DEPARTMENT OF PSYCHIATRY, SCHOOL OF MEDICINE,

COLLEGE OF HEALTH SCIENCES, ADDIS ABABA UNIVERSITY

Demographic, Clinical, and Treatment Profiles of Newly Diagnosed Patients with Bipolar Disorder in Amanuel Mental Specialized Hospital: A Retrospective Chart Review

A Research Thesis Submitted to the Department of Psychiatry, School of Medicine, College of Health Sciences, Addis Ababa University, in Partial Fulfillment of the Requirements for the Specialty Program in Psychiatry

Title of the study

Demographic, Clinical, and Treatment Profiles of Newly Diagnosed Patients with Bipolar Disorder in Amanuel Mental Specialized Hospital: A Retrospective Chart Review.

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Contents

TITLE OF THE STUDY 1

ACKNOWLEDGMENT IV

ACRONYMS V

SUMMARY VI

1. INTRODUCTION 1

2. LITERATURE REVIEW 3

3. STATEMENT OF THE PROBLEM 8

4. SIGNIFICANCE OF THE STUDY 10

5. OBJECTIVE 11

5.1. General objective: 11

5.2. Specific objectives: 11

6. METHODOLOGY 12

6.1. Study design: 12

6.2. Study period: 12

6.3. Study setting: 12

6.4. Study Population: 12

6.5. Study participants Inclusion and exclusion criteria 13

Inclusion criteria 13

Exclusion criteria 13

6.6. Sample size 13

6.7. Sampling technique 13

6.8. Data collection 13

6.9. Data quality control methods 14
6.10. Data processing, analysis and interpretation 14
6.11. Dissemination and utilization of the results: 14
6.12. Operational definition: 14
7. ETHICAL CONSIDERATIONS 15
8. RESULT: 16
8.1. Socio-demographic characteristics of the patients: 16
8.2. Clinical Profiles of the Patients: 18
8.2.1. Diagnosis and Specifiers: 18
8.3. Suicidal behavior: 19
8.4. Treatment pattern: 21
8.4.1. Medications: 21
8.5. Follow up: 23
8.6. Missing data from the incomplete recordings: 24
9. DISCUSSION: 26
10. CONCLUSIONS: 28
11. RECOMMENDATIONS: 29
12. STRENGTHS AND LIMITATIONS: 30
13. REFERENCES 31
14. ANNEX-1 35
15. ANNEX 2 40

List of Tables and Figures:

Table 1 the sex, address and marital status of newly diagnosed patients with bipolar disorder at Amanuel Mental Specialized Hospital (AMSH), 2019 16
Table 2 Age stratified by gender for newly diagnosed patients with bipolar disorder at AMSH, 2019 17
Table 3: Description of Specifiers for the first presentation diagnosis stratified by gender of the newly diagnosed patients with bipolar disorder at AMSH, 2019 19
Table 4 Description of suicidal behavior of the patients along the course of illness for new patients with bipolar disorder at AMSH, 2019 19
Table 5 description of Suicidal behavior at first presentation stratified by gender for new patients with bipolar disorder at AMSH, 2019 20
Table 6 Suicidal behavior at first presentation stratified by episodes at presentation for new patients with bipolar disorder at AMSH, 2019 20
Table 7 description of medications prescribed for new patients with bipolar disorder at AMSH, 2019 22
Table 8 Description of injectable medications administered for newly diagnosed patients with bipolar disorders AMSH, 2019 22
Table 9 Descriptions of the follow up patterns of new patients with bipolar disorder at AMSH, 2019 23
Table 10 description of Recorded clinical condition during last visit for new patients with bipolar disorder at AMSH, 2019 ..... **Error! Bookmark not defined.**
Table 12 Description of medication side effects recorded for new patients with bipolar disorder at AMSH, 2019 24
Table 13 description of educational status of new patients with bipolar disorder at AMSH, 2019. 24
Table 14 Description of occupational status of new patients with bipolar disorder at AMSH, 2019. 24
Table 15 history of family mental illness of new patients with bipolar disorder at AMSH, 2019 25

Figure 1 Age distribution of the newly diagnosed patients with bipolar disorder seen at AMSH, 2019 17
Figure 2: Episodes at first presentation for newly diagnosed patients with bipolar disorder at AMSH, 2019 18

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Acronyms

AMSH: Amanuel Mental Specialized Hospital

DALY: Disability Adjusted Life Years

DSM 5: Diagnostic and Statistical Manual 5th edition

HMIS: Health Management Information Systems

LMIC: Lower Income Countries

Mg: Milligram

NICE: National Institute for Health and Care Excellence

OPD: Outpatient Department

PI: Principal Investigator

SPSS: Statistical Package for Social Sciences

Summary

Background

Bipolar disorders are among the most common severe mental illnesses. They are characterized by episodes of mania, hypomania and depression of various severity. Worldwide the prevalence of the disorder is similar with little differences across ethnicity, gender or socioeconomic status. Antipsychotics, mood stabilizers and lithium are among the medications used to treat the disorder.

Objective

The study aimed to identify and describe the clinical profiles, demographic characteristics, and treatment trends of newly diagnosed patients with bipolar and related disorders.

Methodology

The study was conducted at Amanuel Mental Specialized Hospital (AMSH) focusing only on the newly diagnosed patients with bipolar disorders. All newly diagnosed patients with bipolar disorder who visited the hospital from January 1, 2019 – March 30, 2019 were included in the study. All the data were extracted from the charts of the patients.

Results:

Records of a total of 147 newly diagnosed patients with bipolar disorders were evaluated. The study showed a comparable proportion of male (47.6%) and female (52.4%) participants. The mean age of the patients during their visit to the hospital was 29.57 years with a standard deviation of 11.46 years. Aggressiveness 64(43.5%), urge to be on the move 23(15.6%), difficulty of sleeping 18 (12.2%) were the three most common presenting complaints. From the reviewed 147 records, 144 were shown to be bipolar I disorder and the rest 3 were not labelled at all- a simple "bipolar disorder" was recorded as a diagnosis. Most presented with manic episode with psychotic features (42.2%) followed by psychotic features, and depressive episode with psychotic features. More women (n=14) presented with depressive episodes than men (n=7). A total of 57 patients reported/showed various degrees of suicidality, 29 of them had suicidal ideation, while 26 had attempted suicide. All of the patients were prescribed with orally taken antipsychotics. Three quarter of them were also given mood stabilizing anticonvulsants. 59.2% of the patients were prescribed with a combination of antipsychotics and mood stabilizers.

Conclusion:

The sociodemographic characteristics found from this research is comparable to other studies around the world. Bipolar I disorder was the prevailing diagnosis. Most were found to have psychotic features in the study and most had manic episodes at first presentation to the hospital. Most of the patients were administered antipsychotics and required emergency admission.

1. Introduction

Bipolar disorder is one of the three severe mental illnesses along with severe depression and schizophrenia. It is a recurrent illness that can manifest with episodes of mania/hypomania, depression or a mixture of both. It affects around 1-2% of the world population. No differences in gender, ethnicity, nationality or socioeconomic status are observed regarding the prevalence(1). It has early age of onset with the first episode usually occurring before 30 years of age. Second smaller peak of onset of the illness is also observed in the age range 45 to 54 years (2, 3).

Bipolar disorder has several subtypes from which bipolar type 1 and type 2 are the commonest. Other subtypes are cyclothymic disorder, substance/medication induced bipolar disorder, and bipolar disorder due to another medical condition are other subtypes currently categorized in the DSM-5(4).. Bipolar 1 disorder is diagnosed in a patient who at least has one manic episode with or without depressive episodes. If the patient has one or more episodes of depression with a history of at least on hypomanic episode but never had manic episode the patient will be diagnosed to have bipolar 2 disorder(5).

Hypomanic episodes last for shorter duration than manic episodes and are accompanied by less severe symptoms. Therefore, the patient will not have psychotic features or significant functional impairment and will not need hospitalization. When episodes are mixed, for example manic with depressive or hypomanic with depressive, a mixed episode will be the diagnosis(4). In severe episodes patients may develop grandiose delusions and mood congruent hallucinations while in other cases patients may also develop persecutory delusions(6). The disorder is highly comorbid with other psychiatric disorders that worsen the prognosis. Anxiety disorders (60%) and substance use disorders (40%) are among the most common comorbidities (7).

The majority of the patients first present with depressive symptoms (about 60%), and mania and psychosis are the second and third common first presentations for patients later diagnosed with bipolar disorder respectively (8).

The risk of relapse 12 months after a mood episode is high (50%) in the first year of the illness. Patients with residual symptoms of mania or depression have three times more elevated risk of relapse compared with those who have complete recovery(9).

The management of bipolar disorder generally comprises of two phases: acute management and maintenance treatment. Lithium has been found effective for both phases for many decades. But the frequent requirement of blood level monitoring restricts its use(1)**.**

Atypical antipsychotics are the other class of drugs that have been found effective in both acute and maintenance management of bipolar disorder.

