CASE SERIES OF MANIA SECONDARY TO HIV/AIDS IN PATIENTS AT CHAINAMA HILLS COLLEGE HOSPITAL AND UNIVERSITY TEACHING HOSPITAL LUSAKA, ZAMBIA

BY

DR. CHIONI SIWO
(530504651)

A dissertation submitted in partial fulfilment of the requirements for the degree of
Master of Medicine in Psychiatry

The University of Zambia
June, 2014
Declaration

I, Dr. Chioni Siwo, do hereby declare that this is wholly my own work, and that the work of other persons utilized in this dissertation has been acknowledged. The work presented here has not been previously presented at this university or indeed ant other university for similar purposes.

Author’s Signature: ---------------------   Full Name: -------------------------------
Certificate of Approval

This dissertation of Dr. Chioni Siwo has approved as fulfilling the requirement for the award of the Degree of Master of Medicine in Psychiatry by the University of Zambia.

---------------------------       ----------------- ----
Examiners’ Signature       Date of Approval
Abstract

Primary mania is the diagnostic label given to manic episodes that occur during the course of a Bipolar Disorder (Ghanem KG, 2008). Patients with secondary mania have manic-like episodes somewhat similar to those seen in Bipolar Disorder. (Lyketsos CG et al, 1997). However, these manic-like episodes are secondary to other causes such, as a side effect of medication or a reaction to a brain insult (Ellen S et al, 1999). Manic symptoms occurring in HIV Disease are well recognized complications of HIV infection of central nervous system (Kooistra B, 2009). Patients with mania can be divided into 2 groups, those with pre-existing Bipolar Disorder and those with secondary mania as a consequence of HIV brain involvement (Fishman M, 1996). The previous studies have shown that there is a difference with Bipolar Disorder mania and mania secondary to HIV in both its symptom profile and severity. Mania secondary to HIV is characterized by irritability rather than euphoria. HIV positive patients with secondary mania were more likely to be immunologically suppressed with low CD4 counts, than HIV negative patients with mania.

A case series of patients suffering from secondary mania due to HIV/AIDS was carried out at Chainama Hills Hospital, and University Teaching Hospital, Lusaka. The general objective of the study was to gain the greater knowledge of the mania secondary to HIV/AIDS while specific objectives were to determine whether the specific clinical characteristics of mania secondary to HIV identified in previous studies are also found in Zambian patients and to determine whether patients with secondary mania have increased irritability. Patients with acute manic episodes were admitted to Chainama Hills College Hospital and University Teaching Hospital. Ten patients were recruited during a period of 2 months. They were assessed for symptom severity, demographic and clinical characteristics of interest at the time of recruitment in the study and followed up at 4 weeks and 8 weeks. The patients were given routine care and treatment during their stay in the hospital, which included HAART, antipsychotics as well as mood stabilizers. Six out of ten patients were females and four were males. The minimum age of the participants was 19 years; the maximum age was 48 years while the average age was 35.3 years. The minimum CD4 count was 3; the maximum CD4 count was 319 while the average CD4 count was 156.00 (SD142.45); median was 152.50. CD4 count of four participants was unavailable. The Young Mania Rating Scale scores were calculated at the time of recruitment and at the time of follow up at 4 weeks and at 8 weeks after discharge. The mean YMRS at the time of follow up (8weeks) was zero while YMRS at time of follow up (4 weeks) was 12.40(SD 6.85), which was significantly lower than mean YMRS at the time of recruitment42.70 (SD 8.44), (t=5.724; df=9; p=0.001; <0.05). Furthermore, the mean Irritability Score on YMRS at time of follow up (8weeks) was zero while at the time of follow up (4weeks),it was 2.40(SD 2.06), which was significantly lower than mean Irritability Score on YMRS at the time of recruitment 5.20(SD 2.7), (t=3.674; df=9; p=0.005; <0.05).This shows that use of anti-psychotics, mood stabilizers and initiation of HAART in patients with mania due to HIV is effective in the management of these patients.
Dedication

I dedicate this dissertation to my late mother Professor Elizabeth Cisece Mumba former Deputy Vice Chancellor of the University of Zambia. She taught me the value of education and she championed the education of women and girls in Zambia.
Acknowledgements

I wish to thank my Supervisor Dr Ravi Paul (Head of Department Psychiatry) for the guidance and supervision, My Co-supervisors Dr Gil Blackwood (Visiting lecturer Department of Psychiatry) and Dr Dalila Zachary (Honorary Lecturer HIV Medicine). My heart felt gratitude goes to the Late Dr Mwanza Banda (Department of Psychiatry) for believing in me. Special thanks goes to the staff and management at Chainama Hills College Hospital and University Teaching Hospital.

Thanks to Tropical Health Education Trust (THET) and the Ministry of Health, Zambia for partial funding of the research.
Contents

Figures ........................................................................................................ viii
Tables ....................................................................................................... viii
Acronyms ............................................................................................... ix

Chapter One: Introduction .................................................................... 1
1.0 Overview ......................................................................................... 1
1.1 Background ................................................................................... 1
1.2 Statement of the Problem ............................................................... 2
1.3 Objectives of the Study ................................................................. 2
1.4 Research Questions ....................................................................... 3
1.5 Study Justification ....................................................................... 3

Chapter Two: Literature Review ......................................................... 4
2.0 Overview ....................................................................................... 4
2.1 Primary Mania and Secondary Mania ........................................... 4
2.2 Clinical Profile ............................................................................. 5
2.3 Possible Significant Corelates of Secondary Mania Caused by HIV 7
2.3.1 Syphilis .................................................................................... 7
2.3.2 Nutritional Status ................................................................... 7
2.3.3 Brain Pathology ...................................................................... 7
2.3.4 HAD ...................................................................................... 9
2.5 Summary ...................................................................................... 9

Chapter Three: Research Methodology ............................................. 10
3.0 Overview ....................................................................................... 10
3.1 Study Design ............................................................................... 10
3.2 Study Population and Sample Size ............................................. 10
3.3 Inclusion Criteria ...................................................................... 11
3.4 Exclusion Criteria ...................................................................... 11
3.5 Study Procedure ........................................................................ 11
3.6 Data Analysis ............................................................................ 12
3.7 Ethical Consideration ................................................................ 12

