

ADDIS ABABA UNIVERSITY

COLLEGE OF HEALTH SCIENCES

SCHOOL OF MEDICINE

DEPARTMENT OF PSYCHIATRY

PRESCRIPTION PATTERNS FOR PATIENTS WITH OBSESSIVE-COMPULSIVE DISORDER IN PSYCHIATRY CLINICS IN ADDIS ABABA: A RETROSPECTIVE MULTICENTER STUDY

PRIMARY INVESTIGATOR: EYERUSALEM ATNAFU GEBREMESKEL
THIRD YEAR PSYCHIATRY RESIDENT

JULY 2026

ADDIS ABABA UNIVERSITY



ADDIS ABABA UNIVERSITY

COLLEGE OF HEALTH SCIENCES

SCHOOL OF MEDICINE

DEPARTMENT OF PSYCHIATRY

PRESCRIPTION PATTERNS FOR PATIENTS WITH OBSESSIVE-COMPULSIVE DISORDER IN PSYCHIATRY CLINICS IN ADDIS ABABA: A RETROSPECTIVE MULTICENTER STUDY

A THESIS SUBMITTED TO THE DEPARTMENT OF PSYCHIATRY, SCHOOL OF MEDICINE, COLLEGE OF HEALTH SCIENCES, ADDIS ABABA UNIVERSITY FOR PARTIAL FULFILMENT OF THE REQUIREMENTS FOR A SPECIALTY CERTIFICATE IN PSYCHIATRY

DR EYERUSALEM ATNAFU (THIRD YEAR PSYCHIATRY RESIDENT)

SUPERVISORS:

DR MAHLET YARED, mahletyared1@gmail.com , +251911110363

DR WUBALEM FEKADU, Wubfek@gmail.com, +251912640423

ABBREVIATIONS AND ACRONYMS

AAU: Addis Ababa University

AMSH: Amanuel mental specialized hospital

APA: American psychiatric association

CBT: Cognitive behavioral therapy

CENTRAL: Cochrane Central Register of Controlled Trials

CSTC: cortico-striato-thalamo-cortical

DSM 5 TR**:** Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition, text revision

ECG: Electrocardiograph

EMR: Electronic medical recording

ERPT: Exposure response prevention therapy

FGA: First generation antipsychotics

HIC: High income countries

HMIS: Health management information system

ICD 11: International Classification of Diseases, 11th revision

LMIC: Low- or middle-income countries

MAOI: Mono amine oxidase inhibitors

MeSH: Medical subject heading

MRN: Medical record number

NICE: National Institute for Health and Care Excellence

OCD: Obsessive compulsive disorder

OCRD: Obsessive compulsive and related disorders

RCT: Randomized clinical trial

REMR: Robust error meta-regression

SED: Sertraline equivalent dose

SGA: second generation antipsychotics

SRI: Serotonin reuptake inhibitors

SNRI: selective nor epinephrine reuptake inhibitors

SSRI: selective serotonin reuptake inhibitors

TASH: Tikur anbessa specialized hospital

US: United states

WHO: World Health Organization

Y-BOCS: Yale-brown obsessive-compulsive scale

ZMH: Zewuditu memorial hospital

.

ACKNOWLEDGMENTS

First and foremost, I thank God for all his immeasurable goodness and faithfulness that have graced my life. I would like to express my sincere gratitude to my advisors Dr Mahlet Yared and Dr Wubalem Fikadu, for their unwavering assistance. I would love to thank my family for being consistent sources of support. I also acknowledge the department of psychiatry for this wonderful opportunity.

TABLE OF CONTENTS

Abbreviations and acronyms **3**
Acknowledgment **5**
List of tables, figures and appendixes **9**
Abstract **10**
Chapter 1: Introduction **11**
1.1 Background **11**
Statement of the problem **12**
1.2 Rationale of the study **13**
1.3: Literature review **14**
1.3.1 An overview of OCD and its global impact **14**
1.3.1.1 OCD in the world **14**
1.3.1.2 OCD in Africa **15**
1.3.1.2.1 OCD in Ethiopia **16**
1.3.2 Historical overview of the treatment of OCD **17**
1.3.3 Pharmacotherapeutic agents in the treatment of OCD **18**
1.3.4 Scientific evidence for the use of high dose SSRIs in the treatment of OCD **20**
1.3.5 Global prescription patterns for OCD **23**
1.4 Conceptual framework **26**
Chapter 2: Research Questions ..... Error! Bookmark not defined.
Chapter 3: Objectives **28**
3.1 General Objective **28**
3.2 Specific Objectives **28**
Chapter 4: Research methods and materials **29**
4.1 Study Design **29**
4.2 Study Area **29**
4.3 Study Period **30**
4.4 Study participants **30**
4.5 Study variables **31**
4.5.1 Independent Variables **31**
4.5.2 Dependent variable **31**
4.6 Operational definition **31**
4.7 Data collection procedures **32**
4.8 Data analysis **32**
4.9 Data quality assurance **32**
4.10 Ethical considerations **33**