Antiepileptics are the other classes of drugs used in both phases of management of bipolar disorder. Valproate and lamotrigine are the widely used mood stabilizers(1).

2. Literature Review

Many researches have been done about bipolar disorder. The researches have tried to pursue knowledge regarding the prevalence, clinical manifestations and socio-demographic characteristics and treatment trends related to bipolar disorder.

A systematic review and metal analysis regarding the prevalence of bipolar disorders was done in 2015. It reviewed 25 population based studies and 276,221 participants. The result found the pooled lifetime prevalence of bipolar disorder type 1 to be 1.06% and that of bipolar type 2 to be 1.57%. The result also showed 0.71% pooled one year prevalence for bipolar type 1 and 0.50% for bipolar type 2 (10).

According to the 2013 study on the global burden of diseases, 32.7 million cases globally in 1990 and 48.8 million in 2013 had bipolar disorder; indicating a 49.1% increase in cases, accounted for by population increase and ageing (11).

A systematic review to determine the epidemiology and burden of bipolar disorder in Africa was done in 2016. In this study, data from community studies in Ethiopia and Nigeria indicated a prevalence estimate of 0.1% to 1.83% for bipolar disorder. Up to 36.2% rate of missed diagnoses was also reported. One study indicated reported previous suicide attempt in male to be 8.1% and females 5.4%. Up to 60% of the patients also had at least one comorbidity(12).

A meta-analysis of epidemiologic studies of pediatric bipolar disorder was done in 2019. The study analyzed a sample of 19 studies from a total of 52 studies, including data from the United States, South America, Central America and Europe. The study found weighted average prevalence of bipolar spectrum disorder to be 3.9% with significant heterogeneity across the studies. The results showed the pooled rate of bipolar one disorder to be 0.6% albeit with significant heterogeneity between studies(13).

Another review and meta-analysis of epidemiologic studies of adult bipolar disorder done in 2017 yielded comparable results. The objective of the study was to see whether there is a change in rates of bipolar disorder over time or across varying geographic regions after adjusting for design features. The study included 85 epidemiologic published studies from 1980 onward from 44 countries with 67,373 people with bipolar disorder. The Meta analysis only included studies which reported prevalence rates for subjects >_ 18 years old. The result showed lifetime prevalence of bipolar spectrum disorder to be 1.02%. Rates from Africa and Asia were less than half of those from north and South America. The study showed that there was no significant change of rate of prevalence over the past 3 decades(14).

A Swedish national cohort study examined the physical health effects of bipolar disorder using outpatient and inpatient data for a national population in 2013. The study included 6618 patients

with bipolar disorder. In this study the risk of suicide was found to be 10 fold among women and 8 fold among men(15)

In a systematic review conducted in Czech Republic in 2013 to determine the comorbidity of bipolar disorders with anxiety disorders; shorter periods of euthymic, increased suicidal thoughts and an increased number of suicide attempt was observed. The result generally observed worse outcomes for those with bipolar disorder and associated anxiety disorders(16).

A systematic review of the prevalence of bipolar disorder in general primary care samples done in 2015 included 15 studies with a sample size at least 200 patients. In 10 of those 12 studies the percentage of patients with bipolar disorder that was found on structured psychiatric interviews was in the range of 0.5% to 4.3%(17).

A systematic review and meta-analysis investigating prevalence determined according to structured clinical assessments done in 2016 tried to assess the prevalence of bipolar disorder without other comorbidities. 16 studies were included with a total of 421,691 participants. The study found global prevalence of bipolar disorder in primary care to be 1.9% (18).

Another study was carried out to describe the demographic profile and clinical features of patients with bipolar disorder in an outpatient setting in Singapore in 2008. The study analyzed data retrieved from the case files from two separate outpatient clinics from January 1999 to October 2003. From the 121 patients treated for bipolar disorder 45% of them were male. Most patients were in the age group between 20-39 years. 48% were married and 58% were employed. The age range of onset of illness was found to lie between 10-29 years. 79% of the patients had the duration of illness for more than two years. From the patients 17% were diagnosed with bipolar 1 disorder, 76% bipolar 2 disorder and 7% not otherwise specified.75% of the patients presented with depression for the first time and bipolar disorder was their initial diagnosis in only 34% of them. 28% of the patients had an antidepressant induced manic episodes. 75% of the patients had no psychotic symptoms, while 65% of the patients had never been hospitalized for their illness. A combination of mood stabilizers, neuroleptics and antidepressants. And 16% had received electroconvulsive therapy. 34% of them were in full remission during the study(19).

A 2016 meta-analytic review tried to answer whether the age of onset is associated with severity, prognosis, and clinical features in bipolar disorder. The objective of the study was to determine clinical characteristics and adverse outcomes associated with an earlier age of onset of the illness. 15 empirical papers that compared clinical presentations and outcomes in individuals with bipolar disorder grouped according to age of onset. The result showed an association between early onset of bipolar illness with greater severity of depressive illness and higher levels of comorbid anxiety and substance abuse. The result has not found any association between early age of onset and the presence psychotic symptoms(20).

A systematic review from Cochrane data base that included randomized control trials was done in 2013 to determine the efficacy of valproic acid, valproate and divalproex in the maintenance treatment of bipolar disorder. They selected randomized control trials that put patients with bipolar disorder on any long-term treatment including valproate or any other mood stabilizer, antipsychotics and placebo. The study indicated that valproate was more effective than placebo in keeping participants from leaving the study due to mood episodes. The study haven't found a difference in efficacy between lithium and valproate. The study also found combination therapy with lithium and valproate to be more likely to prevent relapse than either of the two alone (21).

A review of treatment current options for bipolar disorder was done in 2019. The objective was to outline the common pharmacologic therapies for bipolar disorder. Meta analyses, reviews and original clinical trials were analyzed. The result showed lithium is the most recommended first line treatment for maintenance therapy for bipolar disorder, and antipsychotics were found to be the primary treatments for mania. Lamotrigine and antipsychotics combined with antidepressants were also found to be effective in treatment of bipolar depression. The anti-epileptic sodium valproate is also effective as an anti-manic and mood stabilizing maintenance treatment for bipolar disorders, but its use is restricted in females of reproductive age group due to its high teratogenicity effect. The administration of lithium as long term maintenance treatment for bipolar disorder has also found its restrictions due to the frequent need for serum drug level measurement affecting many patients' adherence to it (1).

Few researches have also been done in Africa. A retrospective, descriptive, comparative study conducted in 2012 in Tunisia in which the objective was to study the evolutionary and clinical characteristics of bipolar disorder according to the polarity of the first episode. The study included all patients who were hospitalized between January 1, 2000 and December 31, 2006. They followed the patients for a minimum of 4 years. The sample of 38 patients were studied of whom 57.89% of them had first episode manic illness as presentation. First episode manic presentation was associated with more manic polarity in later relapses and more psychotic symptoms. Those with first episode depressive illness as first presentation of the illness were found to have more chronic evolution, more recurrence of depressive episodes, and higher suicidal risks (22).

Another study conducted in south east Nigeria in 2010 to determine the demographic and diagnostic characteristics of patients with bipolar disorder 94 patients were involved from two different hospitals. The study was cross sectional. The results showed that mean age of the patients to be 33.7 years and among the patients 58.8 % of them were males. The mean age at onset of the illness was 22.9 years(23).

Another study was done in Nigeria in 2017 to investigate the durations before the recurrence of the manic or depressive episodes. The study retrospectively analyzed the data of 467 people who were treated for bipolar disorder. The median survival time to recurrence of mania and depression among the patients was 1,120 days and 745 days respectively. The study also found strong positive

association between the time to recurrence of mania and depression in bipolar disorder. So longer time to recurrence of mania meant longer time to the recurrence of depression(24).

Although few in number, both community based and hospital based researches have been done on bipolar disorders in Ethiopia.

A community-based study was done in Butajira, Ethiopia in 2005 to determine the prevalence and clinical characteristics of bipolar disorder. The study identified cases using door-to-door screening covering the entire population of the study area screening 68, 378 people. From the 315 cases identified, complete information was collected from 295. The study found the life time prevalence of bipolar disorder to be 0.6% for males and 0.3% for females. The mean age at which the illness was first recognized was 22.0 years with no significant age difference. The age of onset for depressive and manic phases also did not show significant sex difference. Depressive episode was the first manifestation of the bipolar illness in 22.7% of cases while 77.3% of the cases started with manic episode. A small percentage of them (13.2%) had ever been admitted to psychiatric hospital. Only7.1% were found to be undergoing treatment during the survey. Regarding suicide attempt, 8.1% of males reported previous suicide attempt while it was 5.4% for females (25).

Another community-based follow up study in the rural parts of Butajira, Ethiopia was done in 2006 to determine the clinical outcome of bipolar disorder. The study assessed 68,378 individuals, aged between 15-49 years using double sampling design. They monitored 312 patients with bipolar disorder using symptom-rating scales and clinically for an average of 2.5 years. The result of the study showed 65.9% experienced relapse, of which 47.8% had manic episodes, 44.3% depressive, and 7.7% mixed episodes. From the patients 31.1% had experienced persistent illness. Males were found to be prone to manic relapse while females were found to be prone to depressive relapse. The study also found positive association between being on psychotropic medication and achieving remission (26).

