



COLLEGE OF MEDICINE AND HEALTH SCIENCES (SCHOOL OF MEDICINE)

DEPARTMENT OF SURGERY

INTERPERSONAL VIOLENCE INJURIES

PREDISPOSING FACTORS AS SEEN AT CHUK AND CHUB

Dr SEKABUHORO Safari

**SUBMITTED IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE
AWARD OF THE DEGREE OF MASTER OF MEDICINE IN SURGERY OF THE
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Supervisor: DR AHMED KISWEZI KAZIGO

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DECLARATION:

I, Dr SEKABUHORO Safari, declare that to the best of my knowledge, this thesis and the entire scores included in this study have never been submitted to any institution of higher learning for any academic award.

Signature.....

Date.....

Dr SEKABUHORO Safari
General Surgery Resident
University of Rwanda.

Supervisor:

Signature.....

Date.....

Dr Ahmed KISWEZI KAZIGO MD, MMed, FCS (ECSA)
Consultant General Surgeon/ Senior Lecturer
Department of Surgery.
University Teaching Hospital, Butare,
Rwanda.

DEDICATION

To My wife Grace TUYISENGE

To Our sons Jean-Luc MUGISHA and Andy UWAYO

To my parents SEKABUHORO Félicien and NYIRARUDORI Marciane

To my Brothers, sisters and friends

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I appreciate the participants of this study for their cooperation.

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SEKABUHORO Safari

TABLES CONTENTS

DECLARATION:	i
DEDICATION	ii
ACKNOWLEDGEMENTS	iii
TABLES CONTENTS.....	iv
LIST OF ABBREVIATIONS.....	vi
ABSTRACT:.....	vii
CHAPTER 1	1
1.1 INTRODUCTION AND BACKGROUND	1
1.2 PROBLEM STATEMENT:.....	1
1.3 IMPORTANCE& JUSTIFICATION OF THE STUDY	2
1.4 STUDY HYPOTHESES.....	2
1.5 OBJECTIVES	2
1.5.1 General Objective	2
1.5.2 Specific Objectives	2
CHAPTER 2: LITERATURE REVIEW	3
CHAPTER 3: METHODOLOGY	7
3.1. STUDY DESIGN	7
3.2. TARGET POPULATION	7
3.3 INCLUSION CRITERIA.....	7
3.4 EXCLUSION CRITERIA.....	7
3.5. STUDY SETTING.....	7
3.7. STUDY variables:.....	8
3.8. SAMPLE size estimation.....	8
3.9. DATA COLLECTION	9

3.9.1 DATA ANALYSIS.....	9
3.9.2. ETHICAL CONSIDERATIONS.....	9
CHAPTER 4: RESULTS	10
10. LIMITATIONS OF THE STUDY.....	20
CHAPTER 5: DISCUSSION, CONCLUSION AND RECOMMENDATIONS.	21
Discussion:	21
CONCLUSION:	24
REFERENCES.....	25
ANNEX 1	27
1. CONSENT FORM.....	27
2. CONSENT TO PARTICIPATE	30
3. IMENYEKANISHA RY' ABABIFITEMO URUHARE	31
4. QUESTIONNAIRE	34

LIST OF ABBREVIATIONS

HRH: Human Resources for Health

CHUK: Centre Hospitalier Universitaire de Kigali

CHUB: Centre Hospitalier Universitaire de Butare

US: United States

ABSTRACT:

Background: Interpersonal conflicts often result into physical assaults of different magnitudes, usually resulting into interpersonal violence injuries. Every year, a significant portion of patients admitted at the Accident and Emergency units of the hospitals in Rwanda, like in other African countries, are victims of intentional interpersonal violence-related injuries.

Globally, studies indicate that the problem of interpersonal violence related-injuries is recognized, and is a significant contributor to surgical morbidity and mortality.

The aim of this study was to analyse and document the patterns and risk factors associated with interpersonal violence injuries in two referral hospitals in Rwanda (University Teaching Hospitals –CHUB and CHUK)

Objective: To study the risk factors associated with interpersonal violence injuries.

Methods: It was a prospective observational study. All patients with interpersonal violence injuries (physical injuries) willing to participate in the study were included. The variables studied included types of injuries, weapons used, relationship between assailant and victim, and factors leading to the violence. 138 participants were included in this study.

Results: Among the 138 participants (victims) the risk factors identified were: Alcohol abuse (31%); Land conflicts (17%); Robbery (14.3%); Business-related / money issues (12.3%); Domestic violence, including child abuse (5.8%); others (2%). 114 patients improved well, 17 died and 2 were left with permanent injuries.

Conclusion: Interpersonal violence injuries significantly contribute to our surgical morbidity and mortality. The predisposing or risk factors for interpersonal violence injuries in Rwanda are generally community based and may be preventable using community based interventions.

CHAPTER 1

1.1 INTRODUCTION AND BACKGROUND

The history of trauma parallels the history of the evolution of man, with his aggressive instincts, creative ability and endless ambition to conquer the environment without regard to the price he must pay to achieve his goals.

Globally, studies indicate that the problem of interpersonal violence related-injuries is recognized, and is a significant contributor to surgical morbidity and mortality.

Rwanda is a beautiful and safe country with a rich cultural heritage, admired worldwide. It has, however, also had turbulent times of severe interpersonal violence. Every year, a significant portion of patients admitted at the Accident and Emergency units of the hospitals in Rwanda, like in other African countries, are victims of intentional interpersonal violence-related injuries.

The true incidence of the injuries resulting from interpersonal violence in Rwanda is unknown. Healthcare practitioners are aware of this burden, but studies have not yet described it.

The aim of our study was to investigate the patterns of interpersonal violence related to intentional injuries in Rwanda. This study analysed interpersonal violence injuries, and determined the anatomic distribution of the injuries, the mechanisms of injury, factors associated with the physical assault, as well as the treatment modality and outcomes of these injuries.

1.2 PROBLEM STATEMENT:

In the accident and emergency departments of CHUK and CHUB, interpersonal violence injuries are among the common causes for consultation and admission. In the surgical wards these injuries account for a significant percentage of morbidity and occasional mortality.

While the predisposing factors (or risk factors) of Interpersonal violence injuries are mostly community-based and to some extent preventable, there has been no study focused on this problem to verify the statistical importance of the various factors associated with it.

1.3 IMPORTANCE& JUSTIFICATION OF THE STUDY

At the Accident and Emergency units of the Referral Hospitals in Rwanda, every week, the Emergency Departments of referral hospitals in Rwanda receive victims of interpersonal violence:

Many of these injuries are fatal, because they involve delicate parts of the body, and often lead to significant morbidity and mortality, as well as occasional litigation.

