[1] POSTTRAUMATIC STRESS DISORDER AMONG MAU MAU CONCENTRATION CAMP SURVIVORS IN KENYA 9

A DISSERTATION SUBMITTED IN PART FULFILMENT OF THE REQUIREMENTS FOR THE AWARD OF THE DEGREE OF MASTER OF MEDICINE IN PSYCHIATRY OF THE UNIVERSITY OF NAIROBI

BY
DR. LUKOYE ATWOLI, MB ChB (MOI)
DEPARTMENT OF PSYCHIATRY
UNIVERSITY OF NAIROBI
JULY 2006

DECLARATION

I, Dr. Lukoye Atwoli, do hereby declare that this dissertation is my original work carried out in part-fulfillment of the requirements for the award of the Degree of Master of Medicine in Psychiatry (MMed. Psych.) of the University of Nairobi, and further, that I have not presented the same for the award of any other degree or to any other university.

Author Signature. Date

Dr. Lukoye Atwoli

SUPERVISORS' APPROVAL

This dissertation has been submitted for examination with our approval as the University supervisors.

Maj. (Rtd) Dr. Dammas M. Kathuku

MB ChB (Makerere), MMed Psych (Nrb), F.S. (USAF- SAM),

Senior Lecturer in Psychiatry, University of Nairobi.

Prof. David M. Ndetei

MB ChB (Nrb), DPM (Lond), M.R.C.Psych, F.R.C.Psych (UK),

MD (Nrb), Certificate in Psychotherapy (London),

Professor of Psychiatry, University of Nairobi

ACKNOWLEDGEMENT

The following people and organizations are acknowledged for their contribution in the preparation and execution of this study:

- My supervisors, Prof. D.M. Ndetei and Dr. D.M. Kathuku for their invaluable advice and support throughout the study, especially in providing material for literature review and designing the study;

- Staff of the Kenya National Archives for the assistance they gave me in finding historical information about the struggle for independence and Mau Mau literature;

- The Kenya Human Rights Commission for facilitating meetings with leaders of the Mau Mau War Veterans' Association and potential study subjects;

- The Mau Mau War Veterans' Association leaders and members, without whom this study would not have been possible, and my condolences to the family of Mr. Muturi Shombole, who passed away shortly after I had interviewed him for this study. Special thanks to the Kajiado Branch of the Association for helping me in the initial stages of the study and providing a venue for some of the first interviews;

- My colleagues in the department of Psychiatry, University of Nairobi for their constructive criticism and encouragement throughout the study period;

- My wife, Maureen, for all the support and logistical assistance she gave me.

DEDICATION

For Alubala

TABLE OF CONTENTS

CONTENTS PAGE

LIST OF FIGURES AND TABLES **page**

FIGURES

TABLES

List of Abbreviations

CI-	Confidence Interval
df-	Degrees of Freedom
DSM III-R-	Diagnostic and Statistical Manual of Mental Disorders, Third Edition, Revised
DSM IV-	Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition
DSM IV-TR-	Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition, Text Revision
IES-R-	Revised Impact of Events Scale
KHRC-	Kenya Human Rights Commission
KES-	Kenya Shillings
MMWVA-	Mau Mau War Veterans' Association
Nrb-	Nairobi
p-	Significance level
PM-	Psychiatric Morbidity
POW-	Prisoner of War
PTSD-	Posttraumatic Stress Disorder
RR-	Relative Risk
SCID-	Structured Clinical Interview for the Diagnostic and Statistical Manual
S.D. -	Standard Deviation
SPSS-	Statistical Package for Social Sciences
t-	T-test statistic
X -	Chi square statistic

ABSTRACT

Introduction: The last decade of colonialism in Kenya was characterized by an armed insurrection in many parts of the country, but mostly in the Mount Kenya and Rift Valley regions. Termed the 'Mau Mau' uprising, the insurrection was fought vigorously by the British colonial armed forces. Suspected 'Mau Mau' fighters were captured and held in concentration camps where many underwent torture, both physical and psychological. No studies have been carried out in this population to assess the psychological sequelae of the torture.

Objectives: To establish the prevalence of PTSD and other psychiatric morbidity and associated factors among the Mau Mau Concentration Camp survivors.

Design: Cross-sectional descriptive survey, using consecutive sampling.

Setting: The study sample came from Nairobi, Thika, Kajiado, Maragua, Embu and Kiambu districts. Interviews were carried out at four sites: Mau Mau War Veterans' Association (MMWVA) headquarters at Mwea House, Nairobi, Kenya Human Rights Commission headquarters in Nairobi, Tumaini House (Venue of MMWVA elections, 2005) and the MMWVA branch office in Kajiado District, Rift Valley Province, Kenya.

Methods: A consecutive sample of 181 survivors meeting the inclusion criteria were interviewed using structured instruments to collect socio-demographic and traumatic events information as well as to make psychiatric diagnoses based on DSM-IV TR. Data was analyzed using the Statistical Package for Social Sciences (SPSS).

Results: The study involved 181 subjects aged between 58 and 97, mean age 76 years. Ninety five (52.5%) of them were male and majority were not married (51.4%). Most of the subjects had no formal education (58%), and most were non-Catholic (57.5%). In this study sample, 127 (70.2%) had current DSM-IV-TR psychiatric morbidity.

Lifetime PTSD was found in 132 (72.9%) subjects, while current PTSD was present in 119 (65.7%). PTSD prevalence showed a rising trend over the years from 1962 (58%) to the time of the study (65.7%). The IES-R mean scores were higher among those with PTSD (3.48) than among those with no PTSD (1.58). Among those with current PTSD, 63 (52.9%) had a comorbid psychiatric illness, with depression (43.7%) being the leading comorbid disorder. There was statistically significant association ($p<0.05$) between current PTSD and older age (t 2.648, $p<0.05$), lower income (RR 1.541), non-Catholic religion (RR 1.409), larger household size (>2, RR 2.050), being adult at incarceration (RR 1.377), incarceration for over 1 year (RR 1.657), incarceration in 2 or more camps (RR 1.769), presence of other traumatic events after incarceration (RR 1.373), family history of mental illness (RR 1.667) and presence of comorbid psychiatric disorders (RR 1.743). There was no association ($p>0.05$) between current PTSD and gender, marital status, level of education, severity of injuries sustained and past history of mental illness.

Conclusions and Recommendations: The prevalence of PTSD and other psychiatric morbidity among the Mau Mau Concentration Camp survivors was higher than that in other Prisoner of War studies. This was found to be associated with poor current living conditions and the incarceration experience itself. It was also established that no interventions had been carried out to alleviate the suffering of this population of veterans. It was therefore recommended that there be established a Veterans' Service to look into the welfare of these and other veterans of military service in Kenya, as well as to facilitate further studies on PTSD among these groups.

CHAPTER ONE: INTRODUCTION

Background

The century between the mid-1800s and the mid-1900s was characterized by a scramble for and colonization of the African continent by the then ascendant European powers including the British, Germans, Italians, Portuguese, Spaniards and the French. Kenya was under British rule for around 70 years from the 1890s to 1963 when she attained independence. The period of occupation was characterized by the twin concepts of religious indoctrination and political administration of the colonized peoples in what some writers consider misguided attempts at 'civilization' of the natives (1). Gordon (2) describes an '...imperial policy of advancing the backward tribes to their utmost limits by British government, law, religion and education'. Attempts were made to justify the subjugation of a whole race based on history, religion and even science. Vint (3) had earlier written in the East African Medical Journal that '...from both the average weight of the native brain and from measurements of its prefrontal cortex I have arrived... at the conclusion that the stage of cerebral development reached by the average (mature) native is that of the average European boy of between 7 and 8 years of age'. In the later article, Gordon (2) quantifies the 'inferiority' of the African brain as 14.8 per cent, and claims that 'qualitatively the cells of the *new brain* compared with those of the average normal European, show defect and deficiency'. He also claims that the natives perform at a lower level than Europeans do in 'certain physical, psycho-physical and mental tests'. These justifications served to strengthen the so-called 'white man's burden', and to give impetus to the colonialists' mission to 'civilize' the natives. As argued by Fanon (1), the black people were no different from their colonizers, and they inevitably developed a deep resentment for their perceived tormentors. This resentment may

have served as the vital component of the freedom struggle in most of Africa, and Kenya in particular.

'Mau Mau' evolved as the rallying point for the freedom struggle, and served as an inspiration for the end of colonialism in Kenya and the rest of the world. The origin of the name remains contentious to this day. Corfield (4) reports that Mau Mau was first mentioned in March of 1948, when intelligence reports about a secret 'rebel' organization were filed. Some speculation exists that the name was derived from a range of hills in the Rift Valley (5), while other reports claim the organization was named Mau Mau in the early days of the emergency period as a result of accidental discovery of an oath-taking ceremony in progress. Kariuki (6) tells a story of how a colonial soldier heard a sentry shout an inverted warning to his colleagues during an oath-taking ceremony ('*mau mau*[1] instead of [L]*uma uma*' meaning 'go! go!') and concluded that the secret society that had hitherto been nameless was called 'Mau Mau'. Its continued usage seems to have been mostly derogatory (6). Most accounts however agree that the movement was never named thus by the fighters themselves or even by their communities (5-7).

The contentious origin of the name notwithstanding, the organization itself existed and was involved in the armed struggle for Kenyan independence between 1948 and 1963. Carothers (8), in his study on 'The Psychology of Mau Mau', states that secret societies existed well before the advent of colonialism among the Kikuyu. This was thought to be the result of a weak leadership structure in the community, and the higher degree of individuality among its members, resulting in a frustrated youth hungering for a structured leadership and opportunities for self-advancement. Europeans came into this situation with a new religion, political administration and a land tenure system that was alien to the local population. Population growth led to

demands for more land, demands that could not be met after the colonialists had allocated themselves prime land on the fertile highlands of central Kenya and the Rift Valley. This only served to increase frustrations among local leaders and the restive youth, leading to the widespread perception among the local population that the Europeans were the cause of all Africans' problems. Most historical commentators agree that failure by the colonial administration to address the land problem adequately precipitated or exacerbated the armed rebellion (4, 6, 7, 9). Carothers describes a 'Kikuyu (society) in transition... several elements have interacted to... give rise to *Mau Mau*... Firstly... greater degree of individualism and of an urge to personal power. Secondly... longer and closer contact with alien cultures... Thirdly... a considerable avidity to acquire understanding of European... learning [and finding]... many doors remained as closed as ever to them. Fourthly,... much bitterness on this score but... have acquired... much prestige in the eyes of their own people... and great power... Fifthly,... gross disparity in the general levels of advancement of men and women... Sixthly, this disparity... give(s) rise to an anxious conflictual situation within the tribe itself...' (8). This view seems to have been corroborated by Fanon in his observations of the natives of Martinique (1).

'Mau Mau' thus arose as a secret society in an attempt to fill the void left by failed political attempts at dialogue. Corfield (4) documents the various memoranda written to the colonial authorities seeking greater African involvement in the management of affairs of the emerging state; these were largely ignored. By the late 1940s, a group of World War II veterans from the mount Kenya area initiated in 1940 formed [4]*Ana/ce a forty*' (the 40 group) which began agitating for an armed uprising against the colonial government (4, 5, 7, 10). They were later to be joined by radicals frustrated by the lack of progress on the political front, trade unionists and others interested in a

military solution to the occupation. The rebellion later spread to other communities, including the Kamba, Maasai, Kipsigis and people in Coastal and Nyanza regions, and even to neighboring countries Uganda and Tanganyika (4).

By the early 1950s, police reports of an underground movement involved in oath administration and assassinations began to emerge. The assassination in October 1952 of loyalist Chief Waruhiu led to the declaration of a state of emergency by the newly installed Governor Sir Evelyn Baring. Two days later, another loyalist, Chief Nderi, was assassinated, and various colonial installations and homes attacked. This resulted in an operation in which eventually all men in Nairobi and central Kenya were 'screened' and tens of thousands of suspected Mau Mau fighters and sympathizers were arrested. The British government sent in military units to augment the local colonial forces in carrying out the operations against the Mau Mau. Suspected fighters and their supporters were incarcerated in concentration camps where they were to undergo 'rehabilitation' (involving renunciation of the Mau Mau oath and cooperation with the colonial forces). These camps included Manyani, Hola, Athi River, Mwea and Mageta Island on lake Victoria (4, 6, 11). Life in the camps was difficult, especially for combatants who refused to renounce their oaths and often refused to engage in what they regarded as 'slave labor'. The best documented case of physical and psychological abuse was at the Hola Camp, where on 3rd March 1959 eighty-five detainees were forced to a work site and assaulted with truncheons, leading to the deaths of eleven inmates (11). It is alleged that most detainees were exposed to castration, rape, beatings and even enforced cannibalism in the detention camps (12). Other atrocities have recently been reported in the UK press following the declassification of secret documents concerning administration of the Mau Mau camps (13). According to official sources, by the end of 1956 over 11,000 suspected

Mau Mau had been killed, with 30,000 being detained (4). Millions of civilians had been compulsorily 'villagized' and restricted to 'African Reserves' while their land and livestock were confiscated by the colonial government. By the end of the state of emergency in 1959, it is believed that many more had been killed, detained and displaced during the war.

During this period, the health of the detainees and most Africans was neglected, and instead the opinions of 'experts' like Vint, Gordon and Carothers were used to legitimize negative colonial actions and even label dissenters as 'psychopathic' (2, 3, 14, 15). Carothers endorsed 'villagization' (forced settlement of African families in secured villages) as 'an answer to many psychological problems of Kikuyu-land...' (8). Inmates frequently fell ill and rarely received any care. A British official visiting one camp found detainees whose '...disease of the mind was self-apparent and the sense of dull hatred in their eyes could almost be felt…' (4). This 'dullness' of appearance, described by some as 'an expressionless stare', is captured in photos depicting dejected men in camps and police custody (10).

Most detainees were released in the final years of 'the emergency' (upto 1959-1960), a few years before Kenya attained her independence in 1963. The fighters remaining in the bush were given amnesty and many surrendered their weapons and returned to civilian life. The exact numbers of the surviving detainees are not known, but it is estimated that they may be upto 40,000, most of who are known to live around Mt Kenya region, in the Rift Valley Province and Nairobi area. Several organizations have been formed in the recent past to represent the interests of these veterans, and one of them is the Mau Mau War Veterans Association. It was formed in October 2003 and by early 2005, it had upto 20,000 members. The Kenya Human Rights Commission (KHRC) was coordinating these organizations together with other

individuals and organizations pursuing compensation from the British Government for the war veterans. The two organizations facilitated meetings between the author and members of the organization, thus making it easier to carry out the interviews.

Posttraumatic stress disorder

Exposure to traumatic events, both physical and psychological, has been shown to result in significant psychiatric morbidity. The most commonly studied sequelae of trauma among soldiers and other survivors of war and wartime incarceration include posttraumatic stress disorder (PTSD), other anxiety disorders, depression and substance related disorders. PTSD is defined in the DSM-IV TR (16) as a pervasive anxiety disorder meeting the following diagnostic criteria:

A. The person has been exposed to a traumatic event in which both of the following were present:
   (1) the person experienced, witnessed, or was confronted with an event or events that involved actual or threatened death or serious injury, or a threat to the physical integrity of self or others
   (2) the person's response involved intense fear, helplessness, or horror. **Note:** In children, this may be expressed instead by disorganized or agitated behavior
B. The traumatic event is persistently reexperienced in one (or more) of the following ways:
   (1) recurrent and intrusive distressing recollections of the event, including images, thoughts, or perceptions. **Note:** In young children, repetitive play may occur in which themes or aspects of the trauma are expressed.
   (2) recurrent distressing dreams of the event. **Note:** in children, there may be frightening dreams without recognizable content.

(3) acting or feeling as if the traumatic event were recurring (includes a sense of reliving the experience, illusions, hallucinations, and dissociative flashback episodes, including those that occur on awakening or when intoxicated). **Note:** in young children, trauma-specific reenactment may occur.

(4) intense psychological distress at exposure to internal or external cues that symbolize or resemble an aspect of the traumatic event.

