

**APPRAISAL OF HIV POST EXPOSURE PROPHYLAXIS PROGRAM AMONGST
SEXUAL ASSAULT VICTIMS AT KENYATTA NATIONAL HOSPITAL.**

By

DR. ERIC MUNENE MURIUKI

M.B.Ch.B. (UON)

A dissertation submitted in partial fulfillment of the requirements for the awards of the degree of
Masters in Science in Tropical and Infectious Diseases at the College of Health Sciences,
Institute of Tropical and Infectious Diseases, University of Nairobi

**UNIVERSITY OF NAIROBI
MEDICAL LIBRARY**

©OCTOBER 2012

DECLARATIONS

I hereby declare that this dissertation is my original work and has not been presented elsewhere for approval and examination.

Researcher

Sign 

Date 27/11/2012

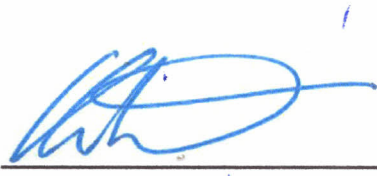
Dr. Eric Munene Muriuki, M.B.Ch.B

Post-Graduate student in Tropical and Infectious Diseases.

University of Nairobi.

W64/64145/2010

University Supervisor

Sign 

Date 27/11/2012

Dr. Joshua Kimani, MBChB, M.P.H, Diploma (International Health)

Clinical Director, Kenya AIDS Control Project,

University of Nairobi, Institute of tropical and infectious diseases. College of Health Sciences

P.O. Box 19676-00202, Nairobi, Kenya.

DEDICATION

Dedicated to the Almighty God for his blessings and generosity in my life.

I also dedicate this to my parents Mr. & Mrs. Muriuki and my wife Betty Wachera for their tremendous support and encouragement.

ACKNOWLEDGEMENT

I sincerely thank and acknowledge the following:

- Dr. Joshua Kimani, my supervisor for his guidance and supervision in writing this dissertation.
- Dr. F. Mutua for reviewing and refining this study.
- The KNH/UON Ethics and Research Committee for allowing this study to be conducted.
- Mr. Gichuki and Zipporah for their time and effort in data entry and database creation.
- All KNH GBVRC staff members for their enthusiastic response to the survey questionnaire.

ABBREVIATIONS

3TC	LAMIVUDINE
AIDS	ACQUIRED IMMUNE DEFICIENCY SYNDROME
AZT	ZIDOVUDINE
CCC	COMPREHENSIVE CARE CLINIC
CDC	CENTERS FOR DISEASE CONTROL AND PREVENTION
GBV	GENDER BASED VIOLENCE
GBVRC	GENDER BASED VIOLENCE RECOVERY CENTER
GVR	GENDER VIOLENCE RECOVERY CENTER
HIV	HUMAN IMMUNODEFICIENCY VIRUS
HVS	HIGH VAGINAL SWAB
IDU	INJECTING DRUG USE
KDHS	KENYA DEMOGRAPHIC HEALTH SURVEY
KNH	KENYATTA NATIONAL HOSPITAL
MOH	MINISTRY OF HEALTH
PEP	POST EXPOSURE PROPHYLAXIS
PSC	PATIENT SUPPORT CENTER
SGBV	SEXUAL GENDER BASED VIOLENCE
STIS	SEXUALLY TRANSMITTED INFECTIONS
SV	SEXUAL VIOLENCE

TABLE OF CONTENTS

DEDICATION.....	iii
ACKNOWLEDGEMENT.....	iv
ABBREVIATIONS.....	v
TABLE OF CONTENTS	vi
ABSTRACT.....	viii
CHAPTER 1: INTRODUCTION.....	1
CHAPTER 2: LITERATURE REVIEW.....	3
JUSTIFICATION	6
RESEARCH QUESTION	7
OBJECTIVES	7
Specific objectives	8
CHAPTER 3: METHODOLOGY	9
3.1. Study design	9
3.2. Study site and Study population	9
3.3. Sample Size Estimation	9
3.4. Sampling method.	10
3.5.1. Inclusion criteria.....	11
3.5.2. Exclusion criteria.....	11
3.6. Data collection and Data collection instruments	12
3.7. Variables	12
3.7.1. Dependent Variables	12
3.7.2. Independent Variables.....	12
3.7.3. Confounders	12

3.8. Ethics consideration	12
3.9. Data management and statistical analysis	13
CHAPTER 4: RESULTS	14
4.1. Study subjects	14
4.1.1. Demographic characteristics of the participants	144
4.2. Typologies of sexual assaults cases recorded at the KNH	15
4.3. Condom use	16
4.4. General profile of perpetrators and their relationships to the sexual assault survivors.....	17
4.4.1. Profile of perpetrators.....	17
4.4.2. Relation of perpetrator to survivor	18
4.5. PEP Initiation.....	19
4.6. Analysis of semi- structured questionnaire for key informants.....	23
THEMES	23
CHAPTER 5: DISUSSION	26
STUDY LIMITATIONS	28
CHAPTER 5.0: REFERENCES.....	30
APPENDIX 1: Data Abstraction Questionnaire.....	34
APPENDIX 2: Key Informants Questionnaire	39
APPENDIX 3: CONSENT FORM	43

ABSTRACT

BACKGROUND: The infection rates following occupational exposure to HIV in a variety of settings have been documented facilitating the use of post-exposure prophylaxis (PEP) among exposed health workers. The merits of post-exposure prophylaxis in non-occupational HIV exposures e.g. in sexual violence is however unknown partly because the risk of acquiring HIV and/or other sexually transmitted diseases due to the circumstances involved are not well characterized. While the incidence of sexual assault is on the rise in many African countries including Kenya, the efficacy of PEP amongst individuals who have experienced sexual violence is still unclear.

AIM: The aim of this study was to evaluate the profiles of victims and perpetrators of sexual violence who attended the gender based violence recovery center (GBVRC) program at Kenyatta National Hospital (KNH) and exposed to the non occupational human immunodeficiency virus post exposure prophylaxis for management. In addition, we also reviewed the uptake, compliance, experiences and outcome of those initiated on PEP as part of their intervention. .

METHODS: Post-rape survivor records of patients who accessed services from 1st June 2009 up to 1st June 2012 were retrieved from the Kenyatta National Hospital Gender Based Violence Recovery Center. A retrospective cross-sectional study was then used to examine the biodata of both victims and perpetrators, nature of sexual assault, HIV serostatus, proportion initiated on post-exposure prophylaxis, experiences, compliance and outcome of use. In addition, qualitative data was collected from health care workers interviewed at the gender based violence recovery centers in Nairobi during the data abstraction phase of the study. The staff members were interviewed as key informants on service delivery issues.

DATA ANALYSIS: The quantitative data was coded and analyzed using a statistical program SPSS® version 17 for Windows® 7. Chi square test was performed to better understand associations between use of PEP, outcomes of interest and specific patient characteristics.

Thematic analysis was used for the qualitative data. Tables, charts and scatter graphs were then used to illustrate the findings.

RESULTS: There were 391 participants in the study out of which 385 (98.5%) were sexual assault survivors and 6(1.5%) were key informants. Out of the 385 sexual assault survivors who accessed services at KNH-GBVRC, 53(13.8%) were males. Condoms were also not used in 347(90.1%) of the sexual assault cases while the perpetrators were known in 164 (42.6%) of the cases. Of all the perpetrators 12 (3.1%) were females while 7(2%) were under the age of 18 years. In 15(3.9%) assault cases, the perpetrators committed the crimes under the influence of alcohol while in 6 (1.6%) of the cases the perpetrators had taken other drugs. There was no previous relationship between the perpetrators and survivors in 330 (85.7%) of the cases in the study. When we examined the time taken by survivors to seek help, 184(47.8%) of them had presented to the recovery center within 72 hours of exposure for treatment. However, 207(53.8%) were started on post exposure prophylaxis (PEP). The median, minimum and maximum time taken for PEP initiation after a sexual assault was 17 hours, 2hours and 168 hours respectively. Of the 207 sexual assault survivors who were started on PEP, 49(23.7%) adhered to the regimen while only 43(20.8%) completed the 28 day PEP dose. Only 4 participants out of the 207 initiated on PEP came back for a repeat HIV test after 3 months.

CONCLUSION/ RECOMMENDATIONS

Surprisingly, 53(13.8%) sexual assault victims were males although the majority of the survivors were students and pupils attending schools and colleges. Policy makers therefore need to take note of these changing trends. At the KNH-GBVRC, service providers flouted the PEP service guidelines, kept poor records and there was also poor adherence to the prescribed antiretrovirals by most of the survivors. Training of service providers on the PEP guidelines, enhanced counseling on PEP adherence among the survivors, follow-up of survivors when on treatment, improved data collection practices and storage for all sexual assault cases are highly recommended if the program efficiency is to be improved.

