas with families sharing common rooms in proximity to proliferating sexual crimes.

2.3 Study Population

The main study population was guardians/caregivers of the defiled minors as captured in GBV registers at Ruiru level-four hospital, the study also gathered essential information from Gender-based Police Officers and Clinicians from Ruiru Sub-County. In 2021, the total number of cases reported was 228.

2.4 Sample Size Determination

The Cochran formula for smaller populations was used to calculate sample size because the study population was relatively small. The researcher was able to estimate the proportions of an attribute present in the population and calculate the sample size with the desired level of significance and precision. because of that, A sample size of 66 study participants was obtained. In addition, two key formants interviews and four focused group discussions were also conducted in the course of the study.

2.5 Sampling Technique

Ruiru sub-county hospital was selected purposively because of the high incidences of defilement in the area. Study respondents were selected by using a stratified sampling technique to categorize the respondents into different occupations, after which a random sampling technique was used to select the study participants and those who were assigned odd numbers participated in the study. For the qualitative research, study respondents were purposefully selected to be part of the focused group discussions and key informants. The focused group discussion consisted of 6-12 respondents, key informants were Clinicians and Gender-based Police Officers selected purposefully.

2.6 Data Collection Method and Instruments

The study utilized questionnaires generated from the post-rape (PPRC) form (MOH 363) and the Sexual Gender-Based Violence Register (SGBV) Form (MOH 365) for data collection. As Creswell (2010) recommends the questionnaires were standardized and close-ended to ensure the collection of the required information. Apart from the questionnaires, the researcher also used observation checklists to counter-check defilement data from the post-rape (PPRC) form (MOH 363), and the Sex Gender-Based Violence (SGBV) Form (MOH 365). The data picked included clinician notes on examination, the specimen collected, the date of incident and reporting, packaging and transportation of the forensic specimen, and the turnaround time between the incident and reporting. This was used to corroborate data collected from the respondents.

2.7 Validity and Reliability

The extent to which research equipment measures what is envisioned to measure is termed validity, as such the instruments were scrutinized by the supervisors and a team of experts from the hospital and police department dealing with defilement cases to ensure their accuracy[15]. Reliability is the extent to which research equipment produces similar findings over and over again[13]. Ten percent of the sample size, that is, seven respondents from Thika level five hospital was used in the pretesting of the tools. Cronbach's alpha, the universal measure of internal consistency (reliability), was used to calculate the reliability index. The acceptable reliable value was 0.89 meaning the tools were reliable.

2.8 Data Processing and Analysis

Statistical Package for social sciences (SPSS) version 26 was used to analyze quantitative data. To ensure the cleaning of data, data will be entered into an Excel spreadsheet. Extreme cases, missing values, and inconsistent data will be addressed and edited. After cleaning, data was imported into SPSS version 26. Percentages, frequencies, and numbers were used to describe categorical data in univariate analysis. To check for any relationship between independent variables and the outcome of interest, A Pearson correlation analysis was carried out where a p-value of ≤0.05 was considered significant

Concerning qualitative data, transcription was done to convert audio-recorded data into transcripts. The transcripts will be uploaded into Excel for cleaning. During data cleaning, unreadable data will be removed and transcripts were aligned with research questions. The cleaned data was imported into NVIVO version 11. Auto coding based on research questions will be done. Coding of the data based on parent codes, child codes, and grandchild codes was done. The coded data was auto-generated, and triangulation followed thereafter with quantitative findings.

3.0 Results

3.1 Awareness of the Defilement

As indicated in Table 1, The study wanted to access the awareness of the respondents and after deploying a close-ended questionnaire with a YES and NO answer with a minimum of 1 and a maximum of 2, the study found that a mean of 1.52 with a standard deviation of 0.50012 of the respondents were aware of defilement. A mean of 1.53 with a standard deviation of 0.50291 were aware of the period/amount of time that is required to report a defilement case. The studies also found that a mean number of 1.50 of the respondents with a standard deviation of 0.50383 have encountered a defilement case. A lesser number with a mean of 1.45 of the respondents and a standard deviation of 0.50175 of the respondents were aware of offices/agencies to report such matters at the time of that defilement case. A mean of 1.27 with a standard deviation of 0.49801 of the respondents indicated that they took an action to preserve evidence at the time of that defilement case, most of the indicated that they took a picture or took a note.