Chapter Four: Findings .................................................................... 13
4.0 Overview ....................................................................................... 13
4.1 Biographical Characteristics of the Participants ....................... 13
4.2 Prevalence of Specific Clinical Characteristic of Mania to HIV Patients 14

Chapter Five: Discussion .................................................................. 19
5.0 Overview ....................................................................................... 19
5.1 Summary of the Findings ............................................................ 19
Figures
Figure 1: Trend Analysis of YMRS........................................................................................................16
Figure 2: Trend analysis of IRS........................................................................................................17

Tables
Table 1: Biographical Characteristics of the participants................................................................14
Table 2: Distribution of CD4 count among the patients................................................................14
Table 3: Descriptive Statistics on YMRS and Irritability Score on YMRS........................................15
Table 4: Paired Samples Test results................................................................................................18
### List of Acronyms

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>WHO</td>
<td>World Health Organization</td>
</tr>
<tr>
<td>DSM-IV TR</td>
<td>Diagnostic and Statistical Manual of Mental Disorders 4th edition Text Revision</td>
</tr>
<tr>
<td>MMSE</td>
<td>Mini Mental state exam</td>
</tr>
<tr>
<td>YMRS</td>
<td>Young mania Rating Scale</td>
</tr>
<tr>
<td>IRS</td>
<td>Irritability Score</td>
</tr>
<tr>
<td>HIVE</td>
<td>HIV Encephalitis</td>
</tr>
<tr>
<td>HAD</td>
<td>HIV associated dementia</td>
</tr>
<tr>
<td>HAART</td>
<td>Highly Active Anti-Retroviral Therapy</td>
</tr>
<tr>
<td>CNS</td>
<td>Central Nervous System</td>
</tr>
</tbody>
</table>
Chapter One: Introduction

1.0 Overview
This chapter describes background, statement of the problem, objectives, research question, and study justification of the present study.

1.1 Background
Globally the prevalence of HIV /AIDS among the adult population was 0.8% in 2009 and in Sub-Saharan Africa 5% whilst in Zambia, its 13.5%. (UNAIDS, 2009). Mental illness in Sub-Saharan Africa, specifically in Zambia is largely unquantified and the number of patients with mental health problems associated with HIV is unknown.

The prevalence of HIV related mania is not known though previous studies from Sub-Saharan Africa (Nakimuli et al, 2009, Nakimuli et al, 2008, Nakimuli et al, 2006) Europe (Owen Larsson 2009) and the United States of America (Krauthammer et al, 1978) have shown that individuals with HIV infection are at an increased risk of developing mental disorders. Secondary mania directly caused by HIV was found to have a 17 month prevalence of 8% in AIDS patients treated by specialist services in Melbourne, Australia, (Lyketsos CG et al, 1997) considerably greater than the less than 1% lifetime prevalence of manic disorders in persons without HIV. A recent cross-sectional study of psychiatric inpatients in Uganda revealed that secondary mania caused by HIV was a common cause of admission to psychiatric hospital, particularly in females (43.2%) (Nakimuli et al, 2006).

The study in Uganda is one of the few studies done in Sub-Saharan Africa and leads one to ask whether mental disorders are common among HIV infected individuals in Zambia and what factors contribute to mental disorders in this population. Two other studies in Uganda have described the demographic and clinical profile of patients with HIV related secondary mania in comparison to that of HIV negative individuals with primary mania (Nakimuli et al, 2009, Nakimuli et al, 2008). These studies have shown
that patients who met criteria for secondary mania were older, female, of low economic status, had no college education, were divorced or separated (Nakimuli et al, 2009). Clinically, they presented in late stages of infection with more severe manic and psychotic episodes. Cognitive impairment as indicated by MMSE, was greater in HIV positive patients with secondary mania than in HIV negative patients with primary mania. (Nakimuli et al 2008, Nakimuli et al, 2009). HIV positive patients with secondary mania were more likely to be immunologically suppressed with low CD4 counts, than HIV negative patients with mania (Nakimuli et al, 2006).

The burden of secondary mania among patients with very low CD4 counts in Zambia is unknown. A relationship between low CD4 count and secondary mania was noted in the study by Nakimuli et al and suggests that HIV related secondary mania could be used as an indicator for ART initiation where CD4 count is not available (Nakimuli et al, 2006).

It is against this background that the principal investigator seeks to do a case series of HIV related secondary mania among patients admitted with acute mania at Chainama Hills College Hospital and University Teaching Hospital in Lusaka, Zambia.

1.2 Statement of the Problem

The prevalence of mania in Zambia is not known. This is compounded by lack of epidemiological research in mental illness, however, in the researcher’s own experience, the number of cases meeting the criteria for DSM IV- TR is increasing. What is not clear with this increase is whether it is primary mania or secondary mania linked with HIV.

1.3 Objectives of the Study

The general objective was to gain greater knowledge of mania secondary to HIV.

The specific objectives were:
1. To determine whether the specific clinical characteristics of mania secondary to HIV identified in previous studies are also found in Zambian patients.

2. To determine whether patients with secondary mania have increased irritability.

1.4 Research Questions
What are the clinical characteristics of mania secondary to HIV in Zambia?

1.5 Study Justification
A case series of patients with secondary mania caused by HIV will reveal the clinical picture of how patients present. This will assist clinicians in identifying patients and allow for better management of these patients. There is a possibility that such patients place a considerable burden on their family.
Chapter Two: Literature Review

2.0 Overview

This chapter contains a review of literature on mania secondary to HIV globally as well as in Africa. It also looks at the previous studies that have been done on mania secondary to HIV. It also reveals the clinical profile of mania secondary to HIV and how it is linked to a low CD4 count.

2.1 Primary mania and secondary mania

Primary mania is the diagnostic label given to manic episodes that occur during the course of a Bipolar Disorder (Ghanem KG, 2008). Bipolar Disorder is a mental disorder which has been recognized for many years. The sufferer usually has manic episodes interspersed with depressive episodes. The disorder has specific epidemiological features, clinical features, a strong genetic component, and in the main follows a characteristic pattern over a lifetime (Ghanem KG, 2008). Patients with secondary mania have manic-like episodes somewhat similar to those seen in Bipolar Disorder (Lyketsos CG, 1993). However, these manic-like episodes are secondary to other causes such, as a side effect of medication or a reaction to a brain insult. (Ellen S, 1999) Manic symptoms occurring in HIV Disease are well recognized complications of HIV infection of central nervous system. (Kooistra B, 2009).