Many of the risk factors of these interpersonal violence injuries are preventable, through community based interventions.

Prior to this ,no study had been done in Rwanda that specifically focused on injuries sustained from interpersonal violence, despite its prevalence. Therefore, the surgical morbidity and mortality due to this category of injuries had not been known statistically. A comprehensive study of these injuries, the associated predisposing factors, and their outcomes may highlight the need for nationwide studies on the problem. Additionally, the results could pave the way for prevention based community interventions.

1.4 STUDY HYPOTHESES

Interpersonal violence injuries significantly contribute to surgical morbidity and mortality in Rwanda. There are various predisposing/risk factors.

1.5 OBJECTIVES

1.5.1 GENERAL OBJECTIVE

To study the risk factors of interpersonal violence injuries at CHUK and CHUB.

1.5.2 SPECIFIC OBJECTIVES

1. Document the risk factors for interpersonal violence at CHUK & CUHB
2. Analyse the associated factors of such injuries.

CHAPTER 2: LITERATURE REVIEW

The study on interpersonal injuries conducted in Gondor, Ethiopia, revealed land conflict to be the predominant cause at 31.9%. the most common locations of injury in the road 40.4% and home 33.4%, The most common type of injury was fractures at 66,6%, of which 86 percent of fractures were caused by a stick;The offenders were neighbours in 56% of cases and friends in 24,6%. Furthermore, 49.2% of victims were drinking alcohol.The main reasons for consulting the hospital were medical care 54.1%, 32% for medical certificate and for13% of cases for imaging, especially x-rays. 66% of victims were managed as out patients, while 32.6% were admitted, and 0.8% were referred to another medical facility [1].

It is estimated that in the year 2000, 520,000 people around the world died from intentional injuries and 95% occurred in low and middle income countries [2].

In 2013 one study was conducted in Bangladesh and it suggests that 53%of married women underwent physical and sexual violence perpetrated by their husbands.[3]

In Ethiopia, at Addis Ababa, a study on injuries related to interpersonal violence found that interpersonal conflict was the most common cause of injury after road traffic injuries [4].

In India, research has concluded that some socioeconomic characteristics of women have a significant correlation with an increased risk of domestic violence. These characteristics include: Living in urban area, advanced age, low levels of education, and lower family income [5]

According to another study from India, age, education, occupation, marriage duration, and the husband's alcoholism are predisposing to perpetration and victimization of women [6]

In America in the year 2000, more than 2.5 million injuries were related to interpersonal violence and self-injury, resulting in a loss of \$70 billion. Almost \$5.6billion was spent on medical care for these violence related injuries and \$64.7 billion was lost due to decreased work and family productivity.Violence was recognised as a leading cause of mortality and morbidity in the United States It has resulted in approximately 50,000 deaths and 2.2 million injuries annually, that require medical attention[7 8]

In Tanzania a study on interpersonal injuries was conducted in Dodoma in 2011, and revealed that the offenders were generally not related to victims, yet still spouses represented 20% of all

injuries. The age group ranged from 18–36 years old was the most injured followed by victims with an age between 36-54 year old.

For male victims the injuries mostly occurred outside their home (72%), comparatively, female victims were just as likely to be injured inside or outside their homes (50%). The study revealed that single people were mostly injured during day, whereas married and cohabitating people were most often injured at night.

Eighty percent of men were injured while they were attempting to steal, while statistically the main cause for females stemmed from sexual violence (27%). In Dodoma, the instruments used to cause harm to the victims were knives and machetes in 42% of cases followed by wooden sticks in 26% of incidences.

Seventy- nine percent of all injuries occurred on the head and neck followed by chest and abdomen with 19%. The most common management of the injuries was debridement, irrigation and, primary suture of the wounds [9]

A study conducted in South Africa about risks factors of interpersonal violence estimated South Africa to have one of the highest rates of homicide around the world; with an age-standardized homicide rate of 64.8 per 100,000, which is seven times higher than the global average [10].

Youth violence, particularly among males, was exceptionally high in South Africa; with the homicide rates of 184 per 100,000 people. This is nine times the global rate in males aged 15-29 years of age.

All age groups were affected, and among children younger than 5 years, the homicide rates of 14.0 among boys and 11.7 per 100,000 among girls were more than double the average for low to middle-income countries [11].

In South Africa; high levels of intimate partners' violence were also observed; such as rape, domestic violence, and child sexual abuse. Similarly, another study found that one out of every two women killed in South Africa is killed by an intimate partner, resulting in the highest reported intimate femicide rate in the world: 8.8 per 100,000 women [12].

In the year 2000, an estimated 43,000 deaths, or 8.3% of all deaths in South Africa, were attributed to interpersonal violence. In that year, interpersonal violence was the second leading cause of life lost, after unsafe sex[13].

In an Indian study, in 2013 conducted to analyse injury characteristics, 813 victims of interpersonal violence presented to emergency department at a government medical college and hospital from a major city in Central India. Of these victims 74% were male and 26% were female. The majority of male victims reported having been physically assaulted by a unknown male while most of the females were victims of spousal assault. On the other hand, 28.5% of cases were females who were subjected to violent assaults by strangers.

Of these Indian males, financial disputes, robbery, and conflicts with police were the most common predisposing factors for those male victims. The same study revealed that blunt trauma was more prevalent both in male and female victims. Firearms and heavy cutting weapons were rarely used. The head, neck, and face region was the most commonly injured anatomical site both in male (37%) and female (55.4%) victims. A history of alcohol consumption and objective smell of alcohol were found positive in 54.61% of victims in this study[14].

A study in Nigeria in 1992 about domestic violence to women, queried 1000 women of marriage age and found 81% admitted they had been abused by their husband 68.6% experienced verbal abuse while the remaining were abused physically and verbally. Regarding frequency of abuse, 77.4% said occasionally, 16.2% regularly and 6.0% were always abused. Many of these women stated that the abuse started after 2-5 years of marriage. The causes of abuse were related to financial issues especially low income, unemployment, and low level of education. Those with no formal education were the most likely to be physically and verbally abused. The use of alcohol was also a contributing factor. Furthermore, thirty-five percent of the women who had treatment after injuries had been absent from work due to injuries [15].