Chapter 5: Results **34**
5.1 Diagnosis of OCD **36**
5.2 Duration since diagnosis **37**
5.3 Clinical Presentation **38**
5.3.1 Chief Complaint **38**
5.3.2 Obsessions **39**
5.3.3 Compulsions **40**
5.3.4 Other psychopathologies present **41**
5.3.5 Comorbid psychiatric disorders **42**
5.3.6 Family history of mental illness **43**
5.3.7 History of substance use **44**
5.3.8 Underlying chronic medical condition **44**
5.3.9 Use of objective clinical scale for the assessment of severity **45**
5.4 Descriptive statistics of the prescription pattern **46**
5.4.1 History of treatment with medication and types of medications prescribed **46**
5.4.2 Duration of time between the diagnosis of OCD and the initiation of medication **47**
5.4.3 First-line medications prescribed at the different study settings **49**
5.4.4 Descriptive statistics of SSRIs prescribed as a first-line for the treatment of OCD **51**
5.4.4.1 Starting dose of fluoxetine **51**
5.4.4.2 Academic background of prescribers who prescribed fluoxetine as a first-line regimen with the above starting dose **52**
5.4.4.3 Subsequent dose change and maximum dose of fluoxetine **52**
5.4.4.4 Academic background of prescribers who prescribed the above maximum dose of fluoxetine **53**
5.4.4.5 Change of medication from fluoxetine to another and reason for change **54**
5.4.4.6 Second-line regimen after fluoxetine was changed **54**
5.4.4.7 Adjunct antipsychotics in cases where fluoxetine was prescribed as a first-line regimen **54**
5.4.4.8 Sertraline as a first-line regimen **54**
5.4.4.9 Starting dose of sertraline **54**
5.4.4.10 Academic background of prescribers who prescribed Sertraline as a first-line regimen with the above starting dose **55**
5.4.4.11 Subsequent dose change and maximum dose of sertraline **55**
5.4.4.12 Academic background of prescribers who prescribed the above maximum dose of Sertraline **56**
5.4.4.13 Change of medication from sertraline to another and reason for change **56**
5.4.4.14 Second-line regimen after sertraline was changed. **57**

5.4.4.15 Adjunct antipsychotics in cases where Sertraline was prescribed as a first-line regimen 57

5.4.5 Descriptive statistics of Clomipramine prescribed as a first-line medication for the treatment of OCD 57

5.4.5.1 Starting dose of Clomipramine 57

5.4.5.2 Academic background of prescribers who prescribed Clomipramine as a first-line regimen 58

5.4.5.3 Subsequent dose change and maximum dose of Clomipramine 58

5.4.5.4 Academic background of prescribers who prescribed the above maximum dose of Clomipramine 59

5.4.5.5 Change of medication from Clomipramine to another and reason for change 59

5.4.5.6 Second-line medication after clomipramine was changed 59

5.4.5.7 Adjunct antipsychotics in cases where Clomipramine was prescribed as a first-line regimen 60

5.4.6 Duration of time from the starting of treatment until the reach of maximum dose of Fluoxetine, Sertraline and Clomipramine (for those patients in which there was a subsequent dose change after the starting dose) 60

5.4.7 Duration of time the patient stayed on the maximum dose (for patients who had a subsequent dose change) 62

5.4.8 Total duration of time patients stayed on the first-line regimen before it was changed to another medication (for those cases where there was a medication change) 64

5.5 Reported medication side effect 66

5.6 Medication discontinuation 66

5.7 Treatment with Psychotherapy 66

5.8 Analytical analysis of the Prescription pattern 67

5.8.1 One-way ANOVA results for prescriber's academic background and medication dose 67

Chapter 6: Discussion 68

Chapter 7: Strengths and limitations of the study ..... Error! Bookmark not defined.

7.1 Strengths of the study 72

7.2 Limitations of the study 72

Chapter 8: Conclusion 73

Chapter 9: Recommendations 74

Chapter 10: References 76

Chapter 11: Appendix 82

LIST OF TABLES, FIGURES AND APPENDIXES

Table 1: Sociodemographic data

Table 2: Duration of time since the diagnosis of OCD

Table 3: Duration of time between diagnosis of OCD and initiation of medications

Table 4: Medications prescribed as first-line treatment options at the different study settings

Table 5: Duration of time from the starting of treatment until the reach of maximum dose of Fluoxetine, Sertraline and Clomipramine

Table 6: Duration of time the patient stayed on the maximum dose up to the last day of follow-up

Table 7: Total duration of time patients stayed on the first-line regimen before it was changed to another medication

Figure 1: Conceptual framework

Figure 2: Obsessions in percentage

Figure 3: compulsions in percentage

Figure 4: Other psychopathologies

Figure 5: Comorbid psychiatric conditions

Figure 6: Family history of mental illness

Figure 7: History of substance use

Figure 8: Underlying chronic medical condition

Appendix 1: Data collection questionnaire

ABSTRACT

Background: Treatment guidelines for OCD recommend selective serotonin reuptake inhibitors (SSRIs) as first-line agents and Clomipramine as a second-line option. Several studies and the APA guideline indicate that higher doses of SSRIs are needed for adequate treatment of OCD compared to doses used in conditions like depression. Despite the evidence for high-dose SSRIs, surveys have shown that very few patients often receive evidence-based treatment.

Objectives: To describe the prescription pattern and identify factors that influence the pattern.

Methods: A retrospective chart review was conducted on 213 cases seen from January 1,2021 up to December 31,2025, in three public and two private institutions. Age, duration since diagnosis, academic background of prescribers and study settings were independent variables, while prescription pattern was the dependent variable. SPSS version 29 was used. Descriptive analysis and ANOVA were done.

Results: Nine out of ten (90.8%) of the patients were treated with medications. SSRIs were prescribed as first-line for 77.7% and Clomipramine for 13.9%. Fluoxetine was the most prescribed first-line SSRI (66.7%) followed by sertraline (32.7%). Sertraline and Clomipramine were prescribed first-line by senior psychiatrists in 75.5% and 70.4% of cases respectively, while fluoxetine was prescribed first-line by residents in 52%. Two of the five study settings accounted for 85.9% of the first-line clomipramine prescriptions. The maximum prescribed doses of fluoxetine and sertraline were in range of low to medium doses for 68.3% and 83.4% respectively. In cases where medications were changed, the change occurred in ≤12 weeks for 47% on fluoxetine and 50% on sertraline. Objective clinical scales were used in 13.1%. Medication side effects were reported by 32.1% and 23.8% had a history of medication discontinuation. Psychotherapy was done for 40.4% of the patients. Several clinical variables were undocumented.

Conclusion and Recommendation: The prescribed first-line medications generally align with established guidelines. However, the maximum doses of SSRIs are predominantly within the low to medium range for most patients. It is important to consider factors such as symptom severity when determining dosage. To enhance treatment outcomes, comprehensive documentation, the use of objective clinical scales, and staying current with treatment guidelines are strongly recommended.

Keywords: Obsessive compulsive disorder, prescription pattern , selective serotonin reuptake inhibitors, clomipramine.