Patients with mania can be divided into 2 groups- those with pre-existing Bipolar Disorder and those with secondary mania as a consequence of HIV brain involvement (Fishman et al, 1996).

Patients with pre-existing Bipolar Disorder can develop mania at any time in the course of HIV infection, early or late (Fishman et al, 1996).
There is an increased prevalence of manic syndromes after the onset of AIDS (Lyketsos CG et al, 1997, Lyketsos CG, 1993). AIDS patients develop mania at higher rates than the general population (Lyketsos CG, 1993). A study by Lyketsos over a 17 month period revealed that 8% of HIV patients developed mania whereas only 1% of the general population developed mania (Lyketsos CG, 1993).

2.2 Clinical Profile

Secondary mania may have a different clinical picture compared to primary mania. A cross-sectional study by Ethel Mpungu-Nakimuli in Uganda examined 141 psychiatric patients admitted to Mulago and Butabika Hospitals (Nakimuli et al, 2006). They found that the clinical picture of HIV negative patients with primary mania was different from that of HIV positive patients with first episode secondary mania. The HIV positive patients with secondary mania had more manic symptoms according to the Young Mania Rating Scale. They were found to be more irritable, more aggressive and disruptive, more talkative, had a decreased need for sleep, higher rates of paranoid delusions, visual and auditory hallucinations. In the same study, HIV positive patients with secondary mania were found to have a CD4 count of less than 200 cells/mm³ (Nakimuli et al, 2006).

Two other studies in Uganda have described the demographic and clinical profile of patients with HIV related secondary mania in comparison to that of HIV negative individuals with primary mania (Nakimuli et al, 2009, Nakimuli et al, 2006). These studies showed that patients who met criteria for secondary mania were older, female, of low economic status, had no college education, were divorced or separated (Nakimuli et al, 2009). Clinically, they presented in late stages of infection with more severe manic and psychotic episodes. Cognitive impairment as indicated by MMSE, was greater in HIV positive patients with secondary mania than in HIV negative patients with primary mania (Nakimuli et al, 2009, Nakimuli et al, 2006). HIV positive patients with secondary mania were more likely to be immunologically suppressed with low CD4 counts, than HIV negative patients with mania (Nakimuli et al, 2006).
Lyketsos et al compared manic patients whose manic episode came late in their HIV course with CD4 count <200 and those whose episode came early with CD4 count >200. Late onset patients were less likely to have a personal or a family history of mania or any other mood disorder, which presumably means they were less likely to have Bipolar Disorder or a genetic predisposition to mania (Fishman M, 1996). They were more likely to have developed dementia or other cognitive impairment indicating brain damage (Fishman M, 1996).

The association of mania with transitioning from asymptomatic infection to advanced disease also supports the notion that there is a strong underlying organic basis to manic symptomatology (Kooistra B, 2009).

Mania occurring in advanced HIV disease appears to be more common as evidenced in a study by Ellen et al which revealed that over a 29 month period prevalence secondary was 1.4% in HIV positive patients and 4.3% in patients with advanced stage HIV (Ellen et al, 1999).

Late onset patients had a greater number of manic symptoms than early onset patients. They were more irritable and more talkative (Lyketsos CG, 1993).

In late stage patients are far more sensitive to therapeutic effects but even more so to the toxic side effects of neuroleptics (Fishman M, 1996).

Late onset presentations associated with a high viral load are likely to have cognitive impairment when compared to earlier onset and lower viral loads (Lyketsos et al, 1997). Because patients have cognitive deficits, they are less likely to pursue treatment independently or consistently (Fishman et al, 1996).
Manic symptoms were described as tending to occur in patients already exhibiting signs of immunodeficiency conversely, the initial occurrence of manic symptoms may lead to the discovery of HIV infection (Ellen et al, 1999).

Manic symptoms would need to be controlled as they are associated with promiscuity and substance abuse which is a risk factor for contracting HIV (Kaplan, Saddock 2007).

2.3 Possible significant clinical correlates of secondary mania caused by HIV

2.3.1 Syphilis: HIV patients have an increased rate of infection with Syphilis (Anthony et al, 2008). Syphilis can present with manic-like symptoms although this is accompanied by delirium. Syphilis worsens the progression of HIV which can be arrested by treatment of the mental slowing, forgetting, poor concentration, and behavioural abnormalities. It occurs late in the course of the infection, and is estimated to be present in about 10-20% of all infected patients. It is best correlated with monocyte infiltration into the brain and the level of microglial activation. Neuroimaging shows generalised white matter loss with grey matter loss in the basal ganglia. Untreated patients live only 6-9 months after HAD is detected (Lyketsos C G, 1993).

2.3.2 Nutritional status: A recent study in Sub-Saharan Africa showed that food insecurity as measured by the Household Food Insecurity Access Scale is closely related to the physical health quality of life, which itself is closely related to mortality from AIDS (Kim, 2008). Food supplementation of HIV patients has improved the course of their illness (Leishman, 2008).

2.3.3 Brain pathology: Currently there are no studies to show the brain pathology of primary mania (Kaplan Saddock, 2007). The effects of HIV-1 Infection on the brain is by:
• Direct neurotoxicity from the virus and its proteins such as the envelope glycoprotein gp120 of the regulatory protein Tat.

• Indirectly via sustained chronic immune activation and inflammation. (Davies et al, 1996). In the CNS, HIV-1 infects microglia and macrophages of bone marrow lineage rather than through the direct lytic infection of the neurons and glial cells. During the acute infection, often as early as the first few weeks, the virus enters the brain via infected monocytes and lymphocytes across the blood brain barrier (BBB). Autopsy findings demonstrate that in AIDS the brain is rarely entirely normal even when there has been no clinical detection of brain involvement (Tan, 2012).

• **Opportunistic infections of the brain:** There is no direct evidence that shows secondary mania is associated with increased incidence of CNS opportunistic infections among severely immunologically suppressed patients. There are several CNS opportunistic infections that occur in varying prevalence among HIV infected patients. JC virus damages oligodendrocytes which are responsible for myelination (Weiser, 2012). It causes a progressive multifocal leukoencephalopathy which affects about 4% of AIDS sufferers (Tan, 2012). Cryptococcal meningitis affects around 10% of AIDS patients and particularly the basal ganglia. Cytomegalovirus affects around 9% of AIDS sufferers and can cause direct encephalitis resulting in cell death. Toxoplasmosis, a plasmodium affects about 4% of AIDS sufferers and is neurotoxin. Epstein-Barr virus causes an encephalitis and eventually cancer.