In a prospective study of all trauma admissions for one year at Groote Schuur Hospital in Cape Town, the most common mechanisms of injury included assaults with a sharp object (20.9%) or blunt object (17 %), road traffic accidents (18.8%), and falls (18.4%). Firearm caused 4.8% of injuries. Male patients had higher percentages of injury caused by violent crimes; assault with a sharp object 34.4%, assault by a blunt object or physical beating 12.5%; or injury by firearms

8.1%. Most intentional violent crimes occurred because of interpersonal disputes 71.6%, assault within the community 10.1%, and gang-related violence 8.3% [16]. In South Africa in 2009, the social causes of interpersonal violence are widespread poverty, unemployment, income inequality among citizens, patriarchal system, risk-taking, defence of honour, weak parenting, access to firearms, widespread alcohol misuse, and a weakness of the government and leadership in the mechanisms of tracking assailants . This occurs despite, advances in development of services for victims of violence, innovation from non-governmental organisations, and evidence from research [17]

In the United States of America, data was compiled from Nov 1, 2014 to May 15, 2015, using counts of firearm-related deaths in each US state for the years 2008–10 (stratified by intent homicide and suicide). This data was collected from the US Centre for Disease Control and Prevention's Web-based Injury Statistics Query and Reporting System. This data included information about 25 firearm state laws implemented in 2009, state-specific characteristics such as firearm ownership for 2013, firearm export rates, non-firearm homicide rates for 2009, and unemployment rates for 2010. The findings from 31,672 firearm-related deaths that occurred in 2010 and among 25 firearm laws was that nine were associated with reduced firearm mortality, nine were associated with increased firearm mortality, and seven had an inconclusive association.[18]

CHAPTER 3: METHODOLOGY

3.1. STUDY DESIGN

It was a Prospective observational study.

3.2. TARGET POPULATION

The victims of interpersonal violence from the surgical emergency departments at CHUK and CHUB.

3.3 INCLUSION CRITERIA

Patients with injuries from interpersonal violence.

3.4 EXCLUSION CRITERIA

Self-inflicted injury victims, those who declined to consent for the study, those without a trace of physical injury, and those who were unconscious without a family member to consent.

3.5. STUDY SETTING

CHUB is a referral and teaching hospital located in Southern Province. It receives patients referred from surrounding district hospitals when their conditions are not manageable at that level. CHUK is a central referral hospital located in Kigali which receives patients referred from district hospitals of Kigali, North, East, West and Southern provinces.

In both of these hospitals, referred patients are received in respective departments according to their conditions, after being stabilized at emergency.

Patients may also consult without being referred when they have emergency conditions in the proximity of the hospital. Some patients with less severe emergency conditions may be referred from district hospitals to the outpatient departments of CHUK & CHUB.

The victims of interpersonal violence were received at emergency and received their initial management there as soon as possible. In most cases they were discharged with an appointment to meet the surgeon at OPD for follow up.

This study focused on victims of interpersonal violence who consulted CHUB and CHUK settings from August 2015 to January 2016.

3.7. STUDY variables:

The predisposing(or risk factors),the sex distribution of victim, anatomical distribution of the injuries, age distribution, marital status, the types of injuries, occupation, education level of the victims, the weapons used, the relationships of the people involved in the assault, and the treatment outcomes of these injuries.

3.8. SAMPLE size estimation

All patients meeting criteria of inclusion in the study admitted from August 2015 to January 2016 were studied as this was assumed to be a small population.

For the last 6months prior to the study, 38victims of interpersonal violence had been admitted at the accident and emergency department of CHUB while 141victims were admitted at CHUK during the same period.

The sample size was calculated using the formula for cross-sectional quantitative studies as follows:

$$n = \frac{z^2 SD}{d^2}$$

n=sample size

Z=Level of confidence 95%(1.96)

S=Population standard deviation

d=half width of desired interval

$$n = \frac{(1.96)^2 (30)^2}{5^2} = 138.29$$

3.9. DATA COLLECTION

Data was collected using a pre-test questionnaire. Each participant or the next of kin (for unconscious patients) enrolled and was assigned one questionnaire. The interview was confidential and given legal sensitivity due to the nature of some of the cases.

A translated version of the questionnaire was available to ease communication.

3.9.1 DATA ANALYSIS

Data was entered into Epi Data, and analysed using the Statistical Package for Social Sciences SPSS version 16.0

3.9.2. ETHICAL CONSIDERATIONS

All participation in the study was voluntary and it did not involve any risk to the participants in terms of management or otherwise. The participants were free to leave the study at any time. This study was approved by IRB-CMHS, university of Rwanda, CHUB and CHUK ethics and research committees. Consent was sought from all patients above 21 years before enrolling in the study.

For patients below 21 years, assent and parental permission were sought, and for those who were not mentally alert, a family member was requested to consent (in accordance with the laws of Rwanda)

All data collected from the participants was handled with utmost confidentiality, and only used for the purpose of this research

CHAPTER 4: RESULTS

Frequency Table

Sex distribution of victims

Sex	Frequency	Percent	Valid Percent	Cumulative Percent
Male	122	88.4	88.4	88.4
Female	16	11.6	11.6	100.0
Total	138	100.0	100.0	

In this study, the males (88.4%), were more affected than females (11.6%) by injuries related to interpersonal violence (**P=0.000**)

Age distribution of victims

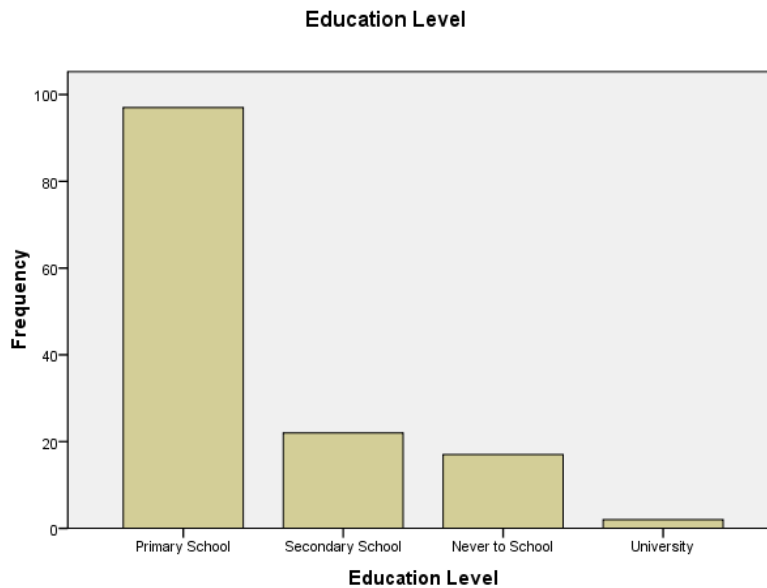
Age	Frequency	Percent	Valid Percent	Cumulative Percent
20-30	58	42.0	42.0	42.0
31-40	48	34.8	34.8	76.8
41-50	18	13.0	13.0	89.9
51-60	11	8.0	8.0	97.8
61-70	3	2.2	2.2	100.0
Total	138	100.0	100.0	

The dominant age brackets were 20-30 at 42%, and 31-40 at 34.8%. This means that the sum of these two age brackets was 76.8% (**p=0.000**). This indicates that the interpersonal injuries considered in this study involved mainly the young and most productive section of the population.

