TREND ANALYSIS AND THERAPEUTIC MANAGEMENT OF MENTAL DISORDERS IN CENTRAL AND EASTERN UGANDA BETWEEN 1970-2005

BY

NAKIMBUGWE SARAH

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DECLARATION

I Nakimbugwe Sarah, a final year pharmacy student declare to the best of my knowledge that the contents of this dissertation are from my personal findings. This report has not been duplicated by anybody or submitted to any academic institution for any award.

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CERTIFICATION

I certify that this work is an original work which was carried out by Miss Nakimbugwe Sarah, a final year pharmacy student under my supervision.

.... 03-10-2013 ....

Ahmed Adedeji PhD, MPM, FAAPM

Associate Professor, Department of Pharmacology and toxicology.

Kampala International University- Western Campus.

DEDICATION

I would like to dedicate this dissertation to ALLAH for the everlasting unconditional love and all the support I have gained throughout my studies.

I also dedicate my work to all those who have supported me during my challenging academic course and to the School Of Pharmacy of KIU-Western Campus and hope to add to the knowledge in the school.

I would finally dedicate this dissertation to my beloved sisters and all the friends for their support given.

ACKNOWLEDGMENTS

LIST OF ABBREVIATIONS

SMD	Severe Mental Disorders
UBOS	Uganda Bureau of Statistics
IDPs	Internally Displaced Persons
HSSP	Health Sector Strategic Plans
PTSD	Post Traumatic Stress Disorder
S/Z	Schizophrenia
BAD	Bipolar Associated Disorders
C. Malaria	Cerebral Malaria.
CPZ	Chlorpromazine
HA	Haloperidol
AR	Artene
DIA	Diazepam
CLO	Clozapine
CAR	Carbamazepine
AMP	Amitriptyline
DIA	Diazepam
X-pen	Benzyl penicillin
Qui	Quinine
HIV	Human Immunodeficiency Virus
WHO	World Health Organization

ABSTRACT

The consequence of political and bloody civil strives in Uganda exposed people to health damaging psychological. physical, chemical, biological and mechanical stressors, with estimated 35% Ugandan suffering from some form of mental disorders. There is dearth of information on the impact on the trend evolution and pattern of mental disorders in the two regions.

This study aims to determine the epidemiology of mental disorders and their patterns of presentation in Eastern and Central Uganda with a view to assess the impact of the civil wars on the incidence of these disorders. It also aims in addition to evaluate the therapeutic management of these disorders in the selected regions.

A retrospective assessment of case files of inpatients and outpatient records was carried our between the period of 1970 and 2005 in the four selected referral hospitals in the two selected regions of East and Central Uganda. Structured questionnaires were be used to collect complementary information and data from the mental health workers at the facility. A trend analysis was conducted on the data collected using statistical programme(SPSS)

A total of 698 patients were enrolled in the study (314 from central and 384 from Eastern region). All patients enrolled were between age 1-86. Patient with mental disorder in Eastern were significantly young than those from Central.(P=0.007)

Before the civil wars (1970-1979) the central region had twice the number of mental disorders compared to the eastern region which reversed over the period of war and post even.

Monotherapy was mostly used in the eastern region while combination therapy was mainly used in the central region. Chlorpromazine (CPZ) and haloperidol (HA) were the mostly used drug in combinations. Artene was mostly given with CPZ and HA.

From this study, eastern region had more people suffering from the mental disorders compared to the central region and were mostly young (25-39.9). Generally in the two regions the males had the highest number of mental disorders compared to the females. Central region had the highest number of mental disorder cases before and during the war while eastern region had the highest number of mental disorder cases immediately after war and the beginning of the millennium.

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CHAPTER ONE

1.0 INTRODUCTION

Uganda has a population of approximately 26 million people (2002, census), approximately 9,574,915 people (UBOS, 2006). The country has emerged from a period of political and bloody civil strife lasting over 40 years. Most regions in Uganda have experienced armed conflict since 1972, i.e. the killings of civilians during Idi Amin's rule, the liberation war of 1979, the Luwero war of 1981-1986, and the prolonged war that has been raging in the northern part of the country since 1990 or during the past 22 years (Byaruhanga, et al.,2010)

1.1 Background of the study

Governments in Africa including those in Uganda, Liberia and Southern Sudan are slowly realizing that mental illness makes a significant contribution to the overall health burden which is projected to rise. Governments have therefore started to include mental health in the minimum health care package to be delivered through an integrated approach in the existing primary health care system (MOH, 1999).

Mental disorders for purposes of my research refers to all mental and neurological problems that are associated with severe disturbance in behavior, thought or speech as seen in a Uganda`s socio-cultural setting.

Mental disorder as conceived in this study and in this socio-cultural setting may be due to the following causes:

Severe mental illnesses- schizophrenia, paranoid psychoses and manic-depressive disorder;

Acute transient psychoses secondary to socio-cultural stress such as the brain fag syndrome, Psychoses resulting from cerebral involvement in infectious diseases such as malaria, typhoid fever, and HIV infection.

Epilepsy largely due to inadequate care at child birth, malnutrition, malaria, parasitic diseases and head trauma.

Post-traumatic stress disorders secondary to conflict and civil strife, which is endemic on the continent.

Currently in most areas in Uganda patients with mental disorders usually visit traditional healers (often the only source of mental health care sought) before seeking treatment in formal health care system largely because the predominant community attitudes to mental illness is that it is a spiritual rather than a medical problem (Okasha , 2002 and Kinyanda, 2004).

Overall, more than three quarters of patients with severe mental illness in developing countries do not receive treatment from the formal health system (WHO, 2004).

In Uganda there exists a close association between mental health and chronic poverty. Although statistics on mental health in the country are scanty, anecdotal qualitative research evidence suggests an increase in the incidence of mental disorders. According to the Uganda Bureau of Statistics (2006), for example, basing on the UNHS 2005/06 Qualitative Module Report, of all households with disabled members (an estimated 7% of households in the country), 58% had at least one person with a mental disorder.(UBOS, 2006).

Similarly, physical and psychological war-related trauma accounts for major depressive disorders among 71% of refugees and Internally Displaced Persons (MOH, 2007). The proportions of common mental disorders among the general population are PTSD (9%), common depression (20%), manic depression (3%), anxiety (4%), Epilepsy (3%) and Schizophrenia (1%); and they account for 20-30% of all hospital outpatient attendance (MOH, 2005).