CHAPTER 1: INTRODUCTION

1.1 Background

Obsessive compulsive disorder (OCD), according to both Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition, text revision (DSM 5 TR) and the International Classification of Diseases, 11th revision (ICD 11) is defined by the presence of hallmark features; obsessions and/or compulsions. (1,2) Obsessions are intrusive and unwanted thoughts, images or urges/impulses that are experienced repeatedly and persistently often resulting in significant anxiety or distress. (1,2) The individual tries to suppress/ ignore the unwanted thoughts, images or urges or attempts to neutralize them by carrying out compulsions. Compulsions are behaviors or mental acts that are carried out repeatedly because of feeling driven to perform in reaction to obsessions or based on rigged rules that must be applied. They can also be performed to attain a sense of completeness. (1,2)

Commonly reported symptom dimensions of OCD include (3,4) obsessions about contamination coupled with cleaning compulsions, obsessional forbidden/ unacceptable thoughts which could be religious, aggressive or sexual often together with compulsive mental rituals or prayer. Obsessions about harm to self or others (harmful thoughts) often present with checking compulsions. Symmetry obsessions often exist with compulsive ordering. Another dimension is that of hoarding with the aim of preventing harm. (3,4)

OCD often has a chronic course, is often underdiagnosed as well as undertreated. In recent years rigorous research has contributed to a better understanding of its phenomenology and neurobiology (5). In the past attempts to understand OCD were mainly focused on psychological theories, particularly Freud's well-known theory of psychosexual development. (6) However, in more recent years with the growing use of neuro imaging several underlying neurobiological means have been recognized. (5)

The first-line treatments for OCD are Cognitive behavioral therapy (CBT) and selective serotonin reuptake inhibitors (SSRIs); reduction of symptoms and improved functionality are attained with proper treatment. (7,8) The use of higher target doses of SSRIs is recommended by the American Psychiatric Association (APA) practice guidelines for the treatment of OCD compared to the doses recommended for depression. As higher SSRI doses are associated with increased effectiveness in treating OCD. This efficacy pattern of SSRIs differs from that seen in other conditions like major depressive disorder (8). For patients who do not have adequate response in the initial phase of treatment with maximally tolerated doses of SSRIs, the APA guideline recommends a series of subsequent treatment options including the use of Clomipramine and augmentation with second generation antipsychotics. It also recommends the use of adjunctive psychotherapy (exposure response prevention therapy (ERPT) which is a specific type of CBT) along with pharmacologic treatment (9).

.

Statement of the problem

Unlike the previously held understanding about OCD being rare, recent surveys indicate that OCD is a quite prevalent mental disorder with a lifetime prevalence of 2-3% (5). In a most recently published article, data taken from the world mental health surveys displayed slightly higher figures. It indicated combined lifetime prevalence of OCD to be 4.1% while the 12-month prevalence was 3% (10). OCD usually starts during adolescence and is more prevalent in women than men. (10,11)

OCD often co-exists with other psychiatric conditions, according to a recent meta-analysis about 69 % of OCD patients had other psychiatric comorbidities (12) With mood disorders co-occurring with OCD in 48%, anxiety in 32%, ADHD in 16%, TIC disorders in 14%, autism spectrum disorders 6%, personality disorders 35% with OCPD 17% (12) in a study done in united states (US) Schizophrenia or schizoaffective was found in 12% of patients with OCD (1).

OCD is known to cause significant distress and decrement in quality of life of both patients and caregivers. (13,14) It was listed among the 10 most disabling conditions by the world health organization (WHO) by the decrement in quality of life as well as the financial loss it causes (6). Hence making it one of the most impairing noncommunicable diseases worldwide. (7) Patients with OCD also have a significantly increased risk of suicide, some studies reported up to 14%-15% suicidal risk. (15,16) Presence of comorbid psychiatric conditions, illness severity, significant disability, underlying medical illness and history of hospitalization were factors positively associated with higher suicidal risks. (15,16)

With appropriate treatment, symptom reduction, improved functionality, decrement in global disability, decreased care giver burden and lessened financial burden are expected outcomes.(7) Unfortunately, OCD happens to be not well recognized by the general public and often underdiagnosed by medical professionals.(7,17) Due to this a large number of patients with OCD encounter a delay in proper diagnosis and treatment, also may not be treated as well.(7,17) On average it takes 8 up to 10 years from symptom onset to diagnosis and treatment. (7)

The American psychiatric association (APA) guideline recommends the selective serotonin reuptake inhibitors to be first-line treatment options. (9) And recommend clomipramine to be a second-line option for patients who do not respond to SSRIs or who cannot tolerate side effects of SSRIs. (9) The APA guideline also suggests that higher doses of SSRIs offer greater benefits, with responses expected to increase within weeks and months.(9) To properly judge effectiveness, initially at least a 12 weeks period of treatment with a maximum tolerated dose in advisable If patients do not respond with maximum dose of clomipramine or the newly switched SSRI within 12

weeks, as a third-line it recommends to increase the dose of the SSRI beyond formulary limits along with the option of adding a second-generation antipsychotic.(9) Canadian guideline has a similar first and second-line recommendation with that of the APA, but at the third-line it recommends IV clomipramine and In cases where third-line options do not result in adequate response it recommends the use of adjunctive therapies with antipsychotics like risperidone, aripiprazole. It also mentions the use of high dose fluoxetine (up to 80 mg) for better outcome. (18) The NICE guideline published in 2005 recommends choosing between an SSRI or psychotherapy, in which therapist hours are based on illness severity. (19) It recommends combination of SSRIs with ERP in severe cases. In cases where the SSRI has not been effective after 12 weeks, it recommends a switch to another SSRI or Clomipramine. For patients who do not respond to the above step, it recommends additional ERP to be done, or to augment the SSRI or Clomipramine with antipsychotic. Or to combine Clomipramine with citalopram. (19) The standard treatment guideline published by Amanuel mental specialized hospital (AMSH) in 2022 has a close to similar recommendation with that of the APA guideline. (20)