The community based follow up study in Butajira Ethiopia in 2006 also tried to determine the symptomatic and clinical outcome for bipolar disorder. In this study, about 264 patients with bipolar disorder were identified after doing door-to-door screening for bipolar disorder. The patients were followed for a mean of 2.5 years prospectively.to determine the functional outcome the functional dimensions of the SF-36 scales (a Questionnaire which is standardized self-report measure of functional health and wellbeing) were used. The results showed that there was improvement in the follow up of the magnitude of depression and mania symptoms from the baseline. The study also showed less marked improvement for depression. The study has not found an association between clinical and demographic variables with improvements in symptomatic outcome. However, it has shown an association between the magnitude of depression and mania symptoms with poor functional outcome. Male sex, rural residence and being married were associated with good functional outcome (27).

A study done in Ziway, Ethiopia in 2004 to determine the prevalence of major psychiatric illness among adult populations of Ziway islands yield interesting results. A total of 1691 adult population were studied. The prevalence of bipolar disorder in general was found to be 1.83%. Surprisingly one of the islands which constituted about 17.33% of the population was found to contribute for 66% of the bipolar cases from the total (28).

A hospital based comparative cross sectional study was conducted in AMSH in 2016 to compare the risk of relapse between bipolar disorders and schizophrenia. It involved 261pateints with schizophrenia and 260 patients with bipolar disorder recruited via -systematic random sampling. A face-to-face interview was conducted. The results showed a high proportion of patients from both groups (81.92% from the schizophrenia group and 82.37% from the bipolar group) had previous history of hospital admissions. The result also showed a slightly higher rate of relapse for bipolar disorders (88.12% bipolar vs. 87.69% schizophrenia.) The result found history of substance use to be a major factor in those with relapse (29).

3. Statement of the Problem

In the global burden of disease study of 2010, the burden of disease attributable to mental illness and substance use disorders in terms of Disability adjusted life years (DALYs) was 183.9 million. Of this, bipolar disorder accounted for 7% of the DALYs (30).

There have been reports of inverse relations between mental illness and economic status. Mental illnesses do not only impact the economic status of the mentally disabled but also impairs those around him/ her. Caregivers providing support with their time, money and energy lose considerable amount of their economic capacity in this process. Available data from rural studies also suggest similar patterns: the median equalized annual income earned by households of persons with severe mental disorders with lower disability was lower than those without a person with severe mental disorder (31).

The guidelines set for treatment of mental disorders are not adequately inclusive of bipolar disorder (32).

Treatment for bipolar disorders in low-income countries is generally insufficient, supported by studies revealing a large gap between the burden of mental disorders and mental health care (33). By the same token, there is considerable treatment gap for bipolar disorders in Ethiopia (26). While the treatment gap for bipolar disorder in middle-income countries was shown to be 70%, it reaches nearly 100% in most low-income countries if one considers prophylactic rather than acute treatment as management of bipolar disorder (33).

The early onset of bipolar illness means a high impact on the patients' occupational, social and educational development which results in long-lasting impact and disability. Among patients with bipolar disorders those with depressive episodes reported to have more severe role impairment (74%) than manic patients (50.9%). About 75% of the patients have at least one comorbid mental disorder and one in every four or five persons with bipolar disorders attempts suicide. In low-income countries less than half of these patients receive treatment while only 25.2% were reported to have had contact with the health system (33).

Due to deficiency of data regarding the clinical characteristics and epidemiology of bipolar disorders, the integration of bipolar disorders in to an integrated mental health system is at risk (32).

The rate of increased health care utilization, need for welfare and suicidal behavior was found to be similar between those with subsyndromal manic patients and full-blown manic/ hypomanic patients. Due to this the treatment of subsyndromal manic or depressive conditions need as equal attention as that given to full-blown episodes. Although this is the case the chronic subsyndromal patients are frequently seen to be dismissed by clinicians and care givers (34).

The use of mood stabilizers and strict adherence to standard treatment guidelines at the primary health care centers in low-income countries if found to be difficult due to inability to administer these safely and adequately. This might be the reason for most patients with bipolar disorders for not getting adequate treatment at primary health care setting.(32)

As we have seen in the literature review, there have been multiple systematic reviews and meta-analysis that were done in various parts of the world to describe the clinical characteristics and socio-demographic profile of patients with bipolar disorders. These studies also tried to pursue the knowledge regarding bipolar disorder in studying the most effective treatments, factors that may increase the rate of relapse and outcome of the treatment measures.

Studies conducted in Ethiopia covering large samples of community also tried to answer the above questions.

However, studies that inform clinical decisions, such as those that evaluate pattern of treatment trends and clinical characteristics of the patients who are first diagnosed with bipolar disorder in an Ethiopian context, are in short supply. Having this kind of knowledge will not only be a good input to the hospital medical administration in leading them what direction to take in enhancing their staff's clinical skills development but also plays an important role in improving the clinicians' competency there by increasing the quality of care, which ultimately improves the patient's clinical condition. A well served patient in both expertise and service means a well-treated patient needing to make less frequent visit to the hospital, which renders the hospital's efficiency even higher.

4. Significance of the Study

This study analyzed the clinical manifestations at presentation, pattern of prescription, and outcome of new patients who are diagnosed with bipolar illness in Amanuel Mental Specialized Hospital. This will inform clinical practice, service management and research. In addition, the outcome of the study will inform clinicians in terms of enhancing their knowledge of common clinical presentation that helps them diagnose and identify the clinical characteristics up on evaluating a patient.

Research questions:

- What are the sociodemographics characteristics of the newly diagnosed patients with bipolar disorder visiting AMSH?
- What are the clinical profiles of newly diagnosed patients with bipolar disorders visiting AMSH?
- What are the treatment trends for patients with bipolar disorders at AMSH?

5. Objective

5.1. General objective:

- To study the common socio-demographic profiles, clinical presentation, and treatment trends of newly diagnosed patients with bipolar disorder at Amanuel Mental Specialized Hospital from January 1, 2019- March 30, 2019.

5.2. Specific objectives:

- To describe the socio-demographic characteristics of newly diagnosed patients with bipolar disorder
- To identify the common clinical presentation of patients with bipolar disorder
- To study common treatment patterns for newly diagnosed patients with bipolar disorders

6. Methodology

6.1. Study design:

A retrospective chart review of newly diagnosed patients with bipolar disorder was conducted.

6.2. Study period:

Data collection was employed from August 1- September 12, 2020.

6.3. Study setting:

The study was conducted at Amanuel Mental Specialized Hospital (AMSH). The hospital is one of the pioneer mental health institutions in Ethiopia. It was established in 1930 and rests on a 15,660 m^2 area in Addis Ketema sub-city, in the western part of Addis Ababa, the capital of Ethiopia.

AMSH serving as the center for many researches on mental health.and provides both general medical and mental health services. It has both outpatient and inpatient departments. Currently the hospital has 300 beds (277 inpatient and 23 emergency beds) and 15 OPDs. It has 512 staff members, which include 12 psychiatrists, 01 neurologist, and 32 MSc psychiatry professionals. The hospital generally aims to give specialized mental health services and serves as a referral center for mental health needs. People from various parts of the country travel long distances to seek treatment at this hospital.

AMSH is the first and oldest psychiatric hospital in the country. A second psychiatry hospital started service recently. Apart from its mental health services, the hospital is also a center for mental health research, trainings and educations. It has been one of the psychiatry special training sites for Addis Ababa University, and continues to be so.

6.4. Study Population:

All new patients who visited AMSH during the year 2019 were the source population for the study. This thesis studied all new patients who have been diagnosed to have bipolar disorder in the three months period from January to March, 2019. Newly diagnosed patients are seen either at the cold OPDs or the emergency OPD at the hospital. All of the OPDs and the emergency, from which data was collected, provide service to both sexes and all age groups although primarily adult cases are seen. Patients may be referred from other health services with in Addis Ababa or from the regions. Patients both from urban and rural areas also visit the hospital for treatment. All types and classifications of bipolar disorder based on American Psychiatric Association's fifth edition of Diagnostic and Statistical Manual of Mental Disorders (DSM-5) were included in the study.

6.5. Study participants Inclusion and exclusion criteria

Inclusion criteria

All newly diagnosed patients of both sexes and all age groups with bipolar disorder who visited AMSH from January 1 to March 30, 2019 were included in the research.

Exclusion criteria

Records before January 1, 2019 and after March 30, 2019 and ones with inconclusive diagnoses (written as rule out or query (?))Were excluded. Records of 5 patients who were registered as bipolar disorder on the log book but later was found to have other diagnosis from their charts were excluded from the study.