At least one in five people (approximately 23%) with mental health problems has "suicidal tendencies" and nearly one in four (18%) engage in substance abuse (Musisi, 2005). In absolute terms, an estimated 35% of Ugandans (approximately 9,574,915 people (UBOS, 2006) suffer from some form of psychiatric (mental) disorders; at least 15% of which require treatment (Basangwa, 2004).

The National Health Policy (NHP 1999) devolved mental health services delivery to districts and health sub-districts. It also emphasized a strong collaborative and partnership approach between the public and private sectors, Nongovernmental Organizations (NGOs) and traditional practitioners, while safeguarding the identity of each partner.

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In 1999, mental health care was included in the First Health Policy, as a component of the Uganda National Minimum Health Care Package (UNMHCP,2007)

In this policy, a basic minimum Health Care Package of 12 components was formulated with mental health being a key component to be delivered at all levels of health service delivery (MOH, 1999).

Mental health care is also included in specific sections included in the three Health Sector Strategic Plans (HSSP)(Government of Uganda, 2000, 2005, 2010b).The first HSSP(Health Sector Strategic Plan) had, as its main objective: 'to provide improved access to primary mental health services to the entire population, and to ensure ready access to quality mental health referral services at district, regional, and national level' (HSSP, 2000).

The Uganda Minimum Health Care Package (UMHCP) on mental health states that to address the heavy and increasing burden of mental illness in the country, the government would promote and support a primary mental health programme supported by appropriate referral services at the regional and national levels (MOH, 1999).

1.2 Problem statement

Current global epidemiological data consistently raise in mental disorders reports that up to 20% of children and adolescents suffer from a disabling mental illness for which suicide is the third leading cause of death among. The reason for rise in prevalence of mental disorder is little known. The upgrading of Ugandan millennium health care package and establishment would require information on trends of occurrence of mental disorders for adequate planning. These data on trend is at the moment inadequate and planning for mental health less robust. It is not known if the effects of previous experience of wars and calm had impacts on the prevalence of mental disorders.

1.3 Objective

1.3.1 Main objective

To understand trend events in occurrence of mental disorders and promote strategies for management of the disorders in Uganda.

1.3.2 Specific objectives

1. To determine the pattern of presentation of mental disorders in the Eastern and Central Uganda between 1970 to 2005
2. To examine the trend of occurrence of mental disorders before, during and after the civil wars in the two regions.
3. To evaluate the drug and management strategies for mental disorders in the two regions.
4. To assess the impacts of the presence or absence of the civil wars on the presentation and the treatment of mental disorders.
5. To identify possible gaps in the management approach and offer strategies for improvement.

1.4 Rationale of the study

Several studies have been carried out to characterize the epidemiology of psychiatric disorders in the northern part of Uganda, especially Gulu which is a region of prolonged tribal wars that is still festering till now (Okello et al., 2007). There is however dearth of updated epidemiological profile of these disorders in many other parts of Uganda including the eastern and the central regions, and this study is therefore designed to fill this information gap (Kigozi et al., 2008).

Evaluation of the management of psychiatric disorders also generated necessary data critical to evaluate the effective or otherwise of the strategies in place and subsequent improvement in order to reduce the morbidity and mortality associated with the disease burden.

CHAPTER TWO

2.0 LITERATURE REVIEW

2.1 Global epidemiology of mental/psychiatric disorders

The sheer magnitude of the mental disorders and the huge social and economic burden they place on families and communities warrant an urgent call for global and national mental health initiatives. As many as 450 million people worldwide are estimated to be suffering at any given time from some kind of mental or brain disorder, including behavioral and substance abuse disorders (WHO, 2009)

Current global epidemiological data consistently reports that up to 20% of children and adolescents suffer from a disabling mental illness, suicide is the third leading cause of death among adolescents and with up to 50% of all adult mental disorders having their onset in adolescence (Belfer, 2008). Epidemiological work across the world suggests average prevalence rates of 1% psychosis and 10% common mental disorders (largely depression and anxiety).

Wars and other form of disasters have been reported to increase rate of mental illness are especially those cases in a society where human rights were routinely abused (Amowitz et al., 2004). Increased poverty and malnutrition being major risk factors for mental illness; and with post traumatic stress disorder caused by conflict (De Jong, et al., 2003).

Currently, mental health problems represent five of the 10 leading causes of disability worldwide, amounting to 12% of the total global burden of disease in 1999. Despite the fact that mental and behavioral disorders affect individuals in all groups of society in all countries, the poor are disproportionately affected by these disorders in both developed and developing countries (WHO, 2010)

A recent systematic review of epidemiological research in low- and middle-income countries (LMICs) has shown a very strong relationship between many indicators of poverty and common mental disorders. (Lund C et al., 2009). Rates for common mental disorders are about twice as

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frequent among the poor compared to the rich in Brazil, Chile, India and Zimbabwe (Patel V et al., 1999). Studies, including those in low-income countries, show that people who lose their livelihood are more likely to develop mental health problems or commit suicide. (Vander Hoek W et al., 2005).

In Brazil, children living in abject poverty are more than five times more likely to have psychiatric disorders than middle class children. (Fleitlitch B et al.,2001). Contrary to the common belief that these are concerns of high-income countries only, mental disorders and their effects are also important issues for developing countries.

Over 80% of people suffering from mental disorders such as epilepsy, schizophrenia, depression, intellectual disability, alcohol use disorders and those committing suicide are living in low- and middle-income countries (LMICs) (de Boer et al., 2008). World wide of the 50 million people suffering from epilepsy; 80% live in low and middle income countries; of the 66 million people suffering from depression; 85% live in low and middle income countries; of the 24 million people with an alcohol related problem 82% live in low and middle income countries; of the 1 million people commit suicide each year (rates for attempted suicide are 10 to 20 times higher) 84% of these suicides are committed in low and middle income countries (de Boer et al., 2008).

People with then lowest socio-economic statuses (SES) have 8 times greater relative risk for schizophrenia than those of the highest SES (Holzer et al., 1986). They are also 4 times more likely to be unemployed or partly employed (Robins et al., 1991). One-third more likely not to have graduated from high school and 3 times more likely to be divorced (Cohen, 1993).

Worldwide suicide represents 1.0% and 1.5% of the total burden of disease in low- and middle-income countries, respectively, and is among the top three leading causes of death in young people aged 15-34 years worldwide.(GAP, 2008).