District distribution of victims

District	Frequency	Percent	Valid Percent	Cumulative Percent
Nyarugenge	46	33.3	33.3	33.3
Huye	17	12.3	12.3	45.7
Gasabo	9	6.5	6.5	52.2
Gisagara	8	5.8	5.8	58.0
Muhanga	8	5.8	5.8	63.8
Gicumbi	7	5.1	5.1	68.8
Nyaruguru	7	5.1	5.1	73.9
Nyamagabe	6	4.3	4.3	78.3
Nyanza	6	4.3	4.3	82.6
Kicukiro	3	2.2	2.2	84.8
Ruhango	3	2.2	2.2	87.0
Bugesera	2	1.4	1.4	88.4
Gatsibo	2	1.4	1.4	89.9
Kamonyi	2	1.4	1.4	91.3
Karongi	2	1.4	1.4	92.8
Nyagatare	2	1.4	1.4	94.2
Rutsiro	2	1.4	1.4	95.7
Gisozi	1	.7	.7	96.4
Kamembe	1	.7	.7	97.1
Kirehe	1	.7	.7	97.8
Nyamashek	1	.7	.7	98.6
e				
Rubavu	1	.7	.7	99.3
Rusizi	1	.7	.7	100.0
Total	138	100.0	100.0	

The district of Nyarugenge had the majority of victims, 46%, followed by Huye district with 17%. This could be because both CHUK and CHUB are referral hospitals and are located in those districts respectively.



Most of the victims had a primary school level of education(68%); 15% had secondary school education; and13% of the victims had never been to school.It is therefore significant that low level or no formal education was a contributive factor in this study.(**P=0.000**); Only 4% of the victims had university level of education(**P = 0.158**).

Occupations of Victims

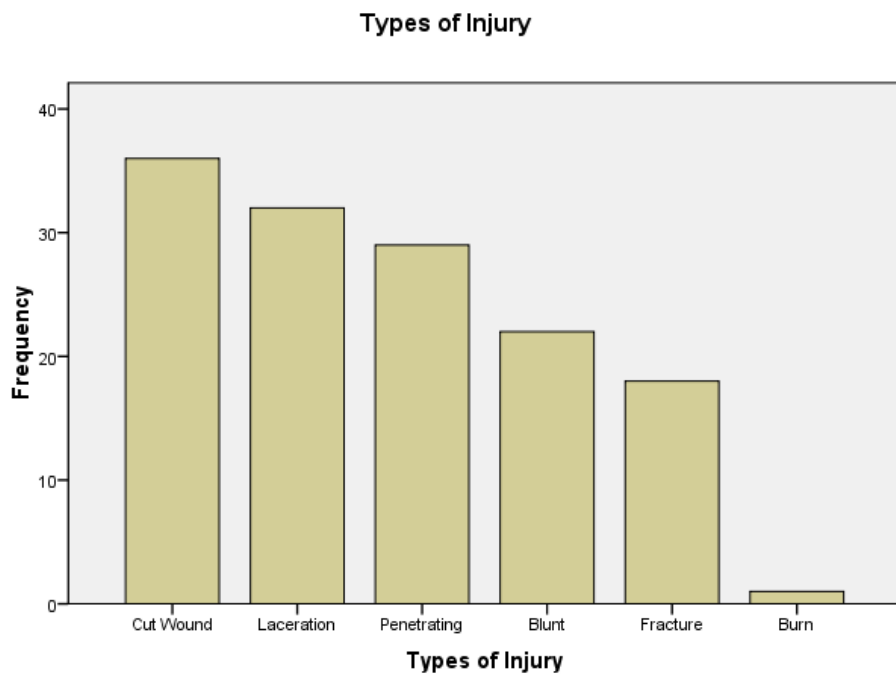
Occupation	Frequency	Percent	Valid Percent	Cumulative Percent
Jobless	60	43.5	43.5	43.5
Farmer	55	39.9	39.9	83.3
Business	13	9.4	9.4	92.8
Motor driver	3	2.2	2.2	94.9
Officer	2	1.4	1.4	96.4
Worker	2	1.4	1.4	97.8
Others	2	1.4	1.4	99.3
teacher	2	1.4	1.4	99.3
Student	1	.7	.7	100.0
Total	138	100.0	100.0	

Unemployment affected 43.5% of the participants and peasantfarming(39.9%) combined, formed a greater part of the study population. These two give a combined percentage of 83.4%, (**p =0.000**).This correlates with poverty or low income as a risk factor.

Anatomical Distribution of Injuries

Anatomical distribution	Frequency	Percent	Valid Percent	Cumulative Percent
Head and Neck	69	50.0	50.0	50.0
Extremities	41	29.7	29.7	79.7
Chest	16	11.6	11.6	91.3
Abdomen	12	8.7	8.7	100.0
Total	138	100.0	100.0	

50% of victims were injured on their head and neck while extremities were affected in 29.7%.Chest and abdominal injuries represent 20.3% (**P=0.000**).



Cut wounds represented 37% of injuries; lacerations represented 34%; penetrating injuries 28%. These were the most common injuries sustained by victims $P=0.000$

Weapons used in Assault

Weapons	Frequency	Percent	Valid Percent	Cumulative Percent
Stick	66	47.8	47.8	47.8
Knife	30	21.7	21.7	69.6
Machete	19	13.8	13.8	83.3
bottle	16	11.6	11.6	94.9
Others	6	4.3	4.3	99.3
Gun	1	.7	.7	100.0
Total	138	100.0	100.0	

Wooden sticks were used in 47,8% of all cases, knives and machetes in 35.5% (**P =0.000.**)

Place of Injury (location of crime)

Location	Frequency	Percent	Valid Percent	Cumulative Percent
Home	51	37.0	37.0	37.0
Road	49	35.5	35.5	72.5
Bar	33	23.9	23.9	96.4
Others	3	2.2	2.2	98.6
Farm	2	1.4	1.4	100.0
Total	138	100.0	100.0	

Violence most often occurred at home in 37% of cases; along the road side in 35, 5%; and 23.9% in the bar. This does not show any one location as being strongly indicative of increased risk for violence. This indicates that there was no specific place tagged to interpersonal violence injuries. Home violence suggests domestic violence and conflicts with neighbours, whereas in the bar suggests alcohol influence.