(5) physiological reactivity on exposure to internal or external cues that symbolize or resemble an aspect of the traumatic event

C. Persistent avoidance of stimuli associated with the trauma and numbing of general responsiveness (not present before the trauma), as indicated by three (or more) of the following:

(1) efforts to avoid thoughts, feelings, or conversations associated with the trauma

(2) efforts to avoid activities, places, or people that arouse recollections of the trauma

(3) inability to recall an important aspect of the trauma

(4) markedly diminished interest or participation in significant activities

(5) feeling of detachment or estrangement from others

(6) restricted range of affect (e.g., unable to have loving feelings)

(7) sense of a foreshortened future (e.g., does not expect to have a career, marriage, children, or a normal life span)

D. Persistent symptoms of increased arousal (not present before the trauma), as indicated by two (or more) of the following:

(1) difficulty falling or staying asleep

(2) irritability or outbursts of anger

(3) difficulty concentrating

(4) hypervigilance

(5) exaggerated startle response

E. Duration of the disturbance (symptoms in criteria B, C, and D) is more than 1 month.

F. The disturbance causes clinically significant distress or impairment in social, occupational, or other important areas of functioning.

Specify if:

Acute: if duration of symptoms is less than 3 months

Chronic: if duration of symptoms is 3 months or more

Specify if:

With Delayed Onset: if onset of symptoms is at least 6 months after the stressor.

Justification for the study

PTSD rates have been shown to be higher in subsets of the population exposed to various types of trauma. These include survivors of violent crime, rape, torture and survivors of war. Rates among prisoners of war are especially high, with some studies reporting current PTSD prevalence as high as 59% (17). Examination of conditions in which 'Mau Mau' fighters were held reveals a prisoner of weir (POW) situation, where inmates were often tortured and subjected to forced labor. As observed above, they also witnessed torture and death of their comrades and some had occasion to kill their perceived enemies. These circumstances had a heavy toll on the survivors, both

physically and psychologically and the potential for development of posttraumatic psychiatric morbidity was high.

No deliberate effort was made to rehabilitate the veterans and incorporate them into society after the end of the war for independence. This has led to a situation where there exists a largely unstudied population of war veterans who may be suffering significant distress because of their combat and confinement experiences. This population is also rapidly disappearing as many are reaching the end of their natural lives. The opportunity to document their mental health and the effects of their experiences during the independence struggle must not be ignored.

This study was therefore an attempt to document PTSD and other residual psychiatric morbidity among these veterans and to recommend any necessary remedies for this and other veteran populations in Kenya. It also intended to add to the body of scientific knowledge on PTSD in a non-western population, addressing questions that have been difficult to tackle in cross-cultural PTSD research.

CHAPTER TWO: LITERATURE REVIEW

Trauma and Psychiatric morbidity

An extensive review of literature reveals that posttraumatic stress disorder (PTSD) is a significant outcome of exposure to severe trauma, both physical and psychological. As noted by Friedman and Marsella (18), exposure to trauma has been a risk of the human experience throughout human history. Proposed dimensions of trauma have also been examined: Threat to life and limb; severe physical harm or injury; receipt of intentional injury/harm; exposure to the grotesque; violent/sudden loss of a loved one; witnessing or learning of violence to a loved one; learning of exposure to a noxious agent and causing death or severe harm to another. Friedman and Marsella further note that various historical figures- Homer's Ulysses (and probably Achilles) and Shakespeare's Henry IV experienced profound posttraumatic stress reactions after exposure to war. Further evidence of exposure to trauma and various psychological responses in popular literature is quoted by Lamprecht and Sack in their extensive PTSD review (19).

Curran and Miller (20) observe that one's psychological response to trauma is determined by the victim's perception and appraisal of the severity of violence as opposed to the actual level of violence. This may form the basis for any observed difference in prevalence of posttraumatic psychiatric morbidity between people from different socio-cultural and ethnic backgrounds. The implication of the observations made above is that due to the ubiquitous nature of stressful events in the human experience, a subset of any population is likely to be found to be suffering from posttraumatic stress symptoms at any one time.

Epidemiology of PTSD

Population surveys reviewed by De Girolamo and McFarlane (21) show current PTSD rates of between 0.5% and 3.5% in western general populations, with rates increasing with the amount and severity of trauma in all groups. Lifetime prevalence of PTSD in the US population is said to be in the region of 8% (22), and this seems to be true for most western populations as well. A study among members of a Southwestern American Indian community (23) found a lifetime prevalence of PTSD of 21.9% (17.9% for the men and 25.4% for the women). The overall point prevalence was 5.7% (5.1% for the men and 6.2% for the women). This study also found a high rate of trauma exposure among members of the community. Exposure to traumatic events is higher in developing than in developed countries, with some studies showing a disparity on the scale of 166:1 (21), but this is not reflected in the amount of published research on posttraumatic morbidity in the general population which is predominantly western-sourced.

On the other hand, psychological disorders among soldiers and other survivors of discrete traumatic events have for long been reported under different titles: Irritable heart (US civil war, 1871), traumatic neurosis (early 1900s), shell shock (World War I), combat neurosis or operational fatigue (World War II) and finally, posttraumatic stress disorder (Vietnam War and beyond). In all these cases the appearance of the disorder was correlated with the severity of the stressor, with the most severe stresses (e.g. incarceration in concentration camps) resulting in the occurrence of the syndrome in most of the victims (24). As early as 1866, reports of posttraumatic psychological disturbances were available, but literature on PTSD as currently defined has increased exponentially since 1980 (19) when the disorder was officially categorized in the Diagnostic and Statistical Manual of psychiatric disorders, third

edition (DSM-III). Later editions of the manual (DSM-III-R, 1987, DSM-IV, 1994 and DSM-IV-TR, 2000) (16) provide more rigorous criteria for the diagnosis of PTSD. A seminal review (25) traces war syndromes from the US civil war to the Gulf war, noting that most such syndromes would first appear as unexplained symptoms before being characterized as predominantly psychological.

In one of the few studies of post-war psychiatric morbidity in an African setting, a preliminary report from a Mozambican study showed that perception of trauma varies with culture, and western concepts and instruments often need contextual interpretation before use in non-western societies (26). The published results from this study found that war survivors had rates of posttraumatic nightmares (PTNMs) of upto 63% (PTNMS are a dramatic feature of the re-experiencing symptom cluster of PTSD), and upto half of the sampled population suffered features of hyperarousal and intrusive re-experiencing (27).

A study among civilian survivors of ethnic clashes in Kenya found a high prevalence rate of PTSD, 80.2% compared to 10.6% among those who did not experience the clashes (28). This high rate was attributed to low socio-economic status and lack of post-exposure support for the victims.

Another study among 16-year-old survivors of war and mass violence (29) found PTSD rates of 37.4% in Algeria, 28.4% in Cambodia, 17.8% in Gaza and 15.4% in Ethiopia. This study also emphasized the importance of contextualization of study concepts and instruments in PTSD studies in non-western populations.

A hospital based study in the former Yugoslavia (30) found a PTSD rate of 13% among mostly ethnic Serbs after the civil war, while another study among Kosovar Albanians found a prevalence of 17.1% and a high degree of resentment against the perceived aggressors (31).

Shalev and colleagues (32) followed up patients presenting at an emergency department of an Israeli general hospital and found PTSD rates of 29.9% at 1 month and 17.5% at 4 months. Nineteen percent met criteria for major depression at 1 month and 14.2% at 4 months. This prospective study among civilians in a highly volatile area concluded that major depression and PTSD are independent sequelae of traumatic events, have similar prognoses, and interact to increase distress and dysfunction. This is comparable to the PTSD prevalence of 23% found among victims of sectarian violence in Northern Ireland (20) as reported by Curran and Miller, and the above-quoted studies in non-westem populations.

The review by De Girolamo and McFarlane (21) of posttraumatic studies among other civilian populations quotes rates between 8% and 81%, with the highest rates being among survivors of rape and personal violence (21). Within populations, however, PTSD rates vary significantly with race (in American studies), and gender. In a review of research on PTSD in various victim populations in the United States, Allen (33) found a higher rate of PTSD among the African American population compared to otherwise similar groups among the Americans of European extraction. He explains this by using history (slavery and subjugation of a minority group by the majority) and psychological theory (projective identification) to demonstrate the 'development and persistence of destructive, abusive, and racially discriminating behavior towards African Americans.' The explanations are quite similar to what Frantz Fanon (1) and even Carothers (8) propose as situations prevailing in colonial Africa, and specifically, Kenya in the 1950s.

Another study from Israel by Koren and colleagues (34) showed a significantly higher rate of PTSD among injured soldiers (16.7%) than in a comparison group of uninjured soldiers exposed to the same combat situation (2.5%), giving an odds ratio of 8.

A study of Australian Gulf War veterans (35) showed that service in the 1991 Gulf War was significantly associated with increased risk of psychological disorders and these are related to stressful events on the battlefield. Rates reported for these disorders were 31% for gulf war veterans compared with 21% for other military personnel not deployed to the gulf in the same period. Disorders commonly reported in this study were mostly anxiety disorders (PTSD, obsessive-compulsive disorder and social phobia), as well as bipolar disorder, major depression, alcohol dependence or abuse and drug dependence or abuse.

In a recent systematic review of psychiatric morbidity in gulf war veterans (36), PTSD and other common mental disorders including depression, anxiety and substance abuse were found to be more prevalent among gulf war veterans than in service personnel not deployed to the gulf in the same period, and this was attributed to increased psychological trauma in wartime.

A letter by the Surgeon-General of the British Ministry of Defence, showed that 36% of Gulf war veterans seeking treatment met criteria for psychiatric disorders including PTSD, adjustment disorders, anxiety states and depression (37). Eight percent were found to have chronic fatigue syndrome while 2% were diagnosed as being 'worried well' and were reassured by the medical examination.

Analysis of a Vietnam study data (38) found a current PTSD rate of 15.2% among veterans of the Vietnam war. This rate is also reported from other studies on similar cohorts of Vietnam veterans (21). A study among female Vietnam veterans (39) found a current PTSD rate of 21%. In the same study, women who screened positive for PTSD reported more psychiatric problems, substance abuse, and lifetime exposure to domestic violence. They were significantly more likely to endorse physical health

problems including obesity, smoking, irritable bowel syndrome, fibromyalgia, chronic pelvic pain, polycystic ovary disease, asthma, cervical cancer, and stroke.

The review by De Girolamo and McFarlane (21) reports that PTSD prevalence rates in the majority of Prisoner of War (POW) studies is over 50%, going as high as 70% or more in some studies. Incidence of PTSD symptoms for the first time decades after imprisonment and chronicity of the symptoms is also reported in most studies.

Engdahl and colleagues (17) studied POWs from World War II and the Korean conflict upto 50 years later and found PTSD rates of 29% with a lifetime prevalence of 53%. The most severely traumatized group (POWs held by the Japanese) had PTSD lifetime rates of 84% and current rates of 59%. Another study (40) followed up a similar cohort of POWs for 4 years and found current PTSD rates at the beginning of the study of 27% and 34% at the second assessment four years later, concluding that PTSD symptom levels increase in older survivors of trauma after a significant decline in the years after the traumatic events. Differences in PTSD rates in studies of similar cohorts (sometimes using the same data) have been explained to be due to the use of different sampling methods, criteria for diagnosing the disorder, timing of the investigation, degree of exposure, as well as use of different instruments with varying sensitivity, among others (21).

Although posttraumatic stress disorder is perhaps the best-known outcome of trauma, it is not the only, or perhaps even the most important outcome of trauma. Acute stress disorder, depression, substance abuse, somatization and personality change are some of the other reported outcomes of trauma (41) . Most studies also show evidence of comorbidity, with depression, anxiety disorders, and substance abuse being the most common comorbid conditions with PTSD (18, 22, 30, 32, 35, 42). These

comorbidities often complicate diagnosis and management of the victims of trauma, thus contributing to the chronic course of posttraumatic conditions.

Instruments used in this Study

This study used the SCID and the IES-R together with a Socio-demographic and Traumatic Events Questionnaire designed by the author (see appendices).

The SCID (43) is based on DSM-IV diagnostic criteria and has been used in various settings to detect PTSD and other psychiatric illnesses in population samples and in help-seeking individuals. It is a semi-structured diagnostic interview designed to assist clinicians, researchers and trainees in making reliable DSM-IV psychiatric diagnoses. Many studies have been carried out to assess the reliability and validity of this instrument and these can be found at the 'SCID web page': http://cumc.columbia.edu/dept/scid/. Reliability assessments (44) quoted have yielded varying kappa values, ranging from -0.03 (any somatoform disorder) to 1.0 (PTSD, Alcohol dependence and other substance abuse). Most studies, however, rate it highly reliable, with kappa values above 0.70 for most of the studied disorders. The high reliability rating for SCID in PTSD in all the quoted studies makes it an ideal instrument for detecting this disorder as defined in the DSM-IV-TR. The instrument also shows high reliability with common comorbidities such as major depressive disorder, alcohol and other substance abuse as well as many anxiety disorders. Reasons for the wide variability in reliability assessments are given as study design (joint interviews vs. test/retest designs), interviewer training, subject population (reliability of results increases with severity of the disorder being studied) and base rates (reliability is higher in populations with higher base rates of the disorders than in those with lower base rates).

Validity assessments (45) have been difficult due to lack of a proper 'gold standard' for diagnosis of psychiatric disorders. Certain studies have used the SCID as a standard, but the most widely accepted standard is the 'best estimate diagnosis'. The studies that have used this standard to test various instruments demonstrate superiority of the SCID over other instruments.

The IES-R has been used in various regions on victims of various kinds of trauma. It is a 22-item questionnaire inquiring about an individual's distress due to symptoms related to PTSD over a 7-day period. The response for each item is scored on a scale of 0-4 (0=No distress, 1=A little bit of distress, 2=Moderate distress, 3=Quite a bit of distress, and 4=Extreme distress). The minimum total score is 0 and the maximum total score is 88. In Kenya, a study (46) among female survivors of sexual abuse found high scores across all subscales of the IES-R in those with DSM-IV diagnoses of Acute and Posttraumatic Stress disorders. This study also attempted to compare the IES-R and the Self-Rated questionnaire (SRQ) and the Standard Psychiatric Interview (SPI), and found a high rate of positive correlation.

Methodological Difficulties in Cross-cultural Research

As noted earlier, research on posttraumatic morbidity in non-western societies encounters many methodological problems. The Mozambican study (26) identified at least five problem areas:

1. Language (most instruments are in English and have to be translated);
2. Lack of conceptual equivalence in items, scales or measures (i.e. many items seem to have different meanings when translated into local languages, and some have no equivalent in meaning);
3. Standardization of responses (difficulties in categorizing them);

4. Time-symptom limitation (i.e. asking people to talk about events occurring 'within the past four weeks' or 'within the past one month' etc.); and
5. Cultural and gender relations when interpreting traumatic events (some events thought to be traumatic in a western setting were not thought traumatic in the Mozambican sample, while some new concepts of trauma were identified as well).

Keane et al. (47) discussed methods of ensuring reproducibility of research findings in diverse cultural settings. They set out various kinds of instrument equivalence that need to be ensured as much as possible to ensure the instruments measure the same constructs and variables. These included content equivalence, linguistic and semantic equivalence, conceptual equivalence, scale and technical equivalence and normative equivalence. Also examined were issues in reliability and validity of cross-cultural research findings as well as the utility analysis measures including sensitivity, specificity, and predictive power. The analysis concluded that there are no available assessment instruments for PTSD that can be used with impunity across all cultures and languages and recommend studies to develop or modify instruments according to sound psychological principles.

This view is also shared by Friedman and Marsella (18), who state that religion and cultural beliefs may differentially influence the meaning and subjective experience of trauma. Religion has also been identified as a factor in protection from some types of mental illness, chiefly suicidal tendencies(48).