Alcohol use disorders represent 0.6% and 2.6% of the total burden of disease in low and lower middle- income countries, respectively, and 3.4% in high-income countries (WHO, 2008).

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These disorders represent one of the most important risks to health and are the leading risk factor in developing countries with low mortality rates (WHO 2008)

2.2 Causative factors of mental/psychiatric disorders

Psychosocial stress is the favored cause for mental illness (Jorm, 2000). More evidence is emerging to implicate genetic and biological, psychosocial stressors commonly cited as causal in the development of psychopathology include life events such as the death of a loved one, relationship problems, and financial or work-related strain. These psychosocial stressors are commonly endorsed as causal for both depression and schizophrenia (Angermeyer and Dietrich, 2006).

2.3 The civil wars and mental disorders.

Global prevalence of civil wars was rising throughout the 1960s, 1970s and 1980s. The highest number of ongoing wars was in the years 1991 and 1992 where there were 17 civil wars globally. Since then the number of wars has been falling to 5 wars in 2006. These five civil wars took place in Afghanistan, Iraq and Sri Lanka and in two African countries, Chad and Sudan (Gleditsch *et al*., 2002).

Uganda, the "Pearl of Africa", is a landlocked country in East Africa bordered to the east by Kenya, to the north by South Sudan, to the west by the Democratic Republic of the Congo, to the southwest by Rwanda, and to the south by Tanzania. Uganda's population growth rate of 3.2% is one of the highest in the world; according to projections from UBOS, the population of Uganda in 2010 was 31.8 million.

Uganda is ranked by the UN as one of 49 Least Developed Countries in the world which are characterized by low per capita incomes, feeble human capital, and a high degree of economic vulnerability. Nonetheless, the Ugandan economy has transformed remarkably in recent years. Uganda's macroeconomic reform program is generally viewed as having supported economic growth well beyond what could be expected from the recovery and reconstruction process.

Several Acholi guerrilla forces initially resisted the takeover of NRM, but settled for peace or were defeated by 1988. However, a handful refused to settle, and joined forces with Acholi rebel leader Joseph Kony to continue the fight. Kony through armed rebellion sought to conquer Uganda, establish a theocratic state, and restore the Acholi to a position of prominence and power.

The LRA has waged war not only against the Uganda People's Defence Force, but also against civilians residing in the area. This war is one of the longest in Africa, was characterised by killings, massive displacement (almost 2 million people), abductions of innocent children and devastation of property and infrastructure resulting in a very severe humanitarian crisis (insightonconflict.org).

The youth were both the primary victims and actors in war and tens of thousands of adolescents and young adults were abducted and forced to join rebel groups (SWAY, 2006). The forced recruitment of boys and girls as young as eleven is one of the more grotesque, and has become one of the most well-known, features of the war. At the height of the conflict more than 1.8 million civilians lived in squalid camps as internally displaced persons (IDPs)

Children, defined as individuals ages 18 and below, account for more than 50% of the total population across the African continent (Machel, 2001). Thus, the effects of war on this group is enormous. As a result of war, more than 2 million children died in the 1990s and over 20 million children have become displaced from their homes (Machel, 2001). Child soldiers, "any child boy or girl under the age of 18, who is compulsorily, forcibly or voluntarily recruited or used in hostilities by armed forces, paramilitaries, civil defense units or other armed groups," are a dramatic product of violent conflict.

At any given point in time, 300,000 children are child soldiers worldwide, violating policies such as the International Labor Organization Convention 182 and the African Charter on the Rights and Welfare of the Child (Machel, 2001). Northern Uganda, experiencing an ongoing conflict, strongly illustrates the devastating effects of war on children, as more than 50,000 child abductions have increased the number of child soldiers (Poole, Bailey, & Russell, 2006).

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2.4 Economic impacts of the civil wars.

(i) Mental disorders lead individuals and families into poverty:

People with untreated mental disorders are at much higher risk of descending into poverty than people without disorders. Firstly, people may not be able to work because of their illness. If employed, their illness may result in more sick days being taken or reduced productivity while at work. All these aspects reduce income and promotion chances. Furthermore, if people are not employed they will not qualify for employment related pension or health insurance coverage when such programs exist.

Secondly, if someone has had a history of untreated mental illness they will not have had the same opportunities as other people to accumulate human capital–that is, general and specific skills–that allow them to be competitive when searching for work or applying for a promotion. The impact on human capital can be particularly detrimental if their illness began in childhood or adolescence, as many mental illnesses do.

Thirdly, because of discrimination, which is particularly strong for mental disorders, people may be systematically denied work opportunities.(McDaid ,2008). Children, defined as individuals ages 18 and below, account for more than 50% of the total population across the African continent (Machel, 2001). Thus, the effects of war on this group deserve particular attention. As a result of war, more than 2 million children died in the 1990s and over 20 million children have become displaced from their homes (Machel, 2001).

(ii) Untreated mental disorders negatively affects economic development at the national level

While studies on the effects of untreated mental illness on national economic development have not been conducted in LMICs, research in developed countries provides an important framework and data for understanding these costs in developing countries.

The total annual cost of depression in 28 European countries was estimated at 118 billion Euros, of which 42 billion were for direct costs related to treatment, including drugs, outpatient care and

hospitalization, and 76 billion were for indirect costs due to loss of employment, productivity and increased insurance and social benefit payments (Sobocki P et al., 2006).

Overall, not treating mental disorders results in much higher expenses than doe's treatment, because of the higher indirect costs associated with greater morbidity. Most of the quantifiable costs of untreated mental illness occur outside the health sector, due to loss of employment and income generation, increased absenteeism, poor performance within the workplace and premature retirement (McDaid and Knapp , 2005).

2.5 Social-cultural impact of the wars.

(i) Homelessness is a common outcome for people with mental disorders exacerbating their marginalization and precariousness:

Numerous studies have documented the high prevalence of mental health problems in homeless persons, including street children.(Lerner and Fernando, 1999). Disorders and problems identified among the homeless include schizophrenia, depression, anxiety, attempted suicide, emotional problems, high levels of hopelessness and alcohol and drug abuse.

The 12-month prevalence rate of psychiatric morbidity among urban homeless populations in LMICs, such as in Rio de Janeiro, Brazil, has been estimated at almost 50%. (Lovisi et al., 2003). Homelessness has been found to be relatively common among people with schizophrenia in rural China (Ran et al., 2000) and Nigeria.(Gureje and Bamidele, 1999).