Time of Injury

Time	Frequency	Percent	Valid Percent	Cumulative Percent
Night	107	77.5	77.5	77.5
Day	31	22.5	22.5	100.0
Total	138	100.0	100.0	

77.5% of victims were injured during night while only 22.5% happened during day, (**P=0.000.**) Conclusively, many of the violent actions were done at night. The darkness of the night is often used for propagation of violent and criminal acts as it conceals identification, and community resistance is often minimal or not present at night.

Marital Status

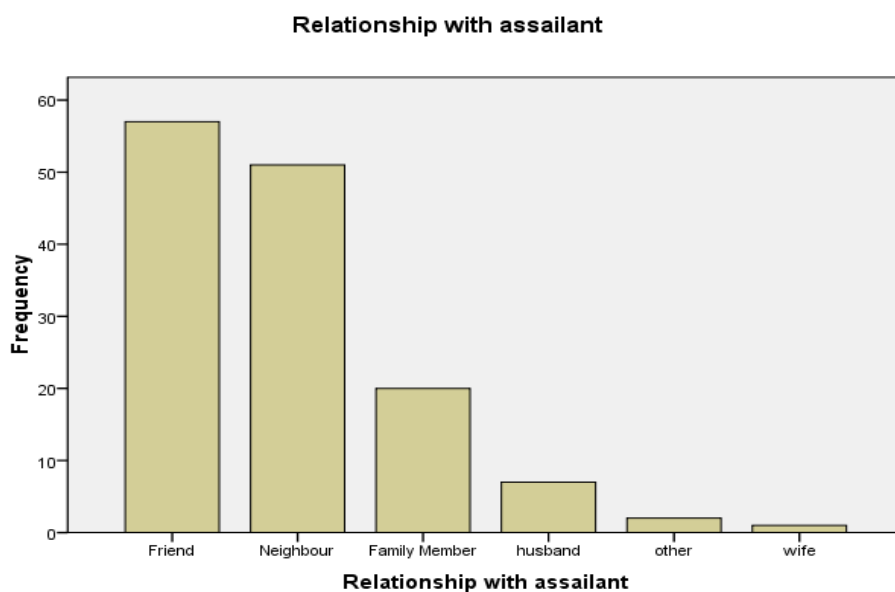
Marital status	Frequency	Percent	Valid Percent	Cumulative Percent
Marriage/Cohabitation	87	63.0	63.0	63.0
Single/Widowed	50	36.2	36.2	99.3
Separated	1	.7	.7	100.0
Total	138	100.0	100.0	

The victims more affected by interpersonal violence were married/cohabitating. They represented 63%, while single/widowed represent 36.2%; the difference is statistically significant(**P =0.000**).

Relationship with assailant

Relationship	Frequency	Percent	Valid Percent	Cumulative Percent
Friend	57	41.3	41.3	41.3
Neighbour	51	37.0	37.0	78.3
Family Member	20	14.5	14.5	92.8
husband	7	5.1	5.1	97.8
other	2	1.4	1.4	99.3
wife	1	.7	.7	100.0
Total	138	100.0	100.0	

41.3% of victims of interpersonal violence were injured by their friends, 37% were injured by their neighbours, and 14.5% were injured by their family members. This indicates that, in this study, the assailants and victims knew each other. (**P =0.000**)



Risk factors associated with Interpersonal violence injury

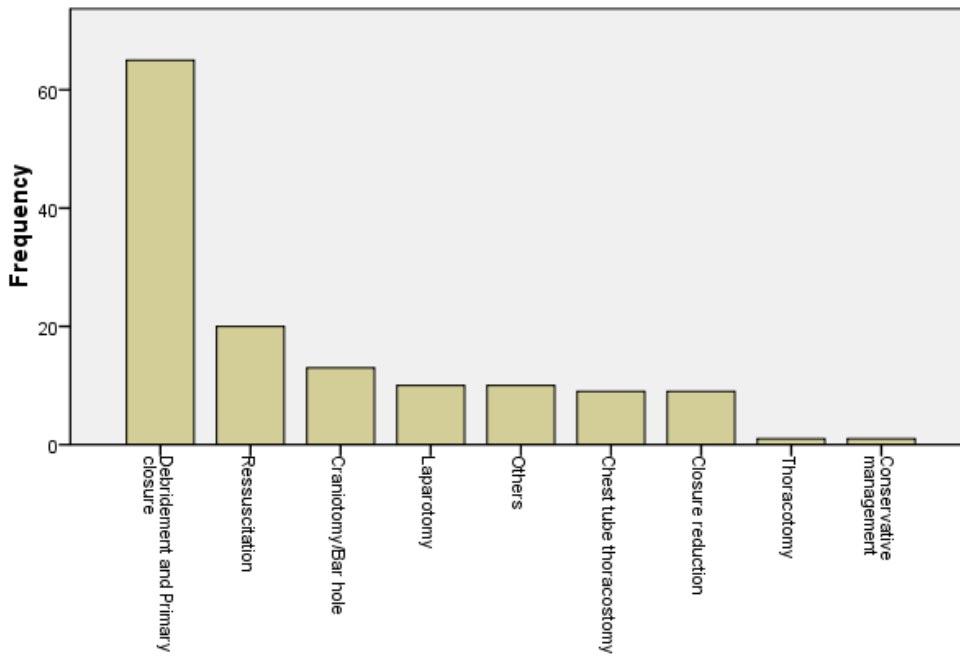
Risk factors	Frequency	Percent	Valid Percent	Cumulative Percent
Alcohol Influence	45	32.6	32.6	32.6
Land Conflicts	24	17.4	17.4	50.0
Revenge	21	15.2	15.2	65.2
Robbery	20	14.5	14.5	79.7
Money	17	12.3	12.3	92.0
Domestic Violence	8	5.8	5.8	97.8
Others	2	1.4	1.4	99.3
Sexually related	1	.7	.7	100.0
Total	138	100.0	100.0	

Among risk factors for interpersonal violence, alcoholism (32.6%) and land conflicts (17.4%). The sum of these two represented 50% of all the risks identified in this study. (**P=000**).The other

significant risk factors included revenge (15.2%), robbery (14.5%), monetary issues (12.3%),and domestic violence (5.8%).



Treatment Modality



Majority of victims benefited from surgical intervention made by debridement and primary wound closure and tetanus immunization. Those who improved with this treatment represent around 65% of all victims(**P =0.000**).

Length of Hospital Stay

Hospital stay	Frequency	Percent	Valid Percent	Cumulative Percent
0-3days	74	53.6	53.6	53.6
4-7days	27	19.6	19.6	73.2
8-11days	17	12.3	12.3	85.5
Above 16days	17	12.3	12.3	97.8
12-15days	3	2.2	2.2	100.0
Total	138	100.0	100.0	

The length of hospital stay ranged between 0-3days, which was the most common with 53.6%, 4-7 days represent 19.6%,8-11days represent 12.3%, and above 16days represents 12.3%Length of hospital stay translates into morbidity, valuable time lost, and expenses.