CHAPTER 1: INTRODUCTION

Sexual assault is a harmful act directed at an individual based on his or her sex, usually intended to reinforce related hierarchies and perpetuate inequalities (Benjamin and Murchison, 2004). It is a public health problem associated with long-term social, physical and mental consequences (Mash and Terdal, 1997; Black et al., 2009). Further, it predisposes victims to sexually transmitted infections including human immunodeficiency virus [HIV] (McCann and Kerns, 1999; Johnson, 2004; Fonck et al., 2005; Senn et al., 2007; Girardet et al., 2009), hence the need for post exposure prophylaxis (PEP).

Post exposure prophylaxis to HIV utilizes one or more antiretroviral drugs to reduce the risk of transmission of HIV following a known or possible exposure to the virus (Hardy EJ 2012). This exposure may be, in an occupational setting percutaneously, via mucous membranes or non-intact skin; or in non-occupational settings where the most common exposures are via sexual contact, injecting drug use (IDU) or accidental needle-stick injury (CDC, 1993). Post exposure prophylaxis is most effective when given early (within 24 hours of exposure) and efficacy is reduced if administration is delayed [especially beyond 72 hours] (Hardy EJ 2012). Efficacy is also reduced with a large viral inoculum, and if the dose of PEP is reduced or the duration of prophylaxis is too short (less than 26 days). The standard duration of treatment has been accepted as 28 days (Fong, 2001). While PEP plays a role in the management of exposure to HIV, the most important management strategy remains prevention of exposure (Ippolito et al., 1993), however, in some instances including sexual assault, prevention is not possible. The availability of PEP becomes useful in prevention of HIV infection in such non-occupational setting of HIV exposure. Nevertheless, the efficacy of PEP in non-occupational exposure to HIV in sexual assault settings is thus leading to variability in interpretation of results [7, 8].

Since its inception in April 2006, the Kenyatta National Hospital (KNH) gender based violence and recovery center (GBVRC) has been able to offer free services to the survivors of gender based violence. The center currently receives an average of 15 survivors per month with 92% being women and 8% men. Possible challenges in HIV prevention following exposure of all sexual assault victims to HIV infection include the time of presentation of the patient and inception of PEP, tolerability of PEP, the extent of injuries sustained during sexual assault, the nature of the sexual assault and the HIV status of the perpetrator (Parkin et al., 2000).

The GBVRC protocol recommends that when a patient comes to the facility they are first examined by the medical doctor who takes the history, does the physical exam and thereafter takes some specimens such as a high vaginal swab, blood for HIV testing, hepatitis B and VDRL; pregnancy test and urine for urinalysis. If the HIV test is positive, post test counseling is provided and the patient referred to a comprehensive care clinic (CCC) of their choice. In most cases the HIV test is negative and the patient is counseled and then initiated on PEP. During this visit they are given a two weeks supply of PEP drugs, postinor2 if pregnancy test is negative and also started on Euvax for hepatitis B prophylaxis. They are then asked to come for a PEP drug refill for the next two weeks. During the week 2 visit, additional pills for PEP are dispensed to ensure they complete the 28 day regimen, those who come for visit 2 are then, in addition booked to come back after 6 weeks for retesting. This study aims at appraising the experiences, gains and challenges encountered at the program level utilizing data and information generated through the gender recovery center Kenyatta National Hospital as a case study.

CHAPTER 2: LITERATURE REVIEW

Post-exposure prophylaxis (PEP) is any prophylactic treatment started immediately after exposure to a pathogen (such as a disease-causing virus), in order to prevent infection by the pathogen and the development of disease. Non-occupational exposure to HIV through sexual assault is physically, psychologically, and emotionally distressing. For HIV-exposed individuals, the knowledge that it is possible to minimize the risk of HIV transmission with the use of antiretroviral (ARVs) may decrease the psychological stress.

Sexual assault and HIV transmission

Sexual assault predisposes the victim to HIV and other sexually transmitted infections (Minas B et al., 2012). The risk of acquiring HIV as a result of sexual assault is not known, in part because in most cases it is difficult to ascertain whether infections were present before the assault or acquired during it (Jenny et al., 1990). The probability of HIV transmission maybe a function of 3 factors: the frequency of exposure, the probability that the source is HIV positive, and the probability of transmission if the source is infected (Hardy EJ 2012).

While repeated exposures are infrequent in the occupational setting, they are common with sexual contact or drug injection. However continuing exposures that would in effect require ongoing prophylaxis should be distinguished from sporadic exposures that can be treated with discrete courses of PEP.

In the occupational setting, the HIV status of the source patient is often known or can be readily determined. In contrast, in sexual or drug abuse exposures, the source may not be available or the HIV status may be unclear. Where data is readily available, the risk of such exposures can be estimated and appropriate decisions made. However, in most of our settings, such data is not easily available but an estimate of seroprevalence can be made from local research studies. In our country, Kenya Demographic health survey (KDHS) is an important source of crucial HIV data where information on sentinel samples from hospital inpatients and drug treatment entrants (Awes et al., 2009; Buluma et al, 2009) are collected and used for HIV anonymous testing. The risks of occupational HIV transmission have been fairly well delineated. Percutaneous exposures involving body fluid from an HIV-infected source carry a risk of transmission of about 0.25% (Ippolito et al., 1993). Exposures with large amounts of blood, high titers of HIV, or deep injury are most risky. For mucous membrane exposures, the risk is about 0.09%. Although HIV seroconversion following

cutaneous exposure has not been reported in a prospective study, such transmission does occur. The risk after non-occupational exposures is less certain. For men who have sex with men, the risk of HIV transmission following a single act of receptive anal intercourse with an HIV-positive partner has been estimated at 0.5% to 3%, greater than the risk from a percutaneous occupational exposure (De gruttola et al., 1989).

For discordant heterosexual couples, it is estimated that 0.1% of acts of penile-vaginal intercourse lead to transmission (Mastro et al, 1996). The risk is believed to be higher for male-to-female transmission than vice versa (Padian et al., 1991; Seidlin et al., 1993). While oral sex can transmit HIV, the risk appears to be too low to quantify with precision (Mastro et al, 1996). Factors associated with higher risk of sexual transmission include high virus titer, viral subtype, mucosal trauma, and concomitant genital tract infection (Craib et al., 1995; Mayer and Anderson et al, 1995; Padian et al., 1995; Royce et al., 1997). The overall risk of per-act transmission of HIV ranges between 1-2 cases per 1000 coital act (Gray RH, Wawer MJ 2012). This risk is highest for such forms of sexual intercourse as penetrative anal and vaginal. A high plasma HIV-RNA from the rapist increases the risk of each of the exposures. Other factors, such as the volume of the inoculum involved to which the individual was exposed, presence of other sexually transmitted diseases and ruptures of mucous membranes are associated with a higher risk of HIV transmission (van der Ende et al., 2002).

In summary, receptive anal intercourse and sharing injection drug equipment with an HIV-infected partner probably carry a risk of HIV transmission at least as great as the risk that the CDC believes warrants offering PEP in the occupational setting.

Role of PEP

The decision to prescribe PEP involves risk assessment for the individual patient followed by consideration of the risks and benefits of therapy (Knapper and Freedman, 2009). For optimal efficacy, antiretroviral therapy should be started as soon as possible, ideally within 1 hour of exposure (Knapper and Freedman, 2009). Possible challenges in HIV prevention following exposure of all sexual assault victims to HIV infection include the time of presentation of the patient and onset and lack of adherence to PEP (Parkin et al., 2000).

Initiation of PEP

It may be difficult to provide timely non-occupational post sexual assault PEP. Survivors who are most likely to benefit from PEP may be poorly informed and estranged from the health care system (Hardy EJ 2012). Most of the evidence to support the efficacy of HIV PEP comes from animal studies performed in non-human primates. These studies have shown that PEP is most effective when given early (within 24 hours of exposure) and efficacy is reduced if administration is delayed (especially beyond 72 hours). Efficacy is also reduced if the victim received a large viral inoculum, if the dose of PEP is reduced and the duration of prophylaxis is too short.

These results have led to the recommendation that PEP be commenced as soon as possible after the exposure, within 72 hours, and that PEP should not be offered more than 72 hours after the exposure. The standard duration of treatment has been accepted as 28 days. (Pierce et al, 2007).

Adherence to PEP

A third of health care workers who begin prophylaxis with zidovudine after occupational exposures fail to complete the regimen because of adverse effects (Tokars et al., 1993). More adverse effects can be expected with combination antiretroviral therapy. Protease inhibitors have significant adverse effects in HIV-positive patients, ranging from gastrointestinal intolerance and peripheral neuropathy with ritonavir to nephrolithiasis with indinavir (Lipsky, 1996). Adverse effects acceptable to those infected with a fatal disease may be intolerable to healthy patients taking prophylaxis for an infection they are unlikely to acquire (Singh et al., 1996). Poor adherence may however lead to PEP failure and to the emergence of resistant HIV strains (Emini, 1995).