Recent national surveys have shown that very few patients often receive evidence-based treatment (21). Despite international guidelines recommending the use of higher SSRI doses for the treatment of OCD than used for depressive disorders, evidence from objective studies and clinical experience shows that clinicians often do not use higher doses of SSRIs up to maximum tolerated dose while treating OCD. An inadequate treatment trial leads to many patients being labeled as having treatment resistance. Ensuring a patient has undergone adequate treatment is amongst the core components required before establishing treatment resistance (22) In addition suboptimal treatment leads to protracted treatment timeline, unnecessary patient suffering and greater burden on society. (23)

1.2 Rationale of the study

Understanding current prescribing patterns across different clinical set ups will have a clinical importance. As it provides clinicians with the opportunity to not only observe the patterns but also see if the current patterns are consistent with the recommendation of international guidelines. Descriptions of current prescription patterns with regards to the choice and dosage of medications, timelines for dose increment and medication change, the use of medications like clomipramine and the practice of augmentation in general will provide the ground to evaluate one's individual practice considering existing recommendations. It will also serve as a bridge to narrow gaps in knowledge and facilitate enhanced practice. This in return will greatly benefit patients with OCD as better-informed decisions by care providers are expected to positively impact treatment outcome and quality of life in general.

The research will also contribute to the existing body of literature, by underlying the possible effects of factors like demographic status, presence of comorbidities, variation in treatment set ups (government and private set ups), illness duration, medication side effects and other associated factors on prescription patterns. Overall, studying prescription patterns for the substantially disabling condition which is highly under-diagnosed and under-treated will not only add to the existing nationwide literature, but also play a role in the overall advocacy for mental health in general and OCD in particular.

In the Ethiopian set up, not much published studies are available on the topic of OCD in general and on its prescription pattern in particular; making this study of particular importance in contributing to the currently available literature. Moreover, in the existing literature, there is a lack of correlation between patterns of prescription and possible underlying factors influencing the patterns, hence the study aims at identifying factors associated with the training.

The study will also benefit stakeholders at different levels of the mental health system to identify existing gaps; which in return can lead to possible interventions that ensure proper practices by for instance facilitating trainings to care providers, by inquiring proper documentation of important elements like clinical decisions, patient outcomes, medication side effect and objective description of illness severity. The study could also promote the adoption of objective scales like the Yale-brown obsessive-compulsive scale (Y-BOCS) for the assessment of symptom severity, with the aim of providing clinicians with better means of assessing symptoms severity and thus providing optimal care.

1.3: Literature review

1.3.1 An overview of OCD and its global impact

1.3.1.1 OCD in the world

In the years preceding 1984 the prevalence of OCD was repeatedly mentioned to be 0.05 %, but several studies done afterwards have reported its prevalence to be more than 2% (24). A recent study published in July 2025 utilized data from WHO surveys; reports from 10 countries from 4 continents, which included four low and middle income and five high income countries reported the lifetime prevalence of OCD to be 4.1% and the 12-month prevalence to be 3% (10). Another cross-national study done in four continents found the prevalence to have remarkable consistency across the continents. (24) With women more affected than men; 1.6 times according to a meta-analysis published in 2020 (11) and 1.2 to 3.68 times according to epidemiologic surveys done in different countries (24) more affected than men. The increased prevalence in females

may be associated with changes that come with pregnancy and Childbirth (25). The rate of prevalence amongst pregnant women was higher compared to women in the general population (25,26) The first 4 weeks of postnatal period were associated with increased risk of OCD and in OCD occurring in the post-partum period, aggressive obsessions were most commonly reported while obsessions about harming an infant were more likely present in the post-partum period along with other kinds of obsessions. (25,27)

OCD is significantly associated with decreased quality of life as well as marked disability listed as one of the most disabling conditions by the WHO (6,7,28) As stated by the WHO reports OCD had an outcome similar to schizophrenia and higher than some neurologic disorders like epilepsy. With regards to all-cause mortality and the number of years of life lost to disability (7) Factors like the presence of comorbid depression along with some types of symptom domains like fear of contamination were associated with decreased quality of life and functional impairment (28). It was estimated that >30% of individuals were reported to be either unemployed or under employed (7).

Rate of suicidal attempts in OCD patients is reported to be 14.6% (15). And significantly higher rates of suicidal attempt were associated with the presence of comorbidities like Tic disorder, depressive disorders, GAD, and severity of OCD (16,29) When it comes to current suicidal risk prevalence according to a study published in 2021, Italy sits at the top by a 30.8 % of suicidal risk while south Africa follows with 16.9 % risk. (16)

Symptom domains show variation in the different parts of the world. Culture and religion were shown to play a role in patient presentations (30,31) While religious themes were predominantly seen in middle eastern countries (32,33), taboo thoughts associated with sexual orientation were primarily reported from western cultures like that of the United States and obsessive thoughts associated with aggression were predominantly reported in Brazil (33)

1.3.1.2 OCD in Africa

Nationwide data in low- and middle-income countries is quite scarce (10). Though known to have high prevalence in developing and developed nations, existing data on OCD is limited amongst blacks (34) Published studies acquired during this review were mostly done on specific groups of people. A study done in South Africa in 2019 assessed the prevalence of OCD amongst 206 pregnant women, and reported that OCD was diagnosed in 39.5% of them.(35) Another study done in South Africa, assessed the prevalence of OCD in 400 Afrikaners who had the diagnosis of schizophrenia and schizoaffective disorder and reported comorbid OCD was present in 10.7% of them(36). Another study done in Egypt estimated the prevalence of OCD amongst a group of adolescents to be 19.6% (37). Another study done in Egypt on the prevalence of Obsessive-compulsive symptoms amongst psychiatric patients it was

seen that from those with mood disorders 51% and from those with schizophrenia, delusional disorder and schizotypal personality, 47% had obsessive compulsive symptoms. (38) A study done in Kenya assessed the prevalence of OCD 691 inpatients admitted at a certain hospital, and reported 12.2 % fulfilled the criteria of OCD.(39) some of the limitations of the above studies include the study design which was cross-sectional and it was not possible to show cause and effect relationship and the sampling technique which was convenient sampling (35) While in the Kenyan inpatient unit the high prevalence of comorbid psychiatric conditions like psychosis made it difficult to differentiate between psychotic symptoms and obsessive compulsive symptoms.(39)