Complications

Complications	Frequency	Percent	Valid Percent	Cumulative Percent
Disability	1	.7	.7	.7
Paralysis	1	.7	.7	1.4
Death	17	12.3	12.3	13.8
None	114	82.6	82.6	96.4
Other	5	3.6	3.6	100.0
Total	138	100.0	100.0	

82.6% of all victims recovered well without any complications and 12.3% died from their primary injuries (.p =0.000)

From the above, the interpersonal violence contributed significantly to surgical morbidity and mortality (p= 0.000).

10. LIMITATIONS OF THE STUDY

For the patients who were admitted unconscious, or those whose mental state was not stable without next of kin, we were not be able to gather all the information required, especially the circumstances pertaining to the injuries.

The patients requiring urgent transfer to other centres for further investigations/ consultation may not have been adequately followed up for documentation of the outcomes.

Some of the respondents may have given distorted or inadequate information regarding the risk factors for fear of different consequences, despite our assurances.

CHAPTER 5: DISCUSSION, CONCLUSION AND RECOMMENDATIONS.

Discussion:

Interpersonal violence injuries contribute to surgical trauma worldwide, and the patterns of this violence vary greatly in terms of root causes, weapons used, and populations involved.

In this study, the interpersonal injuries were more common among the married couples than the single individuals ($P= 0.000$). The explanation for this was domestic violence being a great contributor to the injuries.

43% of the injuries were among the jobless, followed by 39% among the peasant farmers. This is partly explained by the fact that land is a principal factor, and land conflicts with the neighbours and relatives were a great root cause in this group. In addition, poverty, alcoholism, gambling and frustration were key among the jobless.

Among the business class (9.4%), money issues such as business transactions, loans, debits, and robbers were the key causative factors.

Anatomically, 49.4% of the injuries involved the head and neck, and tended to often be multiple. This suggests lethal tendencies by the assailants. The injuries involving extremities would explain the defensive tendencies of the victims. The injuries involving the chest and abdomen, often penetrating injuries, accounted for serious morbidity compared to those of head and neck, because of the complications they often caused such as pneumothorax, bleeding, and infection.

In this study, the weapons used were related to the environments of the conflict. Most injuries occurred at home, where knives, swords, and sticks were often easily accessible and therefore used. This was followed by injuries on the road, where knives and sticks were again used. In the drinking places, bottles were often used.

In this study, while most patients improved and were discharged without permanent complications (76%), 17 patients (12.3%) died following severe injuries and two sustained permanent disability.

The predisposing factors (the risk factors) in this study included the following: alcohol influence (32.6%); land conflicts (17.4%); robbery (14.3%); money (12.3%); domestic violence (5.8%); and others (2%). It is clear that these figures suggest that alcohol plus land conflicts combined

add up to 50% of the risk factors in the population studied. These factors have some similarities with those found in other researches done on this subject in Ethiopia, Tanzania, and South Africa.

The most common age group was 21-30years (42%); followed by 31-40years (34%) and 41-50years (18%). Most victims of interpersonal violence were young, frustrated by unemployment, involved in robbery, and presenting with excess alcohol consumption when they got opportunity from relatives.

The injuries related to interpersonal violence had enormous consequences to the family and the country by contributing to poverty, reducing the hours of productivity due to morbidity, and spending family resources for surgical interventions.

Poverty was found to be a cause and consequence of interpersonal violence. It was a cause of frustrations, in turn, directly causing violence. the resulting morbidity(sometimes amputations) resulted in poverty and misery. Poverty has mostly been explored as a societal-level risk factor for interpersonal violence, although some studies have also examined its effects at the individual and relationship or household levels.

Most of the injuries occurred during the night (77.5%), which suggests that the goal for assailants was to conceal their identity from the victims or witnesses. As for the cases from a bar, alcohol was often shared in the night.

For some of our results are similar to the results of Gondor in Ethiopia where the land conflicts represent 31.9%, alcohol abuse 49,2% and the commonest weapon was a wooden stick in 86% of 66%cases who sustained fractures .In our study the commonest weapons were sticks 47.8% ,knives and machettes 35.5%, head and neck were injured in 50%,extremities 29.7%,chest and abdomen 20.3%.

In South Africa in 2009,the social causes of interpersonal violence are widespread poverty, unemployment, income inequality among citizens, patriarchal system, risk-taking, defence of honour, weak parenting, access to firearms, widespread alcohol misuse, and a weakness of the government and leadership in the mechanisms of tracking assailants while in our setting guns are not accessible by the civilian citizens,others risk factors from south Africa are similar to those find in our study.

Our study is similar to the study conducted in Dodoma on interpersonal injuries in Dodoma in 2011, and revealed that the age group ranged from 18–36 years old was the most injured followed by victims aged between 36-54year old. In Dodoma, the instruments used to cause harm to the victims were knives and machetes in 42% of cases followed by wooden sticks in 26% of incidences.

Seventy- nine percent of all injuries occurred on the head and neck followed by chest and abdomen with 19%. The most common management of the injuries was debridement, irrigation and, primary suture of the wounds

The fact that we collected 138 victims of interpersonal violence who voluntarily participated in this study within 4 months in 2 referral hospitals, without accounting for victims who did not need to transfer to referral hospitals for higher level of care, demonstrates that this is a significant problem in Rwanda.

CONCLUSION:

In this study, the overall incidence of interpersonal violence related injury in patients visiting the emergency department in CHUB and CHUK in Rwanda is not exhaustive.

This study showed that land conflicts, alcohol abuse, robbery, unemployment, and low level of education were mostly associated with interpersonal violence related injuries. The root causes or risk factors for interpersonal violence injuries in Rwanda are generally community based, and may be preventable using community based interventions.

Recommendations:

Larger studies at national level may serve to strengthen these conclusions, and may assist in guiding public policy and education efforts aimed at enhancing community prevention initiatives.

Community approaches may need to include psychotherapy, conflict resolution committees, or even community policing in order to mitigate interpersonal violence injuries.