Another difficulty encountered in research involving recall of past trauma is the possibility of recall bias or forgetfulness. Hepp et al. (49) found an overall inconsistency in reporting of traumatic events of over 63%, with many events

reported earlier not being reported and new events being reported at later interviews within the same sample. The researchers concluded that the high rate of inconsistency in the reporting of potentially traumatic events had implications for therapy as well as for research.

In the present study, the above mentioned difficulties with biased recall were anticipated on the part of the veterans. As indicated above, this was almost unavoidable and attempts were made to limit this from the outset by pointing out that no individual benefit would accrue for the respondent participating in the study: financial, legal, political or otherwise.

Risk Factors and Approaches to Management of PTSD

Although a whole series of risk factors for the development of PTSD have been empirically validated very few systematic surveys exist on protective factors (19). In this regard, individuals from cultures with lower rates of substance use, family stability and community support seem to be less susceptible to PTSD than others (18). Staab et al. (41) summarize factors that confer greater susceptibility as age (adolescents and young adults), gender (women), race/culture (unclear role), intelligence (lower), education (less), temperament (introverted), locus of control (external), psychological development (complex interaction), psychiatric history (pre-existing disorder) and trauma experience (dual effect).

A more recent review (50) provides a more detailed list of putative risk factors: female gender, low income, poor education, minority status, high life stress, history of childhood abuse (particularly sexual assault before age 16), history of psychiatric illness, family history of anxiety and antisocial personality disorder, history of childhood adversity (e.g., early separation from parents, parental separation or

divorce, and poverty), sense of lack of personal control, feelings of insecurity, and alienation from others. The review also indicates that availability of social support is protective against development of PTSD. Some investigators (34, 51) have considered bodily injury as a major risk factor for development of PTSD in war veterans and among civilian survivors of trauma.

A local study among survivors of a terrorist attack (52) confirms female gender, unmarried status and lack of college education among others as risk factors for PTSD.

Treatment of PTSD often combines pharmacotherapy and psychosocial approaches (18, 22). Drugs used include antidepressants, usually selective serotonin reuptake inhibitors (SSRIs), tricyclic antidepressants and monoamine oxidase inhibitors. Others that have been tried include anticonvulsants like carbamazepine and valproate (24). Among the psychosocial approaches that have been described, cognitive behavior therapies are proving to be quite successful with many patients suffering from PTSD. Group approaches involving family, friends and other survivors of similar trauma have also been described (18, 19, 22, 24).

Alternative approaches of handling the trauma of war have been described in Mozambique, where 'traditional' rituals and ceremonies for ex-combatants to reconnect them with civilian life involve visiting a traditional healer (<*curandeiro*) for a physical and psychological cleansing ceremony (27). Similar ceremonies are described for native American warriors after a war (18). Involvement in these ceremonies has been deemed essential in mitigating occurrence of posttraumatic symptoms.

CHAPTER THREE: METHODOLOGY

Research Question

What is the prevalence and distribution of Posttraumatic stress disorder (PTSD) among Mau Mau concentration camp survivors in Kenya?

Research Hypotheses

Null Hypothesis (Ho)- There is no difference between the prevalence rate of Posttraumatic Stress Disorder among Mau Mau concentration camp survivors in Kenya and that found in other studies among POWs (Mean rate of 44%).

Alternative hypothesis (H_A) - There is a difference between the prevalence rate of Posttraumatic Stress Disorder among Mau Mau concentration camp survivors in Kenya and that found in other studies among POWs.

Research Objectives

a) To establish the prevalence of PTSD among Mau Mau war veterans who were incarcerated in concentration camps.
b) To establish the relationship between PTSD and various socio-demographic and traumatic event variables among Mau Mau Concentration camp survivors.
c) To detect any other psychiatric disorders associated with PTSD among Mau Mau concentration camp survivors.
d) To recommend approaches to management of the psychiatric needs of Mau Mau and other war veterans in Kenya.

Study Design

The study was a cross-sectional descriptive survey of Mau Mau concentration camp survivors selected by consecutive sampling from among the available members of the Mau Mau War Veterans' Association (MMWVA) residing in Nairobi and its environs.

This design was chosen due to the lack of records or information about the total number or location of surviving Mau Mau veterans in Kenya.

Sample Size

The sample size was calculated using the formula:

$N= z^2pq/d^2$, Where:

N= minimum sample size required to test the hypothesis,

z= standard deviation of the normal distribution corresponding to 95% confidence interval, 1.96,

p= expected prevalence in the population being studied, 44% or 0.44. This figure is derived from studies of PTSD prevalence among POWs elsewhere (17, 19, 21, 24, 40).

q= 1-p, 56% or 0.56,

d= level of precision, 7.5% or 0.075.

Therefore, $N= 1.96^2* 0.44* 0.56/ 0.075^2$

$= 0.94657024/0.005625$

$= 168.$

Study Population

The study population consisted of Mau Mau concentration camp survivors currently resident in Nairobi and some surrounding districts: Kajiado, Thika, Embu, Maragua and Kiambu. The total number of these survivors in the population is currently unknown, and efforts to enumerate them were still ongoing at the time of this study. The Mau Mau War Veterans' Association, with the assistance of the Kenya Human Rights Commission, maintains a register of all members joining it.

Study Sites

The study was based in Nairobi, the capital city of Kenya and the economic hub of the country, and it extended to cover veterans residing in some of the neighboring districts. These included Kajiado, Kiambu, Thika, Embu and Maragua. The interviews were carried out at the following sites:

i) Mwea House, Nairobi- this was the Headquarters of the Mau Mau War Veterans' Association and the first 40 interviews were carried out in 10 days at the beginning of July 2005. The researcher visited this site every weekday afternoon for two weeks.

ii) Tumaini Centre, Nairobi- during the Associations' general meeting and elections at this venue in July 2005, 15 veterans were interviewed.

iii) Kenya Human Rights Commission (KHRC) Headquarters- seventy eight interviews were carried out at this site over four sessions, two each in August and October 2005. The subjects interviewed at this site were mostly delegates attending meetings of the Association, usually facilitated by the KHRC.

iv) Kajiado Branch of Mau Mau War Veterans' Association, Ongata Rongai- at this site, 51 interviews were conducted in three visits in August, September and October 2005

Inclusion Criteria

Mau Mau Concentration camp survivors who gave informed consent to participate in the study.

Exclusion Criteria

Mau Mau Concentration camp survivors who were unable to or declined to give informed consent to participate in the study.

Study Instruments

The following instruments were used in the study:

a) Socio-demographic and traumatic events questionnaire (Appendix B), which contained questions on date of birth, gender, marital status, annual income, residence, religion, highest education level, household size, age at incarceration, length of incarceration, number of camps one was held in, injuries sustained (Major- requiring hospitalization and Minor- not requiring hospitalization), ceremonies performed, past history of mental illness, family history of mental illness and other traumatic events. The age of the subjects was confirmed using the National Identity Card which all Kenya citizens are expected to have as proof of citizenship.

b) Structured Clinical Interview for the Diagnostic and Statistical Manual IV (SCID) and

c) the Revised Impact of Events Scale (IES-R).

Note: The PTSD Module of the SCID enquired about symptoms related to incarceration in the concentration camps over the past 50 years in intervals of ten years, i.e. 1962, 1972, 1982, 1992, 2002, and the present. These years were chosen due to their association with significant Kenyan national events in order to help the subjects remember the period being discussed, e.g. A year to independence (1962), coup attempts (1972 and 1982) and milestone elections (1992 and 2002).

Data Analysis and Presentation

The collected data was stored on computer media (Diskettes and flash Disks) and analyzed using the SPSS Version 12 computer program. Data transformations done after data collection for purposes of analysis included recoding into fewer categories (Marital Status and Education level), coding uncoded variables (Religion and Other Psychiatric Morbidity) and banding of continuous variables into categories (Annual Income, Household size, Age at Incarceration, Length of Incarceration, Number of Camps and IES-R scores). Residence was analyzed by district of residence, and not where the interview took place. Analysis done on the data included binomial test for the hypothesis, independent samples t-test for means, chi square (X^2) test and relative risk analysis. Results were considered to be statistically significant when $p<0.05$. Results were presented in the form of tables and charts, as well as in a descriptive form. Where appropriate, relative risk (RR) was calculated to estimate the strength of association between various factors and PTSD.

Implementation and Ethical Issues

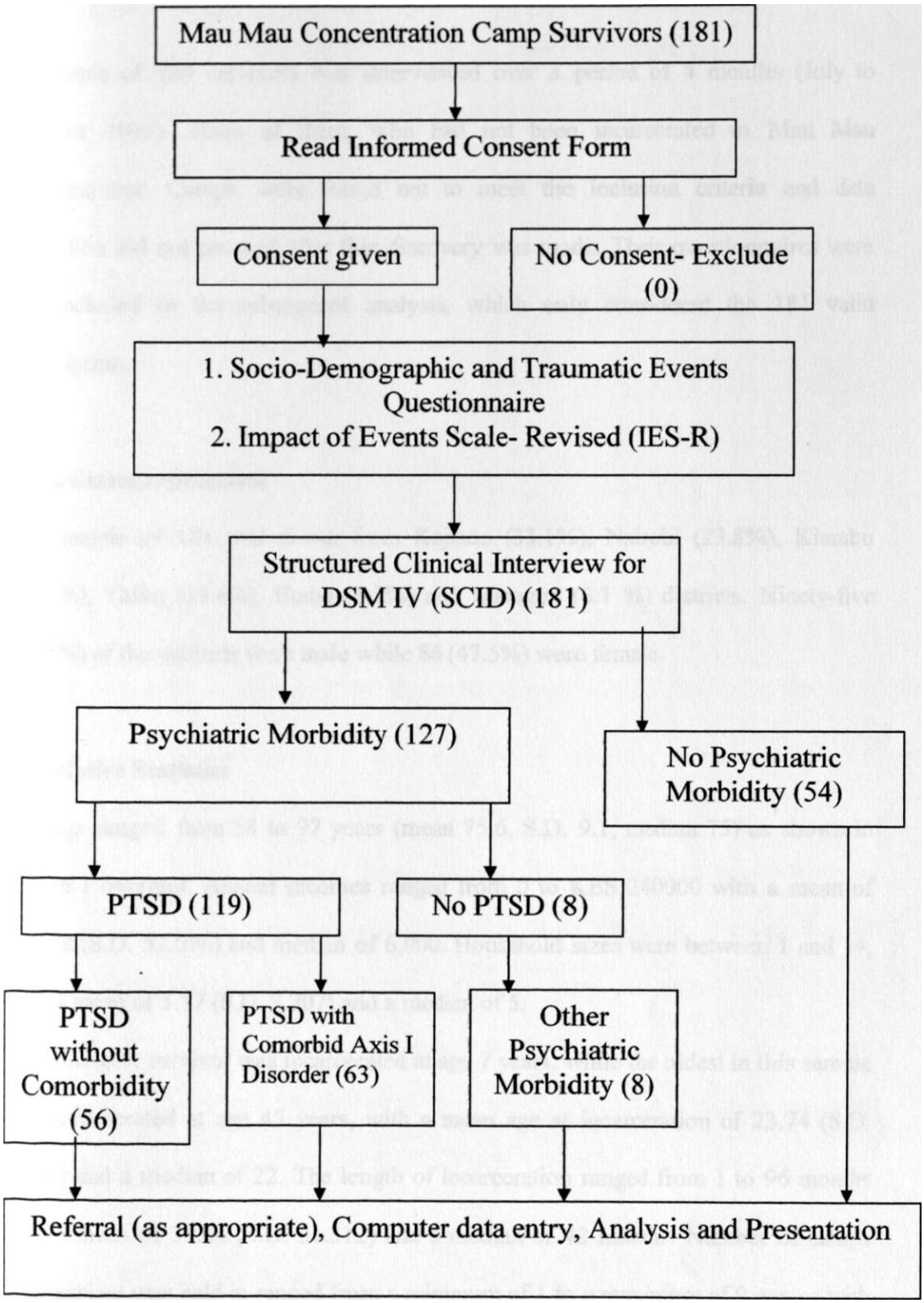
Prior to commencing the study, the study proposal was presented for approval to the Department of Psychiatry at the University of Nairobi, Kenyatta National Hospital

Ethics Committee and the National Council for Science and Technology at the Ministry of Education, Science and Technology. Data collection took place between July 2005 and October 2005.

The interviews were conducted during meetings of the MMWVA or its branches as indicated in the Study Sites section. The interviewer approached the members present and presented an explanation on the background and aims of the study. The presentation (Appendix A1) covered the title of the study, the institution, identity of the investigator and supervisors, the purpose and procedure of the study as well as assurance that participation was entirely voluntary and the subject may withdraw at any point in the study without losing any benefits to which they were otherwise entitled. It was also made clear that the benefit of the study would be to improve mental health care of war veterans and other survivors of war trauma, and that no individual benefit would accrue from participating in the study. Confidentiality of the information collected was also assured, and the researcher undertook to abide by local and international laws and protocols governing research.

The investigator then asked for individual written consent from each subject prior to administering the questionnaires. The explanation and consent form were available in English and Kiswahili and the researcher took between 20 and 30 minutes per subject to administer the questionnaires. The process continued over several sessions in the different sites mentioned above, until the sample size was attained and surpassed. Subjects found to be suffering from any illness were referred to the nearest health facility for further evaluation and follow-up. Most of the subjects received confidential letters from the investigator detailing the main clinical findings and advising on the recommended course of action.

FLOW CHART OF THE STUDY



CHAPTER FOUR: RESULTS

A sample of 184 survivors was interviewed over a period of 4 months (July to October 2005). Three of them, who had not been incarcerated in Mau Mau Concentration Camps, were found not to meet the inclusion criteria and data collection did not proceed after this discovery was made. Their questionnaires were not included in the subsequent analysis, which only considered the 181 valid participants.

Socio-demographic data

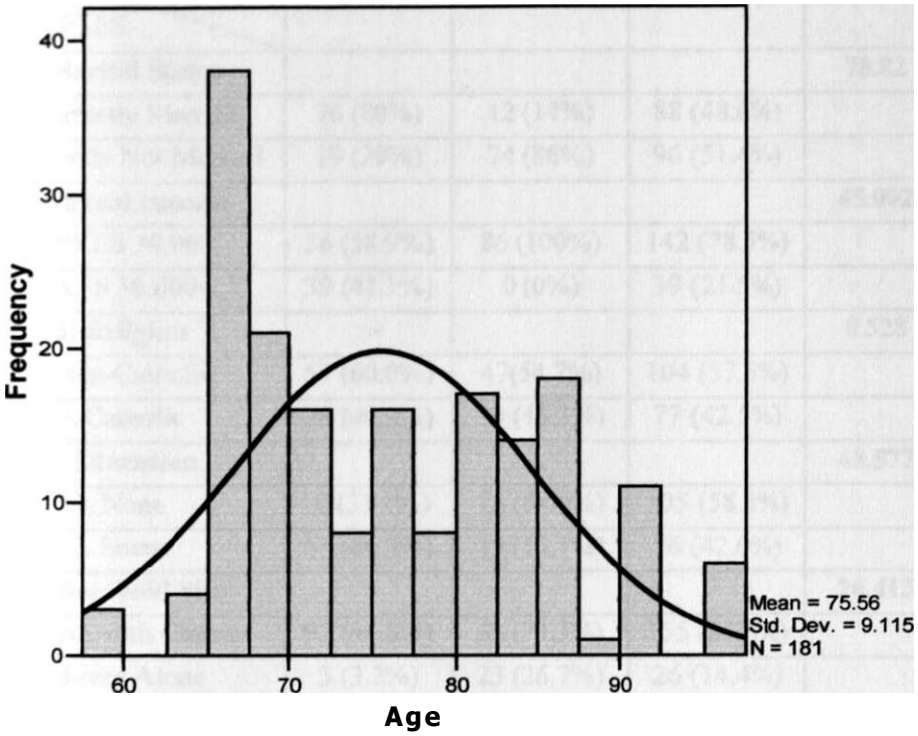
The sample of 181 was drawn from Kajiado (33.1%), Nairobi (23.8%), Kiambu (17.1%), Thika (11.6%), Embu (8.3%) and Maragua (6.1 %) districts. Ninety-five (52.5%) of the subjects were male while 86 (47.5%) were female.