(ii) The number of people with mental disorders in prisons is disproportionately high:
Reports from countries with different levels of income indicate that incarcerated individuals are much more likely to be suffering from mental illness and substance abuse disorders than are those outside of prisons and jails.(Fryers T et al., 1998).

Persons who have mental illnesses and/or abuse substances are more likely to be detained in prisons than in treatment facilities, especially in countries that lack adequate mental health services. Known in Nigeria as "civil lunatics", these inmates have not committed crimes, but are

brought to prisons by family members who could not care for them.(Nigeria: Prisoners' rights 2008).

(iii) People with mental disorders lack educational opportunities and have poorer educational outcomes, negatively affecting opportunities for development:
Access to education is well recognized as an essential building block of human and economic development due to its wide-ranging impact, including that on health, employment, poverty and social capital.

While gender, socio-economic and geographical inequities in access to education receive significant attention (UN, 2007) the exceedingly poor access to education of mentally disabled children is largely overlooked.

Globally, only 5% of children with physical or mental disabilities complete primary school compared to nearly 90% of their non-disabled peers.(Birdsal and Levine, 2005).In developing countries, 98% of children with disabilities are not enrolled in school and 99% of girls with disabilities are illiterate(Richler, 2004).

When children and adults with mental disabilities do have educational opportunities, instead of receiving the support they need, they are often discriminated against, rejected, and ridiculed in schoo.(Astbury and Tebboth , 2008).

(v) The cultural factor as a social impact
War, or violent conflict, has a negative effect on societies. Children are particularly vulnerable, as their development, childhood, and adolescence have been significantly shaped by the influences of war. These influences, including social, economic, and psychological factors, have significantly impacted the culture of young people. Avruch (1998) defines culture as "a derivative of individual experience, something learned or created by individuals themselves or passed on to them socially by contemporaries or ancestors." Culture is not simply based on religion, ethnicity, language, and/or customs, as much dialogue supports. Instead, it is non-

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homogenous, dynamic psychological and social experiences that are shared throughout a population (Avruch, 1998).

Consequently, youth culture is "socially constructed in relation to culture itself, is the creation of people, and is defined by who has power and who does not" (Goldstein, 2006). It is a subset of other cultures and experiences within a society, a product of internal and external forces that are particular to children in an environment (Steinberg, 2006). As with other cultures, youth culture is characterized by its ability to shape interactions among a portion of the population as well as be shaped by the popular culture at large.

Therefore, youth culture in conflict zones is strongly shaped by war, or more specifically the culture of war that exists in areas of violence (Ramsbotham, Woodhouse, & Miall, 2005). Youth culture can be understood by observing the impacts that war and its subsequent culture have on children, their development, and their relationships within a community.

2.6 Health impact of the wars.

(i) Mental disorders lead to higher morbidity and mortality rates:

The full impact of mental disorders extends well beyond that which is represented by burden of disease calculations. Mental disorders contribute to the development and outcome of chronic diseases such as cancer, cardiovascular diseases, diabetes and HIV/AIDS, particularly through their impact on unhealthy and risky behavior, non-adherence to prescribed medical regimens, and diminished immune functioning. (Cournos, Paxton & Robinson, 2008).

People with mental disabilities, such as schizophrenia, bipolar disorder and depression are far more likely than the general population to die as a consequence of their untreated mental or physical health problems (Prince M et al., 2007Stratford upon Avon, 2006).For example, people with schizophrenia and major depression have an overall increased risk of mortality 1.6 and 1.4 times, respectively, greater than that expected from the general population. (Harris & Barraclough,1998).

2.7 Mental disorders

Mental disorders of concern due to high prevalence and/or severity of condition include, but are not limited to, schizophrenia and bipolar disorder (referred to as severe mental disorders), depression, anxiety, somatoform disorders (referred to as common mental disorders), epilepsy, alcohol and substance abuse disorders and child and adolescent mental health problems. Suicide is an extreme but common outcome for people with untreated mental disorders, particularly depression and substance abuse, which are associated with up to 90% of all cases of suicide in some countries (Bertolote Jet al., 2004).

Contrary to the common belief that these are concerns of high-income countries only, mental disorders and their effects are also important issues for developing countries. Over 80% of people suffering from mental disorders such as epilepsy, schizophrenia, depression, intellectual disability, alcohol use disorders and those committing suicide are living in low- and middle-income countries (LMICs) (de Boer HM et al., 2008).

World wide of the 50 million people suffering from epilepsy; 80% live in low and middle income countries; of the 66 million people suffering from depression; 85% live in low and middle income countries; of the 24 million people with an alcohol related problem 82% live in low and middle income countries; of the 1 million people commit suicide each year (rates for attempted suicide are 10 to 20 times higher) 84% of these suicides are committed in low and middle income countries

The most commonly reported diagnoses were schizophrenia 52% (CI 48–56%); depression 17% (CI 14–20%); bipolar disorder 12% (CI 9–15%); schizo-affective disorder 10% (CI 8–13%); anxiety 7% (CI 5–10%); obsessive-compulsive disorder 4% (CI 2– 6%); personality disorder 2% (CI 1–4%); and adjustment reaction 2% (CI 1–3%). The majority had been in treatment for more than 6 months. (Cohen CL 2005).

2.7.1 Characteristics

Bipolar disorder, formerly known as manic-depression, is a biological disorder of the brain characterized by debilitating mood swings. The symptoms of bipolar disorder fall into two broad categories of mania and depression.

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Mania	Depression
Euphoric or extremely irritable mood	Feelings of emptiness, guilt and self-hatred
Distractibility	Impaired thinking
Accelerated and/or delusional thinking	Inability to experience joy
Decreased inhibitions	Diminished energy and
Increased physical activity and risky behaviors	preoccupation with death

Twenty-seven million people suffer from bipolar disorder worldwide (WHO, 2003) Bipolar disorder knows no racial, cultural or economic boundaries. An estimated 25 to 50% of individuals with bipolar disorder attempt suicide at least Once (Jamison., 2000) and completed suicide occurs in 10 to 15% of individuals with Bipolar I Disorder (American Psychiatric Association, 2000).

Schizophrenia is a debilitating biological disorder of the brain (Canadian Mental Health Association2006) often characterized by acute episodes of delusions (false beliefs that cannot be corrected by reason), hallucinations (usually in the form of non-existent voices) and long-term impairments such as diminished emotion, lack of interest and depressive signs and symptoms (Weiden, Scheifler & Diamond, 1999).