Table 1: Awareness of the Defilement

	N	Minimum	Maximum	Mean	Std. Deviation
Are you aware of the defilement of cases	66	1.00	2.00	1.5606	.50012
period of time that is required to report a defilement case	66	1.00	2.00	1.5303	.50291
Have you ever encountered a defilement case	66	1.00	2.00	1.5000	.50383

were you aware of offices to report such matter	66	1.00	2.00	1.4545	.50175
did you take any action to preserve evidence	66	1.00	2.00	1.5758	.49801
Valid N (listwise)	66				

3.2 Investigation and Prosecution of Defilement Incidents

The study found that a mean number of 3.30 with a standard deviation of 1.47 of the respondents have faced forensic cases while working in your institution. While a mean of 3.34 respondents with a standard deviation of 1.53 believe information on the process management regarding forensic cases also the study noted that a mean number of 2.51 respondents with a standard deviation of 1.5 indicated that there is management procedure regarding forensic cases. Table 2 below shows more details regarding the Investigation and Prosecution of Defilement Incidents.

Table 2: Investigation and Prosecution of Defilement Incidents

	N	Minimum	Maximum	Mean	Std. Deviation
You face forensic cases while working in your institution	66	1.00	5.00	3.3030	1.47773
information on the process management regarding forensic cases	66	1.00	5.00	3.3485	1.53415
There is management procedure regarding forensic cases	66	1.00	5.00	2.5152	1.54165
Valid N (listwise)	66				

3.3 Compliance with Set Standards

The study deployed some questionnaires with the following key: 1 = strongly disagree 2 = disagree 3= neutral 4=agree while 5 = strongly agree. From this questionnaire with a minimum of 1 and a maximum of 5, the study found out that a mean of 2.39 with a standard deviation of 1.42 has undergone training in

defilement investigation. A mean of 3.89 with a standard deviation of 1.41 of the respondents thought there was a need for both victims and witness protection during defilement cases investigation. In terms of the diligence put on defilement case impact on prosecution, the study found out that was a mean number of 3.24 with a standard deviation of 1.728. a mean of 3.18 with a standard deviation of 1.82 indicated that there are challenges in handling witnesses and victims of defilement during the investigation of sexual crimes among both genders. Table 3 shows a descriptive analysis done on compliance with set standards. From the analysis, the study found out that most of the respondent believes that they comply with the set Standards.

Table 3: Compliance with Set Standards

	N	Minimum	Maximum	Mean	Std. Deviation
I have undergone training in defilement investigation	66	1.00	5.00	2.3939	1.42374
need for victims and witness protection during investigation	66	1.00	5.00	3.8939	1.41561
The diligence put on defilement case will impact on prosecution	66	1.00	5.00	3.2424	1.72814
There are challenges in handling victims among both genders	66	1.00	5.00	3.1818	1.82216
Valid N (listwise)	66				

3.4 Correlation between Compliant with set Standards against Investigation and prosecution of Defilement Incidences

As indicated in Table 4, A Pearson correlation analysis done on the study is with compliance with set standards being the study's independents variable against the investigation and prosecution of defilement incidences as the study's dependent variable, the study found that there was a($r=-0.343$, $p< 0.05$) relation between our variable with a Correlation is significant of 0.05 level (2-tailed) while N was 66. These findings were not in agreement with qualitative data where one of the key informants noted that;

"Even though victims of sexual assault want to use normal legal procedures to deal with the horrible crime, they run into many problems. This makes it take a long time to get justice for the victims. Sexual

crimes are often hard to investigate, especially when it comes to gathering evidence and witness statements. How these cases of sexual assault are dealt with is affected by political power and armed conflict that revolves around the power structure"