Descriptive Statistics

The age ranged from 58 to 97 years (mean 75.6, S.D. 9.1, median 75) as shown in Figure 1 overleaf. Annual incomes ranged from 0 to KES 240000 with a mean of 26,528 (S.D. 52,096) and median of 6,000. Household sizes were between 1 and 14, with a mean of 5.17 (S.D. 3.207) and a median of 5.

The youngest survivor was incarcerated at age 7 years, while the oldest in this sample was incarcerated at age 45 years, with a mean age at incarceration of 23.74 (S.D. 9.028) and a median of 22. The length of incarceration ranged from 1 to 96 months with a mean of 39.04 (S.D. 31.312) and a median of 42 months. Number of camps each subject was held in ranged from a minimum of 1 to a maximum of 9 camps with the mean being 2.83 (S.D. 2.18) and median being 2 camps.

Figure 1: Histogram Showing Age Distribution



Variation with Gender

Table 1 overleaf shows the distribution of the variables by gender.

As shown in Table 1, male and female subjects differed significantly ($p<0.05$) in distribution of marital status, annual income, level of education, household size, number of camps they were held in, past history of mental illness and family history of mental illness. There was no statistically significant difference between the age distribution for male and female subjects (mean 75.2 (S**.D** 8.9) for males vs. 76.0 (S.D. 9.4) for females, t -0.587, $p=0.558$). Other variables showing no statistically significant difference between male and female distribution ($p>0.05$) were religion, age at incarceration, length of incarceration, injuries sustained and experience of other traumatic events. None of the subjects reported having had any ceremonies or functions to assist them reintegrate into society after independence.

Table 1 shows distribution of various demographic variables by gender.

Table 1: Demographic variables by gender

VARIABLES ^ ^ ^	Male (%)	Female (%)	Total (%)	X^2(df=l)	P
a) Marital Status				**78.82**	**<0.001***
1. Currently Married	76 (80%)	12(14%)	88 (48.6%)		
2. Currently Not Married	19(20%)	74 (86%)	96 (51.4%)		
b) Annual Income				**45.002**	**<0.001***
1. <KES 30,000	56 (58.9%)	86(100%)	142 (78.5%)		
2. KES 30,000+	39 (41.1%)	0 (0%)	39 (21.5%)		
d) Religion				0.528	0.467
1. Non-Catholic	57 (60.0%)	47(54.7%)	104 (57.5%)		
2. Catholic	38 (40.0%)	39 (45.3%)	77 (42.5%)		
e) Education				**48.577**	**<0.001***
• 1. None	32(33.7%)	73 (84.9%)	105 (58.0%)		
2. Some	63 (66.3%)	13(15.1%)	76 (42.0%)		
f) Household Size				**20.413**	**<0.001***
1. Lives with Others	92 (96.8%)	63 (73.3%)	155 (85.6%)		
2. Lives Alone	3 (3.2%)	23 (26.7%)	26(14.4%)		
g) Incarceration Age				2.375	0.123
1. Adult	50 (52.6%)	55 (64%)	105 (58.0%)		
2. Not Adult	45 (47.4%)	31 (36%)	76 (42.0%)		
h) Incarceration length				1.614	0.204
1. 1 year or less	29 (30.5%)	34 (39.5%)	63 (34.8%)		
2. Over 1 year	66 (69.5%)	52 (60.5%)	118(65.2%)		
i) Number of Camps				**16.307**	**<0.001***
1. 1 Camp	26 (27.4%)	49 (57.0%)	75 (41.4%)		
2. 2+ Camps	69 (72.6%)	37 (43.0%)	106 (58.6%)		
j) Injuries				1.956	0.162
1. Major	37 (38.9%)	25 (29.1%)	62 (34.3%)		
2. Minor	58(61.1%)	61 (70.9%)	119(65.7%)		
k) Past Mental Illness				**4.372**	**0.033***
1. Yes	4 (4.2%)	11 (12.8%)	15(8.3%)		
2. No	91 (95.8%)	75 (87.2%)	166 (91.7%)		
1) Family Mental Illness				**7.956**	**0.005***
1. Yes	7 (7.4%)	19(22.1%)	26(14.4%)		
2. No	88 (92.6%)	67 (77.9%)	155 (85.6%)		
m) Other Trauma				0.043	0.837
1. Yes	12(12.6%)	10(11.6%)	22(12.2%)		
2. No	83 (87.4%)	76 (88.4%)	159(87.8%)		

*** Statistically significant (p<0.05)**

Psychiatric morbidity

Out of the 181 subjects interviewed for the study, 127 (70.2%) had at least one current DSM-IV-TR axis I disorder. One hundred and thirty-two (72.9%) had lifetime PTSD while 119 (65.7%) had current PTSD.

Testing the null hypothesis (expected prevalence of 44%) against the observed prevalence of current PTSD (65.7%) through non-parametric binomial analysis found a statistically significant difference ($p<0.001$), thus rejecting the null hypothesis.

Current PTSD and Socio-demographic and other variables

The mean age of those with current PTSD (76.83, S.D. 8.761) was significantly higher than for those with no PTSD (73.11, S.D. 9.511), $t=2.648$, $p=0.009$.

Table 2 overleaf shows the relationship of other variables with Current PTSD.

Significant associations

As shown in table 2, Chi square analysis revealed statistically significant association ($p<0.05$) between current PTSD and lower annual income (<KES 30,000, RR 1.541), non-Catholic religion (RR 1.409), living with others (RR 2.050), being adult at incarceration (RR 1.377), incarceration for over 1 year (RR 1.657), incarceration in 2 or more camps (RR 1.769), family history of mental illness (RR 1.667), experiencing other traumatic events after incarceration (RR 1.373) and presence of other Axis I disorders (RR 1.743).

There was no statistically significant association ($p>0.05$) between current PTSD and gender, marital status, education level, magnitude of injuries sustained and past history of mental illness.

Table 2: Current PTSD and various Variables

\ CURRENT PTSD VARIABLES\^	Yes (%)	No (%)	X^2,df=l	P	RR (95% CI)
a) **Gender**					
1. Male	60 (50.4%)	35 (56.5%)	0.595	0.441	Not significant
2. Female	59 (49.6%)	27 (43.5%)			
b) Marital Status					
1. Currently Married	58 (48.7%)	30 (48.4%)	0.002	0.964	Not significant
2. Currently Not	61 (51.3%)	32(51.6%)			
c) **Annual Income**					
1.<KES 30.000	101 (84.9%)	41 (66.1%)	8.473	**0.004***	**1.541 (1.081-2.197)**
2. KES 30,000+	18(15.1%)	21 (33.9%)			
d) **Religion**					
1. Non-Catholic	78 (65.5%)	26 (41.9%)	9.296	**0.002***	**1.409(1.111-1.785)**
2. Catholic	41 (34.5%)	36(58.1%)			
e) **Education**					
1. None	71 (59.7%)	34 (54.8%)	0.390	0.533	Not significant
2. Some	48 (40.3%)	28 (45.2%)			
f) Household Size					
1. Lives with Others	110(92.4%)	45 (72.6%)	13.065	**<0.001***	**2.050 (1.197-3.510)**
2. Lives Alone	9 (7.6%)	17(27.4%)			
g) **Incarceration Age**					
1. Adult	78 (65.5%)	27 (43.5%)	8.098	**0.004***	**1.377 (1.087-1.744)**
2. Not Adult	41 (34.5%)	35 (56.5%)			
h) Incarceration					
1. Over 1 Year	90 (75.6%)	28 (45.2%)	16.677	**<0.001***	**1.657 (1.245-2.205)**
2. 1 Year or Less	29 (24.4%)	34 (54.8%)			
i) **Number of Camps**					
1.2+ Camps	85 (71.4%)	21 (33.9%)	23.694	**<0.001***	**1.769 (1.356-2.308)**
2. 1 Camp	34 (28.6%)	41 (66.1%)			
j) **Injuries Sustained**					
1. Major	43 (36.1%)	19(30.6%)	0.545	0.460	Not significant
2. Minor	76 (63.9%)	43 (69.4%)			
k) Past Mental Illness					
1. Yes	8 (6.7%)	7(11.3%)	1.119	0.290	Not significant
2. No	111 (93.3%)	55 (88.7%)			
1) Family Mental					
1. Yes	26 (21.8%)	0 (0%)	15.818	**<0.001***	**1.667 (1.466-1.895)**
2. No	93 (78.2%)	62(100%)			
m) Other Trauma					
1. Yes	19(16.0%)	3 (4.8%)	4.727	**0.030***	**1.373 (1.119-1.685)**
2. No	100 (84.0%)	59 (95.2%)			

'Statistically significant

Other Axis I Disorders

Other axis I diagnoses made included Major Depressive Disorder (28.7%), Alcohol Dependence (4.4%), Bipolar I Disorder (4.4%), and Specific Phobia (1.7%). Forty (46.5%) of the 86 female subjects had Major Depressive Disorder while 4.4% had Bipolar I Disorder, while among the 95 male subjects 12.6% had Major Depressive Disorder, 8.4% had Alcohol Dependence, 4.2% had Bipolar I Disorder and 3.2% had Specific Phobia.

Among those without PTSD Bipolar I Disorder was diagnosed in 8 (12.9%) subjects. The rest (87.1%) had no psychiatric morbidity.

The most common comorbidity among those with PTSD (N=119) was Major Depressive Disorder (43.7%), followed by Alcohol Dependence (6.7%) and Specific Phobia (2.5%). No comorbidity was diagnosed among 47.1% of those with PTSD.

To facilitate statistical analysis, the variable was divided into two categories (Other PM Present/Absent). As shown in Table 3, there was therefore a comorbidity rate of 52.9% among those with PTSD, while those with no PTSD had a psychiatric morbidity prevalence rate of 12.9%. The difference was statistically significant (pcO.OOl).

Table 3: Presence of Other Psychiatric Disorder vs. PTSD

\ Other PM PTSD	Present	Absent	Total
Yes (%)	63 (52.9%)	56 (47.1%)	119(100%)
No (%)	8(12.9%)	54 (87.1%)	62 (100%)
Total (%)	71 (39.2%)	110(60.8%)	181 (100%)

X'=27.410,c f=l, p<0.001, RR 1.743 (1.41-25-2.132)

Impact of Events Scale-Revised (IES-R) Score

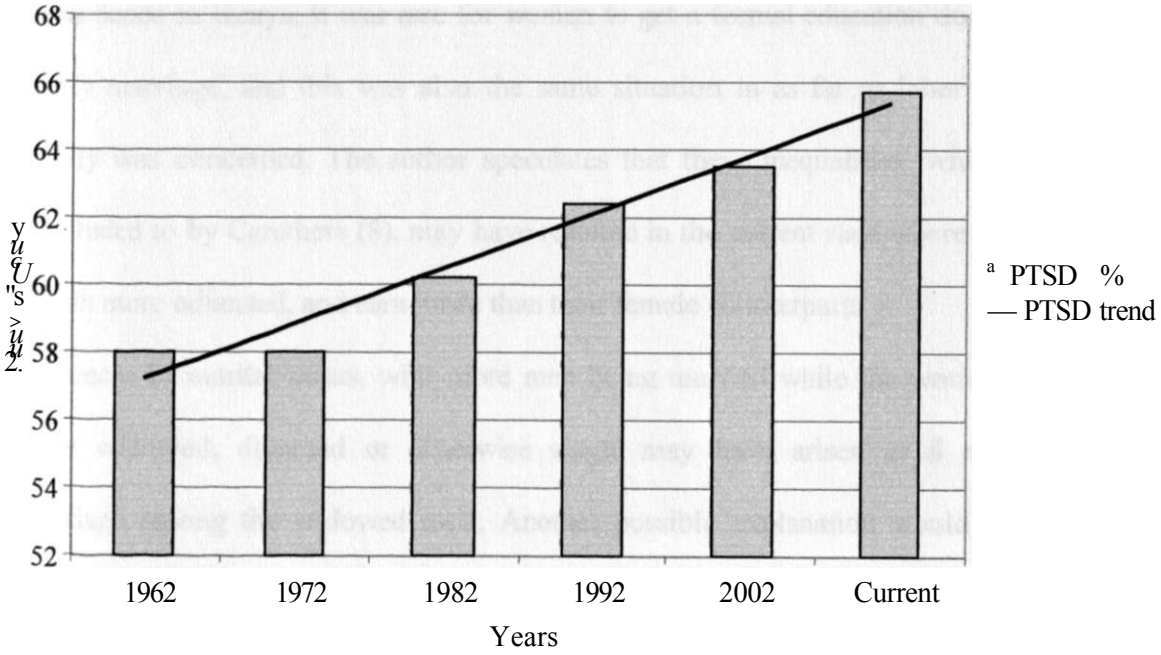
The mean total IES-R score was statistically significantly higher among those who had PTSD (76.47, S.D. 8.102) than among those who had no PTSD (34.66, S.D. 20.888), t=15.177, p<0.001. This translates to a mean score (on the scale 0-4, see appendix C) of 76.47/22, or 3.48 (Quite a bit to Extreme distress) for those with PTSD and 34.66/22, or 1.58 (None to A little bit of distress) for those without PTSD.

PTSD Time-line

PTSD prevalence rates were found to be increasing from 58% in 1962, through 58% (1972), 60.2% (1982), 62.4% (1992) and 63.5% (2002) to 65.7% at the time of the study.

Figure 2 shows the trend of PTSD prevalence over time.

Figure 2: PTSD Prevalence 1962-Current



C HAPTER FIVE: DISCUSSION

Socio-demographic distribution

The study population consisted of 181 subjects who had been incarcerated in Mau Mau concentration camps over 50 years prior to the study. In this sample, the male to female ratio approached 1:1, which was an interesting finding in view of the fact that the role of women is not well-documented in the Mau Mau struggle. Most other studies (17, 38, 40) examining PTSD among older prisoners of war have consisted of sample populations made up of significantly more men than women. One study (39) has examined women veterans exclusively, but it did not include POWs.

Distribution of some demographic variables differed significantly with gender. These included marital status, annual income, level of education and household size. The differences in annual income and level of education could be explained by the socio-demographic profiles in the communities in which these subjects live. Prior to independence in Kenya, it was rare for women to get a formal education due mainly to early marriage, and this was also the same situation in as far as inheritance of property was concerned. The author speculates that these inequalities, which were also alluded to by Carothers (8), may have resulted in the current state where the men are both more educated, and earn more than their female counterparts.

Differences in marital status, with more men being married while the women were mostly widowed, divorced or otherwise single may have arisen as a result of remarriage among the widowed men. Another possible explanation would be that larger numbers of those that were considered combatants and therefore more likely to be killed during the war were male (4), resulting in many women being left widowed. Differences in household size reflect the differences in marital status, with more men

being married and therefore more likely ,o have larger household sizes than the women.

The only trauma-related difference between male and female detainees was in the number of camps each was held in. The men had been held in more camps than the women, moving from one end of the country to another. According to some of the subjects and as described by various detainees (6, 7) such transfers were common and one would not know where they were being taken or their fate once they arrived.

There were significant differences in distribution of past mental illness and family history of mental illness between the two groups. Due to the small number of subjects reporting past mental illness, 15 (8.3%), and family history of mental illness, 26 (14.4%), the significance of the finding is doubtful, and larger numbers would be necessary to make any conclusions concerning the male/female distribution of past or family history of mental illness.

Demographic and trauma-related variables showing no significant variation by gender were religion, residence, age at incarceration, length of incarceration, injuries sustained and history of other traumatic events.