• **HIV Encephalitis** is almost universal in patients with AIDS. The encephalitis is particularly prominent in the basal ganglia and central white matter. There can be widespread inflammation. Manic-like illnesses have been linked to brain inflammation as have manic episodes in Bipolar disorder (Fishman M, 1996).
2.3.4 HAD: HIV associated dementia is defined as a marked impairment in cognitive functioning and produces marked interference with daily functioning (Davis et al, 1996). There is a close correlation between HIVE and HAD, but not absolute. HAD can occur without HIVE. Symptoms and signs include tremor, gait ataxia, loss of fine motor movement, mental slowing, forgetting, poor concentration, and behavioural abnormalities. It occurs late in the course of the infection, and is estimated to be present in about 10-20% of all infected patients. It is best correlated with monocyte infiltration into the brain and the level of microglial activation. Neuroimaging shows generalised white matter loss with grey matter loss in the basal ganglia. Untreated patients live only 6-9 months after HAD is detected (Lyketsos CG, 1993).

2.4 Summary
The previous studies have shown that there is a difference with Bipolar Disorder mania and mania secondary to HIV in both its symptom profile and severity. Mania secondary to HIV is characterized by irritability rather than euphoria. HIV positive patients with secondary mania were more likely to be immunologically suppressed with low CD4 counts, than HIV negative patients with mania. Currently it is not known how patients with mania secondary to HIV present in Zambia. It is not clear if it is associated with low CD count or if they are more irritable than they are euphoric. It is important to identify these patients as this could lead to detection of HIV and also better management of HIV in patients who already know their status.
Chapter Three: Research Methodology

3.0 Overview
This chapter will focus on the research methods that were used to collect and analyze data to evaluate the mania secondary to HIV.

3.1 Study Design
A case series is a descriptive study that follows a group of patients who have a similar diagnosis or who are undergoing the same procedure over a certain period of time (Kooistra, 2009).

This study design is a case series. Patients with acute manic episodes were admitted to Chainama Hills College Hospital and University Teaching Hospital. They were recruited for a period of 2 months. They were assessed for symptom severity, demographic and clinical characteristics of interest at time of recruitment (i.e. day of admission) and followed up at 4 weeks and at 8 weeks.

3.2 Study Population and Sample Size
The study took place at Chainama Hospital, Zambia’s only national referral mental hospital which is in the east of Lusaka and University Teaching Hospital which is the largest referral hospital. The study population was all HIV positive patients who presented with acute mania at Chainama Hills Hospital and University Teaching Hospital.

As this is a case series, sample size calculation did not need to be performed. Patients were enrolled over a period of 2 months and a total of 10 patients were recruited during this period.
3.3 Inclusion Criteria

- All HIV positive patients who presented with acute mania at Chainama Hills Hospital and University Teaching Hospital
- All HIV positive patients who will met the DSM-IV TR criteria for manic episodes with no previous manic episode in the absence of HIV

3.4 Exclusion Criteria

- Patients who were critically ill or have severe cognitive impairment MMSE<23
- Family history of mood disorders
- Patients who met DSM IV-TR criteria for Drug Dependence
- Refusal or inability to consent

3.5 Study Procedure

Patients were recruited after they have been admitted to the wards. A research assistant (clinical officer) identified patients for the study. The Principal Investigator was alerted of the new patients. The Principal Investigator obtained consent to the study from either patients or relatives. Those whose gave consent were given numbers. Patients received standard routine care which included a psychiatric history being obtained using the semi-structured psychiatric interviews lasting between 30min to 1 hour from patients as well relatives and caregivers. Thereafter a physical examination and mental state examination were conducted. DSM IV- TR criteria was used to confirm mania clinically. The severity of manic symptoms was assessed using Young Mania Rating Scale. Patients were given standard treatment for acute mania. This consists of antipsychotics and mood stabilizers. These patients were also commenced on HAART. The laboratory findings, results from Young Mania Rating Scale, Mini Mental State
Exam and histories were then recorded in a book and sealed in envelopes. Once patients had been discharged, they were followed up at 4 weeks and 8 week intervals. Those patients who travelled from long distances like rural areas, were followed up by use of mobile phone to interview patients and care givers.

3.6 Data Analysis

The Statistical Package for the Social Sciences (SPSS), version 20 was used to calculate various measures of central tendency, measures of dispersion, frequency distributions, and draw charts. The study hypotheses were tested using Independent Samples t Test at significance level of 0.05.

3.7 Ethical Consideration

Ethical clearance was obtained from the University of Zambia Research Ethics Committee (UNZABREC). Permission to take part in study was sought from participants or next of kin who were assured of anonymity and confidentiality. This was particularly important in mental patients as they are special population who needed to be protected. Written informed consent was obtained from each participant or next of kin. If participants could not read, the document was read to the participant. All consenting participants signed the consent forms; if the individuals were illiterate, the individual could signify consent by use of a thumbprint, witnessed by a study investigator or his/her representative. Data collection material was kept under lock and key. Participants could benefit in that those patients who presented with acute mania were also be managed for their HIV condition. The results of this study will only be used for academic purposes and enriching the scientific knowledge base.
CHAPTER FOUR: FINDINGS

4.0 Overview

This Chapter presents the findings of the study.