Regarding the symptom domains experienced, the most common obsessions experienced were contamination obsession followed by religious obsessions in the Afrikaner population with schizophrenia and schizoaffective disorder(36) A study done in Sudan on the phenomenology of OCD, Obsessional doubt was the commonest and religious obsessions followed.(40) Obsessions about contamination was seen more on females while the religious theme was more reported in males.(40) Amongst the Egyptian adolescents who were found to have OCD religious, aggressive and contamination obsessions were the commonest (37). The most common compulsions seen in the Afrikaner study were repetitive rituals and checking. (36) While cleaning was the most commonly seen compulsion amongst the Egyptian adolescents. (37) Commonest compulsions in the Sudanese study were washing and checking (40) one Limitation of the study done in Sudan is that it's a single centered, with most patients being from Khartoum (40)

In the study done amongst pregnant women, past history of pregnancy complication, older age, presence of depression and anxiety associated with pregnancy were positively related with the presence of OCD (35) In the Afrikaner study it was noted that second generation antipsychotics were more used in higher rates in those patients with schizophrenia and Schizoaffective disorder compared to the control group.(36) Female sex, younger age and being a first born ware positively associated with the presence of obsessions and compulsions among the Egyptian adolescents.(37)

Though OCD in Africa seems quite common with a similar phenomenology with the rest of the world; patients are less likely to seek treatment. (34) In a study that assessed treatment seeking in South Africa, from 50 patients with OCD 36% of them reported that they preferred to handle the problem on their own, while 26% reported to have treatment concerns, in 22 % affordability was a barrier not to seek treatment while 20 % reported shame to be a barrier for treatment seeking (41)

1.3.1.2.1 OCD in Ethiopia

A study published in 2025, assessed the prevalence and associated factors of OCD in undergraduate medical and health science students in Dilla University, reported the prevalence to be 28 % (42). Another study done in Borena assesses lifetime prevalence

and socio-demographic correlates of psychiatric disorders. It included 1854 people and reported the prevalence of OCD to be 0.3% (43). A study done at referral hospitals in Eastern Ethiopia, assessed the prevalence of OCD in schizophrenia patients and reported that 44.07 % had obsessive compulsive symptoms. (44)

Slightly higher prevalence in females was reported in both studies. (42,43). Being female, having maladaptive coping, presence of depressive symptoms and poor sleep quality were associated with OCD in the study done in Dilla. (42) While in the study done in eastern Ethiopia, current use of Khat and Alcohol, presence of anxiety and depression as well as treatment with risperidone and olanzapine was associated with OCD (44)

One limitation of the above studies is the fact that cross sectional design was used, as it cannot show cause-effect relationship (42,44)

The study in Dilla also used a DSM IV criteria, rather than the more updated DSM V (42), while the study in eastern Ethiopia used the Y-BOCS which is not validated in the Ethiopian set up (44)

1.3.2 Historical overview of the treatment of OCD

Descriptions of OCD are found in writings dating to the 1400s. A compilation by a catholic clergyman Heinrich Kramer titled "*Malleus Maleficarum*" translated as "Hammer of Witches narrates about a priest taken to Rome for exorcism, it describes when he bowed in honor of virgin Mary, the devil made him protrude his tongue. Back then people who had blasphemous or sexual thoughts were considered to be possessed partially, whereas people with psychosis were considered as fully possessed. In the 17th century, Shakespeare describes a female character, who had a hand-washing ritual that took longer than the usual training (45). The Latin word *obsidere*, translates into being possessed or being occupied and being worried about a certain thing (31). In the 19th century Esquirol described obsessions and compulsions in his writings. The 20th century marked the transition in the understanding of OCD as having psychological basis. Following Sigmund Freud's writing on a psychoanalysis of a man thought of having obsessional neurosis, a term coined by Freud, unconscientious conflicts and the isolation of thoughts from emotion was thought to underlie OCD. Though this approach contributed to understanding, it did not help much in improving the outcome of OCD patients (45).

Gradually over the years the approach to OCD shifted from psychoanalysis to pharmacotherapy and CBT. Research in the 1980s on the association between OCD and neurological conditions like epilepsy (45). In 1980 the DSM 5 classified OCD with phobias. Later in 1994 DSM 4 classified the disorder under anxiety disorders. And the

following edition DSM 5 categorized OCD under a category of "Obsessive-Compulsive and Related Disorders" (6)

An important landmark in the history of OCD came about in 1987 when functional neuro imaging findings described the convergence of corticostriatal circuits and their limbic connections. (31) In addition to that the role of serotonin in the pathophysiology of OCD was also underlined. It was also noted that antidepressants that inhibited the reuptake of serotonin were effective in the treatment of OCD while those who did not have such a mechanism of action were not effective. (31) Considering the positive effect of some antipsychotics in the treatment of OCD, the dopamine hypothesis also came to light. The hyper activation of the brain circuits connecting the cortex and the striatum, along with the findings of genetic studies highlighted the role of the glutamate system in pathophysiology (31).

The above progression on the perception and treatment of OCD seems to have currently landed at a place where the role of pharmacotherapy is highly emphasized. In a disorder which has been shown to have a strong neurobiological basis, the role of biological interventions which includes the trial of medications is inevitably displayed.