PTSD

This study is the first of its kind in Africa or a third world setting as far as could be ascertained by the author, being a retrospective look at different factors that may be associated with development and maintenance of PTSD in POWs. In this study, the prevalence of psychiatric morbidity was very high (70.2%). The prevalence rate of PTSD was also high, with a lifetime prevalence rate of 72.9% and a current PTSD level of 65.7%. Comparing the prevalence of current PTSD with that found in other studies of POWs (mean 44%), this study has demonstrated a significantly higher

prevalence rate ($p<0.001$) than the other studies, thus rejecting the null hypothesis that the observed prevalence rate would not be different from 44%. The current PTSD prevalence rate found in this study is even significantly higher ($p<0.05$) than that reported among American prisoners of war held in Japan during World War II (59%), a cohort thought to have been more traumatized than other POWs (17). The higher prevalence rate may be assumed to be due to the high levels of psychological trauma experienced by the detainees in the camps, since other studies have demonstrated a direct link between degree of trauma and later development of PTSD (17). Njau (28) in a study among survivors of ethnic clashes in Kenya, found a PTSD prevalence rate of 80.2%. This is the only local study comparable to the current one, though differences in duration since trauma, nature and agency of the trauma and the age profile of the study populations may make comparisons difficult.

PTSD trend

Analysis of PTSD prevalence since 1960 showed a rising trend, from 58% in 1960 to 65.7% at the time of the study. This observation finds support in other studies, including longitudinal surveys tracking PTSD prevalence over several years (21, 40). These studies also found that incidence of symptoms for the first time several decades after the event was not uncommon. This and the chronicity of symptoms could explain the high and rising prevalence of PTSD in this cohort of veterans.

Comorbidity

A total of 71 (39.2%) other psychiatric diagnoses were made in the study population (Table 3), with depression (28.7%) being the leading diagnosis. Other diagnoses included alcohol related disorder (4.4%), bipolar I disorder (4.4%) and phobia (1.7%).

The PTSD comorbidity rate was 52.9%, with all the diagnoses made except bipolar affective disorder, being found only among those with PTSD. The risk of having PTSD was higher in those with another psychiatric disorder than in those without (RR 1.743, $p<0.05$). The high comorbidity rate is in agreement with other studies (18, 22, 24. 28, 30, 32, 35, 42). The reasons often given for the high comorbidity include the fact that these disorders may be independent outcomes of the trauma exposure (32, 41), and also that these disorders predate PTSD and increase vulnerability to it (24).

It is noteworthy that there was a very low rate of alcohol and other substance use disorders in this sample. This could be attributed to under-reporting and social desirability bias in the subjects, since the responses were not independently verified by the researcher. In their study of bomb blast survivors in Kenya, Njenga and colleagues (52) also encountered a similar problem with underreporting of potentially stigmatizing symptoms such as alcohol and other substance use.

Revised Impact of Events Scale (IES-R) and symptom severity

Subjects found to have PTSD in this study also had significantly higher IES-R mean scores (3.48 out of a maximum 4) than those with no PTSD (1.58), indicating that they suffered very high levels of distress due to their symptoms.

Age

This study demonstrated significant variation of PTSD prevalence with age, with older subjects having higher rates than younger ones. This variation may be difficult to interpret given the narrow range of ages, majority of the subjects being over 65 years of age. Other studies have suggested that young or old age is a risk factor for

development of PTSD (19, 41). The studies have, however, compared populations with wider age ranges than the present study.

Gender

There was no significant association between PTSD and gender, contrary to findings in other PTSD studies in various populations (19, 28, 41, 50, 52) which found higher PTSD rates among women compared to men. This may indicate that the levels of trauma were so high that the differential effect of gender was obliterated. It was speculated that male and female detainees may have been treated with equal brutality during incarceration, and this may have contributed to similar rates of PTSD in the two groups.

Marital Status

Family stability and good community support have previously been mentioned as protective factors in the development of PTSD symptoms (18). Other authorities consider being unmarried a risk factor in development of PTSD (24, 52). In this study, there was no association between PTSD and marital status, probably because current marital status was not a good measure of family stability. The married subjects may have been divorced or widowed and later remarried, reducing the difference between them and those who are currently widowed, divorced or otherwise single. The study among ethnic clashes survivors (28) also failed to find a relationship between marital status and PTSD.

Income

Low socio-economic status, and specifically low income, has been identified as being a potential risk factor in many mental illnesses, including PTSD (24, 50). However, other studies have found no relationship between PTSD and income (28). In the present study, subjects earning higher annual incomes had less PTSD than those with lower incomes, confirming low socio-economic status as a risk factor for PTSD (RR 1.541, $p<0.05$). Given that none among the women earned over KES 30,000 per annum, comparison between those earning less than KES 30,000 and those earning more than that may have reflected differences mostly among the male subjects.

Religion

This study found that being non-Catholic may be a potential risk factor for PTSD (RR 1.409, $p<0.05$). Friedman and Marsella hold that religion and cultural beliefs may influence meaning and subjective experience of trauma (18). The protective effect of Catholicism has been demonstrated in other psychiatric conditions, and rates of suicide are said to be lower among Catholics than among non-Catholics. The degree of orthodoxy and integration is thought to be a more accurate measure of risk than simple religious affiliation (48).

Level of Education

Concerning level of education, this study did not find a significant association between PTSD and whether or not the subject had formal education or not. This may be due to the general low levels of education in the population. Most of those with formal education had dropped out of primary school during the period of the emergency, and none among the subjects had any tertiary education. Some studies

(41, 50, 52) have found that low education level is a risk factor for PTSD, while a local study (28) found an association between PTSD and higher education.

Household Size

Due to the above mentioned protective association of social support and PTSD (18, 24, 50), larger household size was expected to be protective, due to an increased network of relatives for social support. In this study, however, PTSD was associated with being two or more people in a household (RR 2.050, $p<0.05$), and people living alone had lower rates of PTSD than those living with others. A possible explanation for this effect may be that those living with others needed more people around to take care of them than those living alone, probably due to greater distress due to PTSD. The finding may thus have been an artifact of the presence of PTSD and not a factor in its causation. The small number living alone, 26 (14.4%), made it difficult to interpret the results.

Age at incarceration

This study found that being an adult at the time of incarceration was a risk factor for development of PTSD (RR 1.377, $p<0.05$). Keeping in mind that in this study 'older age at incarceration' refers to a young adult between 20 and 45 years of age, this finding partially agrees with other studies which suggest that young adults may have increased susceptibility to PTSD (19, 24, 41). Importantly, it was also observed that the youngest age at incarceration was 7 years, indicating that very young children and adolescents were captured and held in the camps. A possible explanation for the relatively low ages at incarceration in this sample is that the older detainees and

survivors may already have passed away, given that over 50 years have elapsed since the first incarcerations took place.

Length of incarceration

This study found that being incarcerated for over one year was a risk factor in the development of PTSD (RR 1.657, $p<0.05$), and that the longer the incarceration, the higher the risk of PTSD. This finding is similar to other studies that show that the severity, duration and proximity of a person's exposure to trauma are important risk factors for PTSD (19, 24,41).

Number of camps

In agreement with studies cited above concerning severity, duration and proximity of the exposure, this study also found that the higher the number of camps one was held in, the more likely they were to develop PTSD. Being incarcerated in two or more camps was a risk factor in developing PTSD (RR 1.769, $p<0.05$). As noted in the literature (4, 6, 10), camp transfers were associated with a lot of uncertainty about one's fate, and detainees were always under the impression that they would lose their lives either in transit or at the next camp.

Injuries sustained

Some studies have found actual physical injuries to be a risk for future development of PTSD (34, 51), but this study found no significant association between PTSD and the actual degree of physical injury. This may confirm the contention that it is the subjective assessment of the level of injury and response to the event that determines development of PTSD, and not the objectively measurable magnitude of the injury or

traumatic event, as emphasized by criterion A2 of the DSM-IV-TR (16) criteria for diagnosis of PTSD (response involves intense fear, helplessness or horror). A local investigator (28) similarly found no significant association between presence of injuries and PTSD diagnosis.

Past History of Mental Illness

Unlike other studies (19, 41, 50) which showed past history of mental illness to be a risk factor, the present study did not find any association between PTSD and past history of mental illness. The author speculates that this lack of association may be due to under-diagnosis of other psychiatric illnesses in this cohort, since they have not had any evaluation for mental illness before, during and after their incarceration. Since the question asked was whether they had been treated for mental illness in the past (see Appendix B question 15), the answer is related more to whether a diagnosis has been made than to absolute absence of mental illness. This was shown in the analysis of comorbid psychiatric illnesses diagnosed in the course of this study. Another possible reason for the lack of statistically significant association is the low number of subjects reporting having been treated for mental illness, either because of fear of stigma or due to actual under-diagnosis as discussed above.

Family history of mental illness

All subjects with a relative on treatment for mental illness had PTSD, and there was a statistically significant association between family history of mental illness and PTSD (RR 1.667, $p<0.05$). This finding is in agreement with other studies of PTSD in diverse populations (24, 28, 50), suggesting a genetic component in vulnerability to PTSD.

Other traumatic events

A low number, 22 (12.2%) of the subjects reported having had other traumatic events after their incarceration. This may have occurred as a result of the subjects underestimating the severity of any subsequent traumatic events they experienced after their incarceration. Another possible explanation may be that the subjects could not remember other traumatic events they may have experienced in the past. These varieties of recall bias have been reported by other researchers in trauma and PTSD (49). The small numbers notwithstanding, this study found a statistically significant association between having other traumatic events and PTSD (RR 1.373, $p<0.05$), a finding contrary to that in another local study (28). Other traumatic events may have increased the risk of developing PTSD and other psychiatric illnesses in this population. It is also possible that those at risk of developing PTSD may have a propensity for exposure to multiple traumatic events. However, the low number of respondents with these events makes it difficult to generalize these findings.

Limitations

During the study period the investigator encountered the following limitations:

- There was no centralized register of veterans, nor was there any information on their total numbers or locations to facilitate random sampling, necessitating the use of consecutive sampling of veterans as the researcher encountered them. Due to this key methodological limitation, the results of this study may not represent the entire population of Mau Mau concentration camp survivors in Kenya, and the conclusions can not be generalized to them or to the Kenyan general population.

- Among the methodological issues identified by other cross-cultural researchers (26), the only one found applicable was the time-symptom limitation in both the SCID PTSD module and the IES-R questionnaires. Many subjects had difficulty specifying events 'in the past 7 days' or 'in the past 1 month', and the years had to be approximated to significant events such as just before independence (1962), the first coup attempt in independent Kenya (1972), the 1982 coup attempt, the first multiparty elections under president Moi (1992), and the National Rainbow Coalition election (2002)
- Most of the subjects, especially the females, had no formal education, and consent was indicated by use of a mark (X) on the consent form, or signature by a close relative chosen by the subject. All the questionnaires were administered by the researcher himself, and all subjects could communicate in English or Kiswahili, languages in which the researcher is fluent.
- The study was carried out at a time when debate on compensation of Mau Mau veterans was going on, thus raising expectations that positive responses may result in better opportunities for compensation. In an effort to reduce this bias, the researcher explained from the outset that this study was not in any way related to the compensation cases, and was an academic exercise intending to come up with independent recommendations.

CHAPTER SIX: CONCLUSIONS AND RECOMMENDATIONS

Conclusions

- The prevalence rate of PTSD among Mau Mau Concentration Camp survivors living in Nairobi and surrounding districts in Kenya is significantly higher than that found in other studies among POWs.
- Factors associated with PTSD diagnosis in the study population are older age, lower annual income, non-Catholic religion, larger household size (2 or more), being adult at incarceration, greater length of incarceration, higher number of camps, family history of mental illness, other traumatic events and presence of other psychiatric morbidity.
- Factors showing no association with PTSD are gender, marital status, level of education, injuries sustained and past history of mental illness.
- Comorbid Axis I diagnoses found among those with PTSD were Major Depressive Disorder, Alcohol related disorders and Specific Phobia.

Recommendations

The author recommends the establishment of a Veterans' Service to, among other activities:

- Assess the mental and physical health of Mau Mau veterans and institute appropriate interventions to help those in need;
- Facilitate studies in this and other similar populations including the armed forces, police and other groups that engage in combat-like situations on behalf

of the state, both in and out of active duty, in order to establish their physical, psychological and socio-economic needs and to address them;

- Facilitate further studies to confirm risk factors and biological correlates of PTSD in this and other populations in order to be better prepared to control and manage the condition.
- Facilitate further studies examining the chronicity and trans-generational effects of PTSD.

CHAPTER SEVEN: REFERENCES

I. Fanon, F. Black Skin, White Masks. Palladin, St. Albans. 1970.

Gordon, H. L. Intentional Improvement of Backward Tribes. *East African Medical Journal* 1934; **XI**(5): 143-156.

Vint, F. W. A Preliminary Note on the Cell Content of the Prefrontal Cortex of the East African Native. *East African Medical Journal* 1932; **IX**(2): 30-49.

4. Corfield, F. D. Historical Survey of The Origins and Growth of Mau Mau, In *Sessional Paper No.5 of 1959-1960,* Government Printer, Nairobi. 1960.

5. www.en.wikipcdia.org/wiki/maumau Mau Mau, Wikipedia, the free encyclopedia, 2004.

6. Kariuki, J. M. Mau Mau Detainee. Oxford University Press, Nairobi. 1963.

7. Finke, J. Kikuyu- The Mau Mau Uprising and Independence, In *Traditional Music and Cultures of Kenya,* Author, www.blueffecko.oru/kenva, 2000-2003.

8. Carothers, J. C. Report on: The Psychology of Mau Mau, Colony and Protectorate Government of Kenya, Nairobi. 1955.

Finke, J. Kenyan History, In *Traditional Music and Cultures of Kenya*, Author, www.blueizecko.oru/kenva. 2000-2003.

Majdalany, F. State of Emergency: The Full Story of Mau Mau. Longman's, Green &Co. Ltd, London. 1962.

II. Colonial Office London Further Documents Relating to the Deaths of Eleven Mau Mau Detainees at Hola Camp in Kenya, Kenya National Archives, Nairobi. 1959.

Leigh Day &Co. British face legal action from Mau Mau torture victims, **WAWv**.leighday.abasort.co.uk, 22 November 2004.

Mcghie, J. British brutality in Mau Mau conflict, In *The Guardian*, London. 09 November 2002.

CHAPTER SEVEN: REFERENCES

1. Fanon, F. Black Skin, White Masks. Palladin, St. Albans. 1970.

Gordon, H. L. Intentional Improvement of Backward Tribes. *East African Medical Journal* 1934; XI(5): 143-156.

3. Vint, F. W. A Preliminary Note on the Cell Content of the Prefrontal Cortex of the East African Native. *East African Medical Journal* 1932; IX(2): 30-49.

4. Corfield, F. D. Historical Survey of The Origins and Growth of Mau Mau, In *Sessional Paper No.5 of1959-1960,* Government Printer, Nairobi. 1960.

5. www.en.wikipedia.org/wiki/maumau Mau Mau, Wikipedia, the free encyclopedia, 2004.

6. Kariuki, J. M. Mau Mau Detainee. Oxford University Press, Nairobi. 1963.

7. Finke, J. Kikuyu- The Mau Mau Uprising and Independence, In *Traditional Music and Cultures of Kenya*, Author, www.bluetzccko.org/kenya, 2000-2003.

8. Carothers, J. C. Report on: The Psychology of Mau Mau, Colony and Protectorate Government of Kenya, Nairobi. 1955.

9. Finke, J. Kenyan History, In *Traditional Music and Cultures of Kenya*, Author, vu\Av.bluegecko.org/kenva, 2000-2003.

10. Majdalany, F. State of Emergency: The Full Story of Mau Mau. Longman's, Green &Co. Ltd, London. 1962.

11 • Colonial Office London Further Documents Relating to the Deaths of Eleven Mau Mau Detainees at Hola Camp in Kenya, Kenya National Archives, Nairobi. 1959.

12. Leigh Day &Co. British face legal action from Mau Mau torture victims, www.leighday.abasoft.co.uk, 22 November 2004.

13. Mcghie, J. British brutality in Mau Mau conflict, In *The Guardian*, London. 09 November 2002.

14. Njenga, F. Focus on psychiatry in East Africa. *British Journal of Psychiatry* 2002; **181:** 354-359.

15. Carson, N. J. Ethnopsychiatry and Theories of "the African Mind": A Historical and Comparative Study. *McGill Journal of Medicine* 1997; 3: 40-43.