Problems with adherence should not preclude offering PEP; instead, they demand strategies to improve adherence. Helpful strategies include educating the patient about the importance of taking medications as prescribed, addressing potential barriers to adherence, and helping patients identify personal daily routines as cues. Psychological distress, which is associated with non-adherence among persons with HIV, is likely to be present in persons presenting for PEP and needs to be addressed through counseling (Chesney et al., 1996). Special packaging of the full course of PEP and home or telephone follow-up might also improve adherence (Freeman et al., 1996).

Since its inception in April 2006, the Kenyatta National Hospital (KNH) gender violence and recovery center (GVRC) has treated over 19,000 survivors of gender based violence. This center currently receives an average of 15 survivors per month with 92% being women and 8% men. Possible challenges in HIV prevention following exposure of all sexual assault victims to HIV infection include the time of presentation of the patient and inception of PEP, tolerability of PEP, the extent of injuries sustained during sexual assault, the nature of the sexual assault and the infectivity of the perpetrator (Parkin et al., 2000). This study aims at appraising the PEP program especially the gains and challenges encountered at the gender recovery center, Kenyatta National Hospital, Nairobi. Since 2006 sexual violence in Kenya is on the increase due to social cultural, economic, ethnic and political factors (The Sexual Offences Act. 2007; 2007(2006).) Some of the factors that could be associated with the noted rise in sexual assault cases include: poor social economic, status, power sadism, sexual pleasure, drug abuse, sexual perversion, political instability, psychopathy, and attitude towards the victim and. (Council P. sexual and gender based violence in Africa, Van Jaarsveld et al, 2009)

JUSTIFICATION

Kenya, although one of the emerging economies in Africa, is experiencing challenges with population explosion, poverty, increasing industrialization, insecurity, political instability and overcrowding in the mushrooming low income urban informal settlements. Those grappling with low social-economic status also abuse drugs leading to an increase in abnormal sexual behaviors (sexual violence), sexual assault and related HIV infections. Hence, prevention of sexual violence is an important governance and gender issue in limiting the spread of HIV. However, PEP is a crucial strategy available for victims of sexual assault as part of a comprehensive health care management package. Although approaches vary, depending on the religious, social, cultural and political influences in a country, there is increasing commitment to coordinate regional programs around providing PEP to the survivors. Nevertheless, education and awareness programs targeting vulnerable populations are most effective where there is political will, appropriate policy frameworks and local data that promotes evidence based programming to confront the issues openly.

RESEARCH QUESTION

There is an imminent rise in sexual assault cases in Kenya and although the benefits of PEP in non-occupational settings are unclear, the numbers initiated on this regimen are on the increase. This study will therefore evaluate the experiences, outcomes, performance and challenges encountered in the course of service delivery at the gender based violence recovery center (s) with a special focus on the PEP program that addresses the risk of HIV acquisition among the rape victims.

OBJECTIVES

Broad objective

To evaluate uptake, compliance and outcome of non-occupational human immunodeficiency virus post exposure prophylaxis services amongst sexual assault victims who attended the gender based violence recovery center program at Kenyatta National Hospital (KNH).

SPECIFIC OBJECTIVES

- To assess the demographics of sexual assault victims.
- To describe the typologies of sexual assaults cases recorded at the KNH.
- To describe the general profile of perpetrators and relationships if any between them and survivors.
- To assess time-to- initiation and factors that influence provision of post exposure prophylaxis at the center.
- To evaluate compliance, adherence and outcomes of HIV post exposure prophylaxis
- To identify gaps and challenges encountered by service providers while delivering care and treatment to the rape victims

CHAPTER 3: METHODOLOGY

3.1. Study design

The study utilized a mixed methodology: a retrospective cross sectional study that was establishing the demographics of the sexual assault victims, perpetrators predisposing factors to rape, relations to perpetrators, outcome of PEP services using data obtained from The Kenyatta National Hospital gender violence recovery center and a qualitative element. This was deemed important and the GBVRC staff members interviewed as key informants on experiences, gaps and challenges encountered at the program level. Hence, the study primarily involved data abstraction from the existing data base, which was recorded on a tally sheets before analysis. Open ended questions were used to collect qualitative data from the key informants and thematic analysis was conducted on the coded and cleaned data.

3.2. Study site and study population

The study was carried out at the KNH Gender based violence recovery center located within the Patient Support Center (PSC). KNH is the largest teaching and referral hospital for East and Central Africa and provides services to patients within the catchment area. GBVRC is a non-profit, non-partisan unit funded by The Coalition on Violence Against Women, Kenya. The main beneficiaries of GBVRC include women, children and men survivors of sexual and domestic violence from Nairobi and its environs.

Data was abstracted from KNH records department, while key informants were drawn from GBVRC at Kenyatta National Hospital only since the other informants from Nairobi women's were not comfortable participating in the study.

3.3. Sample Size Estimation

The sample size was estimated using the Fisher's formula below.

Where:

n = was the required sample size.

P= expected prevalence sexual assault

NB: (Since there was no proportion estimate in the target population that had the characteristics of interest, 50% (0.5) was used as recommended by (Fisher et al.). Since all the prevalence recorded was based on women (29% sexual survivors (KDHS 2003)) while our study was not limited to women alone, it included both male and female gender.

D= degree of precision or a tolerance error margin

(A measure precision of the estimate which ranged

From 1%- 20%)

Z= was the critical value. For 95 % level of confidence, Critical value was 1.96.

Using this information in the sample size formula above, it was estimated that, the following sample size was necessary to achieve the required sufficient precision for the study.

Using D=5%

= 384 victims of sexual assault

3.4. Sampling method.

Purposive sampling technique was used to obtain the 384 medical records. The sampling frame included all patients who had presented with complains of sexual violence at the GBVRC facility from 1st June 2009 up to 1st June 2012 and initiated on PEP as part of their management.

Three hundred eighty four consecutive sexual assault survivor records of those who took PEP were to be reviewed from the KNH – GBVRC registry using standardized tools. In addition, KNH GBVRC has about 15 members of staff and our aim was to interview at least 50% of them as key *informants for the qualitative portion of the study.*

3.5. Selection criteria of assault victims

Inclusion criteria	Exclusion criteria
Sexual assault victims Availability of medical records	Unconfirmed diagnosis Major gaps in the medical records. Consensual intercourse. Occupational exposure.

3.5.1. Inclusion criteria

Survivors of sexual assault who were attended at the GBVRC, KNH and treated as either outpatient or in-patient.

Qualitative arm- All staff members at any of the three GBVRCs in Nairobi reached during the data abstraction period and willing to sign the informed consent were eligible for enrollment.

Availability of medical records

3.5.2. Exclusion criteria

Any patients initiated on PEP secondary to occupational HIV exposure or other non-occupational post exposures to HIV like accidental condom burst during consensual intercourse or needle pricks.

All key informants not willing to sign the informed consent documents.

Unconfirmed diagnosis

Major gaps in the medical records.

3.6. Data collection and Data collection instruments

This involved going through existing patients’ records stored over the past 3 years (1st June 2009 to 1st June 2012) at the KNH (GBVRC) registry. The biodata of patients, date of assault, date of presentation, HIV serostatus, initiation of PEP, regime of PEP, and outcomes after, 3 or 6 month were noted. In addition, perpetrators biodata, relationship with victims, measures taken after the sexual violence were also noted. The required data was abstracted and entered in a standardized tally sheet (Appendix 1).

The responses and information collected from the key informants were coded and grouped before thematic analysis

3.7. Variables

3.7.1. Dependent Variables

- 1. Time to Post exposure Prophylaxis initiation.
- 2. Adherence to PEP

3.7.2. Independent Variables

- 1. Age
- 2. Marital status
- 3. Gender
- 4. Type of assault

3.7.3. Confounders

- 1. Occupational HIV exposure
- 2. Occupational HIV PEP
- 3. Consensual sexual contact

3.8. Ethical consideration

Hospital records of potentials study participants were identified through the GBVRC registry and attempts were made not to collect personal identifiers. The hospital identification number was used as the code for each participant and no actual names were used to describe the patients on the tally

sheets. The study therefore had no risks to the participants, service provider or the hospital in general. Confidentiality was maintained by ensuring that no names were recorded and/or entered into the study database.

For the qualitative portion of the study, an informed consent was obtained from staff members who are currently working at KNH, GBVRC. These service providers were our key informants for gaps on available services, service guidelines, gaps and challenges at the work place, training needs, policy framework, legal issues and the way forward in terms of program implementation. Permission was duly sort from Kenyatta National Hospital-University of Nairobi, Ethics and Research Committee before undertaking the study.