1.3.3 Pharmacotherapeutic agents in the treatment of OCD

After clomipramine was proven to be effective in the 1980s, a series of studies have been conducted on various pharmacologic agents. The collective sets of evidence showed antidepressants that were serotonin re-uptake inhibitors were effective in the treatment of OCD. These included the tricyclic antidepressant clomipramine and the selective serotonin re-uptake inhibitors. (46)

An article published in the *International Journal of Neuropsychopharmacology*, in September 2012 thoroughly reviewed around 125 published literatures on psychopharmacological treatment trials for OCD and outlined the evidence-based pharmacotherapy of obsessive-compulsive disorder. (47) The reviewed literature consisted of randomized clinical trials, systematic reviews and meta-analyses as well. With the use of electronic databases, systematic search was conducted using a composition of terms to yield published literature dating from 1966 up to the year the review was conducted 2012. (47) It was noted that most of the published studies provided short-term data, and data on long-term trials and studies on relapse prevention were lacking. They included studies conducted in children; however, they reported that no research was found on OCD amongst the elderly. The results of the review were presented as follows. (47)

Regarding the first-line treatments for OCD, the review showed that both clomipramine and SSRIs were endorsed as first-line pharmacotherapeutic agents. Clomipramine was shown to have superiority over other tricyclic antidepressants (TCAs) and monoamine oxidase inhibitors (MAOIs). Among the SSRIs fluoxetine, sertraline, citalopram,

fluvoxamine and paroxetine and escitalopram were proven to be effective in the treatment of OCD. (47,48)

In the clomipramine studies baseline symptom scores decreased by a 40 to 50 % on average, while the reduction of the scores in the studies on SSRIs was about 30 %, since the SSRI studies were more done more recently , it was hypothesized that the differences in the results could be due the changes in the study populations, with the notion that larger number of patients with treatment resistance could have been included with the later sertraline studies as it was challenging to find treatment naïve patients.(47,48)

Furthermore, recent patterns in the clinical trials of OCD, like using stricter inclusion criteria, the exclusion of comorbid conditions (which could have resulted in low capacity of response, as milder cases are anticipated to have no comorbidity) may have contributed to lower measures of symptomatic improvement. (47)

The review outlined the effects of individual SSRIs compared with one another in head-to-head studies and concluded that in the studies there was no strong evidence that supported the superiority of one SSRI over another. In comparing SSRIs and Clomipramine, head-to-head studies showed equivalent efficacy. But SSRIs were found to be more tolerable. (47,49)

The paper reviewed different meta analyses that compared SSRIs with placebo and CBT with placebo and pharmacotherapy in general with controls, and all of them showed that SSRI group, and CBT group and the group of patients who were on pharmacotherapy had a distinct better outcome.(47) The later study that compared controls with patients on pharmacotherapy was said to have limited by the fact that the search was limited to published papers only and only materials in English were included, there was no formal assessment for the validity of the studies included. (47)

Regarding the most effective doses, based on the reviewed literature fluoxetine and paroxetine showed a positive dose response relationship. Regarding time for dosage increment gradual titration was favored, it was also suggested that slower dose titration can minimize some side effects that come early on the course of treatment like agitation. The need for side effect monitoring was also emphasized. It was noted that sexual dysfunction, one of the side effects of SSRIs, was found to be a common cause for medication discontinuation. (47,49)

Regarding treatment outcome, the absence of standardized definitions for remission, relapse and response were found to be a hindering factor for research generalizability. Defining remission based on Y-BCOS was proposed. To define remission in cases where the YBCOS score is less than or equal to 10. But still defining these scenarios in the context of OCD is still challenging, due to the chronic and fluctuating course of OCD. (47)

About the most convenient dose for the long term, a study reviewed showed fluoxetine 60 mg daily dose was the most effective dose, to a certain level supporting the continuation of treatment with higher doses. It was also reported that most experts support the continuation at the effective dose for relapse prevention. (47,50)

On the issue of treatment predictors, it was described in the review that there were no well-founded clinical or demographic factors. Despite that, factors like long periods of untreated illness, symptoms of hoarding as well as symmetry and later childhood onset are anticipated to predict lower response rate to SSRIs. (47,48)

In cases where first-line treatments fail, it was shown that some clinicians favored changing the SSRI. However, some of the reviewed studies showed that increasing the dose above the formulary limits can result in better outcomes in some patients. (47,51)

When it comes to augmentation with antipsychotics, in the review it was stated that no positive studies that met the (Randomized clinical trial) RCT standards were found on monotherapy with antipsychotics. Regarding augmentation with first generation anti psychotics, a double-blind placebo-controlled study reported a substantial improvement after fluvoxamine was augmented with haloperidol. (47,52) And on studies done on augmentation with second generation antipsychotics, risperidone's efficacy was reported by multiple double blind, placebo-controlled studies, in reducing not only OCD symptoms but anxiety symptoms as well. Risperidone was also shown to have superiority over aripiprazole as an adjunctive treatment. (47,53) On the use of olanzapine as adjunct, amongst the reviewed studies, one of the studies showed that augmentation with olanzapine showed improvement in symptoms (47,54) while another study showed no significant outcome. In the case of Quetiapine, the reviewed studies have shown inconsistent findings. Some studies reported the benefit of augmentation with low dose Quetiapine, while some other studies found no significant benefit. (47,55,56) Aripiprazole on the other hand was shown to have a promising agent as an adjunctive agent for the treatment of cases resistant to SRI treatment. A randomized, double blind, placebo controlled and an open label study showed symptom improvement with aripiprazole. (47,57,58)

1.3.4 Scientific evidence for the use of high dose SSRIs in the treatment of OCD

A meta-analysis conducted by Bloch and colleagues in 2010, happens to be an essential study in the current understanding of dose response relationship in OCD. 9 studies that were involving 2268 subjects were identified. (8) The studies randomized double blind placebo-controlled trials. The studies compared fixed SSRI doses to each other and placebo. The analysis aimed at clarifying if higher SSRI doses were more efficacious than lower doses and to also demonstrate the side effect profile of higher doses of SSRIs in comparison with lower doses. (8) The search was conducted using the PubMed database. With no language limitation the search also included unpublished fixed dose drug trials. The Y-BOCS was used to monitor treatment response. The dose categories were calculated based on the equivalent doses of SSRIs with fluoxetine, based on the APA guideline dose recommendations as well as on previous meta-analysis of anti-depressants. (8) For example, for fluoxetine and sertraline doses were defined as follows. For fluoxetine low dose was considered from 20 to 30 mg, medium dose was from 40 to 50 mg and high dose was from 60 to 80 mg.