16. American Psychiatric Association Diagnostic and Statistical Manual of Mental Disorders. Fourth ed., American Psychiatric Association, Washington, DC. Text Revision, 2000.

17. Engdahl, B., Dikel, T. N., Eberly, R., and Blank, A. Posttraumatic Stress Disorder in a Community Group of Former Prisoners of War: A Normative Response to Severe Trauma. *American Journal of Psychiatry* 1997; 154: 1576-1581.

18. Friedman, M. J., and Marsella, A. J. Posttraumatic Stress Disorder: An Overview of the Concept. In: Ethnocultural Aspects of Posttraumatic Stress Disorder: Issues, Research, and Clinical Applications, Ed: Marsella, A. J., et al. American Psychological Association, Washington, DC. 1996: 11-32.

19. Lamprecht, F., and Sack, M. Posttraumatic Stress Disorder Revisited. *Psychosomatic Medicine* 2002; **64:** 222-237.

20. Curran, P. S., and Miller, P.W. Psychiatric implications of chronic civilian strife or war: Northern Ireland. *Advances in Psychiatric Treatment* 2001; 7: 73-80.

21. De Girolamo, G., and McFarlane, A. C. The Epidemiology of PTSD: A Comprehensive Review of the International Literature. In: Ethnocultural Aspects of Posttraumatic Stress Disorder: Issues, Research, and Clinical Applications, Ed: Marsella, A. J., et al. American Psychological Association, Washington, DC. 1996: 33-85.

22. Davidson, J. R. T. Recognition and Treatment of Posttraumatic Stress Disorder. *Journal of the American Medical Association* 2001; **286:** 584-588.

23. Robin, R. W., Chester, B., Rasmussen, J. K., Jaranson, J. M., and Goldman, D. Prevalence and Characteristics of Trauma and Posttraumatic Stress Disorder in a Southwestern American Indian Community. *American Journal of Psychiatry* 1997; 154: 1582-1588.

24. Sadock, B. J., and Sadock, V. A. Posttraumatic Stress Disorder and Acute Stress Disorder. In: Synopsis of Psychiatry Lippincott Williams & Wilkins, Philadelphia. 2003: 623-631.

25. Hyams, K. C., Wignall, F. S., and Roswell, R. War Syndromes and Their Evaluation: From the U.S. Civil War to the Persian Gulf War. *Annals of Internal Medicine* 1996; **125**(5): 398-405.

26. Igreja, V., Schreuder, B. J. N., and Kleijn, W. The cultural dimension of war trauma in central Mozambique: The case of Gorongosa. *Psychiatry Online* 22 November 2004.

27. Schreuder, B. J. N., Igreja, V., van Dijk, J. and Kleijn, W. Intrusive re-experiencing of chronic strife or war. *Advances in Psychiatric Treatment* 2001; 7: 102-108.

• — i

28. Njau, J. W. Posttraumatic Stress Disorder Among the Heads of Households of Ethnic Clashes Survivors in the Rift Valley Province, Kenya: A Comparative Study, In *Department of Psychiatry M.Med Dissertation*, University of Nairobi, Nairobi. 2005.

29. De Jong, J. T. V. M., Komproe, I. H., van Ommeren, M., El Masri, M., Araya, M., Khaled, N., van de Put, W., and Somasundaram, D. Lifetime Events and Posttraumatic Stress Disorder in 4 Postconflict Settings. *Journal of the American Medical Association* 2001; 286: 555-562.

30. Nelson, B. D., Fernandez, W.G., Galea, S., Sisco, S., Dierberg, K., Gorgieva, G.S., Nandi, A.K., Ahern, J., Mitrovic, M., VanRooyen, M. and Vlahov, D. War-related psychological sequelae among emergency department patients in the former Republic of Yugoslavia. *BMC Medicine* 2004; **2:** 22.

Cardozo, B. L., Vergara, A., Agani, F., and Gotway, C. A. Mental Health, Social Functioning, and Attitudes of Kosovar Albanians Following the War in Kosovo. *Journal of the American Medical Association* 2000; **284:** 569-577.

32. Shalev, A. Y., Freedman, S., Peri, T., Brandes, D., Sahar, T., Orr, S. P. and Pitman, R. K. Prospective Study of Posttraumatic Stress Disorder and Depression Following Trauma. *American Journal of Psychiatry* 1998; **155:** 630-637.

33. Allen, I. M. PTSD among African Americans. In: Ethnocultural Aspects of Posttraumatic Stress Disorder: Issues, Research, and Clinical Applications, Ed: Marsella, A. J., et al. American Psychological Association, Washington, DC. 1996: 209-238.

34. Koren, D., Norman, D., Cohen, A., Berman, J., and Klein, E. M. Increased PTSD Risk With Combat-Related Injury: A Matched Comparison Study of Injured and Uninjured Soldiers Experiencing the Same Combat Events. *American Journal of Psychiatry* 2005; **162:** 276-**280.**

35. Ikin, J. F., Sim, M.R., Creamer, M.C., Forbes, A.B., McKenzie, D.P., Kelsall, H.L., Glass, D.C., McFarlane, A.C., Abramson, M.J., Ittak, P., Dwyer T., Blizzard, L., Delaney, K.R., Horsley, K.W.A., Harrex, W.K. and Schwarz, H. War-related psychological stressors and risk of psychological disorders in Australian veterans of the 1991 Gulf War. *British Journal of Psychiatry* 2004; **185:** 116-126.

36. Stimpson, N. J., Thomas, H.V., Weightman, A.L., Dunstan, F., Lewis, G. Psychiatric disorder in veterans of the Persian Gulf War of 1991: Systematic review. *British Journal of Psychiatry* 2003; **182:** 391-403.

37. Revell, T. The Gulf War Syndrome. *British Medical Journal* 1995; **310:** 1073.

38. Zatzick, D. F., Marmar, C.R., Weiss, D.S., Browner, W.S., Metzler, T.J., Golding, J.M., Stewart, A., Schlenger, W.E. and Wells, K.B. Posttraumatic Stress Disorder and

Functioning and Quality of Life Outcomes in a Nationally Representative Sample of Male Vietnam Veterans. *American Journal of Psychiatry* 1997; **154:** 1690-1695.

39. Dobie, D. J., Kivlahan, D. R., Maynard, C., Bush, K. R., Davis, T. M., and Bradley, K. A. Posttraumatic Stress Disorder in Female Veterans: Association With Self-reported Health Problems and Functional Impairment. *Archives of Internal Medicine* 2004; **164:** 394-400.

40. Port, C. L., Engdahl, B. and Frazicr, P. A Longitudinal and Retrospective Study of PTSD Among Older Prisoners of War. *American Journal of Psychiatry* 2001; 158: 1474-1479.

41. Staab, J. P., Fullerton, C. S., and Ursano, R. A Critical Look at PTSD: Constructs, Concepts, Epidemiology, and Implications. In: Response to Disaster: Psychosocial, Community, and Ecological Approaches, Ed: Gist, R., and Lubin, B. Taylor & Francis, Philadelphia. 1999: 101-128.

42. Marshall, R. D., Olfson, M., Hellman, F., Blanco, C., Guardino, M., and Struening, E. L. Comorbidity, Impairment, and Suicidality in Subthreshold PTSD. *American Journal of Psychiatry* 2001; **158:** 1467-1473.

O. First, M. B., Spitzer, R. L., Gibbon, M., and Williams, J. B. W. Structured Clinical Interview for DSM-IV Axis I Disorders, Clinician Version (SCID CV). American Psychiatric Press, Inc., Washington, DC. 1996.

W. First, M. B., Spitzer, R. L., Gibbon, M., and Williams, J. B. W. What is the Reliability of SCID-I?, http://www.scid4.org/scidl_reliability.htm, 26 January 2005.

15. First, M. B., Spitzer, R. L., Gibbon, M., and Williams, J. B. W. What is the Validity of the SCID-I?, http://www.scid4.org/scidl_validity.htm, 26 January 2005.

Onyancha-Nyabuto, P. Posttraumatic Stress Disorder Among Female Survivors of Sexual Abuse, In *Department of Psychiatry M.Med Dissertation*, University of Nairobi, Nairobi. 2004.

47. Keane, T. M., Kaloupek, D. G., and Weathers, F. W. Ethnocultural Considerations in the Assessment of PTSD. In: Ethnocultural Aspects of Posttraumatic Stress Disorder: Issues, Research, and Clinical Applications, Ed: Marsella, A. J., et al. American Psychological Association, Washington, DC. 1996: 183-205.

48. Sadock, B. J., and Sadock, V. A. Suicide. In: Synopsis of Psychiatry Lippincott Williams & Wilkins, Philadelphia. 2003: 913-922.

49. Hepp, U., Gamma, A., Milos, G., Eich, D., Ajdacic-Gross, V., Rossler, W., Angst, J., and Schnyder, U. Inconsistency in reporting potentially traumatic events. *British Journal of Psychiatry* 2006; **188:** 278-283.

50. Connor, K. M., and Butterfield, M. I. Posttraumatic Stress Disorder. *Focus* 2003; 1: 247-**262.**

51. Verger, P., Dab, W., Lamping, D.L., Loze, J., Deschaseaux-Voinet, C., Abenhaim, L., and Rouillon, F. The Psychological Impact of Terrorism: An Epidemiologic Study of Posttraumatic Stress Disorder and Associated Factors in Victims of the 1995-1996 Bombings in France. *American Journal of Psychiatry* 2004; **161:** 1384-1389.

52. Njenga, F. G., Nicholls, P. J., Nyamai, C., Kigamwa, P., and Davidson, J. R. T. Post-traumatic stress after terrorist attack: psychological reactions following the US embassy bombing in Nairobi. *British Journal of Psychiatry* 2004; **185:** 328-333.

CHAPTER EIGHT: APPENDICES

Appendix A1: Informed Consent Explanation

To be read and questions answered in a language in which the subject is fluent.

Title: Posttraumatic Stress Disorder among Mau Mau concentration camp survivors in Nairobi, Kenya-

Institution: Department of Psychiatry, Faculty of Medicine, College of Health Sciences, University of Nairobi.

Investigator: Dr. Lukoye Atwoli

Supervisors: **1.** Dr. (Major) D. M. Kathuku
2. Prof. D. M. Ndetei

Permission is requested from you for enrolment in a medical research study. You should understand the following general principles, which apply to all in medical research, whether normal or patient volunteers:

i) Your agreement to enroll is voluntary.
ii) You may withdraw from the study at any time.
iii) Refusal to participate will involve no penalty or loss of benefits to which you are otherwise entitled.
iv) After you read the explanation, please feel free to ask any questions that will allow you to understand clearly the nature of the study.

Purpose **of the study:** In this project, I am assessing the magnitude of Posttraumatic Stress Disorder and any other psychological problems among the survivors of the Mau Mau concentration camps.

Procedure: I will ask you questions concerning your current living conditions, your mental health currently and over the past fifty years and significant events that have occurred in your life. These will be in the form of questionnaires, and no invasive procedures will be carried out in the course of the study.

Benefit: It is hoped that the results of this study will result in better mental health care of war veterans and other survivors of war trauma in Kenya and the rest of the world.

Confidentiality: All information collected will be kept confidential, and your name will not be used in the study or in any resulting publications.

Participants: The expected number of subjects is approximately 168 Mau Mau concentration camp survivors.

Ethical **considerations:** This protocol was designed with the client's confidentiality in mind. The code of Professional Conduct and Discipline (1949), medical ethics and the 1965 declaration of Helsinki on human experimentation, and state laws will be adhered to in this project. Subjects found to need treatment or other intervention will be referred to the nearest health facility.

CONSENT FORM

I, the undersigned, do hereby volunteer to participate in this study, whose nature and purpose have been fully explained to me by Dr Lukoye Atwoli. I understand that all the information gathered will be used for purposes of the study only.

Signed. . . . . .Date
Dr. Lukoye Atwoli. . . . . .Date

Appendix A2: Maelezo ya Makuhaliano ya Hiari

Kusomwa na maswali kujihiwa kwa lugha anayoielewa mhusika

Utafiti: Madhara ya Tafrani Miongoni mwa Manusura wa Kambi za Mau Mau, Nairobi, Kenya.

Chuo: Idara ya Magonjwa ya Akili, Kitivo cha Matibabu, Chuo Kikuu cha Nairobi.

Mtafiti: Dkt. Lukoye Atwoli

Wasimamizi: 1. Dkt. (Meja) D. M. Kathuku
2. Prof. D. M. Ndetei

Naomba ruhusa kukuhusisha kwa mradi wa utafiti wa kimatibabu. Unahitajiwa kupata maelezo yafuatayo, ambayo yanagusia watu wote kwenye utafiti wa aina hii, wakiwa wagonjwa au la.

i) Unakubali kuhusika kwa hiari yako mwenyewe
ii) Unaweza kujiondoa kwenye utafiti wakati wowote
iii) Kutokubali kuhusika hakutakunyima huduma au chochote unachostahili kupata
iv) Baada ya kusoma maelezo haya, tafadhali kuwa huru kuuliza maswali yoyote yatakayokuwezesha kuelewa kabisa utafiti huu.

Nia ya Utafiti: Katika mradi huu, ninanuia kuchunguza uwepo wa madhara ya tafrani na matatizo mengine yoyote ya kiakili miongoni mwa manusura wa kambi za Mau Mau.

Utaratibu wa Utafiti: Nitakuuliza maswali kuhusu hali ya maisha yako kutoka sasa na hadi miaka hamsini iliyopita, na matukio muhimu maishani mwako. Nitatumia hojaji maalum kuuliza maswali hayo, na hakuna uchunguzi wa kimwili utakaotekelezwa.

Faida: Inatarajiwa kuwa matokeo ya utafiti huu yatawezesha uboreshaji wa huduma ya afya ya kiakili kwa mashujaa wa vita na manusura wengine wa vita nchini Kenya na hata kwingineko duniani.

Uwekaji Siri: Habari zote za kibinafsi kutokana na utafiti huu zitawekwa siri, na jina lako halitatumika kwenye utafiti au kwenye uandishi utakaofuata.

Wahusika: Wanaotarajiwa kuhusishwa ni manusura wa kambi za Mau Mau mia moja sitini na nane (168).

Maelezo Ya Maadili: Maelezo haya yaliundwa ili kulinda siri za mhusika. Kanuni za Nidhamu na Utendakazi wa Kitaalamu (1949), sheria za matibabu, Azimio la Helsinki (1965) kuhusu utafiti kwa binadamu, na sheria za nchi zitafuatwa katika mradi huu. Watakaopatikana kuhitaji matibabu au usaidizi mwingine wataelekezwa kwa kituo cha afya kilicho karibu.

FOMU YA MAKUBALIANO

Mimi, mwenye sahihi iliyo hapo chini, ninajitolea kuhusika kwenye utafiti huu, ambao nimeelezwa nia na utaratibu wake kikamilifu na Dkt. Lukoye Atwoli. Ninaelewa kuwa habari zote nitakazotoa zitatumika kwa utafiti huu pekee.

Sahihi. . . . . .Tarehe
Dkt. Lukoye Atwoli. . . . . .Tarehe

Appendix B: Socio-Demographic and Traumatic Events Questionnaire

1. Study No. . . . . 2. Date of Birth. . . . . 3. Gender: 1. M 2. F
4. Marital Status: 1. Single
2. Married
3. Separated
4. Divorced
5. Widowed
6. Cohabiting
7. Other (specify)

5. Annual Income. . . . . 6. Residence. . . . . 7. Religion
8. Highest Education Level: 1. None 2. Primary 3. Secondary 4. Tertiary College
5. University
9. Household size:
10. Age at (first) Incarceration (years). . . . . 11. Length of Incarceration (months)
12. Number of Camps you were held in:
13. Injuries Sustained: 1. Major (required hospital admission)
2. Minor (did not require admission)
14. i) Were any traditional or other ceremonies conducted when you rejoined your family from detention or the forest? 1. Yes 2. No
ii) If Yes, Please elaborate. . . . . (write more on the reverse of this page).
15. i) Have you ever been treated for mental illness: 1. Yes 2. No
ii) *If Yes, specify if this was*
1. Before your incarceration
2. During your incarceration
3. After your incarceration

16. Family History of Mental illness: 1. Yes 2. No
17. i) Other than during your incarceration, have you ever experienced or witnessed an event involving any of the following:
a) threat to life or limb
b) severe physical harm or injury
c) receipt of intentional injury or harm
d) exposure to the grotesque (e.g. dead or badly disfigured bodies)
e) witnessing or learning of violence to a loved one
f) violent or sudden loss of a loved one
g) learning of exposure to a noxious agent
h) causing death or severe harm to another
1. Yes 2. No

ii) *If Yes, specify if this was*
1. Before your incarceration
2. After your incarceration.