Table 4: Correlation between Compliant with set standards against Investigation and prosecution of defilement incidences

		Compliant with set standard	Investigation and prosecution of defilement incidences
Compliant with set standard	Pearson Correlation	1	-0.343**
	Sig. (2-tailed)		.005
	N	66	66

**. Correlation is significant at the 0.05 level (2-tailed).

3.5 Tools and Equipment and Availability of Medical Forensic

The study found that a mean of 2.28 with a standard deviation of 1.5 of the respondents are well equipped with materials for the collection of evidence while investigating defilement cases. A total mean of 2.30 with a standard deviation of 1.49 of the respondents believes that investigators are well equipped with forensic tools to be used in the collection, preservation, and transportation of forensic laboratories. When it comes to whether or not the laboratory is equipped with forensic analysis tools, equipment, or regimens for use in conducting forensic analysis, a mean of 2.21 with a standard deviation of 1.54 respondents took its side. The study also found that a mean of 2.25 respondents with a standard deviation of 1.52 indicated that the tools have enough space for reporting defilement cases while a mean of 2.31 with a standard deviation of 1.51 indicated that the tools do not have missing spaces for reporting defilement cases. From these findings, the study shows that most of the respondents do not have tools and equipment nor do they have availability of medical forensics. A descriptive analysis is well explained in Table 5.

Table 5:Tools and equipment and availability of medical forensic

	N	Minimum	Maximum	Mean	Std. Deviation
I'm equipped with materials for collection of evidence	66	1.00	5.00	2.2879	1.50655

Investigators are well equipped with forensic tools	66	1.00	5.00	2.3030	1.49841
The laboratory is equipped with forensic analysis tools	66	1.00	5.00	2.2121	1.54437
The tools have enough space for reporting defilement cases	66	1.00	5.00	2.2576	1.52225
The tools do not have missing spaces for reporting defilement	66	1.00	5.00	2.3182	1.51057
Valid N (listwise)	66				

3.6 Correlation between Availability of tools against Investigation and prosecution of defilement incidences

As indicated in Table 6, A Pearson correlation analysis done on the study is with the Availability of tools being the study's independents variable against the investigation and prosecution of defilement incidences as the study's dependent variable, the study found that there was a ($r=0.654$, $p=<0.05$) relation between our variable with a Correlation is significant of 0.01 level (2-tailed) while N was 66. These findings agreed with qualitative data where one of the key informants noted that;

"Forensic lab equipment is used to detect, collect and process samples and evidence from crime scenes, suspects, and victims. Crime lab analysts apply the principles of biochemistry, genetics, and molecular biology in the search for results. Forensic scientists are tasked with investigating a multitude of crimes using advanced technologies in every subfield of forensic science it is very bad when some of them are missing. Some of the key measurements forensic labs perform that are missing or enough include"

Table 6:Correlation between Availability of tools against Investigation and prosecution of defilement incidences

		Availability of tools	**Investigation and prosecution of defilement incidences**
Availability of tools	Pearson Correlation	1	.654**

	Sig. (2-tailed)		.000
	N	66	66

**. Correlation is significant at the 0.01 level (2-tailed).

3.7 Knowledge of the Guardians

The study found that a mean of 3.4 with a standard deviation of 1.54 has a structured framework with resources at their disposal to ensure the safety and security of witnesses and victims of crime, a mean number of 2.5 with a standard deviation of 1.6 respondents are provided with tools for evidence collection and preservation for defilement cases while a mean of 2.6 respondent with a standard deviation of 1.6 believe their station has a structured way of reporting defilement cases. From Table 7, the Descriptive Statistics study shows that most of the respondents have a framework to ensure the safety of witnesses but at the same time a much bigger number of respondents lack support from their station.