and for sertraline low dose was from 50 to 75 mg, medium dose was from 100 to 175 mg and high dose was 200 mg. (8) The results showed that higher doses of SSRIs had better efficacy compared to lower doses. The results supported the notions by the APA guidelines that recommended higher SSRI doses for the treatment of OCD compared to depression. (8) In addition, higher SSRI doses were related to increased dropouts due to side effects, even though all cause dropouts were not necessarily due to higher SSRI dose. (8) This points to the fact that better efficacy could be counterbalanced by the increased side effects. Among the limitations of this meta-analysis are the small number of illegible studies in the meta-analysis to address dose response relationships for individual SSRIs and publication bias cannot be fully excluded as well.(8)

A structured narrowed review was conducted by Gualtieri and friends, published in May 2025, on the use of supra therapeutic doses of SSRIs for resistant OCD. (59) The review targeted evaluating the rationale behind the use of high dose SSRIs, along with tolerability and clinical efficacy. Literature searches were conducted on PubMed and Scopus. The studies included were those that reported on the use of high dose SSRIs and reported tolerability and efficacy. (59) The reviewed studies included case reports, observational studies and clinical trials. The results showed that high dose SSRIs were found to be significantly more efficacious than low and medium dose. (59) One of the major limitations of this study was its narrative review. They pointed out that they did not use a systematic review because the number of available studies on supratherapeutic SSRI dosing was few. (59)

A systematic review and a dose response meta-analysis published in September 2021 by Jiao Xu and colleagues aimed at the dose effect relationship of SRIs and the optimal dose of serotonin reuptake inhibitors for OCD (60). When performing dose response analysis, the dose of SRIs were converted into equivalent fluoxetine doses. (60) Eleven studies which included around 2,322 participants were analyzed. A gradually increased trend in the 0-40 mg fluoxetine equivalent dose range was shown in the dose-efficacy curve (60) and unlike the previous studies mentioned a decreased trend was reported in the doses up to 100mg fluoxetine equivalent. It was also shown that throughout the depicted dose slope, the dropouts caused by adverse drug effects increased gradually. (60) But the curve showing the dose of all-cause dropouts indicated no relationship between them. Hence in the systematic review it was concluded that the optimal effective dose for SRIs was 40mg fluoxetine equivalent, and tolerability declined with higher doses. (60)

The reported results of decreased efficacy in doses higher than 40 mg is partly inconsistent with preceding studies done. The authors justified the difference of their result from the mainstream recommendations for the use of higher doses of SSRIS for better efficacy with the following justifications. (60) The first justification mentioned was the fact that the authors used different dose conversion methods which could have led to different results. (60) They also mentioned that the dose conversion they used was comprehensive and latest. The dose classification method used by this study was also

thought to be another possible reason behind the different results, as in this particular study the dose is seen as a continuous variable.(60) They also reported that limited number of studies done on higher dose could have also resulted on a bias.(60) Another possible explanation mentioned was, only fixed dose studies were included in this study, and since participants on a high initial dose had increased adverse effects, this could have affected the results causing a bias. The last possible reason mentioned is the short follow-up period (8-13 weeks) (60)

One of the limitations of this study is the fact that it was still difficult to avoid conversion bias since the best way to calculate equivalent dose for antidepressants was not clear**.**(60) The other limitation reported is that they found limited number of eligible studies for the meta-analysis and hence reported to have difficulty in evaluating the dose- response differences among the individual SRIs.(60) Due to this they did a meta-analysis of SRIs collectively, since they shared a basic therapeutic mechanism. The third limitation was the fact that studies included had a treatment duration of 8-13 weeks, and there were very few studies that examined treatment duration, which by itself can affect the efficacy of SRIs.(60) The fourth limitation is that only fixed dose regimens were included and clinical practice may not be accurately represented by fixed dose regimens especially in those cases where rapid titration is not implemented; leading to an overestimation of discontinuation rates due to adverse effects.(60) Nevertheless, it was mentioned that only fixed-dose regimens can rigorously assess the dose response relationship. The fifth limitation is the fact that all of the studies cited were older than 10 years; as the authors reported that they could not find a fixed dose RCT confirming to this study conducted in the past 10 years. (60) Furthermore, the findings were derived from small number of participants, and lastly publication bias cannot be excluded since only published studies were included. (60)

Another study was published in August 2024 by Levy and colleagues on the safety and tolerability of off-label higher dose of serotonin reuptake inhibitors. (61) The study was a retrospective longitudinal study on 105 OCD patients who were randomly selected. The patients were on off label high dose serotonin reuptake inhibitors for a period of at least 6 months. The patients received fluoxetine> 60 mg/day, sertraline > 200mg/day, escitalopram >20 mg/day, fluvoxamine >300 mg/day in combination with ERP. Additionally, they were grouped into three groups based on sertraline equivalent dose, (SED). The first group took ≤ 200 mg/day, second group SED= 201–400 mg/day and third group SED = 401–650 mg/day. (61) Electrocardiogram (ECG) blood biochemistry, complete blood count, and side-effects monitoring were used to assess safety and tolerability. The most reported side effects were sexual dysfunction, weight gain, sedation, hyperhidrosis and tremors. (61) There was an abnormal ECG finding with one patient. A first-time seizure was experienced by one patient. 5 patients (4.8%) had elevated liver enzymes. Serotonin syndrome and drug induced liver injury were not reported. Among the three groups, differences in side effects were not seen.(61)

A meta-analysis published in 2016 by Pittenger and colleagues, aimed at analyzing how the treatment response progressed with the use of SSRI and how this progression

is affected by dosage. (62) Studies that investigated the effectiveness of SSRIs and used the Y-BOCS for outcome measurement were chosen. They meta-analyzed 17 trials that included 3,276 participants. The results showed that compared to placebo, SSRIs had a benefit that is statistically significant over placebo. (62) An accurate representation of the progression of the OCD symptom improvement was seen by a logarithmic response curve that showed a decline in symptom improvement over the course of time. Showing that higher treatment gains were observed early on in SSRI treatments. But in addition to this finding they were also able to conclude that the use of higher SSRI doses was associated with a substantially higher response. (62)