Although there was no direct benefits to the rape survivors, results from this study may help formulate better and targeted strategies for other patients that will be seeking services at the gender based violence recovery centers. Existing gaps in program implementation were noted. Besides, the study was to increase the level of awareness of risk factors associated with sexual assault and how to work with the legal system more efficiently. Findings from the study will be availed to the staff members of the GBVRCs in Nairobi and Ethics Committee members at KNH and the University of Nairobi. In addition, the results will be disseminated to relevant stakeholders to help create a policy brief that could help educate the public on how to deal with sexual assault issues and identify potential perpetrators. We also hope to publish the findings in a peer reviewed journal.

Cost to Participants

There was no cost implication to the participants at any point during the study.

3.9. Data management and statistical analysis

The quantitative data was collected for the period 1st June 2009 up to 1st June 2012. Quantitative data entry, cleaning and analysis used Statistical Package for Social Sciences Programme (SPSS) for Windows® version 17.0 (SPSS Inc. Chicago Illinois, 2010). Descriptive statistics and chi square test were used during data analysis. Descriptive statistics were used to analyze patients' demographic details, treatment-related and social factors. Chi square analysis of the hypothesized predictor variables was performed. Appropriate tables, charts and scatter graphs were used to illustrate the findings. A p value of $P < 0.05$ will be considered significant (Eng, 2003).

CHAPTER 4: RESULTS

4.1. Study subjects

4.1.1. Demographic characteristics of the participants

There were 391 participants in the study out of which 385 (98.5%) were sexual assault survivors and 6(1.5%) were key informants. Out of the 385 sexual assault survivors, 331 (86%) were females. The gender of 2 victims was not indicated. The median age of survivors was 21years with an age range of 2 years to 90 years. Out of 385 participants, 366 (95.1%) were Kenyans. The nationality of 5(1.3%) victims was not indicated. The summary of the demographics of sexual assault survivors is as shown on table 1.

Of the 15 key informants targeted, only 6 key informants from Kenyatta National Hospital GBVRC responded to our questionnaire while the rest including those at Nairobi women’s Hospital refused to sign the informed consent forms citing job security.

All six key informants were female and married, had a degree in their professional training with 2-4yrs working experience.

Table 1: Summary of demographic characteristics of sexual assault survivor

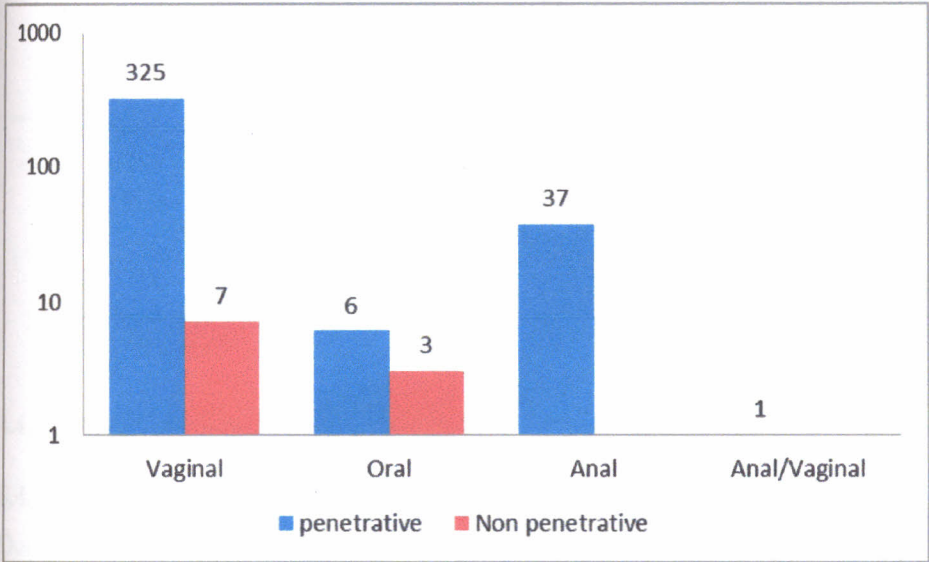
Characteristic	Number(n)	Percentage (%)
Gender		
Male	53	13.8
Female	331	86.2
Survivors nationality		
Kenya	366	96.1
Non Kenyan	15	3.9
Survivors occupation		
Employed	55	15.9
Business men/women	31	9.0
Students	102	29.5
Pupils	65	18.8
Minors under age of 4)	12	3.4
Unemployed	81	23.4
Disability		
Disabled	2	0.5
Not disabled	383	99.5
Marital status		
Single	316	82.5
Married	44	11.5
Others	23	6.0
Education level		
None	36	9.5
Primary	139	36.8
College	154	40.7
University	49	13

4.2. Typologies of sexual assaults cases recorded at the KNH

Out of the 385 assault cases reported at KNH, 332 (86.2%) were vaginal, 9(2.3%) were oral, 37 (9.6%) were anal and only 1 (0.3%) was both anal and vaginal. Information on nature of sexual

assault of 6 (1.6%) participants was missing. Out of the 332 vaginal sexual assault, 325(97.9%) were penetrative. All the 37 anal sexual assault were penetrative as shown in figure 1.

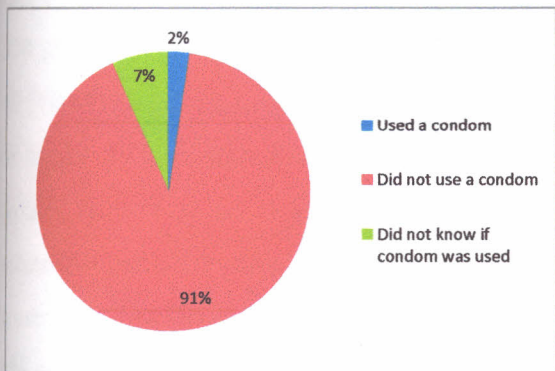
Figure 1: The extent of assault



4.3. Condom use

Out of 385 sexual assault cases, 9(2.3%) used a condom, 347 (90.1%) did not use a condom and 25 (6.5%) victims do not know if a condom was used or not as shown in figure 2. Information on condom use of 4 (1.0%) participants was not indicated.

Figure 2: condom use in sexual assault cases.



4.4. General profile of perpetrators and their relationships to the sexual assault survivors.

4.4.1. Profile of perpetrators

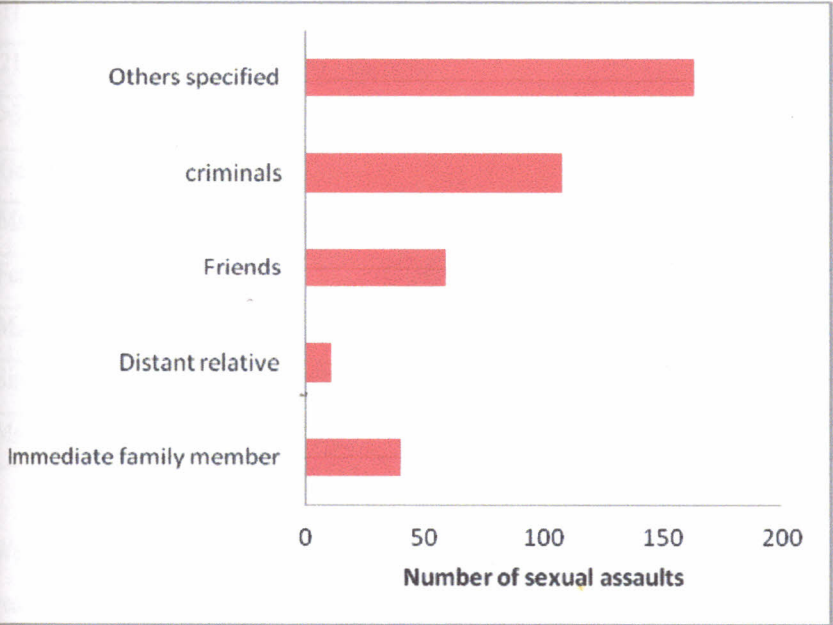
Out of 385 sexual assault cases 164 (42.6%) of the perpetrators were known. Of the 385 cases, 12 (3.1%) were female perpetrators. Information on gender of 110(31.2%) perpetrators was not indicated. There were 7(2%) perpetrators under the age of 18 years and the age of 139(36%) perpetrators was not indicated. Out of 385 sexual assaults, 39(10.1%) perpetrators were single, 48(12.5%) were married, 1(0.3%) was divorced, 1(0.3%) was separated and the marital status of perpetrators in 295(76.7%) assaults was not indicated in the record since majority of them were not known by the perpetrators.

In 15(3.9%) assault cases, the perpetrators were under the influence of alcohol while in 6 (1.6%) assaults the perpetrators were under the influence of other drugs. In one assault case the perpetrators were under the influence of both alcohol and other drugs. In 104 (26.9%) assaults the perpetrators were not under the influence of any kind of drug while in 260 sexual assaults it was not known whether the perpetrator was under the influence of any kind of drug.