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ANNEX 1

1. CONSENT FORM

PARTICIPANT INFORMATION AND CONSENT FORM

Study title:

INTERPERSONAL VIOLENCE INJURIES

PREDISPOSING FACTORS AS SEEN AT CHUK AND CHUB

Principal investigator:

SEKABUHHORO SAFARI, MD, Resident in General surgery ,University of Rwanda

Supervisor:

AHMED KISSWEZI MD, Mmed, General Surgeon

EMERGENCY TELEPHONE NUMBER: SEKABUHHORO,MD 0788214006

INTRODUCTION

You are invited to take part in this research study because you are victim of interpersonal violence admitted or consulted to the CHUB or CHUK. We are hoping to study risk factors of interpersonal violence as seen in CHUK and CHUB

Your participation is voluntary. It is up to you to decide whether or not you wish to take part. If you wish to participate, you will be asked to sign this form. If, after signing the form, you wish to withdraw from the study, you are free to do so without giving any reason.

If you do not wish to participate, you will not lose the benefit of any medical care to which you are entitled or are presently receiving and it will not affect your relationship with your caregivers.

Please take time to read the following information carefully. You can ask the researcher to explain any words or information that you do not clearly understand. You may ask as many questions as you need. Please feel free to discuss this with your family, friends or family physician before you decide.

WHY IS THIS STUDY BEING DONE?

Rwanda is known a safe country around the world but there are many patients admitted in accident and emergency department after being involved in interpersonal violence(injury) and no data is available to provide clear information about description of these injuries. This study is being done to see if, it can provide a description of violence among people in the twomajor public hospitals CHUK and CHUB, and at the end of this study recommendations will be given to reduce the incidence of interpersonal injuries.

WHO CAN PARTICIPATE IN THE STUDY?

You can participate in the study if you are having intentional injury that will result in your admission or consultation to hospital with clear trace of injury.

You should not participate in this study if you have: self-injury, none intentional injury, unconscious without next of kin(witness of violence),no trace of injury

WHAT DOES THE STUDY INVOLVE?

If you agree to take part in the study, we will collect the following information from you, your nurses, and your chart: your age, sex, profession, relationship with your offender, cause of injury, marital status, where the injury happened, anatomical distribution, the weapon and care provided at CHUK and CHUB, Your participation in this study will be from the admission to the day of discharge.

WHAT ARE THE BENEFITS OF PARTICIPATING IN THIS STUDY?

By participating in this study,we hope to formulate recommendations which will help government to prevent and reduce the rate of interpersonal injuries in the country and around the world.

ARE THERE POSSIBLE RISKS AND DISCOMFORTS?

While participating on the study there is no discomfort and by signing the consent you do not lose any advantage and your legal rights are going to be considered.

WHAT HAPPENS IF I DECIDE TO WITHDRAW?

Your participation in this research is voluntary. You may withdraw from this study at any time. You do not have to provide a reason. There will be no penalty or loss of benefits if you choose to withdraw. Your future medical care will not be affected.

If you choose to enter the study and then decide to withdraw later, all data collected about you during your enrolment will be retained for analysis.

WILL I BE INFORMED OF THE RESULTS OF THE STUDY?

The results of the study will be available in July 2016 from principal investigator.

WHAT WILL THE STUDY COST ME?

You will not be charged or paid for participating in this study. You will not receive any compensation, or financial benefits for being in this study, or as a result of data obtained from research conducted under this study.

WILL MY TAKING PART IN THIS STUDY BE KEPT CONFIDENTIAL?

Your confidentiality will be respected. No information that discloses your identity will be released or published without your specific consent to the disclosure.

WHO DO I CONTACT IF I HAVE QUESTIONS ABOUT THE STUDY?

If you have any questions or desire further information about this study before or during participation, you can contact **Dr Sekabuhoro Safari** at telephone number: +250788214006, mail: sekabuhorosafari@gmail.com, safseka@yahoo.fr , IRB contacts:researchcenter@ur.ac.rw
Tel:+2507885-63312

2. CONSENT TO PARTICIPATE

Study Title:

INTERPERSONAL VIOLENCE INJURIES

PREDISPOSING FACTORS AS SEEN AT CHUK AND CHUB

I have read (or someone has read to me) the information in this consent form.

- I understand the purpose and benefits of the study.
- I was given sufficient time to think about it.
- I had the opportunity to ask questions and have received satisfactory answers.
- I am free to withdraw from this study at any time for any reason and the decision to stop taking part will not affect my future medical care.
- I agree to follow the study and to tell the trough
- I have been informed there is no guarantee that this study will provide any benefits to me.
- I give permission for the use and disclosure of my de-identified personal health information collected for the research purposes described in this form.
- I understand that by signing this document I do not waive any of my legal rights.

Your signature below indicates that you have read and understand the description provided; I have had an opportunity to ask questions and my/our questions have been answered. I consent to participate in the research project.

I agree to participate in this study:

Name of participant..... Signature..... Date.....

Name of person obtaining consent.....Signature..... Date.....

ANNEX2

3. IMENYEKANISHA RY'ABABIFITEMO URUHARE

Umutwew'icyigwa: **INTERPERSONAL VIOLENCE INJURIES**

PREDISPOSING FACTORS AS SEEN AT CHUK AND CHUB

UBUGENZUZI BW'IBANZE:

SEKABUHORO Safari, umuganga wizobereza umwuga wo kubaga muri kaminuza nkuru y'U Rwanda

Umufatanya Bugenzuzi

AHMED KISWEZI, MD, Mmed Gen Surgery, FCS(ECSA) University of Rwanda

IBURIRO

Muratumiwe kugira uruhare mu bushakashatsi kumyigire kubuvuzi bumaze kweme rwa mu bitaro byigisha bya kaminuza nkuru ya Kigali ni byi Butare .

Kwitabira ubushakasha tsi n'ubushake, niwowe bizaturukaho kugira ubwitabire, igihe udahisemo kubyitabira hari urupapuro rwabugenewe usabwa gusinya. Mugihe waba waramaze gusinya urworupapuro ugakenera kuvamo, ubifitiye uburenganzira busesuye ntabisobanuro ubitangiye.

Mugihe waramuka udashatse gukorerwa ho ubushakashatsi ntaho bizakuraho uburenganzira ufitwe bwo guhabwa ubuvuzin'ibindi byose wemerewe cyangwa se ngo bigire icyo bihindura kumibanire yawe nabashinzwe ku kwitaho.

Turabasa bagufata umwanya uhagije wogusoma neza amakuru muhabwa ,kugirango muramutse haribyho mudasobanukiweneza

bibafashekubaza umushakashatsi ibibazobyo semukeneyegusobanuki

wa. Murasabwa kandi kubiganiraho mwisanzuye mumiryango n'inshuti zanyu cyangwa abagombere yo gufata umwanzuro.

Ubushakashatsi bwagukoreweho nibyo bizagarukwaho mu isesengurary'ubwobushakashatsi.