6.6. Sample size

From all the newly diagnosed patients with bipolar disorder during the year 2019, a sample of patients who visited AMSH from January1 to March 30/2019 were studied. All of the newly diagnosed patients with bipolar disorder in the period between January 1, 2019 to march 30, 2019 were included. This period of visit by the patients was preferred for the study period because the time period provided a whole one year of patient's follow up, which gave an opportunity to look in to the yearlong course of their illness. A total of 152 newly diagnosed patients with bipolar disorder were found from the registration log books over the three month period.

6.7. Sampling technique

The principal investigator (PI) obtained the medical records of all newly diagnosed patients with bipolar disorder from the medical record room and HMIS offices of AMSH. The medical record numbers of patients who met the inclusion criteria were collected from the HMIS registration log, which then was used to retrieve patients' charts.

6.8. Data collection

Data were collected through record/ chart review. The clinical records of the study subjects were reviewed retrospectively for studying the clinical and demographic profile, and treatment trends. The HMIS registration was reviewed to get data about the number of new cases in the study period and the number of newly diagnosed patients with bipolar disorder. The medical record number of the new patients was taken from the HMIS registration of the hospital from all 10 OPDs. Data on the patient's socio-demographics, presenting complaints and associated symptoms, treatment given, and condition at the last visit was extracted from the records of the patient using the data extraction tool prepared based on the objective of this study (see annex 1.) To minimize bias in data collection the data collection tool was prepared in an orderly fashion, questions were stated clearly, contained standardized measurement scale (the medications doses with their respective unites of measurement), and the set of presenting complaints and treatment options were specifically stated. Data were extracted from the charts by the PI. During data collection, the

records of 23 patients showed that they never came back for a second visit. In an effort to complete for the missing data on the course of their illness, the principal investigator tried to contact them using structured questioner via telephone (annex 2). 10 of the patients were reached via telephone and they were inquired about reasons for dropping out from follow up, their current status, medication side effects and suicidal behaviors.

6.9. Data quality control methods

To ensure completeness, accuracy and consistency, the filled out data collection sheets were thoroughly reviewed by the PI on designated dates. After ascertaining data quality, the PI entered and cleaned them prior to analysis.

6.10. Data processing, analysis and interpretation

The data were checked and edited for completeness and inconsistencies. They were, then, coded and entered, cleaned and analyzed using the statistical package for social sciences (SPSS) version 25. Descriptive-statistics.

6.11. Dissemination and utilization of the results:

The results of this study will be presented at the Department of Psychiatry, Addis Ababa University. The final thesis will be availed in both soft and hard copies at the College of Health Sciences, Addis Ababa University library. The results and recommendations from this study will also be submitted to administrations of AMSH and be available for staff, and be published in a peer-reviewed journal.

6.12. Operational definition:

Bipolar disorders are a group of mental disorder which are mostly characterized by their episodic nature and include: Bipolar I disorder, Bipolar II disorder, Cyclothymic disorder, Substance/Medication induced bipolar and related disorders, Bipolar and related disorders due to another medical condition, other specified bipolar and related disorder, and Unspecified bipolar and related disorder (4).

7. Ethical Considerations

Ethical clearance was obtained from the scientific committee of the Department of Psychiatry, Addis Ababa University and the ethics review board of AMSH. Since data were collected from the charts at the hospital, there was no direct contact with the patients. Although informed consent was not sought from the patients whose charts were obtained, their risk was deemed to be very minimal. Regarding the patients reached via phone, their consent to participate was asked before proceeding to the questions (annex 2). In order to keep all the confidentiality, the investigator made sure all patients' and health care providers' names and addresses remain anonymous in the study.

8. Result:

8.1. Socio-demographic characteristics of the patients:

A total of 152 patient records were reviewed for the study and 5 of them were excluded from the study after the PI found out that their diagnosis was changed to other than bipolar spectrum disorders. So the results presented below represent the 147 patient records studied.

Records of a total of 147 newly diagnosed patients with bipolar disorders were evaluated. Out of them, 77 (52.4%) were females and 70(47.6%) were males. Overall, the age of the patients ranged between 15 to 84 years. The mean age was 29.57 years with a standard deviation of 11.46 years. Most of the patients were from Oromia region (n=79, 53.7%), followed by those from Addis Ababa (n=29, 19.7 %.) Large portions of data were missing on educational status (i.e. n=68, 46.3%) and marital status (n-=50, 34%). Summary of the age, sex, address, and marital status of the patients is presented in below (Table 1, Figure 1).

Table 1 Sex, address and marital status of newly diagnosed patients with bipolar disorder at Amanuel Mental Specialized Hospital (AMSH), 2019

	Variables	Frequency	Percent	Valid percent
Sex	Male	70	47.6%	47.6
	Female	77	52.4%	52.4
Address	Oromia	79	53.7%	53.7
	Addis Ababa	30	20%	20
	Amhara	15	10.2%	10.2
	Southern Nations and Nationalities	19	12.9%	12.9
	Tigray	2	1.4%	1.4
	Afar	1	0.7%	0.7
	Benishangul-gumuz	1	0.7%	0.7
Marital status	Single	57	38.8%	46.3
	Married	45	30.6%	36.6
	Divorced	12	8.2%	9.8
	Widowed	8	5.4%	6.5
	Separated	1	0.7%	0.8
	Missing (not recorded)	24	16.3%	

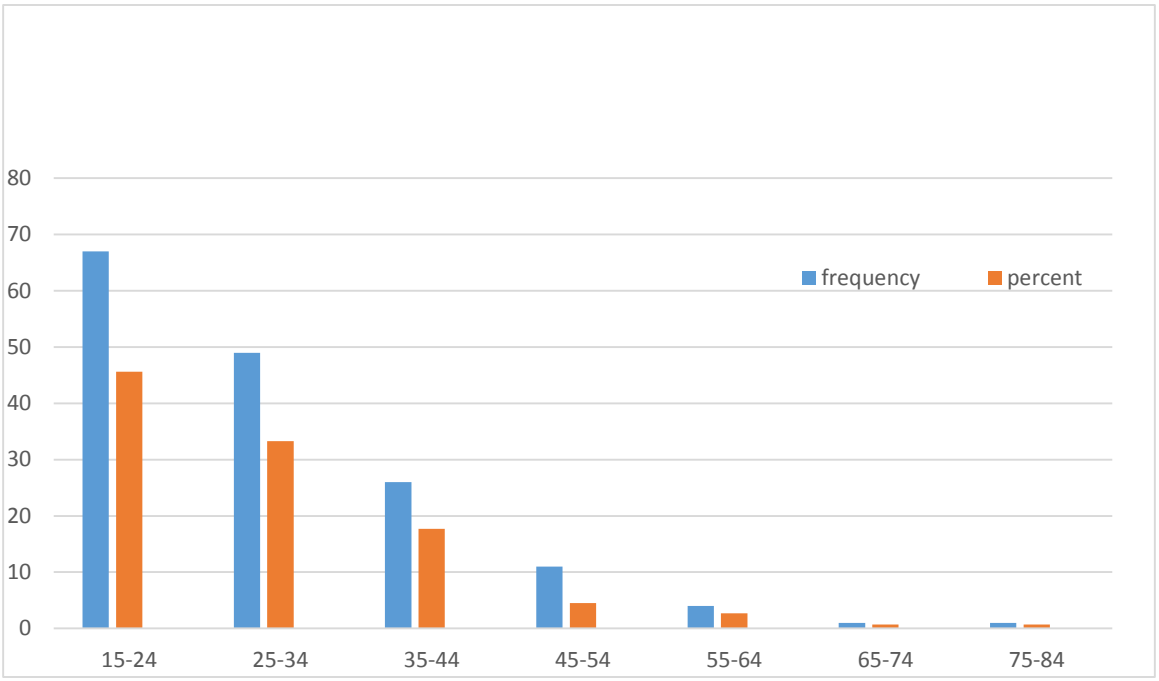

Figure 1 Age distribution of the newly diagnosed patients with bipolar disorder seen at AMSH, 2019

There was no significant difference between male and females among different age groups of the study, except in the age groups of 35-44 years of age, in which female were double the number of men (Table 2).

Table 2 Age stratified by gender for newly diagnosed patients with bipolar disorder at AMSH, 2019

Age of the patients	Sex				Percent
	Male		Female		
15-24	27	18.4%	28	19%	45.6
25-34	23	15.6%	26	17.7%	33.3
35-44	9	6.1%	17	11.5%	17.7
45-54	6	4%	5	3.4%	4.5
55-64	3	2%	1	0.7%	2.7
65-74	1	0.7%	0	0	0.7
75-84	1	0.7%	0	0	0.7

8.2. Clinical Profiles of the Patients:

The study also assessed common presenting complaints, the duration of symptoms, suicidal behavior, first presentation diagnosis, and the presence or absence of comorbid illnesses in determining the clinical profiles of the patients.