4.4.2. Relation of perpetrator to survivor

Out of the 385 sexual assault cases, there was no relationship between perpetrators and survivors in 330 (85.7%). Out of 51 sexual assault cases in which the perpetrators were related to the survivors, 40 (78.4%) were by immediate family members while 11 (21.6%) were by distant relatives as shown in figure 3. Information on the relationship between perpetrators and the survivor in four of the assault cases was not indicated. Of the 330 sexual assault cases in which the perpetrators were not related to the survivors, 59 (18%) were friends, 108 (32.9%) criminals and 163(49.7 %) others who were: (1% employees, 7% employers, 1% house helps, 6% neighbor,12% classmate,12% taxi driver, 1% police,10% workmate, 50% not indicated) as shown in figure 3.

Figure 3: Relation of perpetrator to survivor



4.5. PEP Initiation

Out of the 385 sexual assault cases, 184(47.8%) presented to the center within 72 hours of exposure for treatment and 207(53.8%) were started on post exposure prophylaxis (PEP). Information on the time taken for 53(13.8%) sexual assault survivors to seek medical help was not indicated. We used chi square to test the association between the survivors age, gender, marital status, level of education and the time taken for them to seek help after the sexual assault as shown on table 2.

Table 2: time taken to PEP initiation

	<=72 hrs n=	>72hrs n=	P-Value
Age group			<0.0001
<10 years	21 (11.3%)	25 (17.1%)	
11-20yrs	51 (27.6%)	55 (37.7%)	
21-30yrs	86 (46.5%)	35 (24.0%)	
>31	27 (14.6%)	31 (21.2%)	
Gender			0.338
Male	22(52.4%)	20(47.6%)	
Female	162(56.1%)	127(43.9%)	
Marital status			0.459
Single	162(55.9%)	128(44.1%)	
Married	22(53.7%)	19(46.3%)	

We grouped age into several categories: less than 10 years, 11-20years, 21-30 years, more than 31 years. There was a significant difference in the time taken to seek medical help with age and level of education (P=0.001, <0.0001 respectively) as shown in figure 4 and figure 5 respectively. There was no significant difference in the time taken to seek medical help with gender, marital status (P=0.338, 0.459 respectively).

Sexual assault survivors who took 95% of the 28 days dose had adhered to the PEP (Krummenacher I et al May 2011).

Chi square was used to test the association between the survivor’s age, gender, marital status, level of education and the level of adherence to PEP. There was no significant difference between the different age groups ,gender ,marital status and the level of adherence to PEP,(P=0.647,0.547 and 0.17 respectively) as shown on table 3.

Table 3: level of adherence

	Adhered n=	Not adhered n=	P-Value
Age group			0.647
<10 years	7 (14.3%)	6 (8.0%)	
11-20yrs	12 (24.5%)	16 (21.3%)	
21-30yrs	23 (46.9%)	40 (53.3%)	
>31 yrs	7 (14.3%))	13 (17.4%)	
Gender			0.547
Male	4(36.4%)	7(63.6%)	
Female	45(39.8%)	68(60.2%)	
Marital status			0.17
Single	40(37.4%)	67(62.6%)	
Married	9(52.9%)	8(47.1%)	

Figure 4: Comparison of age of the survivors and the time taken to seek medical care

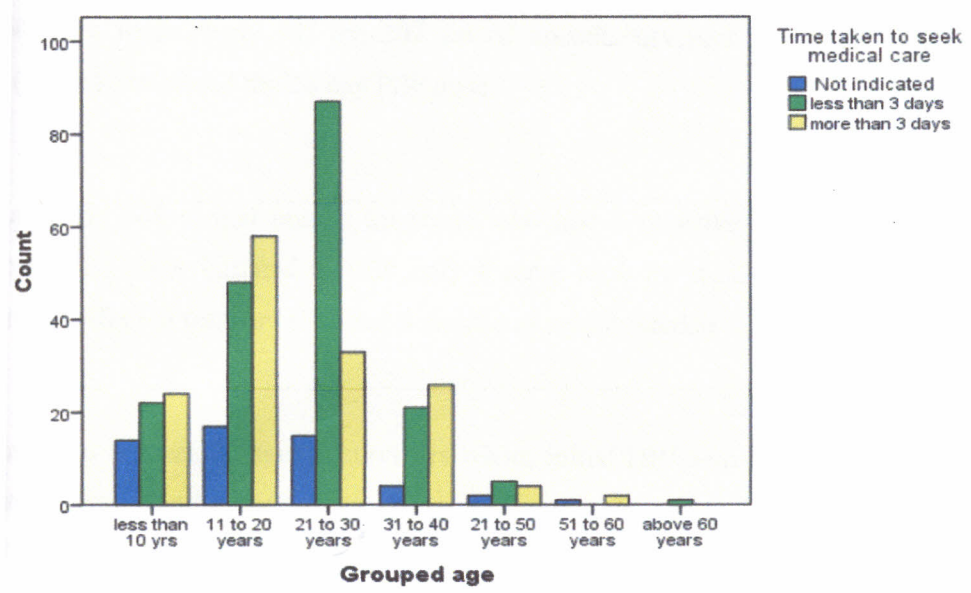
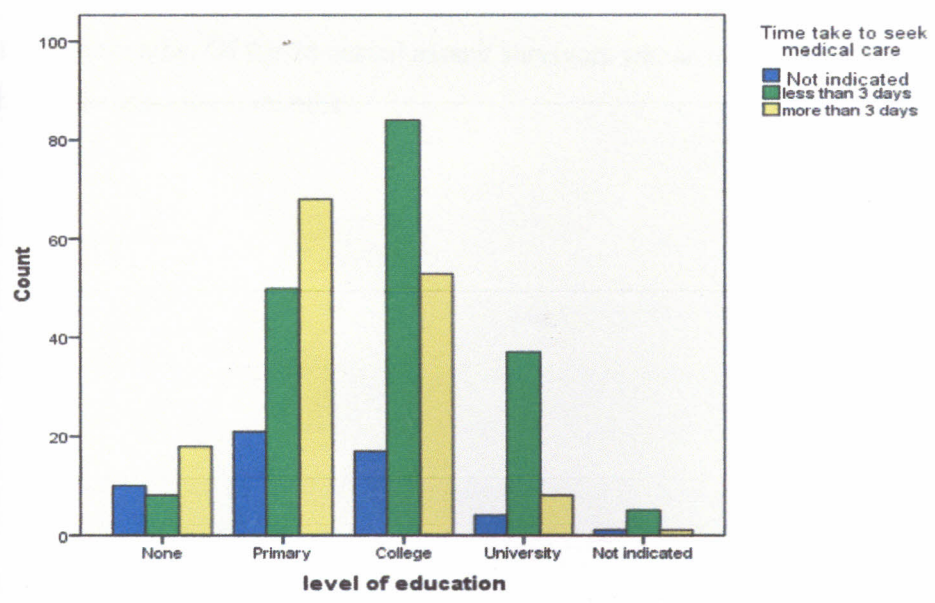


Figure 5: Comparison of level of education of the survivors and the time taken to seek medical care



Information on time to initiation of PEP for 24 survivors was not indicated. Of the 207 survivors who were initiated into PEP 116(56.04%) had information on time of PEP initiation after the assault. The median, minimum and maximum time of PEP initiation after assault was 17 hours, 2hours to 168 hours respectively. Of the 207 sexual assault survivors who were initiated into PEP, only 43(20.8%) completed the 28 day PEP dose.

Out of the 148 sexual assault survivors who had a negative HIV sero-status indicated on their records and were initiated to PEP only 4 came back for a HIV test after 3 months. All the 148 survivors did not test for HIV after 6 months as recommended in the guidelines.

Out of the 346 sexual assault survivors whose initial HIV sero-status was negative, 21 (6.1%) still tested negative and 325 (93.9%) did not show up at the center for a repeat HIV test after 3 months. Of the 13 sexual assault survivors whose initial HIV sero-status was positive, 2(15.4%) were still positive after 3 months and 11(84.6%) did not repeat the test after 3 months. Of the 26 sexual assault survivors whose initial HIV sero-status was not known only 1(3.8%) did the test after 3 months and was found to be negative and 25 survivors did not do the test after 3 months. Out of the 346 sexual assault survivors whose initial HIV sero-status was negative, 3(0.9%) still tested negative and 343(99.1%) never repeated the test after 6 months. Of the 13 sexual assault survivors whose initial HIV sero-status was positive, 1 was positive and the other negative but 11(84.6%) did not repeat the test after 6 months. Of the 26 sexual assault survivors whose initial HIV sero-status was not known, none did the test after 6 months. .

4.6. ANALYSIS OF SEMI- STRUCTURED QUESTIONNAIRE FOR KEY INFORMANTS

Of the 15 key informants from Kenyatta National Hospital GBVRC, only 6 key informants responded to our questionnaire. The others refused to participate in the study for various reasons.