Ese nzamanyeshwa ibyavuye muri ubwobushakashatsi

Ibizava muri ubwo bushakashatsi ibizashyirwa ahagaragara mu kwezikwagatandatu 2016 bivuye kuwar ukuriye ubushakashatsi.

NIKIUBUBUSHAKASHATSIBUZANSABA?

Ntakiguzi cyangwa ubwibushyuzasabwa mukuba umwe mu bagize ububushakashatsi, ntagihembo cyangwa indinyungu iyari yose uzakuramo

Ntagisubizo muzahabwa cyari cyose kivuye mu bushakashatsi.

Ese kuba umwe mubagize ububushakashatsi bizagirwa ibanga ?

Kuba umwemubagize ububushakashatsi bwanjye ni ibanga kandiri zubahwa Nta amakuru ayo ariyo yose yatuma imyirondoro yawe imenyekana. Azashyirwa ahagaragara cyangwango amenyekanishwe ntaburenganzira Utanze, hagati aho ibyavuye mu bushakashatsi no mu bisubizo byawe muganga azatanga bizagenzurwa n'umushakatsi mukuru

Ninde nabaza ndamutse ngize ikibazo cyangwa nkeneye ibisobanuro birushijeho :niba ufite ikibazo cyangwa ukeneye ibisobanuro byisumbuyeho kubushakashatsi mbere cyangwa mu gihe nyuma yabwo ushobora guhamagara Dr SEKABUHORO Safari kuli numero 0782796104

NIBANDE BAGOMBA KWITABIRA INYIGISHO?

Uzitabira ubu bushakashatsi igihe uzaba warakomerekejwe bikabangombwa ko usuzumwa cyangwa uhabwa ibitaro. Ntago uzitabira ububushakashatsi igihe uzaba udafite ibimenyetso byibi komere, mugihe wanze kwitabira ububushakashatsi kubushake, mugihe uwakomerekegwe atabashagusanukirwakuberagukomereka mumutwe.

INGARUKA ZISHOBOKA

Ntazo

NIKI CYABA NIBA WIYEMEJE KUBIVAMO ??

Kuba umwemubarimuri ububushakashatsi ubushake bwawe

Ushoborakubuhagarikirai gihecyoseushakiye.Ntagoaringombwagutanga

Impamvu.Ahontaamandecyangwai ghombouzagiraigihecyoseuhisemo

Kubihagarika.ntangarukakumyivurizeyawecyangwa se no kumirimoyawewakoraga.

Uhisemokubaumwe mu bagizeububushakashatsi,nyumaugafataicyemezocubuvamo
,ibyavuye mu

AMASEZERANO YO KWEMERA KWIJIRA MUBUSHAKASHATSI

Umutwew'icyigwa:**INTERPERSONAL VIOLENCE INJURIES**

PREDISPOSING FACTORS AS SEEN AT CHUK AND CHUB

Maze gusoma(gusomerwa) amakuruajyanyen'amasezerano.

Maze kumvaintegouburyondetsen'ingarukazishobokan'inyunguzirimuriiyinyigo.

Nahaweigihegihagijecyokubitekerezaho.

Nahaweuburyobwokubazaibibazo no guhabwaibisubizobihagije.

Numvise ko mfite ubwisanzure bwo kubana kwisubiraho igihe icyo aricyo cyose
kumpamvurunakakandi icyo cyemezo kikaba ntangaruka kizagira kumibanire yanjye yohazaza.

Ntanze uburenganzira bwogukoresha amakuru y'ubushakashatsi bujyanye n'umwirondoro
wanjye.

Numvise ko gushyiraho umukono kuri aya masezerano mwayasomye neza kandi
mwayasobanukiwe,kuko mwampaye umwanya wokubabaza ibibazo kandi nahawe n'ibisubizo
bikwiye.

Nemeye kujya muriga hunday'inyigo :

Amazina y'uwitabiriye :

Umukono

Itariki

Amazinay'umwakira amakuru

Umukono

Itariki

4. QUESTIONNAIRE

**TOPIC: INTERPERSONAL VIOLENCE INJURIES: PREDISPOSING (RISK)
FACTORS AS SEEN AT CHUB AND CHUK**

Serial No.....

Interviewer (Initials only).....

DEMOGRAPHIC CHARACTERISTICS

1. ID:

2. Sex:

- M
- F

3. Age:

- | | | |
|-----------------------------------|-----------------------------------|-----------------------------------|
| <input type="checkbox"/> 0-10 yo | <input type="checkbox"/> 31-40 yo | <input type="checkbox"/> 61-70 yo |
| <input type="checkbox"/> 11-20 yo | <input type="checkbox"/> 41-50 yo | <input type="checkbox"/> 71-80 yo |
| <input type="checkbox"/> 21-30 yo | <input type="checkbox"/> 51-60 yo | <input type="checkbox"/> 81-90 yo |

4. Education level:

- | | |
|--|---|
| <input type="checkbox"/> Never to school | <input type="checkbox"/> Secondary school |
| <input type="checkbox"/> Primary school | <input type="checkbox"/> University |

5. Address/District:

6. Occupation:

- | | |
|-----------------------------------|--|
| <input type="checkbox"/> Business | <input type="checkbox"/> Office worker |
| <input type="checkbox"/> Farmer | <input type="checkbox"/> Others: ... |
| <input type="checkbox"/> Jobless | |

INJURY

1. Anatomical distribution/ Pattern:

- Head and neck
- Chest
- Abdomen
- Extremities

2. Types of Injury:

- Blunt
- Penetrating
- Cut wound
- Laceration
- Burn
- Bite
- Fracture
- Others: ...

3. Weapons:

- Knife
- Machete
- Fire
- Kick
- Stick
- Gun
- Acid
- Fall
- Others:

4. Place of injury:

- Home
- Bar
- Farm
- Road
- Others:

5. Timing:

- Day
- Night

6. Marital status:

- Single/widowed
- Divorced/separated
- Marriage/cohabitation

7. Relationship with assailant:

- Neighbour
- Spouse
- Friend
- other
- Family member

8. Associated/ Risk factors

- Money
- Men
- Robbery
- Sexually related
- Land conflicts
- Others: (Please, specify briefly).....
- Domestic violence
-
- Revenge
-
- Alcohol influence
-
- Wife

MANAGEMENT AND OUTCOME

Treatment modality:

- Craniotomy/Bar hole
- Bone fixation(ORIF,Ext Fixator)
- Thoracotomy
- Debridement and primary closure
- Chest tube thoracostomy
- Close reduction
- Laparotomy
- Others: ...

Hospital stay:

- 0-3days
- 4-7days
- 8-11days
- 12-15days
- Above 16days

Complication:

- Infection
- Disability
- Paralysis
- Death
- Others: ...