Duration of symptoms and common presenting complaints:

The most common presenting complaints of the patients were aggressiveness (n=64, 43.5%), urge to be on the move (n=23, 15.6%) and difficulty of sleeping (n=18, 12.2%). The rest also presented with talking alone 10.8% (n=16), shouting 5.4% (n=8), and others [changed behavior (n=4), hearing of voice (n=3), collecting dirt (n=3)]. The duration of symptoms ranged from 3 days to 3 years, with the mean duration of 136.7 days with standard deviation of 209.7 days and median of 38.5 days.

Place of first visit:

Out of the 147 patient records reviewed 64 (43.5%) of them were treated at the emergency OPD while the rest (n=83, 56.5%) were treated at regular OPDs at their first arrival to the hospital.

8.2.1. Diagnosis and Specifiers:

From the reviewed 147 records, 144 had received a diagnosis of bipolar I disorder and the rest (n=3) were simply labelled as "bipolar disorder".

Regarding the episodes at presentation, in 9 of the records from 147 reviewed, the episodes at the first presentation was not mentioned. From the remaining 135, most presented with manic episode with psychotic features (42.2%) followed by psychotic features without any documented

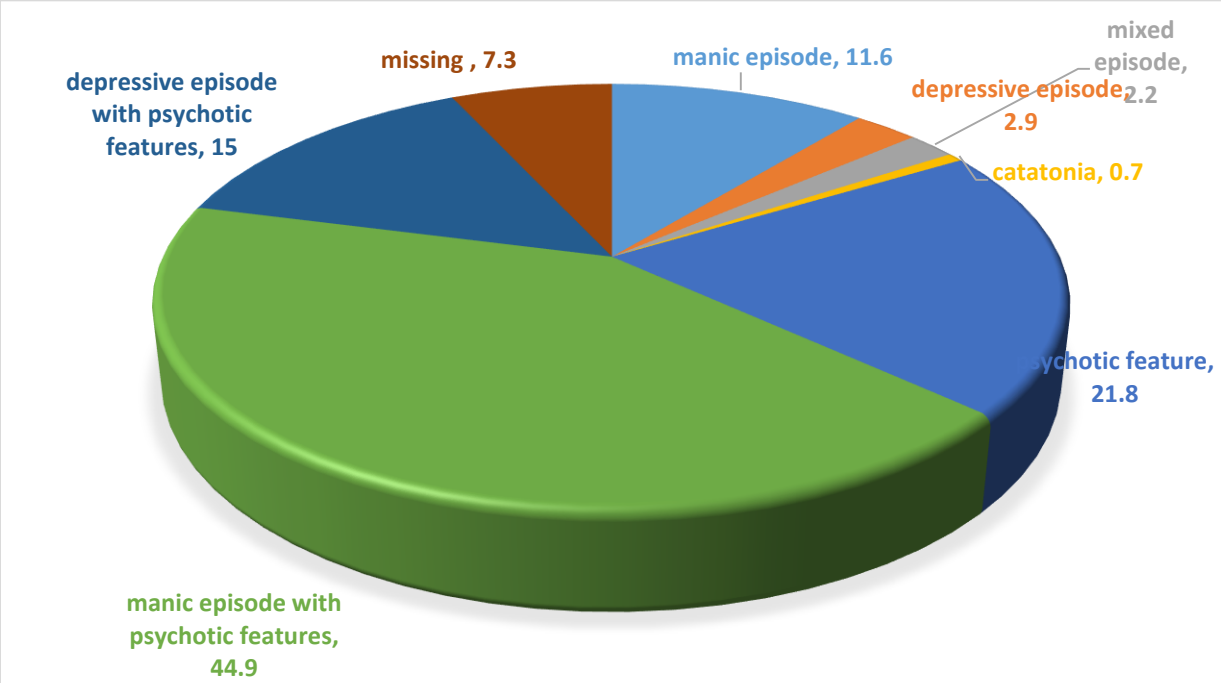

Figure 2: Episodes at first presentation for newly diagnosed patients with bipolar disorder at AMSH, 2019

symptoms, and depressive episode with psychotic features. A summary of the presenting episodes is listed in the figure (Figure 2). Men presented with manic episode with psychotic features, psychotic features and manic episode as the three most common presenting episodes. The females presented with manic episode with psychotic features, psychotic features and depressive episode with psychotic features as the most common presenting episodes (Table 3). Generally, 82.6% of the patients had psychotic features during their first presentation to the clinics.

Table 3: Description of Specifiers for the first presentation diagnosis stratified by gender of the newly diagnosed patients with bipolar disorder at AMSH, 2019

		Sex		Total
		Male	Female	
Specifier for the First Presentation Diagnosis	Manic episode	9	5	14
	Depressive episode	4	0	4
	Mixed episode	0	2	2
	Catatonia	1	0	1
	Psychotic features	16	14	30
	Manic episode with psychotic features	27	35	62
	Depressive episode with psychotic features	7	14	21
	Not recorded	9	7	13
Total		70	77	147

8.3. Suicidal behavior:

No recording about suicidal behavior was found in 22 of the studied 147 records. From the 57 patients who reported/showed various degrees of suicidality, 29 of them had suicidal ideation, while 26 had attempted suicide. The pattern of suicide in the study subjects is summarized below (Table 4).

Table 4 Description of suicidal behavior of the patients along the course of illness for new patients with bipolar disorder at AMSH, 2019

Suicidal behavior	Frequency	Percent
No suicidal ideation	68	54.4
Passive death wish	2	1.6
Suicidal ideation	29	23.2
Suicidal plan	1	0.8

Suicidal attempt	26	20.8
Not recorded-missing	22	
Total	147	100.0

For the 26 people who attempted suicide, the most common method of attempt was by taking poisonous substances (10 patients), followed by hanging by a rope (7 patients). The rest were electrocution (2), jumping in to a running car (2), gunshot (2), and cutting oneself with a blade (1). The method of attempt was not recorded for 3 of the patients. Women had the most suicidal ideations and attempts compared to men (Table 5).

Table 5 description of Suicidal behavior at first presentation stratified by gender for new patients with bipolar disorder at AMSH, 2019

		Sex		Total
		Male	Female	
Suicidal behavior at first presentation	No suicidal ideation	38	30	68
	Passive death wish	0	2	2
	Suicidal ideation	9	12	21
	Suicidal plan	0	1	1
	Suicidal attempt	11	15	26
	Not recorded	12	17	29
Total		70	77	147

From the patients who had suicidal behavior, most had psychotic features (40 of the 57 patients with suicidal behavior) and were comparable in their episodes at presentation, i.e. mania (n=22) and depression (n=18) (Table 6)

Table 6 Suicidal behavior at first presentation stratified by episodes at presentation for new patients with bipolar disorder at AMSH, 2019

		Suicidal behavior at first presentation						Total
		No suicidal ideation	Passive death wish	Suicidal ideation	Suicidal plan	Suicidal attempt	Not recorded	
Specifier for the first presentation diagnosis	Manic episode	6	0	2	0	2	4	14
	Depressive episode	1	0	2	0	1	0	4
	Mixed episode	0	0	1	0	1	0	2
	Catatonia	1	0	0	0	0	0	1

	Psychotic feature	17	0	1	0	6	6	30
	Manic episode with psychotic features	33	0	6	0	12	11	62
	Depressive episode with psychotic features	3	2	9	1	3	3	21
Total		68	2	21	1	26	29	147

8.4. Treatment pattern:

All the data pertaining to biological and psychological treatments were obtained from the records.

Records of only 1 patient was found who was referred for psychotherapy. None of the patients had undergone ECT during the course of their treatment.

Based on the records, 25 of the patients required hospital admission (i.e., 18 to the emergency ward and 7 to the regular wards) during the course of their illness. While 121 were treated as an outpatient, 1 was referred after their first visit. From those admitted patients 16 of them had manic episode with psychotic features, while 4 were having manic episode, and another 4 had depressive episode with psychotic features at admission.

The reasons for admission were high degrees of homicidality and suicidality (13 patients), destructive behavior (7 patients), disorganized behavior (2 patients), refusal to take medication (1 patient) and catatonia (1 patient).

8.4.1. Medications:

Oral medications

From orally prescribed medications, all of the patients were given antipsychotics in the course of their treatment. Mood stabilizer anticonvulsants were the second most commonly prescribed medications (75.5% of the patients.) Among the antipsychotics, second generation antipsychotics were the most commonly prescribed medications (74.5 %), while 25.5% of the patients were prescribed with second generation antipsychotics. Risperidone (62.6%) and sodium valproate (51%) were the most commonly prescribed medications. Antidepressants were prescribed for 9 patients. The prescription patterns of orally taken medication is listed below in the table (Table 7) Diazepam is the most commonly prescribed benzodiazepine for the patients.

Sodium valproate was administered for 32 (41.6%) of the female patients over the course of their illness, all of whom were in their reproductive age group (15-48 years old).