4.1 Biographical Characteristics of the Patients

There were ten patients who participated in this study. Table 1 presents the biographical characteristics of the patients. Six patients were females and four were males. The minimum age of the participants was 19 years; the maximum age was 48 years while the average age was 35.3 years. Three participants were aged 19-28 years, two were aged 29-38 years, and five were aged 39-48 years. Four were single, another four were married, and two were widowed. Two had attained primary education, two had attained junior secondary education, two had attained senior secondary education, and four had attained tertiary education. Four participants were unemployed while six were in employment. Except for one participant who came from Kafue, six participants were drawn from different parts of Lusaka (Kamwala South, Garden House, New Kasama, Chelstone, Lusaka West, and Kanyama). Three participants did not indicate their residential areas. Only four patients were unable to give consent. All the ten participants had undergone DSM IV-TR diagnosis of mania.
Table 1: Characteristics of the patients

<table>
<thead>
<tr>
<th>Variables</th>
<th>Values</th>
<th>Frequency (n=10)</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sex</td>
<td>Female</td>
<td>6</td>
<td>60.0</td>
</tr>
<tr>
<td></td>
<td>Male</td>
<td>4</td>
<td>40.0</td>
</tr>
<tr>
<td>Age</td>
<td>19-28 years</td>
<td>3</td>
<td>30.0</td>
</tr>
<tr>
<td></td>
<td>29-38 years</td>
<td>2</td>
<td>20.0</td>
</tr>
<tr>
<td></td>
<td>39-48 years</td>
<td>5</td>
<td>50.0</td>
</tr>
<tr>
<td>Marital status</td>
<td>Single</td>
<td>4</td>
<td>40.0</td>
</tr>
<tr>
<td></td>
<td>Married</td>
<td>4</td>
<td>40.0</td>
</tr>
<tr>
<td></td>
<td>Widowed</td>
<td>2</td>
<td>20.0</td>
</tr>
<tr>
<td>Educational level attained</td>
<td>Primary</td>
<td>2</td>
<td>20.0</td>
</tr>
<tr>
<td></td>
<td>Junior secondary</td>
<td>2</td>
<td>20.0</td>
</tr>
<tr>
<td></td>
<td>Senior secondary</td>
<td>2</td>
<td>20.0</td>
</tr>
<tr>
<td></td>
<td>Tertiary education</td>
<td>4</td>
<td>40.0</td>
</tr>
<tr>
<td>Employment status</td>
<td>Unemployed</td>
<td>4</td>
<td>40.0</td>
</tr>
<tr>
<td></td>
<td>Employed</td>
<td>6</td>
<td>60.0</td>
</tr>
</tbody>
</table>

Table 2 shows the distribution of CD4 count among the patients. The minimum CD4 count was 3; the maximum CD4 count was 319 while the average CD4 count was 156.00 (standard deviation = 142.450); median was 152.50. CD4 count of four participants was unavailable.

Table 2: Distribution of CD4 count among the patients

<table>
<thead>
<tr>
<th>CD4 count</th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>1</td>
<td>10.0</td>
<td>16.7</td>
</tr>
<tr>
<td>9</td>
<td>1</td>
<td>10.0</td>
<td>16.7</td>
</tr>
<tr>
<td>85</td>
<td>1</td>
<td>10.0</td>
<td>16.7</td>
</tr>
<tr>
<td>Valid</td>
<td>220</td>
<td>1</td>
<td>10.0</td>
</tr>
<tr>
<td>300</td>
<td>1</td>
<td>10.0</td>
<td>16.7</td>
</tr>
<tr>
<td>319</td>
<td>1</td>
<td>10.0</td>
<td>16.7</td>
</tr>
<tr>
<td>Total</td>
<td>6</td>
<td>60.0</td>
<td>100.0</td>
</tr>
<tr>
<td>Missing</td>
<td>Not stated</td>
<td>4</td>
<td>40.0</td>
</tr>
<tr>
<td>Total</td>
<td>10</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

4.2 Prevalence of Specific Clinical Characteristic of Mania to HIV Patients

The findings revealed that at the time of recruitment (Time 1) and at time of follow up (4 weeks), (Time 2) all the patients had mania (YMRS >20). The results further revealed that at the time of recruitment, seven patients were irritable (had irritability
score ≥ 4), at time of follow up (4 weeks), four patients were irritable and at time of follow up (8 weeks), all the ten patients had no symptoms of irritability. Table 3 presents descriptive statistics on YMRS readings at time of recruitment and follow ups (4 weeks and 8 weeks) and irritability scores on YMRS, respectively. At Time 1, the minimum YMRS 27 while the maximum YMRS was 53, giving a range of 27. At Time 2, the minimum YMRS 23 while the maximum YMRS was 36, giving a range of 13. At Time 3, the minimum YMRS zero (0) while the maximum YMRS was 10, giving a range of 10. Furthermore, the results revealed that the YMRS mean scores were progressively declining from recruitment to week 8. At Time 1 the mean YMRS was 42.70, at Time 2 the mean YMRS was 30.30, and at Time 3 the mean YMRS was 3.70. Figure 1 shows a declining YMRS linear trend pattern. In addition, Table 3 reveals that at Time 1, the minimum irritability score (IRS) was 2 while the maximum was 8, giving an IRS range of 6. At Time 2, the minimum irritability score (IRS) was 0 while the maximum was 6, giving an IRS range of 6. At Time 3, the minimum irritability score (IRS) was 0 while the maximum was 2, giving an IRS range of 2. The mean irritability score (IRS) on YMRS at Time 1 was 5.20, at Time 2 the mean IRS was 2.80, and at Time 3 it was 0.40. Figure 2 shows a declining IRS linear trend pattern.

Table 3: Descriptive Statistics on YMRS and Irritability Score on YMRS

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>Range</th>
<th>Minimum</th>
<th>Maximum</th>
<th>Mean</th>
<th>Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>YMRS Time 1</td>
<td>10</td>
<td>26</td>
<td>27</td>
<td>53</td>
<td>42.70</td>
<td>8.447</td>
</tr>
<tr>
<td>YMRS Time 2</td>
<td>10</td>
<td>13</td>
<td>23</td>
<td>36</td>
<td>30.30</td>
<td>5.012</td>
</tr>
<tr>
<td>YMRS Time 3</td>
<td>10</td>
<td>10</td>
<td>0</td>
<td>10</td>
<td>3.70</td>
<td>3.889</td>
</tr>
<tr>
<td>IRS Time 1</td>
<td>10</td>
<td>6</td>
<td>2</td>
<td>8</td>
<td>5.20</td>
<td>2.700</td>
</tr>
<tr>
<td>IRS Time 2</td>
<td>10</td>
<td>6</td>
<td>0</td>
<td>6</td>
<td>2.80</td>
<td>2.348</td>
</tr>
<tr>
<td>IRS Time 3</td>
<td>10</td>
<td>2</td>
<td>0</td>
<td>2</td>
<td>.40</td>
<td>.843</td>
</tr>
</tbody>
</table>

NB: Time1 = Time of recruitment; Time 2 = Follow up (4 weeks); Time 3 = Follow up (8 weeks).
Figure 1: Trend analysis of YMRS
Further analyses were conducted to test the following hypotheses.