18. PTSD Symptoms 1. Yes 2. No (Tick as appropriate)
a) 1962 b)1972 c)1982 d)1992 d)2002 e)Current
19. IES-R Score:
20. Other Psychiatric Morbidity

\ppendix C: Impact of Events Scale Revised (IES-R)

The following is a list of difficulties people sometimes have after stressful life events. Please read each item, and then indicate how distressing each difficulty has been for you **DURING THE PAST SEVEN DAYS** for the event and context we have been discussing (your incarceration in Mau Mau camps). If the item did not occur during the past seven days, choose the 'Not at all* option. Indicate on the space to the left of each comment the number that best describes that item. Please complete each item.

0= Not at all 1= A little bit 2= Moderately 3= Quite a bit 4= Extremely

1. Any reminder brought back feelings about it
2. I had trouble falling asleep
3. Other things kept making me think about it
4. I felt irritable and angry
5. I avoided letting myself get upset when I thought or was reminded about it
6. I thought about it when I did not mean to
7. I felt as if it had never happened or it was not real
8. I stayed away from reminders about it
9. Pictures about it kept popping into my mind
10. I was jumpy and easily startled
11. I tried not to think about it
12. I was aware that I still had a lot of feelings about it, but I didn't deal with them
13. Feelings about it were kind of numb
14. I found myself acting or feeling like I was back at that time
15. I had trouble staying asleep
16. I had waves of strong feelings about it
17. I tried to remove it from my memory
18. I had trouble concentrating
19. reminders of it caused me to have physical reactions, such as sweating, trouble breathing, nausea, or a pounding heart
20. I had dreams about it
21. I felt watchful and on guard
22. I tried not to talk about it

Appendix D1: Structured Clinical Interview for the Diagnosis and Statistical Manual IV Axis I disorders (SCID-I)

screening Module

Now I want to ask you some more specific questions about problems you may have had. We will go into more details later.

1 = **NO (N)** 2 = **SUBTHRESHOLD(S)** 3 = **YES(Y)**

Responses 2 or 3 score means more probing needed. Go to the pages indicated in the brackets. The following sections are mandatory: 1, 2,3,8,9,20, and 21. All the same, try all sections.

51 Have there been any times in your life when you have had 5 or more drinks of alcohol on one occasion? (4,5) N

52 Have you ever used drugs of addiction? (6)

53 Have you ever gotten hooked on any prescribed medication or taken more of it than you were supposed to? **(Insert/give details at the back of the code sheet)**

54 Have you ever had a panic attack; when you suddenly felt frightened or anxious or suddenly developed a lot of physical symptoms? (12)

55 Were you ever afraid of going out of the house alone, being in crowds, standing in the line, traveling in taxis or buses? (13)

56 Is there anything that you have been afraid to do or felt uncomfortable doing in front of other people, like speaking, eating or writing? (14)

57 Are there any other things that you have been especially afraid of like flying, seeing blood, heights, closed places or certain kinds of animals/insects? (15)

58 Have you ever been bothered by thoughts that did not make any sense and kept coming to you even when you tried not to have them? (16)

59 Was there ever anything that you had to do over and over again, that you could not resist doing, like washing your hands again and again, counting up a certain number, or checking something several times to make sure you had it right? (16)

S10 Sometimes things happen to people that are extremely upsetting, like being in life threatening a situation like a major disaster, accidents or fire; being physically assaulted or raped; seeing another person killed or dead or badly hurt; or hearing about something horrible happening to someone close to you. At any time during your life, have any of these things happened to you? (17)

SI 1 In the last six months, have you been particularly nervous or anxious? (18,19)

512 Have you been sick a lot over the years? (20)

513 Have you ever had a time when you weighed much less than other people thought you ought to weigh? (1,2,3,8,9,21)

514 Have you often had times when your eating was out of control? **(as** S13 **above)**

SI 5 Has there ever been a time when your mood was excessively high for several days or more? If yes, anyone of the following present? (10)

(a) Were your thoughts racing?

(b) Were you bursting with energy?

(c) Did you think you had "special" power or abilities?

S16 Have you ever had unusual experiences, for example, interference of your thoughts, that your thoughts could be read; that messages could be put in your mind; that the radio, TV or newspaper were talking about you; that you were being spied on; or that you could hear voices that other people could not? (11) 1

NB: IF ANY OF THE ABOVE IS SCORED "2" OR "3", GO TO THE APPROPRIATE MODULE.

VRin MODULES

L DEPRESSIVE EPISODES

A1 Depressed mood for 2 or more weeks
A2 Loss of interest in daily activities
A3 Weight loss or gain
A4 Weight loss or decreased appetite
A5 Weight loss or increased appetite
A6 Insomnia
A7 Hypersomnia
A8 Psychomotor agitation
A9 Psychomotor retardation
A10 Fatigue or loss of energy
A11 Feelings of worthlessness
A12 Feelings of inappropriate guilt
A13 Diminished ability to concentrate or think
A14 Indecisiveness
A15 Recurrent thoughts of own death
A16 Suicidal ideation
A17 Specific plan for suicide
A18 Suicide attempt
A19 At least 5 of the primary symptoms above are coded "3" and at least one of these is item A1 or A2 (Official only) 1
A20 Symptoms cause significant distress or impairment
A21 Not due to direct effect of substance or medical condition
A22 Not better accounted for by bereavement
A23 Major depressive episode (Official only) 1

2. DYSTHYMIC DISORDER

A83 Depressed mood for the past 2 years
A 84 Poor appetite or over-eating 1
A85 Insomnia or hypersomnia
A86 Low energy or fatigue 1
A87 Low self-esteem 1
A88 Poor concentration or difficulty in making decisions 1
A89 Hopelessness 1
A90 **At least 2 symptoms above (A84-A89) are coded "3" (Official only) 1**
A91 Symptoms have not been absent for more than 2 months 1
A92 No major depressive episode during first 2 years of disturbance 1
A93 Age of onset of current dysthymic disorder **(Insert actual age in score sheet)**
A94 Has never had a manic or hypomanic episode 1
A95 Does not occur during course of chronic psychotic disorder 1
A96 Not due to direct effects of a substance or medical condition 1
A97 Symptoms cause significant distress or impairment 1
A98 **Dysthymic disorder (Official only) [A83, A90, A91, A95, A96, and A97 are all code "3"] 1**

3. DEPRESSIVE DISORDER NOT OTHERWISE SPECIFIED (NOS)

D7 Depressive symptoms that do not meet criteria for manic-depressive episode, dysthymia, adjustment disorder, or not accounted for by bereavement 1
D8 Not due to direct effect of a substance or medical condition 1
D9 Depressive disorder not otherwise specified (NOS): - (Official) Rate 1,2,3,4 or 5
1 - Post-psychotic depressive disorder of schizophrenia

3

2- Major depressive disorder superimposed on delusional disorder, psychotic disorder not otherwise

specified or active schizophrenia
3- Minor depressive disorder
4- Recurrent brief disorder
5- Other

D10 Depressive disorder not otherwise specified present in the last month 1= Yes 2 = Nc

4. SUBSTANCE USE DISORDERS:

ALCOHOL **DEPENDENCE**

A1 Alcohol taken in large amounts or for long periods
A2 Persistent desire or unsuccessful efforts to cut down drinking
A3 Large amounts of time spent in activities obtaining alcohol
A4 Important activities given up or reduced
A5 Use continued despite physical or physiological problems
A6 Increased tolerance
A7 Withdrawal: at least two of
(a) Sweating or
(b) Racing heart,
(c) Hand shakes,
(d) Trouble sleeping,
(e) Feeling nauseated,
(f) Feeling agitated,
(g) Feeling anxious,
(h) Having a seizure,
(i) Seeing or,
(j) Hearing things that are not really there,
(k) If no withdrawal, then alcohol to relieve withdrawal.
A8 Onset and course:
(a) When did your drinking problems first start? **(Insert date in the scores)**
(b) How long did they go on for**?(Insert in the score sheet)**
A9 Treatment:
(c) Did you see a doctor about your drinking problems?
(d) Did you receive any treatment?
(e) What treatment? **(Insert in the score sheet)**
(f) Did you seek any other professional help?
(g) What help **?(Insert in the score sheet)**

5. **ALCOHOL ABUSE: At least one of the items A10-A13 coded "3" if present in the last 12 months period.**

A10 Failure to fulfill role
A11 Physically hazardous
A12 Legal problems
A13 Social problems

6. DRUG DEPENDENCE

Now I am going to ask you some specific questions about your use of……**(drugs)**
Have you ever taken any of these to get high, to sleep better, to lose weight, or to change your mood?
Sedatives/hypnotics/anxiolytics: Valium, Librium, barbituarates, Milltown, Ativan, Restoril, Seconal.
Cannabis: marijuana, hashish, bhang, tetrahydrocabbinol.
Stimulants: amphetamine /"speed", Crystal meth, Dexadrine, Ritalin/methylphenidate/'**ice**[1]**.**
Opioids: heroin, morphine, opium, Methadone, Darvon, Demerol, Dilaudid, Pethidine, Codeine, Pentazocine, methaqualone, Madrax.
Cocaine: intranasal, intravenous, 'freebase', 'crack', and **'speedball'.**
Hallucinogens: PCD, LSD, Mescaline, Peyote, PCP ('angle dust'), Ecstasy, MDMN, others.
Other drugs e**.g.** Khat, nicotine, glue, paint, inhalants, nitrous oxide ('laughing gas').
B1 Urge amounts / longer periods

g- Persistent desire / unsuccessful efforts to control/cut down j
B3 Great deal of time spent obtaining/recovering 1
B4 Social, occupations, recreations given up or reduced !
B5 Use despite physiological/physical problems 1
B6 Tolerance (either markedly increased amounts for desired effects, or markedly diminished effects) 1
B7 Withdrawal
(a) Ever had withdrawal symptoms when cut down or stopped drug? 1
(b) Ever taken more of drug to get rid of withdrawal symptoms? 1

LIST OF WITHDRAWAL SYMPTOMS

(a) **Sedatives**/hypnotics/anxiolytics: two or more of the following developing within several hours to a few days after cessation (or reduction) after heavy or prolonged use

1. Autonomic hyperactivity
2. Increased hand tremor
3. Insomnia
4. Nausea and vomiting
5. Transient visual, tactile or auditory hallucinations or illusions
6. Psychomotor agitation
7. Anxiety
8. Grand mal seizures

(b) Stimulants:

(i) Cocaine:- dysphoric mood and two or more of the following physiological changes

1. Fatigue
2. Vivid unpleasant dreams
3. Insomnia or hypersomnia
4. Increased appetite
5. Psychomotor retardation or agitation

(ii) Opioids:- three or more of the following

1. Dysphoric mood
2. Nausea and vomiting
3. Lacrimation or rhinorrhoea
4. Muscle aches
5. Sweating, piloerection
6. Diarrhea
7. Yawning
8. Fever
9. Insomnia

7. DRUG ABUSE

B8 Recurrent use/failure to fulfill major roles / obligations
B9 Recurrent use in hazardous situations
BIO Recurrent use related to social problems
B1 I Recurrent use related to social problems
B12 Onset and course

(a) When did the drug problems first start? **(Insert on the score sheet)**
(b) When did they finally stop? **(Insert on the score sheet)**

B13 Treatment

(a) Did you see a doctor about the drug problems?
(b) Did you receive any treatment?
(c) What treatment? **(Insert on the score sheet)**
(d) Did you seek any other professional help?
e) What help? **(Insert on the score sheet)**

(0 How old were you when you first started taking drugs? **(Insert on the score sheet)**

8 RECENT MAJOR DEPRESSIVE EPISODE: AT LEAST FIVE ITEMS C1-C9 CODED

"3", ONE OF THEM C1 OR C2, IN SAME 2-WEEK PERIOD.

C1 Depressed mood
C2 Diminished interest/pleasure
C3 Weight/appetite gain or loss
C4 Sleep disturbance: insomnia or hypersomnia or early waking
C5 Psychomotor agitation or retardation
C6 Fatigue or loss of energy
C7 Feeling of worthlessness or inappropriate guilt
C8 Diminished ability to concentrate or indecisiveness
C9 Recurrent thoughts of death, suicidal ideation
C10 Episode not due to medical condition/medication/substance
C11 Episode not following bereavement
C12 Treatment **(Insert on the score sheet)**
C13 When did your depression start? **(Insert on the score sheet)**
C14 How long did it go on? **(Insert on the score sheet)**

9. PAST MAJOR DEPRESSIVE EPISODE

I would like to ask you about other times in your life when you have felt very low.

C15 Depressed mood
C16 Diminished interest/pleasure
C17 Weight/appetite gain or loss
C18 Sleep disturbance: insomnia or hypersomnia or early waking
C19 Psychomotor agitation or retardation
C20 Fatigue or loss of energy
C21 Feeling of worthlessness or inappropriate guilt
C22 Diminished ability to concentrate or indecisiveness
C23 Recurrent thoughts of death, suicidal ideation, specific suicide plan, or suicide attempt(s)
C24 Episode not due to medical condition/medication/substance
C25 Episode not following bereavement
C26 Treatment **(Insert on the score sheet)**
C27 When did your depression start? **(Insert on the score sheet)**
C28 How long did it go on? **(Insert on the score sheet)**

10. MANIA: CURRENT MANIC EPISODE. AT LEAST D1 PLUS ANY THREE D2-D7 (OR FOUR IF MOOD IS IRRITABLE) IN A WEEKS TIME (OR LESS IF ADMISSION NEEDED)

D1 Persistently elevated expansive or irritable mood
D2 Inflated self-esteem or grandiosity
D3 Decreased need for sleep
D4 Flight of ideas/subjective experiences of racing thoughts
D5 Distractibility (attention too easily drawn to unimportant or irrelevant stimuli)
D6 Increase in goal directed activity (socially, at work, school or sexually) or psychomotor agitation
D7(a) Excessive involvement in pleasurable activities that have high potential for painful experience
D7(b) 3 Three or more of above (D1-D7): MANIC EPISODE (Official)
D8 Not due to a mixed episode
D9 Significant impairment in function
D10 Not due to medication, drug of abuse or medical condition
D11 (a) Past episodes of mania
(b) How many? **(Insert on the score sheet)**
D12 Treatment **(Insert on the core sheet)**

11. SCHIZOPHRENIA:

El Delusions

1. Delusions of reference
2. Persecutory delusions
3. Grandiose delusions
4. Somatic delusions
5. Delusions of control
6. Bizarre delusions
7. Thought insertion
8. Thought broadcasting
9. Thought insertion
10. Other delusions **(Insert on the score sheet)**

E2 Hallucinations

1. Running commentary hallucinations
2. Third party hallucinations
3. Visual hallucinations
4. Tactile hallucinations
5. Commanding hallucinations that are obeyed
6. Other hallucinations **(Insert on the score sheet)**

E3 Disorganized speech

E4 Behavior

1. Catatonic (motor immobility)
2. Excessive motoric activity
3. Extreme negativism
4. Posturing or stereotyped movements
5. Grossly disorganized speech
6. Grossly inappropriate effect

E5 Negative symptoms

1. Affective flattening
2. Alogia
3. A volition

E6 Social/ occupation dysfunction

E7 Not schizoaffective or mood disorder

E8 Previous treatment (Insert in the score sheet)