Table 7 description of medications prescribed for new patients with bipolar disorder at AMSH, 2019

Medications	Frequency	Percentage of the patients	Mean dose (mg/day)
Antipsychotics			
Chlorpromazine	15	10.2	138.3
Haloperidol	22	14.9	2.6
Risperidone	92	62.6	2.3
Olanzapine	22	14.9	6.3
Mood stabilizers			
Sodium valproate	75	51	662
Lithium	2	1.4	300
Carbamazepine	34	23.1	358.6
Benzodiazepines			
Diazepam	51	34.7	5.8
Clonazepam	10	6.8	1.4
Lorazepam	8	5.4	1.3
Antidepressants			
Amitriptyline	3	2	31.4
Fluoxetine	5	3.4	20
Sertraline	1	0.7	50
Anticholinergics			
Trihexyphenidyl	12	8.2	2.7

More than half of the patients (n=87, 59.2%) were given combination of antipsychotics and mood stabilizing anticonvulsants over the course of their treatment. The most common combinations were, Risperidone with Sodium valproate (n=56, 38.1%), Risperidone with Carbamazepine (n=18, 12.2%), and carbamazepine with olanzapine (n=8, 5.4%). Others were [Olanzapine with Sodium valproate (n=7) and Haloperidol with Sodium valproate (n=6)]

Injectable medications:

A total of 69 patients (46.9%) required emergency injectable medications over the course of their illness (Table 8). A combination of Haloperidol and Diazepam (45.6%) was the most commonly administered injectable medication for emergency management. 16 of the patients were on long-acting injectable antipsychotics (mainly Haloperidol depot and Fluphenazine decanoate).

Table 8 Description of injectable medications administered for newly diagnosed patients with bipolar disorders AMSH, 2019

Medication	Route	Frequency	Percentage of patients given	Mean dose
Haloperidol short acting	I.M.	69	46.9	5mg/dose
Diazepam	I.V	67	45.6	10 mg/dose
Fluphenazine decanoate	I.M	11	7.5	26.5 mg/month
Haloperidol depot	I.M.	5	3.4	26.3mg/month

Cloropromazine	I.M.	1	0.7	25mg/dose

8.5. Follow up:

From the 147 records of patients studied, 23 had never showed up for follow up after the first visit (Table 9). To complete the missing data on course of their illness, the principal investigator attempted to call them via telephone. Only 12 of the patients were reached via phone, the rest 10 were not reached due to their phones not working, incorrect phone numbers or no registered phone numbers. 1 patient was deceased. From the 12 patients reached via phone 2 reported that they still have follow up at the hospital, the rest 10 totally discontinuing follow up. The patients were interviewed via telephone using the tool prepared for this purpose (Annex 2). The data presented below reflect the analysis of 137 patients' course of illness and follow up patterns.

Patients were asked their current clinical conditions, whether there were any exacerbations after they have been completely symptom-free, whether there were side effects, and if they had pursued other treatment options.

All of the patients reported that they were told that follow up was necessary to the improvement of the patient.

Form the 10 patients, 4 reported their reasons for discontinuing follow-up because they couldn't bring the patient due to long distances from the hospital and transportation problems. 3 reported their reason as the patient has fully recovered from their illness and they are functional they did not consider they needed follow up visits. One of the patient caregivers reported financial restrictions to buy the medications and poor support as a reason while another reported the patient refused to take their medications and that they lost hope in the treatment. Yet another caregiver reported that they were trying religious treatment and it is working.

Regarding the current clinical status of the patients, from the 12 patients interviewed, 3 of them reported to be at the same conditions as they were at the hospital. Two reported the patients had shown improvement when they were taking medications but worsened when the medications were discontinued. Three of the patients have fully recovered and are currently working. Four reported the patients are in improved conditions but still have mild symptoms while one of the patients was reported to have a fluctuating course of illness.

Regarding side effects, only 1 of the patients reported weight gain as a side effect. There was no other side effects reported.

Three of the participants responded that they will not visit the hospital for follow up unless they have the symptoms again. The rest 9 reported that they are interested in having future follow-up.

Table 9 Descriptions of the follow up patterns of new patients with bipolar disorder at AMSH, 2019

Follow up pattern	Frequency	Percent
Patient/attendant didn't show up for second visit after appointment	23	15.0

Patient/attendant showed up for second visit	103	70.7
Admitted	21	14.3
Total	147	100.0

Medication side effects:

22 of the patients had records of medication side effects over the course of their treatment, from which drug induced Parkinsonism and weight gain were the most common. Side effects profile is shown below (Table 10)

Table 10 Description of medication side effects recorded for new patients with bipolar disorder at AMSH, 2019

Type of side effect	Frequency	Percent	Valid percent
Weight gain	5	3.4	3.6
Drug induced parkinsonism	13	8.8	9.5
Excessive sedation	3	2.0	2.2
Tardive dyskinesia	1	0.7	0.7
Missing	10	6.8	

8.6. Missing data from the incomplete recordings:

Data were missing regarding occupation (34%), educational status (46.3%), and family history of mental illness of the patients. The data are presented below (Table 11, Table 12, Table 13):

Table 11 Description of educational status of new patients with bipolar disorder at AMSH, 2019.

Educational level					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No formal education	11	7.5	13.9	7.5
	Elementary school	37	25.2	46.8	32.7
	High school	24	16.3	30.4	49.0
	University/college	7	4.8	8.9	53.7
	Not recorded	68	46.3	46.3	100.0
	Total	147	100.0	100.0	

Table 12 Description of occupational status of new patients with bipolar disorder at AMSH, 2019.

Occupational status				
	Frequency	Percent	Valid Percent	Cumulative Percent

Valid	Daily laborer	8	5.4	8.2	5.4
	Farmer	15	10.2	15.5	15.6
	Merchant	6	4.1	6.2	19.7
	Housewife	11	7.5	11.3	27.2
	Unemployed	32	21.8	32.9	49.0
	Student	19	12.9	19.5	61.9
	Government employee	6	4.1	6.2	66.0
	Not recorded	50	34.0	34.0	100.0
	Total	147	100.0	100.0	

Regarding family history, data were not completed for 51 (34.7%) of the patients. From those patients whose family history about mental illness is recorded (n=96), 19 had family history of mental illness.

Table 13 History of family mental illness of new patients with bipolar disorder at AMSH, 2019

Family history of mental illness					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	19	12.9	12.9	12.9
	No	77	52.4	52.4	65.3
	Not recorded	51	34.7	34.7	100.0
	Total	147	100.0	100.0	

9. Discussion:

This study found the mean age of newly diagnosed patients with bipolar disorders at first clinical visit to be 29.5 years and that no significant difference was found between male and female patients in each age group. The result is comparable to a community-based study done in Butajira, Ethiopia (25) which also found similar results regarding the age of the patients. The mean age at first episode was reported to be around 22 years in various studies (12, 23, 25). This clinical study found the mean age at presentation to the clinics to be 29.2 years. This also might reflect the significant lag between first episode symptoms and seeking (receiving) treatment reported in some studies (12, 19, 25,). Most of the patients were young populations in the age range of 15-34 years which was also found in other African countries (23, 25)

As with other studies done in various parts of the world (1, 3, 28, 36), this study also has found minimal difference with regards to the proportion of cases between the sex of the patients studied.

From the records of marital status of the patients, our results have shown most of the patients were either single (38.8%) or married (30.6%). This result can be reflective of the large number of patients never been married found in some studies (36) and the significant proportion of married patients found in a study conducted in Butajira, Ethiopia (25). Since this study was conducted at a hospital, which serves as the main provider of treatment for many across the country – both from urban and rural settings (as evident in the address of the patients)- the mixed numbers of married and unmarried patients may have been reflective of this.

The mean duration of the presenting complaints observed in this study is shorter than found in most studies (12, 23, 25). This may be due to the fact that most of the patients in the study had psychotic symptoms and had emergency visits which is partly the reason which made rapid hospital visit necessary.

Almost all of the patients were diagnosed with bipolar I disorder in this study, while there was no record of other bipolar and related disorder types. This may be a reflection of the large rate of misdiagnosis, which is especially higher in the bipolar types other than the type 1, the most common being type 2 (12, 19, 22). Another explanation may be the lesser help seeking behavior of the community for hypomanic and mild depressive symptoms (resulting in going unnoticed or unreported) (19, 22, 25).

Most of the patients' first presentation episode was manic with or without psychotic features. This result is similar to those found in other studies (12, 25). The female predisposition to depressive episodes was reflected in his study as it was in others. (12)

A 45% rate of various suicidal behaviors was found in the study patients over their year-long course of illness. Various studies also have shown significant suicidal behavior in patients with bipolar disorder (39, 40). This shows the population in the study setting a comparable suicidal risk to populations with the same class of disorders in other parts of the world. As the risk is significant, it warrants additional study to identify risks associated with suicidal behavior in patients with bipolar disorder. Similar to this study, higher numbers of suicidal attempts among women were reported in other studies. (39)

In this study, all of the patients were prescribed antipsychotic oral medications over the course of their illness. This results from the vast majority has psychotic symptoms and high emergency admissions.