1. $H_0$: there is no difference in the YMRS at time of recruitment and YMRS on follow up (4weeks and 8weeks).

2. $H_0$: there is no difference in the Irritability Score on YMRS at time of recruitment and follow up (4weeks and 8 weeks).

Both hypotheses were tested using Paired samples t tests at a significance level of 0.05. The results are presented in Tables 4. In both cases the results were statistically significant. The mean YMRS at follow ups (4weeks and 8weeks) was significantly lower than mean YMRS at the time of recruitment. ($t=5.724; df=9; p=0.001; <0.05$). Furthermore, the mean Irritability Score on YMRS at follow ups (4weeks and 8 weeks)
was significantly lower than mean Irritability Score on YMRS at baseline ($t=3.674; \text{df}=9; \ p=0.005; <0.05$).

### Table 4: Paired Samples Test results

<table>
<thead>
<tr>
<th>Paired Differences</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>Std. Error Mean</th>
<th>95% Confidence Interval of the Difference</th>
<th>t</th>
<th>df</th>
<th>Sig. (2-tailed)</th>
</tr>
</thead>
<tbody>
<tr>
<td>YMRS Time 1 - YMRS Time 2</td>
<td>12.400</td>
<td>6.851</td>
<td>2.166</td>
<td>7.499</td>
<td>17.301</td>
<td>5.724</td>
<td>9</td>
</tr>
<tr>
<td>YMRS Time 1 - YMRS Time 3</td>
<td>39.000</td>
<td>7.817</td>
<td>2.472</td>
<td>33.408</td>
<td>44.592</td>
<td>15.776</td>
<td>9</td>
</tr>
</tbody>
</table>

Further Independent t Tests were conducted to establish whether age had any association with mania. The findings indicated that at Time 1 ($t=0.173; \text{df}=3; \ p=0.873$), at Time 2 ($t=0.131; \text{df}=3; \ p=0.904$), and at Time 3 ($t=1.549; \text{df}=3; \ p=0.219$) there was no association between gender and irritability. Similarly, there was no significant association between mania and gender at Time 1 ($t=1.767; \text{df}=8; \ p=0.115$) and at Time 2 ($t=0.919; \text{df}=8; \ p=0.385$), except at Time 3 ($t=2.438; \text{df}=8; \ p=0.041$). Female patients (mean YMRS=5.67) had higher levels of mania than male patients (mean YMRS=0.75).

Further Independent t Tests were conducted to establish whether gender had any association with levels of irritability. The findings indicated that at Time 1 ($t=0.181; \text{df}=8; \ p=0.861$), at Time 2 ($t=0.313; \text{df}=8; \ p=0.762$), and at Time 3 ($t=-0.290; \text{df}=8; \ p=0.779$) there was no association between gender and irritability. Similarly, there was no significant association between irritability and age ($t=0.775; \text{df}=3; \ p=0.495$).
Chapter Five: Discussion

5.0 Overview

This chapter will discuss the results of the study which were presented in the previous chapter. The results will be discussed in relation to the research question, what are the clinical characteristics of mania secondary to HIV in Zambia. A summary of findings will be discussed thereafter their relation to studies previously done on mania secondary to HIV.

5.1 Summary of the Findings

Patients were recruited from those that were admitted to Chainama Hills Hospital as well as those who attended Clinic 6 (Psychiatry clinic) of the University Teaching Hospital. Patients were all HIV positive and had not been commenced on HAART. The findings show that prior to commencing HAART, the patients were found to be very irritable and scored high on the Young’s Mania Rating Scale. The mean irritability score of YMRS at time of recruitment was 5.20 (SD 2.7), while at the time of follow up (4weeks) it was 2.40 (SD 2.06) and at the time of follow up (8weeks) it was zero. The mean score for Young’s Mania Rating Scale at time of recruitment was 42.70 (SD 8.447) while at follow up (4weeks) it was 12.40 (SD 6.85) and at follow up (8weeks) it was zero. There is a significant difference in both results. The mean YMRS at follow ups (4and 8weeks) was significantly lower than mean YMRS at time of recruitment (t=5.724; df=9; p=0.001; <0.05). Furthermore, the mean Irritability Score on YMRS at follow ups (4and 8weeks) was significantly lower than mean Irritability score on YMRS at time of recruitment. (t=3.674; df=9; p=0.005; <0.05). This shows that use of anti-psychotics, mood stabilizers and initiation of HAART in patients with mania due to HIV is effective in the management of these patients. These clinical findings reveal that
the use of psychiatric intervention and initiation of HAART reduced the irritability score of the participants.

Nakimuli-Mpungu et al, (2006) did a study on primary mania versus HIV related secondary mania in Uganda. They found that HIV positive patients with HIV related secondary mania were more irritable with a mean score of 7.5 (S.D 1.2) p<0.001 and they had a higher score on the Young’s Mania Rating Scale 48 (S.D 5.5) p<0.001. This is line with the present study in which the mean irritability score at the time of recruitment was 5.20 (SD 2.7) though it reduced to 2.40 (SD 2.06) at follow up (4weeks) and further reduced to zero at follow up (8weeks). The mean score for Young’s Mania Rating Scale at time of recruitment was 42.70 (SD 8.447). It reduced to 12.40 (SD 6.85) at the time of follow up (4weeks) and further reduced to zero at the follow up (8weeks). In the same study, they noted that the patients with secondary mania due to HIV/AIDS were less educated. 60.6% of the participants were educated up to primary level or less and 39.4% of the participants were educated up to secondary level or more. The findings of the present study are in contrast with this as 20% of the participants were educated up to primary level or less and 80% of the participants were educated up to secondary level or more. However, looking at the limitations of the present study in which the sample size was very small, these findings cannot be generalized.

Nakimuli-Mpungu et al in a controlled study of demographic profiles and clinical characteristics of Bipolar mania and secondary mania in persons with HIV/AIDS in Uganda in 2009, found out that patients with secondary mania due to HIV/AIDS were older at the time of onset of first episode of mood symptoms. The findings of the present study are in line with the previous study as the average age of the patients with secondary mania due to HIV/AIDS was about 35.3years, which shows that they were older. It is interesting to note that both the participants that were younger than 35 years were born with HIV, reflecting that they both manifested with mood symptoms at a much later stage of their HIV. Both of these participants did not have a family history of mood disorders.
Lyketsos et al, (1993) in a case series of manic syndrome early and late in the course of HIV reported that HIV positive patients with mania all suffered from advanced HIV disease (AIDS). The CD4 count of all patients who had no family history of HIV was less than 100. The mean age of patients with a history of mood disorder was 33.6 years (SD 5.4). These findings are similar to the current study in that all participants had no history of mood disorder and the mean age of participants was 35.3 years. Interestingly, however the highest CD4 count was 319 and the lowest was 3. The average CD4 count was 156.00 (SD142.45); median was 152.50.