All the key informants were female and married, had a degree in their professional training with 2-4yrs working experience.

THEMES

Guidelines for sexual assault cases

All the key informants were aware of the existence of a policy framework and service guidelines to help manage sexual assault cases in the country. However, none had a copy the said documents or trained on how to use it.

Knowledge

All the key informants indicated that there is adequate training on how to handle the survivors in addition to the provision of PEP. The information is acquired through the continuous medical education workshops. They also indicated that the PEP administration protocol is adequate to support adherence but the financial support was lacking.

Experiences at the program

The key informants reported that the GBVRC program is well funded but center is understaffed.

The key informants suggested that the GBVRC needs to invest in IT including computers, projectors and also DNA tool kits for forensic purposes.

Follow-up of survivors was noted to be inadequate due to shortage of staff and tools to do it

They also observed that the survivor's confidentiality was maintained at the center. Sexual assault was deemed "sensitivity matter"

Social support and stigma

Majority of the key informants noted that the survivors are adequately counseled at the center with only one of them reporting that it was not adequate due to lack of awareness of the importance of counseling. Majority of the key informants indicated that it is necessary to give counseling to the staff members due to the traumatizing experiences at the center.

Half of the key informants indicated that more than 50% of the survivors were willing to report the rape incidences to the police for help while the other half of the staff members indicated the percentage was only about 10-20%.

All the key informants suggested that the survivors are stigmatized, "They are even afraid of coming to hospital to disclose their situation"

All the key informants suggested that perpetrators should be jailed while two proposed counseling. One key informant observed -"they should be counseled and prosecuted".

Risk

Majority of the key informants noted that sexual assault is increasing in the country

The key informants suspect sexual assault case on the rise due to alcohol abuse, low social economic status, poor legal follow-up of the perpetrators, anger and malice especially for those infected with HIV.

Majority of the key informants reported that they are no adequate measures taken to protect them from the perpetrators once they give evidence on sexual assault to the legal system.

Regions of program expansion

Majority of the key informants suggested that the program should be expanded to the Eastern and North Eastern Province in Kenya. Others felt that all regions and counties of the country should have a gender based violence recovery center.

Cases of sexual assault

Factors leading to sexual assault were reported as alcohol abuse, lack of employment, tradition and culture, poor awareness of human rights, power issues, anger, lack of sex education and information on gender violence.

Synchronism of GBVRC and the Legal system

The key informants suggested that to improve the working relationship between the GBVRC and the legal system there should be frequent sensitization on how the judiciary works. They also wished separate courts of law were created to deal with sexual and physical assault cases.

Required Program changes by key informants

Key informants proposes that additional trained staff be employed for service provision, development of better methods of follow-up, increased funding and provision of personnel training.

Program challenges

The challenges reported by the key informants in the course of their duties were: - poor adherence to PEP, no mechanism of follow-up to survivors due to patient financial constraints, shortage of staff, and uncooperative relatives especially towards the legal systems.

CHAPTER 5: DISUSSION

This study evaluated the GBVRC program at KNH and found many gaps that need immediate attention. The program receives an average of 15 sexual assault survivors per month but the quality of free services low. The center is understaffed and the staff members although qualified as nurses are not well versed with the PEP guidelines and thus poor adherence to PEP regimen among survivors besides a high loss to follow-up. The level of adherence to PEP is 20.8% mainly due to loss to follow-up especially as the drugs are given in doses for 7 days. The patients are required to come back for more drugs and checkup but the mechanisms and support for follow-up non-existent.

The data quality especially missing information and lack of forensic evidence was also noted as a major challenge in sustaining court cases through the legal system. The program strengths noted includes: - free counseling and treatment services, accessibility and maintenance of patient's confidentiality.

In this study we found out that the male gender is also at risk of being sexually assaulted. Another study that was evaluating the gender associated violence at a women's hospital in Kenya reported that sexual assault against women is a common public health problem in Nairobi, Kenya and women were found to be more vulnerable both in and out of the home (Saidi H, Awori KO, Odula P 2008 July). Another study that was evaluating the outcomes of a HIV post exposure prophylaxis in Western Kenya showed that the most vulnerable group was women. (Siika AM, Nyandiko WM, Mwangi A et al). Another study done in Kenya found that 94% of the sexual assault survivors were female (Ranney ML, Rennert-May E, Spitzer R et al).

In this study most of the sexual assault victims were Kenyans. Although the study was done at the Kenyatta National Hospital which is the biggest referral hospital in East and Central Africa these findings are expected because the hospital is located in Kenya.

College students and pupils were more sexually assaulted probably because of their vulnerability to living in crowded school communities; others were unemployed and business people. Another study reported high sexual assault among children aged 1 to 17 years of whom most of them were male (Saidi H, Odula P, Awori K 2008 April).

Majority of the sexual assault survivors were not disabled.

From the study it was found out that majority of the survivors were single followed by minors and married monogamous. Majority of these single and minor are below 25 years of age and are school going children and college students. A retrospective study at Aga Khan Hospital in Kenya also reported more sexual assault victims under the age of 30 years old. (Chaudhry S, Sangani B, Ojwang SB, et al)

Our study also showed that 86.2% of the sexual assaults were vaginal and this may be because 86% of the rape victims were female. Approximately 97.7% of all rape cases were penetrative.

This study showed that there were only 9(2.3%) cases where the perpetrators used condoms which increase the risk of HIV transmission which has been found to be between 0.1% and 3% rate per consenting sexual contact (Gray RH, Wawer MJ, Brookmeyer R, et al).

Most of the perpetrators in this study were unknown to the survivors; this is contrary to another study that was done in western Kenya that showed most victims knew their assailants (Ranney ML, Rennert-May E, Spitzer R et al).

In the study majority of the known perpetrators were adults, although there were 7(2%) who were children.

The study also showed that majority of the known perpetrators were married followed by single and separated.

In 85.7% of rape cases the known perpetrators were not related to the survivors and majority of assailants were unspecified known people and criminals. Another study done among children showed that majority of the assailants were unknown others and known but unspecified (Saidi H, Odula P, Awori K 2008 April).

Among those who were related fathers (5.2%) were reported to be the most common perpetrators.

Post exposure prophylaxis is most effective when given early (within 24 hours of exposure) and efficacy is reduced if administration is delayed [especially beyond 72 hours] (Hardy EJ 2012). Efficacy is also reduced with a large viral inoculum, and if the dose of PEP is reduced or the duration of prophylaxis is too short. The standard duration of treatment has been accepted as 28 days (Fong, 2001). While PEP plays a role in the management of exposure to HIV, the most important management strategy remains prevention of exposure (Ippolito et al., 1993).

In this study only 53.8% were started on PEP; this may be because only 47.8% were able to reach the hospital for medical care within 3 days after sexual assault.

The key informants observed that they were aware of the PEP guidelines but they had not been fully sensitized on their use. This is not usual in our setting but the sensitivity of the service provided calls for more support. Data obtained from the records clearly demonstrated the gap and hence capacity building sessions are urgently needed. The GBVRC center is also understaffed and poorly equipped to provide the sensitive and much needed services.

STUDY LIMITATIONS

Since this study was both a quantitative study and a qualitative study, there were few key informants who agreed to participate in the study thus few data on the gaps and challenges in the program.

There were also missing data from data base for the retrospective cross sectional study therefore the study had to be done by reviewing data from June 2009 up to June 2012 so as to achieve our sample size.

CONCLUSION

The male gender is also at risk of sexual assault .Students and pupils attending schools and colleges are the most vulnerable group. Amongst these survivors, it is evident that lack of patients follow-up led to poor adherence of HIV PEP and these can only be changed by improving the follow-up of these patients by the staff at the GBVRC, training of staff on data collection to improved storage of data.

RECOMMENDATIONS

Since sexual assault is more common amongst students and pupils, there should be more sensitization on ways to protect them from these incidences and also integrate hefty legal systems that discipline the perpetrators. More prospective studies should be done on male sexual assault since this study shows that they are also vulnerable. The data entry at the GBVRC should be improved by use of computer data bases so as to avoid losing information and also staff members

should be educated on the importance of recording every detail on the GBVRC form. Since loss of patients follow up is one of the main causes of poor compliance and adherence to PEP, the program should have a separate department that only deals with patients follow up and the patients contact details should be noted. There should also be house visits for those patients who are not able to honor appointments due to financial constraints.

The Government should educate the public on dangers of alcohol and drug abuse thus also enacting laws that discipline perpetrators and those who abuse drugs.

More staff members at the GBVRC should be employed so as to increase the efficiency of the program especially on the follow-up and data entry.