Bipolar I disorder, the classic form of the illness, is characterized by recurrent episodes of mania and depression while Bipolar II disorder is characterized by periods of depression that alternate with milder episodes of hypomania, defined as mild to moderate level of mania. (Bipolar Disorder National Institute of Mental Health, 2006)

2.7.2 Mental Disorder Management

2.7.2.1 Pharmacological Management
Antipsychotic drugs have been used in western medicine for 50 years. Reserpine and

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chlorpromazine were the first drugs found to be useful in schizophrenia. Although chlorpromazine is still sometimes used for the treatment of psychoses, Chlorpromazine (generic, Thorazine, others) is orally given as 10, 25, 50, 100, 200 mg tablets; 10 mg/5 mL syrup; 30, 100 mg/mL concentrate Oral sustained-release: 30, 75, 150 mg capsules, Rectal: 25, 100 mg suppositories. Deep intramuscular injection 25-50mg.

Benzodiazepines are commonly added to antipsychotics and have been found to be useful in some studies for anxiety, agitation, global impairment, and psychosis (Wolkowitz and Pickar, 1991). Adjunctive use of benzodiazepines can spare the need for higher dosages of antipsychotics. However, some studies found that the benefits of benzodiazepines were sometimes not sustained.(Janicak PG et al., 1997). Common side effects of benzodiazepines include sedation, ataxia, cognitive impairment, and behavioral disinhibition.

Haloperidol (generic, Haldol) is given orally 0.5, 1, 2, 5, 10, 20 mg tablets; 2 mg/mL concentrate and parenterally 5 mg/mL for IM injection. Clozapine (generic, Clozaril) is given orally as 25 and 100 mg tablets. Table 2 below shows the pharmacology of different drug used in the management of Schizophrenia, Bipolar, Anxiety, Psychosis, Substance abuse and many others.

Table 2: Antipsychotics Agents

Name of drug	Usual PO Daily Dose, mg	Mode of Action	Side effects
First Generation Antipsychotics			
Chlorpromazine	100–1000	Blockage of dopamine receptors especially D2	orthostasis; photosensitivity; cholestasis; QT prolongation
Clozapine	150–600	Blockage of the $5HT_2$ and a much higher affinity for the D_4 than the D_2 receptor	Agranulocytosis (1%); weight gain; seizures; drooling; hyperthermia
Haloperidol	0.5–20	Blockage of dopamine	EPSEs often prominent

		receptors especially D2	
Second Generation Antipsychotics			
Olanzapine	10–30	Blocking the $5HT_2$ and a much higher affinity for the D_4 than the D_2 receptor	Weight gain
Aripiprazole	10–30	Affects D_2 and 5-HT receptors	Nausea, anxiety, insomnia

Adapted from Harrison's principles of internal medicine 17th edition

EPSEs, Extra Pyramidal Side Effects;

Antidepressants can alleviate depression, but their effectiveness in reducing suicidal risk has not been conclusively demonstrated (American Psychiatric Association. 2003). Antidepressants may increase suicide risk. (Barclay, L., & Vega, C. 2006).

Tricyclic antidepressants can be fatal when combined with alcohol, so avoid prescribing tricyclic antidepressants with suicidal patients. Consider prescribing smaller amounts of medications with suicidal patients. Always Refer to a Mental Health Professional if a Patient Seems Suicidal (Antonuccio, D. O., & Naylor E. V. 2005)

Most tricyclics are incompletely absorbed and undergo significant first-pass metabolism. As a result of high protein binding and relatively high lipid solubility, volumes of distribution tend to be very large. Amitriptyline (generic, Elavil, others) can be given orally as 10, 25, 50, 75, 100, 150 mg tablets and parenterally as 10 mg/mL for IM injection

Carbamazepine has been considered to be a reasonable alternative to lithium when the latter is less than optimally efficacious. It may be used to treat acute mania and also for prophylactic therapy. The mode of action of carbamazepine is unclear, but it may reduce the sensitization of the brain to repeated episodes of mood swing. Such a mechanism might be similar to its anticonvulsant effect. Carbamazepine (generic, Tegretol, others) can be given orally as 200 mg tablets, 100 mg chewable tablets; 100 mg/5 mL oral suspension and oral extended-release: 100, 200, 400 mg tablets; 200, 300 mg capsules.

2.7.2.1 Non-pharmacological Management

Nonpharmacologic interventions are often combined with drug treatment and can provide additional benefits in such areas as relapse prevention, improved coping skills, better social and vocational functioning, and ability to function more independently. Interventions should be started as early as possible, even during the management of an acute episode. As a patient begins to stabilize during an acute episode, nonpharmacologic strategies can be implemented(American Psychiatric Association, 2004). Individual therapy (e.g., supportive, insight oriented, reality oriented) can improve insight into the illness, improve medication adherence, teach ways to cope with medication side effects and stress, and help the patient to identify early warning signs of relapse.

Group therapy can enhance socialization skills. In patients who are less stable and who continue to exhibit negative symptoms, supportive therapy is generally more effective than group or other more complex, insight-oriented therapies. Family therapy is also important because family members need to learn ways to cope with such a devastating illness and how to be supportive of their loved one, while not being overly controlling. Vocational training can benefit patients who will likely need a significant amount of assistance in finding and maintaining long-term employment (Janicak PG et al., 1997).

Evidence-based practice guidelines for psychosocial treatment of schizophrenia now include interventions such as social skills training, cognitive/cognitive–behavioral therapy, family psychoeducation, and vocational rehabilitation. (Cook and Razzano, 2000).

CHAPTER THREE

3.0 METHODOLOGY

3.1 Study Design and method.

The design of the study was a retrospective evaluation of hospital records between the periods of 1970 to 2005 at four Regional Referral Hospitals and cross sectional evaluation of facilities and treatment strategies available for the management of patients in central and eastern Uganda.

3.2 Data Collection.

The data was collected from the information in files available for the patients that have been referred to these hospitals and also the people near the hospitals who have mental disorders comparing pre and post civil wars effects on the illness within the study period.

3.3 Data Collection Technique.

The data were collected from the case notes, outpatient case record and medical record patient registers. Systemic random sampling for the desired duration of time from the mental clinics of both the central and eastern region was used.