Case 1

Case 1 was a 46 year old female widow who had recently tested HIV positive with a CD4 count of 3. Her husband died 15 years prior. She has one child. She had university level of education and was coming from a high social economic background. She had no past or family history of psychiatric illness. She presented with symptoms of elated mood, talking too much, irritability, not sleeping at night, poor appetite, hyperactivity, flight of ideas, auditory hallucinations, had heightened libido, believed that one of the former presidents belonged to a cult, also believed that she was getting married on her birthday, could hear God’s voice talking. She scored above 23 on MMSE. On examination she was not found to have had cognitive deficits. Antipsychotics were commenced on first visit. However, she was not commenced on HAART immediately. On follow up 4 weeks after recruitment she was still disinhibited and grandiose and still slightly irritable. Her initial score on YMRS was 48 at time of recruitment with an irritability score of 8. On 4 week follow up her YMRS was 35 and irritability score 4. HAART was only commenced after her 4 week follow up. On the second follow up (8 weeks) she was asymptomatic on mental state exam and scored zero on YMRS. A diagnosis of Mania secondary to HIV was made because she had no previous psychiatric history and neither did she have a family history of mental illness.
Case 2

Case 2 was a HIV positive 19 year old male who had contracted HIV from his mother at birth. He came from a poor social economic background. He had no past or family history of a psychiatric illness. He presented with symptoms of violent behavior, talking too much, irritability not sleeping, seeing visions, increased libido, impulsivity, believing that he was a famous footballer, believed that he had large sums of money in several different accounts. He would dish out money that he had saved up from the allowance his mother gave him and at times used the money to buy alcohol. He would be over familiar with women he didn’t know and would pay those compliments. He had no cognitive deficits on assessments. On MMSE, he scored higher than 23. His initial score on YMRS was 53, and an irritability score of 8. On examination he had no cognitive deficits. On 4 week follow up he scored 36 on YMRS and 4 on irritability. HAART was commenced on admission to Chainama hospital. On follow up (8weeks), he was asymptomatic and scored zero on YMRS. CD4 count was not available as both patient and mother could not recall.

Case 3

Case 3 was a 44 year old female HIV positive, single, university level of education. She had never been married. She came from a high social economic background. She had no previous history of psychiatric illness and neither did she have a family history of mental illness. She presented with elated mood, over familiarity, pressure of speech, hyperactivity, difficulties concentrating with work, thinking too much, anxiety, racing thoughts, disinhibition, decreased need for sleep, increased libido. Her CD 4 count was 220. She initially scored 45 on YMRS and 4 for irritability. She scored 23 on MMSE. She had no cognitive deficits. She was put on Olanzapine and Lorazepam and also initiated on HAART (Truvada and Nevirapine). On 4 week follow up she scored 23 on YMRS and had an irritability score of 2. On mental state, she appeared calmer,
cooperative but with slight irritability. On 8 week follow up she was asymptomatic and scored zero on YMRS.
Chapter Six: Conclusion

6.0 Overview

This chapter will discuss the conclusion drawn from the present study, limitations noted in the study and recommendations.

6.1 Conclusion

This study was done to gain more knowledge of mania secondary to HIV in patients who presented at Chainama Hills College Hospital and University Teaching Hospital, Lusaka, Zambia. The study was done to determine whether the specific clinical characteristics of mania secondary to HIV identified in previous studies are also found in Zambian patients, and to determine whether patients with secondary mania have increased irritability. The study was a case series. HIV positive patients with acute manic episodes were admitted to Chainama Hills College Hospital and University Teaching Hospital were recruited for a period of 2 months. They were assessed for symptom severity, demographic and clinical characteristics of interest at time of recruitment. The findings show that prior to commencing HAART, the patients were found to be very irritable and scored high on the Young’s Mania Rating Scale. This shows that the use of antipsychotics, mood stabilizer combined with the commencement of HAART is very effective in treating mania secondary to HIV.

6.2 Study Limitations

This study was done only at Chainama Hills Hospital and University Teaching Hospital in Lusaka, in so doing it does not represent the general population of Zambia. Instead it represents a sample from a very limited population and the sample size was small so the results of this study cannot be generalized. Furthermore, due to limited time, the
participants were only followed up for 8 weeks after discharge from the hospital so the study did not look at the long term follow up of these patients.

6.3 Recommendations

Based on the findings of this study, it is recommended that HIV positive patients who present with mania secondary to HIV should be given anti-psychotics and mood stabilizers as well as commenced on Highly Active Anti-retroviral Treatment.

This study was done at Chainama Hills Hospital and University Teaching Hospital in a small population. It would be more helpful to replicate the study in other parts of Zambia at a large scale as it will help to generalize these results to all over Zambia. It would be more helpful if future study should look into the role of factors like age, education level, socioeconomic status and employment in mania secondary to HIV.

It would be helpful to follow up patients for a longer duration as this will help find out whether patients relapse after discontinuing anti-psychotics or they stay well.
References


UNAIDS Report, 2009
Appendices

Appendix A: Consent Form

Patient’s agreement:

..............................................................have been informed about the study and accept to be entered for the project:

Case Series of Mania Secondary to HIV

Signature or thumb print of the patient............................................

Signature or thumb print of the relative...........................................

Witness..............................................

Date.................................................
Appendix B: DSM-IV-TR Criteria for Manic Episode

A. A distinct period of abnormally and persistently elevated, expansive, or irritable mood, lasting at least 1 week (or any duration if hospitalization is necessary).