The high amount of sodium valproate in the treatment profiles reflects the growing tradition in the country to prescribe mood stabilizers compared to the old times. (25)

However nearly half of the women in this study were prescribed sodium valproate while they are all in the reproductive age group. This warrants further study as to how the prescription practice is in such special circumstances and whether or not the necessary measures are routinely taken to avoid or minimize risk in light of the growing evidence on the teratogenic effects of Na valproate should conception occur in the course of treatment. (37, 38).

Only 2 patients were given lithium as a mood stabilizer. This might be due to the unavailability or lack of sustainable supply of the medication in hospital pharmacies and the costly and, at times, unavailable investigations needed in the follow up. But the long tradition of not prescribing lithium might also have made the staff underequipped, ill-prepared and less drawn to prescribe it as often as alternative medications.

The complete withdrawal from follow-ups and the reasons reported by the patients/caregivers reflect a glimpse of the common misconceptions about and the burden of the bipolar disorders on the care givers and warrants further explorations for effective systematic intervention.

10. Conclusions:

The sociodemographic characteristics found from this research is comparable to other studies around the world with very little differences across gender. Most of the newly diagnosed/ first episode patients in this study were young Bipolar I disorder was the prevailing diagnosis in most. This might indicate the possibility that a considerable percentage of patients with other types of bipolar and related disorders may be undiagnosed or misdiagnosed.

Most patients had manic episodes at first presentation to the hospital and had psychotic features, which might partly be the reason for most of the patients to being administered antipsychotics as a treatment and requiring emergency admission. Nearly half of had shown various levels of suicidal behavior.

Antipsychotics were the main treatment modality found in this research, although a considerable number of patients are being administered mood stabilizing anticonvulsants. More than half of the study patients received a combination of mood stabilizing anticonvulsant and antipsychotics; valproate/risperidone combination being the most common one. But very few number of patients were prescribed mood stabilizers such as lithium and lamotrigine.

11. Recommendations:

We recommend that more prospective studies in the clinical outcome and follow up patterns of patients with bipolar disorder which will provide insights as to where to intervene to maximize quality of life of the patients. Providing more mood stabilizing medications in the stocks and equipping the staff with the necessary trainings in prescribing the medications is recommended to AMSH administration to increase the available choice of mood stabilizers and thereby improve the course of illness of the patients.

In addition, working with the staff in developing manual/guideline in proper prescription of sodium valproate for women of reproductive age is helpful in curbing potential complications arising from the treatment. AMSH also needs to work on more quality control on chart/record keeping. Providing effective psychoeducation for the patients and caregivers on the recurrent nature of the illness and the strict need to have a follow up treatment will also have a huge impact on treatment outcome and patient's quality of life of the patients.

12. Strengths and Limitations:

This is the first study of its kind in Ethiopian context, and we were able to obtain reasonable sample size and retrospectively study their course over a reasonable length of time. The study sets a good foundation for future studies on the same population or otherwise, and sheds light on the practice of care and documentation at AMSH.

This study was a retrospective chart review, as such, poor record keeping was one of the main challenges. Especially patient's condition was not being recorded with the standard parameters during their visits (i.e. their remission status based on DSM-5). This made it difficult to differentiate whether the patient was having new relapse or is going through a residual symptom from past relapse, hence setting a limitation to the scope of the study. Important socio-demographics like marital status, education, and occupational status were not complete.

13. References

1. Joshi A, Bow A, Agius M. Pharmacological Therapies in Bipolar Disorder: a Review of Current Treatment Options. Psychiatr Danub. 2019;31(Suppl 3):595-603.

2. Kroon JS, Wohlfarth TD, Dieleman J, Sutterland AL, Storosum JG, Denys D, et al. Incidence rates and risk factors of bipolar disorder in the general population: a population-based cohort study. Bipolar Disord. 2013;15(3):306-13.

3. Merikangas KR, Akiskal HS, Angst J, Greenberg PE, Hirschfeld RM, Petukhova M, et al. Lifetime and 12-month prevalence of bipolar spectrum disorder in the National Comorbidity Survey replication. Arch Gen Psychiatry. 2007;64(5):543-52.

4. Association ap. diagnostic and statistical manual of mental disorders. fifth ed. association ap, editor2013.

5. National Collaborating Centre for Mental Health nifhace. clinical guidlines, bipolar disorder: the nice guidline on the assessment and management of bipolar disorder. the british psychological society and the royal college of psychiatrists, editor. london: the british psychological society and the royal college of psychiatrists; 2019.

6. National Collaborating Centre for Mental H. National Institute for Health and Care Excellence: Clinical Guidelines. Bipolar Disorder: The NICE Guideline on the Assessment and Management of Bipolar Disorder in Adults, Children and Young People in Primary and Secondary Care. London: The British Psychological Society and The Royal College of Psychiatrists; 2014.

7. McElroy SL, Altshuler LL, Suppes T, Keck PE, Jr., Frye MA, Denicoff KD, et al. Axis I psychiatric comorbidity and its relationship to historical illness variables in 288 patients with bipolar disorder. Am J Psychiatry. 2001;158(3):420-6.

8. Baldessarini RJ, Tondo L, Visioli C. First-episode types in bipolar disorder: predictive associations with later illness. Acta Psychiatr Scand. 2014;129(5):383-92.

9. Judd LL, Schettler PJ, Akiskal HS, Coryell W, Leon AC, Maser JD, et al. Residual symptom recovery from major affective episodes in bipolar disorders and rapid episode relapse/recurrence. Arch Gen Psychiatry. 2008;65(4):386-94.

10. Clemente AS, Diniz BS, Nicolato R, Kapczinski FP, Soares JC, Firmo JO, et al. Bipolar disorder prevalence: a systematic review and meta-analysis of the literature. Braz J Psychiatry. 2015;37(2):155-61.

11. Ferrari AJ, Stockings E, Khoo JP, Erskine HE, Degenhardt L, Vos T, et al. The prevalence and burden of bipolar disorder: findings from the Global Burden of Disease Study 2013. Bipolar Disord. 2016;18(5):440-50.

12. Esan O, Esan A. Epidemiology and burden of bipolar disorder in Africa: a systematic review of data from Africa. Soc Psychiatry Psychiatr Epidemiol. 2016;51(1):93-100.

13. Van Meter A, Moreira ALR, Youngstrom E. Updated Meta-Analysis of Epidemiologic Studies of Pediatric Bipolar Disorder. J Clin Psychiatry. 2019;80(3).

14. Moreira ALR, Van Meter A, Genzlinger J, Youngstrom EA. Review and Meta-Analysis of Epidemiologic Studies of Adult Bipolar Disorder. J Clin Psychiatry. 2017;78(9):e1259-e69.

15. Crump C, Sundquist K, Winkleby MA, Sundquist J. Comorbidities and mortality in bipolar disorder: a Swedish national cohort study. JAMA Psychiatry. 2013;70(9):931-9.

16. Latalova K, Prasko J, Grambal A, Havlikova P, Jelenova D, Mainerova B, et al. Bipolar disorder and anxiety disorders. Neuro Endocrinol Lett. 2013;34(8):738-44.

17. Cerimele JM, Chwastiak LA, Dodson S, Katon WJ. The prevalence of bipolar disorder in general primary care samples: a systematic review. Gen Hosp Psychiatry. 2014;36(1):19-25.

18. Stubbs B, Vancampfort D, Solmi M, Veronese N, Fornaro M. How common is bipolar disorder in general primary care attendees? A systematic review and meta-analysis investigating prevalence determined according to structured clinical assessments. Aust N Z J Psychiatry. 2016;50(7):631-9.

19. Peh AL, Tay LK. Demographical profile and clinical features of patients with bipolar disorder in an outpatient setting in Singapore. Singapore Med J. 2008;49(5):380-3.

20. Joslyn C, Hawes DJ, Hunt C, Mitchell PB. Is age of onset associated with severity, prognosis, and clinical features in bipolar disorder? A meta-analytic review. Bipolar Disord. 2016;18(5):389-403.

21. Cipriani A, Reid K, Young AH, Macritchie K, Geddes J. Valproic acid, valproate and divalproex in the maintenance treatment of bipolar disorder. Cochrane Database Syst Rev. 2013;2013(10):Cd003196.

22. Bram N, Elloumi H, Zalila H, Cheour M, Boussetta A. [Clinical and evolutionary characteristics of bipolar disorder according to the polarity of the first episode]. Tunis Med. 2012;90(5):380-6.

23. Onyeama M, Agomoh A, Jombo E. Bipolar disorder in Enugu, South East Nigeria: demographic and diagnostic characteristics of patients. Psychiatr Danub. 2010;22 Suppl 1:S152-7.

24. Fagbamigbe AF, Makanjuola VA. Modeling association between times to recurrence of the different polarities in bipolar disorder among service seekers in urban Nigeria: a survival analysis approach. Neuropsychiatr Dis Treat. 2017;13:1967-74.

25. Negash A, Alem A, Kebede D, Deyessa N, Shibre T, Kullgren G. Prevalence and clinical characteristics of bipolar I disorder in Butajira, Ethiopia: a community-based study. J Affect Disord. 2005;87(2-3):193-201.