The population size was 1500 people, the calculated sample size were 400 people, and every 5th file was selected in each Regional Referral HospitalSample size determinant:

Formula: by Kish Leslie of 1965,

$$n = \frac{t^2 \times p(1-p)}{m^2}$$

Description:

n = required sample size

t = confidence level at 95% (standard value of 1.96)

p = estimated level adherence to antipsychotic treatment in the selected areas (**9%**) reference level of adherence,

m = margin of error at 5% (standard value of 0.07)

$$n = \frac{3.8416 * 0.09(1 - 0.07)}{0.05 * 0.05} = 100$$

3.4 Study Area

The study was carried out at four Regional Referral Hospitals at the mental clinic. Butabika is the mental referral hospital in Uganda located in central regional. It is in found Kampala district and it was representing the area which was not affected by the war because the civil wars did not affect the Central region. Nakaseke hospital is in Nakaseke district which is in Luwero triangle which was mainly affected by the Museveni`s civil war and it was represent the area affected by the wars. In the Eastern region Jinja hospital were represent the area not affected by civil wars while Iganga hospital were represent the region affected by the wars because it was affected by Alice Lakwena wars.

3.5 Inclusion and Exclusion Criteria.

Only available and relevant information on mental disorders covering the chosen period of study was used in this research, only Mental patients registered for management in the study areas was considered for the study.

3.6 Limitation of the Study.

The study did not involve direct interactions with the patients and thus no active follow up of the cases was made.

Some of the relevant data was lost during the civil and hence such data will not be accessible to collect the information from them.

Due to short period of the research and financial constraints some of important information will not be obtained and on addition the constant absenteeism of mental health workers will not allow adequate interviewing of health workers.

3.7 Data Collection.

A checklist, interviewing and questioners for health workers were used to carry out this study; this consisted of the mental disorders, their prevalence and management which were in tables.

3.8 Analysis

The data was collected from the case notes, outpatient case record and medical record patient registers.

➤ Data was collected in special record form designed for the purpose of this study and from where it was transferred to a database for analysis.

➤ Data was double entered and validation done using SPSS for Windows version 16.01, soft ware package (SPSS Inc, Chicago, IL) in two computers.

➤ P-values of ≤ 0.05 were taken to indicate significant differences. Data will (double)-entered serially using the subject codes and were only analyzed at the end of the study.

3.9 Ethical Considerations.

Ethical approval was obtained from the Institutional research and ethics committee of Kampala International University Western Campus.

While collating the data, names of patients were not recorded; rather hospital numbers and other serialized identity were utilized. The data and information obtained were treated with utmost confidentiality. Results were treated without disclosure of the patients' identity and personal information. Permission to access the records was obtained from the Deputy Executive Director each of the four regional referral hospital before the research was carried out.

CHAPTER FOUR

4.0 RESULTS

This study was conducted between October 2012 and February 2013. A total of 698 patients were enrolled in the study (314 from central and 384 from Eastern region)

Table1. Age distribution of patient with mental disorder. All patients enrolled were between age 1-86. Patient with mental disorder in eastern were significantly young than those from central.(29.3+- 31.2+_14.9 , P=0.007).

Table2. Mental disorders affect both female and male. In the central females suffer more from depression while in the eastern region the men are more depressed than females and they had a significantly P-valve of 0.021.

Table3. All mental disorders affect mostly the youths of the age group (25-39.9) in both regions.

Table4. Before the civil wars (1970-1979) the central region had twice the number of mental disorders compared to the eastern region. During the civil wars (1980-1986), the number of mental disorders increased in both regions although the central still had a higher number than the eastern region. Beginning of the millennium (2000-2005) where was spontaneous increase in all mental disorders cases in both regions.

Table5 The eastern had a higher increase with psychosis, epilepsy and schizophrenia being the most encountered at the beginning of the millennium while the central had the highest number of psychosis, epilepsy and depression before the war.

Table6. Monotherapy was mostly used in the eastern region while combination therapy was mainly used in the central region. During the wars there was an increase in the 3-combination therapy in the central. They all had significant P-valve.

Table7. Most of the patients stayed for four weeks followed by two weeks and three weeks.

Bar graph1. Chlorpromazine (CPZ) was the mostly used drug in combinations followed by haloperidol (HA). Artene was mostly given with CPZ and HA.

Bar graph2. People in the eastern region attend witch craft mostly compared to other places where they receive health care while in the central people attend mostly the private clinics.

4.1 PATTERN OF PRESENTATION OF MENTAL DISORDERS

TABLE 1: The mean age distribution of mental disorders in eastern and central region between 1970-2005.

	CENTRAL REGION	EASTERN REGION	P-VALVE
Age	N=314	N=384	
Mean ± SD	32.2 ± 14.9	29.3 ± 13.8	0.007
Range	1-81	5.0-86.0	

Table 2: Gender distribution of mental disorders in central and eastern Uganda of patients attending the clinic between 1970-2005.

DISORDER	CENTRAL REGION	EASTERN REGION	P-VALUE
	M:F	M:F	
Anxiety		3:0	
BAD	17:9	9:3	
C.malaria		1:3	
Dementia		3:3	
Depression	26:25	45:16	5.27,0.021
Epilepsy	61:30	60:35	0.61,0.68
OCD		1:0	
Paranoid		0:3	
Psychosis	64:12	59:40	11.3,0.0007
PTSD		0:1	
Schizophrenia	31:20	50:28	0.04,0.84
Substance abuse	17:7	17:7	0.03,0.87

4.2 TREND OF OCCURRENCE OF MENTAL DISORDERS

Table 3. Shows age distribution of mental disorders in the central and eastern regions of Uganda.

	AGE RANGE	ANXIETY	BAD	C.MALARIA	DEMENTIA	DEPRESSION	EPILEPSY	OCD	PARANOID	PSYCHOSIS	PTSD	SCHIZO	SUB ABUSE	TOTAL
CENTRAL REGION	<5years						1							1
	5-11.9					1	9			1				11
	12-17.9					3	18			2		5	3	31
	18-24.9					10	28			13		4	5	62
	25-39.9		12			28	22			44		25	8	135
	40-60.0		8			9	9			11		15	7	59
	>60		4				4			4		6	1	19
EASTERN REGION	<5													
	5-11.9		1			2	5	1				2		11
	12-17.9		1			5	14			10		9	2	41
	18-24.9		3	1		18	30			24	1	29	5	117
	25-39.9	3	6	1	6	18	36		2	45		27	9	147
	40-60		1	2		10	8		1	17		7	6	52
	>60					8	2			3		3		16

TABLE 4: Gender distribution of mental disorders in patients attending the clinics in central and eastern Uganda before, during and after the civil war.