E9 If any two of E1-E5 are "3": SCHIZOPHRENIA

12. LIFE HISTORY OF PANIC DISORDER

Panic attack

F1 Suddenly felt frightened, or anxious or developed physical symptoms
F2 Attacks came out of the blue
F3 How many attacks? **(Insert in the score sheet)**
IF NONE STOP, HERE; IF PRESENT:
F4 Worry about implications?
F5 Concern about additional attacks?
F6 Significant changes in behavior
F7 Criterion panic attack
F8 Abrupt/peak in 10 minutes
F9 Autonomic symptoms:

(i) Heart race, pound or skip beat
(ii) Tremble /shake
(iii) Short of breath
(iv) Feel choking
(v) Have nausea, stomach upset or diarrhoea
(vi) Feel dizzy, unsteady or faint
(vii) Feel unreal

(viii)	Fear of going crazy or dying	1	2	3
(ix)	Tingling/numbness in parts of the body	1	2	3
(x)	Flushes or chills	1	2	3
F10	Not due to substance medical condition	1	2	3
F11	Life time panic disorder: Recurrent unexpected panics (at least two) with four or more autonomic symptoms	1		3

13. PANIC DISORDER WITH AGORAPHOBIA

F12	Situations			
(i)	Away from home	1	2	3
(ii)	Crowded places	1	2	3
(iii)	Standing in a queue	1	2	3
(iv)	Being on a bridge	1	2	3
(v)	Using public transport	1	2	3
F13	Endured with marked distress	1	2	3
	LIFE TIME AGORAPHOBIA (NO HISTORY OF PANIC ATTACK)			
F14	Agoraphobic symptom (being alone, in a crowd, in a queue public transport or other)	1	2	3
	IF "NO", STOP HERE.			
F15	Endured with marked distress	1	2	3
F16	Avoidance	1	2	3
F17	Not due to substance or medical condition	I	2	3

14. LIFETIME SOCIAL PHOBIA

F18	Marked and persistent fear in social situations	1	2	3
	IF "NO", STOP HERE			
F19	Exposure to feared social situation almost invariably provokes anxiety	1	2	3
F20	Fear is excessive	1	2	3
F21	Avoidance	1	2	3
F22	Endured with marked distress	1	2	3
F23	Interfered with normal routine	1	2	3
F24	Not due to substance or medical condition	1	2	3

15. LIFETIME SPECIFIC PHOBIA

F25	Marked and persistent fear of flying, seeing blood, heights, closed places, certain kind of animals or insects	1	2	3
	IF "NO", STOP HERE			
F26	Exposure to feared phobic stimulus almost invariably provokes anxiety	1	2	3
F27	Fear excessive	1	2	3
F28	Avoidance	1	2	3
F29	Endured with marked distress	1	2	3
F30	Interference with normal routine	1	2	3
F31	Not due to substance or medical condition	1	2	3

16. LIFE TIME OBSESSIVE COMPULSIVE DISORDER (OCD)

F32	Obsessions: recurrent and persistent thoughts/impulses/images	1	2	3
	IF "NO", STOP HERE.			
F33	Attempts to ignore or suppress such thoughts	1	2	3
F34	Thoughts/images/impulses recognized as coming from own mind	1	2	3
F35	Compulsions: Repetitive behaviour e.g. washing, counting, checking	1	2	3
F36	Behaviour aimed at preventing or reducing mental distress or preventing some dreaded event/situation	1	2	3
	IF "NO" TO OBSESSIONS OR COMPULSIONS, STOP HERE.			
F37	Excessive thoughts	1	2	3
F38	Marked distress/time consuming	1	2	3

F39 Not due to substance medical condition 1

17. **LIFE TIME POST TRAUMATIC STRESS DISORDER (PTSD)**

F106 Traumatic Event List: **(Score for each one of them O=not present; or l=present)**

(i)	Been involved in a road or motor accident?	0
(ii)	Been attacked with a gun?	0
(iii)	Been attacked with a knife or a similar weapon?	0
(iv)	Any member of your family been attacked with a gun?	0
(v)	Any member of your family been attacked with a knife or a similar weapon?	0
(vi)	Ever been physically assaulted, causing you bodily harm?	0
(vii)	Been sexually assaulted/raped?	0
(viii)	Your house been burned by fire?	0
(ix)	Been caught up in a riot?	0
(x)	Been robbed in armed robbery or mugged?	0
(xi)	Your house/home been broken into by armed robbers?	0
(xii)	Been involved in a car- or matatu-jacking?	0
(xiii)	Been involved in a life-threatening flood?	0
(xiv)	Been involved in tribal clashes?	0
(xv)	Witnessed violence in the street, neighbourhood, or school?	0
(xvi)	Been robbed?	0
(xvii)	Seen family members injured, beaten, hurt or killed?	0
(xviii)	Been beaten or physically hurt, beaten or hurt?	0
(xix)	Been physically hurt or attacked by a non-family member?	0
(xx)	Others **(specify/insert in the score sheet)**	0

F107 (a) Experienced, witnessed, or was confronted with an event involving actual or threatened death, serious injury, or the physical integrity of self or others, e.g. a very serious accident or fire; being physically assaulted or raped; seeing another person killed, dead or badly injured

(b) Hearing about something horrible that has happened to some one close to you

IF "NO", STOP HERE.

F108 Response: involved intense fear, helplessness or horror

F109 Recurrent, intrusive and distressing recollections (including images, thoughts, perceptions)

F110 Recurrent distressing dreams

Fi1l Re-living the experience

F112 Autonomic symptoms

F113 Intense psychological distress to cues

F114 **At least one of the above (F109-F113) coded "3" (Official)**

IF NO SYMPTOM PRESENT, STOP HERE.

F115 Efforts to avoid thoughts, feelings, conversation about event

Fll 6 Efforts to activities, places or conversation about event

F117 Inability to recall an important aspect

F118 Diminished interest or participation in activities

F119 Detachment or estrangement from others

F120 Restricted range of affect

F121 Sense of foreshortened future

F122 At least three of the above (F115-F121) coded "3" (Official)

F123 Difficulty falling or staying asleep

F124 Irritability or outbursts of anger

F125 Difficulty in concentrating

F126 Hypervigilance

F127 Exaggerated startle response

F128 At least two of the above (F123-F127) coded "3" (Official)

F129 Duration at least one month

F130 Causes marked distress or significantly interferes

F131 Post -Traumatic Stress Disorder F107, F108, F114, F122, F122, F128, F130 all coded $^{U}3^{W}$ (Official)	**1**		**3**
F132 Current PTSD (symptoms of PTSD in past month) (Official)	**1**		**3**
18. GENERALISED ANXIETY DISORDER (GAD)			
F138 Excessive anxiety and worry	1	2	3
F139 Difficult to control	1	2	3
F140 Not during mood disorder or psychotic disorder	1	2	3
F141 Restless, keyed up or on edge	1	2	3
F142 Easily fatigued	1	2	3
F143 Difficulty in concentrating	1	2	3
F144 Irritability	1	2	3
F145 Muscle tension	1	2	3
F146 Sleep disturbance	1	2	3
F147 At least three of the above (F141-F146) coded "3" (Official)	**1**		**3**
F148 Focus not confined to another axis I disorder	1	2	3
F149 Distress or impairment	1	2	3
F150 Not due to direct effects of a substance or medical condition	1	2	3
F151 Generalized anxiety disorder (F138, F140, F150 ALL CODED "3") (Official)	**1**		**3**
19. ACUTE STRESS DISORDER			
J9 Numbing, detachment or absence of emotional response	1	2	3
J10 Reduction in awareness of surroundings	1	2	3
J11 Derealization	1	2	3
J12 Depersonalization	1	2	3
J13 Dissociative amnesia	1	2	3
J14 At least three of the above (J9-J13) coded "3" (Official)	**1**		**3**
J15 Causes marked distress or significantly interferes	1	2	3
J16 Duration at least 2 days and less than 4 weeks; and occurs within 4 weeks of traumatic event	1	2	3
J17 Not due to direct effects of a substance or medical condition	1	2	3
J18 ACUTE STRESS DISORDER (J6-J9 all code "3" and F107, F114, F122, F128 all code "3") (Official)	**1**		**3**
J19 ACUTE CURRENT STRESS DISORDER (Symptoms of Acute Stress Disorder in past month) (Official)	**1**		**3**
20. SOMATIZATION DISORDER			
G1 Screen 12-Somatization Disorder (Official)	**1**		**3**
G2 History of many physical complaints before age 30 (Official)	**1**		**3**
G3 Age at onset **(Insert on the score sheet)**			
G4 Impaired co-ordination or balance	1	2	3
G5 Paralysis or localized numbness	1	2	3
G6 Difficulty swallowing or lump throat	1	2	3
G7 Aphonia	1	2	3
G8 Urinary retention	1	2	3
G9 Loss of touch or pain sensation	1	2	3
G10 Double vision	1	2	3
Gil Blindness	1	2	3
G12 Deafness	1	2	3
G13 Seizures	1	2	3
G14 Amnesia	1	2	3
G15 Loss of consciousness	1	2	3
G16 One symptom above (G4-G15) code "3" (Official)	**1**		**3**
G17 Head pain	1	2	3
G18 Stomach pain	1	2	3

G19 Back pain
G20 Joint pain
G21 Pain in the extremities
G22 Chest pain
G23 For women, pain during menstruation
G24 Pain during intercourse
G25 Pain during urination
G26 Pain anywhere else
G27 Four symptoms above (G17-G26) coded "3" (Official)
G28 Nausea
G29 Bloating
G30 Vomiting other than during pregnancy
G31 Diarrhoea
G32 Intolerance of several foods
G33 Sexual indifference
G34 Two symptoms above (G28-G33) coded "3" (Official)
G35 Irregular menses
G36 Excessive menstrual
G37 Vomiting through out pregnancy
G38 One symptom above coded "3"
G39 Somatization Disorder (G2, G16, G27, F34, G38) all coded "3" (Official)

21. ADJUSTMENT DISORDER

HI Emotional or behavioural symptoms in response to an identifiable stressor occurring within 3 months of stressor e.g. divorce, diagnosis of a terminal illness
H2 The symptoms cause marked distress in excess of what would be expected
H3 The symptoms cause significant impairment in social or occupational functioning
H4 The symptoms do not represent, bereavement
H5 Once the stressor has terminated, the symptoms do not persist for more than an additional 6 months
H6 Predominant symptoms may be of depressed mood, anxiety, mixed or disturbance of conduct

22. DELIRIUM

K.1 Disturbance of consciousness with reduced ability to focus, sustain or shift attention
K2 Change in cognition not due to established or evolving dementia
K3 Disturbance develops over a short period of time (hours to days) and tends to fluctuate during the of the day
K4 Disturbance is not caused by direct physiological consequences of a general medical condition

23. DEMENTIA

LI Impaired ability to learn new information or to recall previously learned information
L2 One or more of:
(i) Aphasia
(ii) Apraxia
(iii) Agnosia
(iv) Disturbance in executive functioning i.e. planning, organizing
L3 Cognitive deficits in LI and L2 cause significant impairment in social or occupational functioning and represent a significant decline from a previous level of functioning
L4 Course is characterized by gradual onset and continuing decline
L5 Deficits do not occur exclusively during the course of a delirium

Appendix D2: SC1P SCORE SHEET

SCREENING PAGE

S1—S2—S3—S4—S5—S6—S7—S8—S9—S10—S11—S12—S13—S14—S15—SI 5(a) S15(b) SI 5(c) S16

1. DEPRESSIVE EPISODES

A1—A2—A3—A4—A5—A6—A7—A8—A9—A10—A11—A12—A13—A14—15—A16—A17—A18—**A19***—A20—A21—A22 **A23***—

2. DYSTHYMIC DISORDERS

A83—A84—A85—A86 A87 A88 A89 **A90*** A91 A92 A93 A94—A95 A96 A97 **A98***

3. DEPRESSION DISORDER NOT OTHERWISE SPECIFIED

D7 D8 D9 D10*

4. SUBSTANCE USE DISORDERS:

ALCOHOL DEPENDENCE

A1 A2 A3 A4—A5—A6—A7(a>- A7(b>- A7(c)—A7(d)— A7(e)- 7(f)--A7(g> A7(h) A7(i)- A7(j)- A7(k) A8(a)— A8(b) A9(c) A9(d) **A9(f>**

A9(g)-

5. ALCOHOL ABUSE

A10 A11 A12 A13

6. DRUG DEPENDENCE

B1 B2 B3 B4 B5 B6 B7(a)- B7(b)

a) Sedatives: a)l a)2 a)3 a)4 a)5 a)6 a)7 a)8

b) Stimulants:

(i) Cocaine:- bXi)l bXi)2 bXi)3 bXi)4 bXi)5

(ii) Opioids:- bXii)l—bXii)2—bX»)3—bX"i)4—bXii)5—bXii)6—bX«i)7—^bX«)8—bXii)9—

7. DRUG ABUSE

B8 B9 B10-—B11 B12(a) B12(b) B13(a) B13(b)

B 13(c)-

B 13(d)-—B 13(e)- (f)

8. RECENT MAJOR DEPRESSIVE EPISODE

C1 C2 C3 C4 C5 C6 C7 C8 C9 C10 C11

9. PAST MAJOR DEPRESSIVE EPISODE

C15—C16 C17 C18—C19 C20—C21 C22 C23 C24 C25

C26 C27 C28

10. CURRENT MANIC EPISODE

D1 D2 D3—D4 D5—-D6—D7— D8—D9 D10 D11(a)- D11(b)

D12

11. SCHIZOPHRENIA

E 1 Delusions: 1 2 3 4 5 -6 7 8 9 10

E2 Hallucinations:

1 2 3 4—5 6

E3 Disorganized speech

E4 Behaviour: 1 2 3 4 5 6 7

E5 Negative Symptoms 1 2 3 E6 E7

E9

12. LIFE HISTORY OF PANIC DISORDER

F1—F2—F3—F4—F5—F6—F7-—F8—F9(i)—F9(ii)—F9(iii)—F9(iv)—F9(v)—F9(vi)—F9(vii)—-F9(viii)—F9(ix)—F9(x)—F10—F11

13. PANIC DISORDER WITH AGORAPHOBIA

F12(i)—F12(ii) F12(iii)—F12(iv)—F12(v)—F13—F14—F15—F16—F17

14. LIFE TIME SOCIAL PHOBIA

F18 F19 F20 F21 F22 F23 F24

15. LIFE TIME SPECIFIC PHOBIA

F25 F26 F27 F28 F29 F30 F31

16. LIFE TIME OBSESSIVE COMPULSIVE DISORDER

F32 F33 34 F35 F36 F37 F38 F39

17. POST TRAUMATIC STRESS DISORDER-LIFE TIME

F106 F107(a) F107(b)—-F108—F109—F110—F111 —F112—F113—F114*—F115—F116—F117—F118—F119—F120—F121—**-F122***—F123—F124--F125—F126—F127—**F128*** F129—F130—F131 * (1962— 1972— 1982— 1992—2002—) F132 *—

18. GENERALIZED ANXIETY DISORDER

F138—F139—F140—F141—F142—F143—F144—F145—F146—**F147***—F148—F149—F150 **F151***-

19. ACUTE STRESS DISORDER

J9—J10—J11—J12—J13—J14* J15—J16—J17—J18*—J19*

20. SOMATIZATION DISORDER

G**1 * G2***—G3 G4—G5—G6 G7 G8—G9—G10—G11 —G12--13—G14-— 15—**16***—G17-G18—G19—G20—-G21—G22—-G23-—G24—G25—G26—-G27*—-G28—G29—G30—G31—G32—G33-G34*—G35—G36—G37—G38 G39*

21. ADJUSTMENT DISORDER

HI H2 H3 H4 H5 H6

22.DELIRIUM

K1—K2—K3—K4—

23. DEMENTIA

LI—L2(i)— L2(ii)— L2(iii)— L2(iv)— L3—L4—-L5—-