CHAPTER 5.0: REFERENCES

- Awes AA, et al. 2009. HIV prevalence and associated factors. KDHS. 208- 228
- Benjamin JA & Murchison L. 2004. Gender based violence: care and protection of children in emergencies, a field guide.
- Black CM, et al 2009. Multicenter Study of Nucleic Acid Amplification Tests for Detection of Chlamydia trachomatis and Neisseria gonorrhea in Children Being Evaluated for Sexual Abuse. The Pediatric Infectious Disease Journal, 28: 608-613.
- Buluma RCB, Muriithi P, Gitonga J. 2009. Hiv/aids-related knowledge, attitudes, and behavior. KDHS. 173-207.
- Centers for Disease Control and Prevention.1993. National HIV Serosurveillance Summary: Update. Vol 3. Atlanta, Ga: US Dept of Health and Human Services; 1995.
- Chacko L, et al. 2012. Adherence to HIV post-exposure prophylaxis in victims of sexual assault: a systematic review and meta-analysis. *Sex Transm Infect* doi:10.1136/sextrans-2011-050371
- Chesney M, Folkman S, & Chambers D. 1996. Coping effectiveness training for men living with HIV: preliminary findings. International Journal of STD and AIDS, 2(7 Suppl): 75-82.
- Craig KJ, Meddings DR, Strathdee SA. 1995. Rectal gonorrhea as an independent risk factor for HIV infection in a cohort of homosexual men. Genitourin Med.71:150-154.
- De Gruttola V, et al. 1989. Infectiousness of HIV between male homosexual partners. J Clin Epidemiol.42:849-856.
- Emini EA. 1995. Resistance to anti-human immunodeficiency virus therapeutic agents. Adv Exp Med Biol. 390:187-195.
- Eng J. 2003. Sample Size Estimation: How Many Individuals Should Be Studied? Radiology. 227:309-313.
- Fonck K, et al. 2005. Increased Risk of HIV in Women Experiencing Physical Partner Violence in Nairobi, Kenya. Aids and Behavior, 9: 335-339.

ong C. 2001. Post-exposure prophylaxis for HIV infection after sexual assault: When is it indicated? *Emerg Med J.* 18:242-245.

eeeman RC, Rodriguez GM, French JF. 1996. Compliance with AZT treatment regimen of HIV-positive injection drug users: a neglected issue. *AIDS Educ Prev.* 8:58-71.

irardet RG, et al. 2009. Epidemiology of Sexually Transmitted Infections in Suspected Child Victims of Sexual Assault. *Pediatrics*, 124: 79-86.

ray RH, Wawer MJ 2012. Probability of heterosexual HIV1 transmission per coital act in sub-Saharan Africa. *J infect Dis* 205 (3): 351-352.

ardy EJ 2012 Testing and treatment after non-occupational exposure to STDs and HIV .*Med health RI.* 95(8):258-261.

polito G, Puro V, De Carli G. 1993. The Italian Study Group on Occupational Risk of HIV infection. The risk of occupational human immunodeficiency virus infection in health care workers: Italian Multicenter Study. *Arch Intern Med.* 153:1451-1458.

mes EC. 2010. Ruptures, rights, and repair: The political economy of trauma in Haiti. *Social Science & Medicine*, 70: 106-113.

nnny C, et al. 1990. Sexually Transmitted Diseases in Victims of Rape. *N Engl J Med.* 322:713-6.

hnson CF. 2004. Child sexual abuse. *The Lancet*, 364: 462 – 470.

enya Demographic and health Survey (KDHS), 2008 - 2009.

napper C, Freedman A. 2009. Post-exposure prophylaxis. *Medicine.* 37: 378 -380.

mb S, Kawsar M, Forster GE. 2002. HIV post-exposure prophylaxis after sexual assault: the experience of a sexual assault service in London. *Int J STD AIDS.* 13: 602-605.

psky JJ. 1996. Antiretroviral drugs for AIDS. *Lancet.* 348: 800-803.

ackenzie M. 2009. The international politics of rape, sex and the family in Sierra Leone. *Institute for Security Studies Papers.* 1-16.

ash EJ & Terdal LG. 1997. *Assessment of childhood disorders* (3rd ed.). New York, NY, US: Guilford Press. pp. 569-623.

28. Mastro TID. 1996. Probabilities of sexual HIV-1 transmission. *AIDS*. 10(suppl A):S75-s82.
29. Mayer KH, Anderson DJ. 1995. Heterosexual HIV transmission. *Infect Agents Dis*. 4:273-284.
30. Minas B, et al. 2012. Improved awareness & appropriate use of non-occupational Post exposure prophylaxis for HIV prevention following a multimodal communication strategy.
31. Mollen C, Goyal M, Frioux S. 2012. Acute Sexual Assault: A Review. *Pediatric Emergency Care*. 28: 584–590.
32. Padian NS, Shiboski SC, Jewell NP. 1991. Female-to-male transmission of human immunodeficiency virus. *JAMA*. 266:1664-1667.
33. Padian NS, et al. 1995. Risk factors for postcoital bleeding among women with or at risk for infection with human immunodeficiency virus. *J Infect Dis*. 172:1084-1087.
34. Parkin JM, et al. 2000. Tolerability and side-effects of post-exposure prophylaxis for HIV infection. *The Lancet*. 355: 722-723.
35. Royce RA, et al. 1997. Sexual transmission of HIV. *N Engl J Med*. 336:1072-1078.
36. Seidlin M, et al. 1993. Heterosexual transmission of HIV in a cohort of couples in New York City. *AIDS*. 7:1247-1254.
37. Senn TE, et al. 2007. Characteristics of Sexual Abuse in Childhood and Adolescence Influence Sexual Risk Behavior in Adulthood. *Arch Sex Behav*, 36: 637–645
38. Singh N, et al. 1996. Determinants of compliance with antiretroviral therapy in patients with human immunodeficiency virus. *AIDS Care*. 8:261-269.
39. Swiss S. & Giller JE. 1993. Rape as a Crime of War, A Medical Perspective. *JAMA*, 270:612-615.
40. Tokars JI, Marcus R, Culver DH. 1993. Surveillance of HIV infection and zidovudine use among health care workers after occupational exposure to HIV-infected blood. *Ann Intern Med*. 118:913-919.
41. van der Ende M, et al. 2002. Post-exposure prophylaxis. *Int J STD AIDS*. 13:30—34.
42. Pierce, Anna. 2007. Post-exposure prophylaxies. , pp.117-124.
43. The Sexual Offences Act. 2007; 2007(2006).
44. Council P. sexual and gender based violence in Africa, Van Jaarsveld et al, 2009.

5. Saidi H, Awori KO, Odula P. Gender-associated violence at a women's hospital in Nairobi, Kenya. *East Afr Med J*. 2008 Jul; 85(7):347-54.
6. Siika AM, Nyandiko WM, Mwangi A et al. The structure and outcomes of a HIV post exposure prophylaxis program in a high HIV prevalence setup in western Kenya. *J Acquir Immune Defic Syndr*. 2009 May 1; 51(1):47-53.
7. Ranney ML, Rennert-May E, Spitzer R et al. A novel ED-based sexual assault centre in western Kenya: description of patients and analysis of treatment patterns. *Emerg Med J*. 2011 Nov; 28(11):927-31. Doi: 10.1136/emj.2010.096412.
8. Saidi H, Odula P, Awori K. Child maltreatment at a violence recovery centre in Kenya. *Trop Doct*. 2008 Apr; 38(2):87-9.
9. Chaudhry S, Sangani B, Ojwang SB, et al. Retrospective study of alleged sexual assault at the Aga Khan Hospital, Nairobi. *East Afr Med J*. 1995 Mar; 72(3):200-2.
10. Gray RH, Wawer MJ, Brookmeyer R, et al. Probability of HIV-1 transmission per coital act in monogamous, heterosexual, HIV-1 discordant couples in Rakai, Uganda. *Lancet*, 2001 357, 1149–1153.
11. Krummenacher I, Cavassini M, Bugnon O, Schneider MP. An interdisciplinary HIV-adherence program combining motivational interviewing and electronic antiretroviral drug monitoring. *AIDS Care*. May 2011.

APPENDIX 1: Data Abstraction Questionnaire

**APPRAISAL OF HIV POST EXPOSURE PROPHYLAXIS PROGRAM AMONGST
SEXUAL ASSAULT VICTIMS AT KENYATTA NATIONAL HOSPITAL.**

Questionnaire Number.....

Date.....