YEARS	CENTRAL REGION		EASTERN REGION	
	M:F	(N)	M:F	(N)
1970-1979	53:21	(74)	21:13	(34)
1980-1986	55:36	(91)	44:19	(63)
1987-1999	37:14	(57)	47:27	(74)
2000-2005	71:32	(130)	136:78	(214)

4.3 IMPACTS OF THE PRESENCE OR ABSENCE OF THE CIVIL WARS

Table 5: Distribution of mental disorders in patients attending mental clinics in the cental and eastern Uganda before during and after civil wars.

DISORDERS	1970-1979		1980-1986		1987-1999		2000-2005	
	Eastern	Central	Eastern	Central	Eastern	Central	Eastern	Central
Anxiety							3	
BAD	2	7	1	5	3	7	6	7
C.malaria			1		2		1	
Dementia			1		1		4	
Depression	4	14	11	14	11	7	35	16
Epilepsy	10	18	16	32	17	12	52	29
OCD			1					
Paranoid			2		1			
Psychosis	8	21	15	18	19	21	57	18
PTSD							1	
Schizophrenia	9	11	11	17	15		43	23
Substance abuse	1	3	4	7	5	4	12	10

4.4. DRUG MANAGEMNET STRATIGIES

TABLE 6. Prescription pattern of antipsychotic drugs for treatment of affected patients in the central and eastern Uganda before, during and after the civil wars.
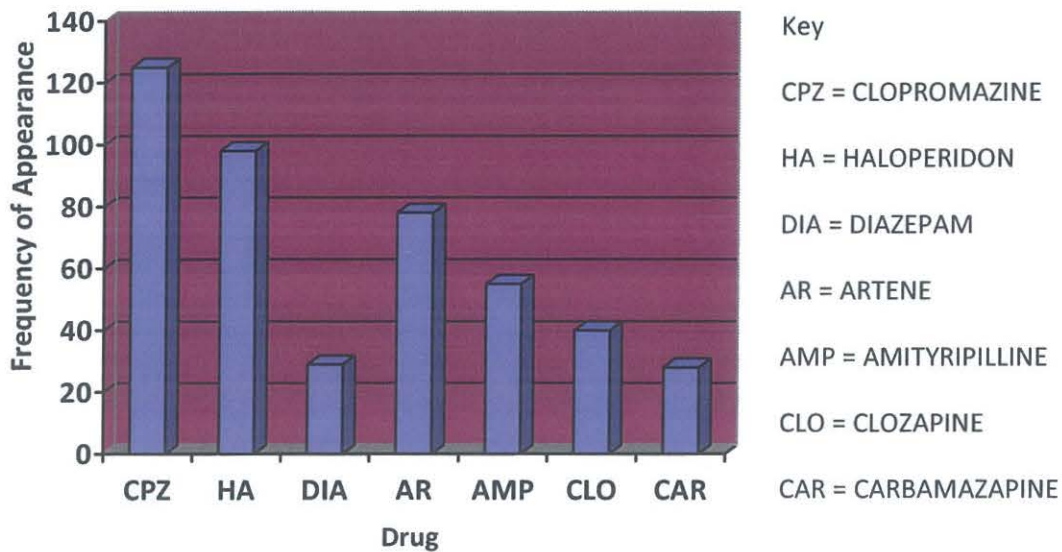
	N0. 0F DRUGS	1970-1979	1980-1986	1987-1999	2000-2005	TOTAL
EASTERN REGION	Mono therapy	15	28	31	64	136
	2 combination	12	16	29	104	161
	3combination	7	19	14	46	86
CENTRAL REGION	Mono therapy	26	34	15	38	113
	2 combination	7	7		13	27
	3 combination	41	50	36	52	179
	P VALUE	$X^2=15.69$	$X^2=13.38$	$X^2=41.4$	$X^2=44.3$	
		P=0.0004	P= 0.001	P=0.00001	P= 0.000001	

A total of 300 patients were admitted in order to monitor their response to drugs. The table below shows their distribution.

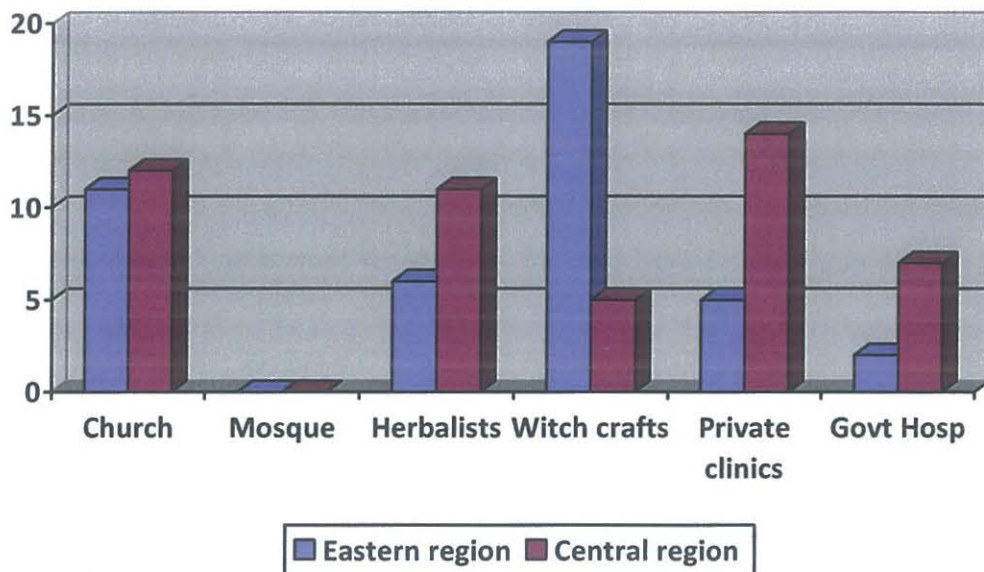**Table 7: Shows length of stay and the number of patients.**

LENGTH OF STAY	NUMBER OF PATIENTS
1 day	1
2 days	1
3 days	1
1 week	2
2weeks	55
3 weeks	54
4 weeks	176
5 weeks	1
6 weeks	Nil
7 weeks	Nil
8 weeks	3
12 weeks	1

Figure 1: Frequency of Drugs Used in Combination Therapy

Key

CPZ = CLOPROMAZINE

HA = HALOPERIDON

DIA = DIAZEPAM

AR = ARTENE

AMP = AMITYRIPILLINE

CLO = CLOZAPINE

CAR = CARBAMAZAPINE

4.5 POSSIBLE GAPS IN THE MANAGEMENT APPROACH

Figure 2: Sources of Treatment for Mental Disorders

CHAPTER FIVE

5.1 DISCUSSION

The present study reviled that in the period between1970-2005, mental disorders cases were currently unevenly distributed. Historically during this period, Uganda had expressed political arm struggle and outbreak of infection on one side and on the other there is increased industrialization and support from its different international agencies and development programs. Although the reasons for the unevenly distribution of the incidence rate is not clear for the present study. It's possible that the interaction from all those factors may be responsible.