B. During the period of mood disturbance, three (or more) of the following symptoms have persisted (four if the mood is only irritable) and have been present to a significant degree:

(1) inflated self-esteem or grandiosity
(2) decreased need for sleep (e.g., feels rested after only 3 hours of sleep)
(3) more talkative than usual or pressure to keep talking
(4) flight of ideas or subjective experience that thoughts are racing
(5) distractibility (i.e., attention too easily drawn to unimportant or irrelevant external stimuli)
(6) increase in goal-directed activity (either socially, at work or school, or sexually) or psychomotor agitation
(7) excessive involvement in pleasurable activities that have a high potential for painful consequences (e.g., engaging in unrestrained buying sprees, sexual indiscretions, or foolish business investments)

C. The symptoms do not meet criteria for a mixed episode.

D. The mood disturbance is sufficiently severe to cause marked impairment in occupational functioning or in usual social activities or relationships with others, or to necessitate hospitalization to prevent harm to self or others, or there are psychotic features.

E. The symptoms are not due to the direct physiological effects of a substance (e.g., a drug of abuse, a medication or other treatment) or a general medical condition (e.g., hyperthyroidism).
NOTE: Manic-like episodes that are clearly caused by somatic antidepressant treatment (e.g., medication, electroconvulsive therapy, light therapy,) should not count toward a diagnosis of bipolar I disorder.
Appendix C: Patient Information Sheet

Introduction

We are carrying out a study looking at Secondary Mania in HIV Positive patients. This form provides the information on the study. Please read it and then decide whether you wish to take part in the study.

Who is carrying out this study?

I Dr Chioni Siwo a postgraduate student training for a masters in psychiatry at University of Zambia.

Purpose of Research

Secondary Mania in HIV patients has known to be found in some patients in Zambia. Presently we do not know how many patients with HIV will present with Secondary mania in Zambia. We would like to know how the disease progresses and how we long we can continue giving drugs to patients after the symptoms have resolved.

Your participation in this research is entirely voluntary. It is your choice whether to participate or not. Whether you choose to participate or not, all the services you receive at this clinic will continue and nothing will change. If you choose not to participate in this research project, you will offered the treatment that is routinely offered in this clinic/hospital for secondary mania, and we will tell you more about it later. You may change your mind later and stop participating even if you agreed earlier.

Benefits

The results of the study can help improve the care of HIV patients who present with acute mania Chainama Hills Hospital and University Teaching Hospital. Please note that participants will not be awarded any sort of compensation.
**Risks**
There are no risks involved for the participants in this study, however you have the right to refuse or you can withdraw from the study at any time. This will not affect the normal care you have been receiving at the hospital.

**Confidentiality**
Your name and other personal identifiers will not be used in this study. Your participation in the study is on a voluntary basis. Your treatment will not be affected whether or not you wish to take part in the study.

**Questions:**
Should you seek any clarifications concerning this study, please contact me:

Dr Chioni Siwo  
Chainama Hills Hospital  
P O Box 30043  
Lusaka  
Mobile no. 0977347428

OR

Biomedical Research and Ethics Committee  
Ridgway Campus  
P. O. Box 50110, Lusaka  
Ph: 256067
Appendix D: Young Mania Rating Scale (YMRS)

GUIDE FOR SCORING ITEMS:

The purpose of each item is to rate the severity of that abnormality in the patient. When several keys are given for a particular grade of severity, the presence of only one is required to qualify for that rating.

The keys provided are guides. One can ignore the keys if that is necessary to indicate severity, although this should be the exception rather than the rule.

Scoring between the points given (whole or half points) is possible and encouraged after experience with the scale is acquired. This is particularly useful when severity of a particular item in a patient does not follow the progression indicated by the keys.

1. Elevated Mood

   a) 0 Absent
   b) 1 Mildly or possibly increased on questioning
   c) 2 Definite subjective elevation; optimistic, self-confident; cheerful; appropriate to content
   d) 3 Elevated; inappropriate to content; humorous
   e) 4 Euphoric; inappropriate laughter; singing

2. Increased Motor Activity-Energy

   a) 0 Absent
   b) 1 Subjectively increased
   c) 2 Animated; gestures increased
   d) 3 Excessive energy; hyperactive at times; restless (can be calmed)
   e) 4 Motor excitement; continuous hyperactivity (cannot be calmed)
3. Sexual Interest

a) 0 Normal; not increased
b) 1 Mildly or possibly increased
c) 2 Definite subjective increase on questioning
d) 3 Spontaneous sexual content; elaborates on sexual matters; hypersexual by self-report
e) 4 Overt sexual acts (toward patients, staff, or interviewer)

4. Sleep

a) 0 Reports no decrease in sleep
b) 1 Sleeping less than normal amount by up to one hour
c) 2 Sleeping less than normal by more than one hour
d) 3 Reports decreased need for sleep
e) 4 Denies need for sleep

5. Irritability

a) 0 Absent
b) 2 Subjectively increased
c) 4 Irritable at times during interview; recent episodes of anger or annoyance on ward
d) 6 Frequently irritable during interview; short, curt throughout
e) 8 Hostile, uncooperative; interview impossible

6. Speech (Rate and Amount)

a) 0 No increase
b)  2 Feels talkative

c)  4 Increased rate or amount at times, verbose at times

d)  6 Push; consistently increased rate and amount; difficult to interrupt

e)  8 Pressured; uninterruptible, continuous speech

7. **Language-Thought Disorder**

   a)  0 Absent

   b)  1 Circumstantial; mild distractibility; quick thoughts

   c)  2 Distractible, loses goal of thought; changes topics frequently; racing thoughts

   d)  3 Flight of ideas; tangentiality; difficult to follow; rhyming, echolalia

   e)  4 Incoherent; communication impossible

8. **Content**

   a)  0 Normal

   b)  2 Questionable plans, new interests

   c)  4 Special project(s); hyper-religious

   d)  6 Grandiose or paranoid ideas; ideas of reference

   e)  8 Delusions; hallucinations

9. **Disruptive-Aggressive Behavior**

   a)  0 Absent, cooperative

   b)  2 Sarcastic; loud at times, guarded

   c)  4 Demanding; threats on ward

   d)  6 Threatens interviewer; shouting; interview difficult

   e)  8 Assaultive; destructive; interview impossible
10. Appearance

a) 0 Appropriate dress and grooming
b) 1 Minimally unkempt
c) 2 Poorly groomed; moderately disheveled; overdressed
d) 3 Disheveled; partly clothed; garish make-up
e) 4 Completely unkempt; decorated; bizarre garb

11. Insight

a) 0 Present; admits illness; agrees with need for treatment
b) 1 Possibly ill
c) 2 Admits behavior change, but denies illness
d) 3 Admits possible change in behavior, but denies illness
e) 4 Denies any behavior change