26. Fekadu A, Kebede D, Alem A, Fekadu D, Mogga S, Negash A, et al. Clinical outcome in bipolar disorder in a community-based follow-up study in Butajira, Ethiopia. Acta Psychiatr Scand. 2006;114(6):426-34.

27. Kebede D, Alem A, Shibire T, Deyassa N, Negash A, Beyero T, et al. Symptomatic and functional outcome of bipolar disorder in Butajira, Ethiopia. J Affect Disord. 2006;90(2-3):239-49.

28. Fekadu A, Shibre T, Alem A, Kebede D, Kebreab S, Negash A, et al. Bipolar disorder among an isolated island community in Ethiopia. J Affect Disord. 2004;80(1):1-10.

29. Ayano G, Duko B. Relapse and hospitalization in patients with schizophrenia and bipolar disorder at the St Amanuel Mental Specialized Hospital, Addis Ababa, Ethiopia: a comparative quantitative cross-sectional study. Neuropsychiatr Dis Treat. 2017;13:1527-31.

30. Whiteford HA, Degenhardt L, Rehm J, Baxter AJ, Ferrari AJ, Erskine HE, et al. Global burden of disease attributable to mental and substance use disorders: findings from the Global Burden of Disease Study 2010. Lancet. 2013;382(9904):1575-86.

31. Hailemichael Y, Hanlon C, Tirfessa K, Docrat S, Alem A, Medhin G, et al. Mental health problems and socioeconomic disadvantage: a controlled household study in rural Ethiopia. Int J Equity Health. 2019;18(1):121.

32. Fekadu A, Hanlon C, Thornicroft G, Lund C, Kaaya S, Alem A, et al. Care for bipolar disorder in LMICs needs evidence from local settings. Lancet Psychiatry. 2015;2(9):772-3.

33. Merikangas KR, Jin R, He JP, Kessler RC, Lee S, Sampson NA, et al. Prevalence and correlates of bipolar spectrum disorder in the world mental health survey initiative. Arch Gen Psychiatry. 2011;68(3):241-51.

34. Judd LL, Akiskal HS. The prevalence and disability of bipolar spectrum disorders in the US population: re-analysis of the ECA database taking into account subthreshold cases. J Affect Disord. 2003;73(1-2):123-31.

35. Fekadu A, Desta M, Alem A, Prince M. A descriptive analysis of admissions to Amanuel Psychiatric Hospital in Ethiopia. Ethiopian Journal of Health Development. 2007;21(2):173-8.

36. Szádóczky E, Papp Zs, Vitrai J, Ríhmer Z, Füredi J. The prevalence of major depressive and bipolar disorders in Hungary. Results from a national epidemiologic survey. *J Affect Disord*. 1998;50(2-3):153-162. doi:10.1016/s0165-0327(98)00056-1

37. Christensen J, Grønborg TK, Sørensen MJ, et al. Prenatal valproate exposure and risk of autism spectrum disorders and childhood autism. *JAMA*. 2013;309(16):1696-1703. doi:10.1001/jama.2013.2270

38. Zhang L, Li H, Li S, Zou X. Reproductive and metabolic abnormalities in women taking valproate for bipolar disorder: a meta-analysis. *Eur J Obstet Gynecol Reprod Biol*. 2016;202:26-31. doi:10.1016/j.ejogrb.2016.04.038

39. Goldstein TR, Ha W, Axelson DA, et al. Predictors of prospectively examined suicide attempts among youth with bipolar disorder. *Arch Gen Psychiatry*. 2012;69(11):1113-1122. doi:10.1001/archgenpsychiatry.2012.650

40. Latalova K, Kamaradova D, Prasko J. Suicide in bipolar disorder: a review. *Psychiatr Danub*. 2014;26(2):108-114.

14.Annex-1

Data Extraction Sheet:

Name of institution: Amanuel Mental Specialized Hospital

1. **Date of visit:_____**
2. **Medical record number:_____**
3. **Socio-demographic data:**

Age: _____ years

Sex: Male ☐ Female ☐

Educational level:

- ☐ No formal education
- ☐ Elementary school
- ☐ Completed high school
- ☐ University/college
- ☐ Others (specify):_____
- ☐ Not recorded

Occupation:

- ☐ Daily laborer
- ☐ Farmer
- ☐ Merchant
- ☐ Housewife
- ☐ Unemployed
- ☐ Student
- ☐ Government employee
- ☐ Other (specify):_____
- ☐ Not recorded

Marital status:

- ☐ Married
- ☐ Single
- ☐ Separated
- ☐ Divorced
- ☐ Widowed

Address: _____

4. **Place of first visit:**
   - ☐ Emergency
   - ☐ Regular OPD

5. **Duration of symptoms before first visit:_____**

6. **First presentation diagnosis:**
   - ☐ Bipolar I disorder
   - ☐ Bipolar II disorder
   - ☐ Cyclothymic disorder
   - ☐ Medication/substance induced bipolar and related disorder
   - ☐ Bipolar and related disorders due to another medical condition
   - ☐ Other specified bipolar and related disorders
   - ☐ Unspecified bipolar and related disorders
   - ☐ Other (specify):_____
7. **If the first clinical presentation Diagnosis is bipolar I or II disorder specify the episode:**
   - ☐ Manic episode
   - ☐ Depressive episode
   - ☐ Mixed episode
   - ☐ Hypomanic episode
   - ☐ Catatonia
   - ☐ Psychotic feature
   - ☐ Other (specify):_____
   - ☐ Not recorded
8. **Decision by the clinician for the setting of treatment after the first evaluation:**
   - ☐ Admitted
     - ☐ Emergency
     - ☐ Ward
   - ☐ Outpatient treatment
   - ☐ Referred

9. Suicidality at first presentation:

- Passive death wish
- Suicidal ideation
- Suicidal plan
- Suicidal attempt (specify if any)_____
- No suicidal ideation
- Not recorded

10. Treatment continuation status

- Patient/attendant didn't show up after the first presentation for follow up visit even though appointed for second visit
- Patient showed up for second follow up visit
- Admitted for inpatient management
- Referred

11. Changed Diagnoses after first diagnoses of bipolar disorder

- No
- Yes
    - New diagnosis:_____

12. Recorded clinical condition at last visit

- Improved/improving
- Worsened
- Same
- Relapsed with acute manic
- Relapsed with hypomanic
- Relapsed with depressive
- Relapsed with mixed episode
- In partial remission
- In full remission
- Other (specify):_____
- Not recorded:_____

13. ECT provided any time?

- Yes
- No

14. Psychotherapy provided?

- Yes
- No

15. Family history?

- No
- Yes ; specify_____

16. Medication administered

Table 3: Extraction format of prescription details of a patient from the card

No.	Medication prescribed	Daily Dose	Route of administration (PO/IV/IM)	Total duration of administration	Documented side effect (if any)

No.	Episode at admission (manic, depressive, mixed)	Duration of admission	Reason for admission

Table 4 Extraction of patient's admission history

15. Annex 2

Consent Form: Telephone Interview

I am Dr. Abdulselam Asefa, a 3rd year psychiatry resident at Addis Ababa University. I am currently doing my thesis on the clinical and treatment profiles of newly diagnosed patients with bipolar disorder at Amanuel mental specialized hospital. I am calling on the account that you (or _____) had been treated at Amanuel Mental Specialized Hospital a year ago. I am currently collecting data on the reasons why the patient discontinued follow up and the status of the patient. Any information you will be sharing us will never, under any condition, be revealed with your identity, nor will it have any consequences to you or your family member. The questions will only take 10 minutes of your time. Are you willing to participate in the study?

- Yes:
- No:

Questions:

1) Does the patient still have follow up at Amanuel mental specialized hospital?
2) If not, what are the reasons?
3) Were you or the patient told that proper follow up at the hospital is needed?
4) Were there any exacerbations after the patient was completely relieved of the symptoms? If yes, what were the ensuing symptoms?
5) Were other treatment options provided?
6) Do you have future interest in continuing follow up? Yes/No
7) Has the patient developed any side effects from the medications?

   No: _____

   Yes: Extrapyramidal symptoms

   Weight gain

   Excessive sedation

   Tardive dyskinesia

   Akathisia

8) How is the patient now? Improved/improving, worsened, same, completely symptom-free

Advisors:

Abebaw Fikadu, MD, Associate Professor of Psychiatry, AAU, CHS, SOM, Department of Psychiatry

Signature:_____

Meron Getachew, MD, Assistant Professor of Psychiatry, AAU, CHS, SOM, Department of Psychiatry

Signature:_____

Examiners:
Solomon Teferra, MD, PhD, Addiction Psychiatrist, Associate Professor of Psychiatry, AAU, CHS, SOM, Head of department Psychiatry

Signature:_____

Mahlet Yared, MD, Assistant Professor of Psychiatry, AAU, CHS, SOM, Department of Psychiatry

Signature: _____