Table 7:Knowledge of the Guardians

	N	Minimum	Maximum	Mean	Std. Deviation
I have framework to ensure the safety of witnesses and victims	66	1.00	5.00	3.4091	1.54897
I'm provided with evidence for defilement cases	66	1.00	5.00	2.5455	1.61894
My station has a structured way of reporting defilement cases	66	1.00	5.00	2.6212	1.60542
Valid N (listwise)	66				

3.8 Correlation between Knowledge of the Guardians against Investigation and Prosecution of Defilement Incidences

The study also performed another correlation analysis where knowledge of the guardians was the study independent variable and investigation and prosecution of defilement incidences was the study dependent variable and found out that where N was 66, the study was not correlated with ($r=0.060$, $p<0.05$) with a significant correlation of 0.630. Table 8 with more details.

Table 8:Correlation between knowledge of the guardians against Investigation and prosecution of defilement incidences

		Knowledge of the guardians	Investigation and prosecution of defilement incidences
Knowledge of the guardians	Pearson Correlation	1	.060
	Sig. (2-tailed)		.630
	N	66	66

4. Discussion

From the analysis, the study found out that most of the respondents believe that they comply with the set Standards. This study was concurrent with two other studies [16], [17]. Despite their determination to pursue a standard legal process to address the horrible crime, victims of sexual assault face several obstacles, which results in a significant delay in providing justice to those who have been harmed. The process of investigating sexual crimes is often accompanied by a great deal of difficulty, most notably in the gathering of evidence and testimony in instances of sexual assault and other forms of sexual violence. Most of the respondents were have a framework to ensure the safety of witnesses but at the same time, a much bigger number of respondents lack support from their station. According to the findings of research conducted by[18], relatively few academic forums provide instruction in forensic medical investigation, and the vast majority of forensic specialists obtained the bulk of their knowledge and abilities from hands-on experience in the field.[18]pointed out that there is very little evidence to suggest that the present educational systems play a role in ensuring that forensic specialists are well-versed and up to date with the most recent rules.

According to [19], forensic specialists who have received adequate training report having an easier time carrying out their responsibilities. Only a small percentage of people have received training in forensic medicine. This phenomenon has been connected to the stringent restrictions placed on prospective forensic science students by educational institutions when they are applying for enrollment[20]From these findings, the study shows that most of the respondents do not have tools and equipment nor do they have availability of medical forensics. The study findings were concurrent with another study [21] where forensic tools are a critical method in the enactment of various aims within a majority of institutions and organizations. Resources needed in the security sector include; facilities, personnel, and tools necessary for the enactment of various security actions that are needed by the community at large which entails steering forensic science events. In cases where are inadequate tools to collect the sample for forensic studies, a lot of evidence and proof get affected. This occurs as a result of inadequate genuine equipment

and instruments of work. Studies have indicated that enough equipment for gathering evidence in crime areas affects forensic science in criminal examination. good availability and necessary evidence-collection tools govern how forensic scientists conduct their effort efficiently [22].

9. Ethical Issues

For the study to be carried out, ethical approval was sought from Institutional Research and Review Committee for Mount Kenya University. In addition, the license needed to carry out this study was gotten from the National Commission for Science, Technology, and Innovation (NACOSTI). Also, authorization was attained from the relevant bodies in the County Government of Kiambu and the County Commissioner of Kiambu. Moreover, Respondents were requested authorization to participate in the study. Questionnaires were serialized to safeguard the confidentiality of the respondents. The study acknowledged that the majority of its participants were not adults. According to Kenya's Constitution. Under accepted ethical research standards, parental or guardian written consent was obtained before conducting interviews and audio recording participants in the study.

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Abbreviations

CA; Children Act, FDG; Focused Group Discussions, KII; Key Informant Interview, NACOSTI; National Commission for Science Technology and Innovation, PRC; Post rape care form, SGBV; Sexual gender-based violence, SPM; Senior Principal magistrate, SPSS; Statistical Package for Social Sciences.