Data collection sheet

SURVIVORS DETAILS

1. Case Number _____
2. Gender Male ___ Female ___
3. Survivors Age _____ years
4. Survivors date of birth Date ___ Month ___ Year ___ Unknown ☐
5. Survivors Nationality/Citizenship _____
6. Occupation _____
7. Disabled Yes ☐ No ☐

8. Survivors marital status Single ☐ Widowed ☐
- Divorced ☐ Cohabiting ☐
- Married Monogamous ☐ Married polygamous ☐
- Separated ☐ Minor ☐
9. Survivors level of education None ☐ primary ☐ Secondary ☐
- College ☐ University ☐

INCIDENT DETAILS

10. Source of referral _____
11. Area of sexual assault home ☐ hotel ☐ street ☐ bush ☐
- Other ☐
12. Time and Date of Assault Date _____ Time _____ AM/PM
13. Time and Date of presentation Date _____ Time _____ AM/PM
- ☐ ☐ ☐
14. Nature of the Assault Vaginal Oral Anal
15. Extent of the Assault Penetrative ☐ Non Penetrative ☐
16. Was there condom use? Yes ☐ No ☐
17. Incidence reported to Police ☐ Family member ☐
- Other ☐ Health facility ☐

PERPETRATOR DETAILS

18. Perpetrator Known ☐ Unknown ☐ Male ☐ Female ☐

19. Perpetrators estimated Age

20. Perpetrator marital status Single ☐ Married ☐ Unknown ☐

21. (a) Under influence of: Alcohol ☐ Other drugs ☐ None ☐
Unknown ☐

(b) Relation to survivor:

(i) Related Yes ☐ No ☐

(ii) If yes brother ☐ Sister ☐ Father ☐ Mother ☐
Uncle ☐ Cousin ☐ Aunt ☐ Others ☐

(iii) If No Boyfriend ☐ Ordinary friend ☐
Thugs ☐ Others ☐

22. Initial HIV Serostatus of the victim Positive ☐ Negative ☐

23. HIV Serostatus of perpetrator if known Positive ☐ Negative ☐ Unknown ☐

24. Co-morbid infections

a. Gonorrhea Present ☐ Absent ☐ Unknown ☐

b. Chlamydia Present ☐ Absent ☐ Unknown ☐

c. HBV Present ☐ Absent ☐ Unknown ☐

d. Syphilis Present ☐ Absent ☐ Unknown ☐

25. Pregnancy test Positive ☐ Negative ☐ Unknown ☐

26. Initiation of PEP Yes ☐ No ☐

27. Time of PEP initiation after assault _____Hrs

28. PEP given for 1st 2 weeks Yes ☐ No ☐

2nd 2 weeks Yes ☐ No ☐

29. Regime of PEP _____

30. Total PEP Doses taken _____Days

31. Level of adherence _____Days

32. HIV retesting

a. After 3 Month Positive ☐ Negative ☐ Unknown ☐

b. After 6 Month Positive ☐ Negative ☐ Unknown ☐

33. Counseling started 1st day 2nd day 3rd day after 3 days

34. Tracing patients for follow up through

Phone Mail Email Social workers

Others

APPENDIX 2: Key Informants Questionnaire

APPRAISAL OF HIV POST EXPOSURE PROPHYLAXIS PROGRAM AMONGST SEXUAL ASSAULT VICTIMS AT KENYATTA NATIONAL HOSPITAL.

Questionnaire Number.....

Date.....

KEY INFORMANTS

Introduction

1. Duty station KNH ☐ Nairobi Women's Hospital ☐
2. Sex Male ☐ Female ☐
3. Marital status (Married) Yes ☐ No ☐
4. Highest Professional training:- _____

Work experiences

5. Years of experience at GBVRC 1-2 yrs 2-4 yrs
- 5-6 yrs Above 6 yrs
6. Which other regions in the country should have a GBVRC?

7. Are there sufficient funds to run the program? Yes ☐ No ☐

a) If No explain? _____

8. Do you have enough staff members working at the GBVRC?

9. What additional data tools should be used in the program? _____

10. Is the follow-up of the survivors adequate?

11. Is confidentiality of the survivors well maintained in the program?

12. What are the key challenges encountered at the facility in running the program?

13. What are your recommendations to help improve the current program?

14. Do you have service guidelines for sexual assault cases?

15. Is there a policy framework document that guides the provision of care and treatment for gender based violence in Kenya? _____

(a)If yes – ever seen the document _____

Social support and stigma

16. Do you think rape survivors are adequately counseled at the center? _____
17. If no what can be done to improve the services? _____
18. Is counseling necessary for staff members at the GBVRC due to traumatizing experiences at the center? _____
19. What percentage of the sexual assault survivors are willing to report the incident to the police for further investigation? _____
20. In your opinion, are the survivors of sexual assault in Kenya stigmatized?

21. What do you think should be done to the perpetrators?

Knowledge

22. Are your colleagues (staff members) adequately trained on how to handle victims of gender based violence? _____
23. If no where are the gaps? _____
24. Are staff members trained on the PEP and the drug regimens? If no where are the gaps?

25. How often do the staff members undergo refresher training on the program issues?

26. Do you hold frequent continuing medical educations sessions?

27. Is the PEP administration protocol adequate to support adherence? YES ☐ NO ☐

28. What percentage of the sexual assault survivors are aware of the GBVRC program before they were assaulted? _____

Risks

29. Is the rate of sexual assault increasing in the country? _____

30. If yes to 29 what could be the mostly likely causes?

31. Are there measures taken to protect staff members from the perpetrators if one is called to give evidence of assault in court of law?

☐☐

YES

NO

a). If yes explain _____

32. In your opinion what can improve the working relationship between the GBVRCs and the legal system? _____

33. In your opinion what are the main factors that lead to sexual assault?

APPENDIX 3

INFORMATION AND CONSENT FORM

APPRAISAL OF HIV POST EXPOSURE PROPHYLAXIS PROGRAM AMONGST SEXUAL ASSAULT VICTIMS AT KENYATTA NATIONAL HOSPITAL

NB: This information will be communicated orally in English, Swahili or other Kenyan dialect of potential GBVRC staff members.

Introduction

Hello. My name is Dr. Eric Munene Muriuki a final year student at the University of Nairobi Institute of Tropical and Infectious Diseases. I am conducting a research to evaluate uptake, compliance and outcome of Non occupational human immunodeficiency virus post exposure prophylaxis amongst sexual assault victims attending the gender based violence recovery center program at Kenyatta National Hospital (KNH).

Purpose of the research

The purpose of this study is to evaluate uptake, compliance and outcome of Non occupational human immunodeficiency virus post exposure prophylaxis amongst sexual assault victims attending the gender based violence recovery center program at Kenyatta National Hospital (KNH) and appraisal of the GBVRC program.

. The results we get will help us formulate targeted strategies aimed at improving the management of survivors.

Type of Research Intervention

This research will not involve any intervention.

Participant Selection

You are being invited to take part in this research since you are a staff member at one of GBVRCs.

Your opinion as a key informant will help suggest ways to improve the program.

Voluntary Participation

Your participation as an individual and/or group in this research is entirely voluntary. It is your choice whether to participate or not. If you choose not to participate there will be no penalties or any problems coming your way from the managers or supervisors.

Procedures

I would like to invite you to participate because your opinion and views on the program will help in identifying gaps and challenges encountered by you and your colleagues as you provide care services to sexual assault cases. The data will be collected by me and the information you will provide is confidential, and only the research team will have access to the results. Please be assured that the information you give me will not be linked to you as no names or other identifying information is being collected.

Duration.....

The questionnaire will take one hour to complete

Risks

I am asking you to share with me and your colleagues some very personal and confidential information, and you may feel uncomfortable talking about some of the issues. You do not have to answer any question or take part in the study if you don't wish to do so. You do not have to give me any reason for not responding to any question, or for refusing to take part in the discussion.

Benefits

There might be no direct benefit to you, but your participation is likely to help us formulate targeted *strategies aimed at gender based violence thus providing the care givers with adequate knowledge on* management of survivors and also increase the level of awareness of risk factors associated with sexual assault .Hopefully if the study is published, it will educate the public on how to deal with sexual assault.

Confidentiality

The information that we collect from this research project will be kept private. Any information you give will be reported anonymously and no names will be used.

Whom Do we Call if we Have Questions or Problems?

For questions about the study or a research-related injury, call or contact

Dr. Eric Munene Muriuki (Researcher), University of Nairobi, Tel: 0712032449

Dr. Joshua Kimani (Supervisor) University of Nairobi, Tel 0733719711

Prof A.N. Guantai (Secretary, KNH/UON-ERC) KNH/UON Ethics department Tel 020726300

This proposal has been reviewed and approved by the Kenyatta National Hospital / University of Nairobi Ethical and research Committee.

Certificate of consent

I have read the foregoing information, or it has been read to us. I have had the opportunity to ask questions about the study and any questions I have asked have been answered to my satisfaction. I consent voluntarily to be a participant in this study.

Signature of key informant_____

Date _____

Statement by researcher

I confirm that the participant was given an opportunity to ask questions about the study, and all the questions asked by the participant have been answered correctly and to the best of my ability. I confirm that the individual has not been coerced to participate in the study and the consent has been given freely and voluntarily.

Name of Researcher:

Signature.....Date.....

UNIVERSITY OF NAIROBI
MEDICAL LIBRARY