People in central region had an early age onset of mental disorders compared to the people in eastern region due to the fact that the central region experienced more civil wars compared to the eastern region which may have attributed to the early onset of mental disorders. Eastern region has a higher number of mental disorders compared to the central region because people in the eastern suffered from a number of infections likely trypanasomiasis which might have affected the nervous system thus contributing to the high prevalence of mental disorders. The rates of mental illness are likely to be significantly increased by living through the previous wars and dictatorship, in a society where human rights were routinely abused (Amowitz et al., 2004)

Mental disorders affect both female and male but generally men have a higher prevalence of mental disorders compared to females because men suffer more stress compared to females like in a home the males are the heads of the family so they take up all the problems and also during the course of working the hardship they encounter all account to an increase in their number. In both regions epilepsy affects more males. The reason for this is not clear from the present study. However, it appears that neurological sequel of wars and possibly genetic factors may be adducible (61-30).

Bipolar disorder starts at an early age in eastern region well as in Brazil, children living in abject poverty are more than five times more likely to have psychiatric disorders than middle class children. (Fleitlitch B et al 2001), this may not be the possible reason as to the eastern region.

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In both regions the youths had the highest number of people affected by bipolar disorders because youth age is more prone to infections like HIV which at its stage four has bipolar disorders as a symptom.

Schizophrenia has an early onset in the eastern region and expresses a higher number of schizophrenia patients compared to the central region due to the fact that people with the lowest socio-economic statuses (SES) have 8 times greater relative risk for schizophrenia than those of the highest SES (Holzer et al., 1986).

During the civil wars the number of mental disorders increased in both regions although the central still had a higher number than the eastern region this may be due to the physical and psychological war-related trauma that may accounts for the high numbers of mental disorders in these regions. Immediately after the civil wars the mental disorder cases increased in the eastern region and there was a decrease in the central region because the eastern region was free from wars so most of the people who had suffered may have migrated to the eastern region for treatment. Beginning of the millennium there was a spontaneous rise in the number of mental disorders in both regions showing the impact of the civil wars. Although there was an increase in both regions, the increase in the eastern region was four times before and this may be to inadequate medication and medical personal.

Monotherapy was mostly used in the eastern region while 3-combination therapy was mainly used in the central region and the drugs in combination were given according to the age of the patients. 3-combination therapy was seven times higher in central than the eastern region because the capital city is located in central so there is easy availability of drugs to the people than in the eastern region which is fur away from the capital.

During the wars there was an increase in the combination therapy in the central because there were few people attending the clinic and in the eastern region there was an increased number in monotherapy, 2 and 3-combination therapy because the health workers were just giving drug combinations because they lacked patterns of treatment and since the drugs were available.

Beginning of the millennium there was spontaneous increase in all therapies in the eastern region with 2-combination therapy being the mostly used while in the central there was a slight increase in all therapies with 3-combination therapy being the mostly used because the country

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had recovered from the effects of the war and the country had also started getting donation from different countries, in other wards drugs were readily available. Most of the patient were not admitted due to lack enough facilities like the beds and health workers. The health workers interviewed responded that only those who were severely sick, hostile (aggressive) and with poor drug compliance were the only patients that were admitted. This implies that mental disorder patients still lack enough facilities during their treatment and management of the illness.

Chlorpromazine (CPZ) was the mostly used drug in combinations because it is a typical antipsychotic drug which has a short sedation time so if combined with other drugs long sedation period for psychiatric patients mostly those that were aggressive or those that had relapse can achieved. Haloperidol (HA) was also highly used in combinations because it is a long sedative typical antipsychotic that binds selectively to D2 receptors thus producing many extra pyramidal effects so it's given in combination with artene to account for these side effects. Clozapine was used from 1998 in Uganda because was produced in 1989 so it took ten years to be introduced to Ugandan market due to this it's use in combination was not as high as that of CPZ and HA. Carbamazepine was given as a mood stabilizer in the combination with other antipsychotics in the treatment of bipolar instead of lithium because it has fewer side effects compared to lithium.

In 2004 Kinyanda carried out a study in the eastern Uganda and found out that patients with mental disorders usually visit traditional healers before seeking treatment in formal health care system largely because the predominant community attitudes to mental illness is that it is a spiritual rather than a medical problem and this accounts for the reported increase of cases of people in the eastern region attending traditional healers compared to other places where patients receive health care.

5.2 CONCLUSION

From this study, eastern region had more people suffering from the mental disorders compared to the central region and were mostly young (25-39.9). Generally in the two regions the males had the highest number of mental disorders compared to the females. Epilepsy had the highest number of cases followed by psychosis, schizophrenia and depression. Monotherapy and combination therapy were commonly used in eastern and central region

Central region had the highest number of mental disorder cases before and during the war while eastern region had the highest number of mental disorder cases immediately after war and the beginning of the millennium. CPZ (chlorpromazine) was the mostly used drug in combinations followed by HA (haloperidol) and CLO (clonazepine) thus first generation antipsychotics were commonly used compared to the second generation antipsychotics.

5.3 RECOMENDATIONS

The government should provide enough facilities to psychiatric patients including those in the eastern Ugandan, Qualified medical personals should be provided to different health care centers.

Use of second generation and neural antipsychotic drugs should be encouraged because of their fewer side effects and better pharmacological response.

Public should be sensitized and encouraged to report early to mental clinics to facilitate early treatment before more complications arise.

Frequent counseling and multi disciplinary management should be encouraged and drug addicts should get jobs so that they can be occupied during their course of treatment.

Community education through disseminating of information by use of local leaders.

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