1.3.5 Global prescription patterns for OCD

A study that was published by Brakoulias V, and colleagues in January 2019 on treatments used for OCD. The study was characterizing international patterns in the use of psychotropic medication, psychotherapeutic modalities and novel therapies in the treatment of OCD. (63) Nineteen centers' surveys from 15 countries (, Australia, China, India, Japan, Germany, Greece, the United Kingdom, Italy, Brazil, Mexico, Argentina, Portugal, South Africa, Spain and the United States) were surveyed. (63) From 7340 participants 13.2% were on fluoxetine, 12.4% on fluvoxamine. Risperidone and aripiprazole were the most commonly used antipsychotics, in 7.3 % and 7.1 % of the participants respectively. It was also noted from the study that there was a substantial difference in the use of ERP for OCD. (63) Treatment modalities like transcranial magnetic stimulation, deep brain stimulation were used in less than 1% of the sample. It was concluded that ERP was not being used as much as the international guidelines recommend. (63) One of the limitations of this literature would be the fact that it did not include dosages of medications along with factors affecting the patterns of prescription.

Another study published by Brakoulias and friends in June 2016 aimed at describing international prescribing practices in OCD and compare the practices with international treatment guidelines. (64) Various researchers on the area of OCD were requested to provide a statistical summary on the characteristics of their patients with OCD, and the prevalence of psychotropic medication use amongst them. The data was collected from 7 countries and 5 continents. And the consistency of the statistical summary from the different countries was assessed. A total of 3139 participants from Spain (82), Italy (750), South Africa (555), India (202), Japan (382), Brazil (955), Australia (213). (64) The results showed 77.9 % were on psychotropic medications, and the majority of them (73.5 %) were on SSRIs. But the use of SSRIs varied across countries from 96% in Japan to 59% in Australia. (64) The use of clomipramine also varied across countries from about 26 % in Italy and India to 5% in South Africa and Japan. The use of second-generation antipsychotics ranged from 50% in Japan and 12 % in South Africa. (64) From this study it was concluded that there was a significant variation in the pharmacologic treatment of OCD across different parts of the world. But the study did not determine the different factors behind such a variation in the prescribing factors. The factors could be pharmacogenomic, pharmacoeconomic or cultural. (64)

A retrospective single center study published in 2024 by Knebel and colleagues on prescribing patterns for OCD patients reviewed electronic medical records and explored the use of medications on patients with a primary diagnosis of OCD, mainly focusing on the choice and dosage of medication (65). The results showed that 93% of the patients were put on medication. The most prescribed medications were SSRIs (85%). Benzodiazepines were prescribed in 47% of the cases, second generation antipsychotics were prescribed in 37%, Tricyclic antidepressants in 13% and first-generation antipsychotics in 2 %, selective serotonin-norepinephrine reuptake inhibitors in 16% and Mood stabilizers in 8%. (65) With this they concluded that prescription patterns followed treatment guidelines which were evidence based. (65) Augmentation strategies which varied widely were also noted. Benzodiazepine use was also noted to be high. The study did not determine possible underlying factors that affected prescription patterns and this can be mentioned as a limitation. (65)

Another study published in January 2025 by Cohen and colleagues, had the objective of examining whether OCD patients were on adequate pharmacologic treatment or not. A retrospective chart review of patients that were seen 2016 and 2023 at an outpatient clinic in the Netherlands was conducted. (23) In addition to demographic data, factors like duration of illness, Y-BOCS results, comorbidity and past pharmacotherapy and psychotherapy were collected. The results showed that only 29 % received high dose SSRI, 4% of the patients have been treated with at least two high dose SSRIS. (23) With the use of Multiple regression, it was demonstrated that illness duration and history of treatment with psychotherapy were found to be independent moderators of the adequacy of pharmacological treatment. The authors concluded that the majority of the patients were not getting adequate treatment based on the pharmacological guidelines. (23)

In another systematic retrospective survey that analyzed the pattern of SSRI prescription in terms of the rate of high dose SSRI prescription and its clinical outcome in patient's symptoms. (66) It was found that the rate of High dose SSRI use was 13.5 % for a period of time that ranged from 3 to 364 weeks. The study compared the patients that took high dose SSRIs with controls, on 3 different points of time (the time in which the patients were referred, the time when the high dose SSRI was initiated and the time when the last clinical evaluation was done). (66) The results showed that male patients and patients who had history of being treated with CBT were more likely to be put on higher SSRI doses than controls at the time of referral. Illness severity did not seem to have an impact on the dose at the time of referral, but in contrast to the time of referral, in the time of initiation of high dose SSRI, patients with more severe symptoms were put on higher doses compared to controls.(66) And regarding outcomes seen on the last evaluation of patients, those put on high dose SSRIs had significant improvement within groups, even though the YBOCS scores were found to be higher than the controls.(66) There was no significant difference in the frequency of side effects in the two groups. The overall conclusion from the study was that high dose SSRIs in OCD were associated with improved clinical outcome on top of being well tolerated especially in refractory cases. (66)

Another study published in 2016 on the pharmacotherapy for OCD patients, acquired the prescription data of 842 OCD patients who received treatment in an inpatient setting. Within the time period of 1994–2012. (67) The data was collected from primary settings that constituted 78 psychiatric hospitals in three European countries. In addition to the prescription pattern the study also described the change in trend through time. The results showed that the majority of patients (89.9%) were put on at least one psychotropic medication while 67.6 were put on at least 2 medications. (67) From the medications used in the treatment of these patients, 58 % were on SSRIS, and about 17.8 % were TCAs, and from the TCAs about 10.9 % were on clomipramine. In 13.7% of patients first generation antipsychotics (FGAs) were used while in 37.8 % second generation antipsychotics (SGAs) were used. (67) Tranquilizers were used in 19.7%. Based on these results. They concluded that the high preference of the use of SSRIs, and their use over clomipramine along with the use of second generations for augmentation complied with the guideline recommendation while the use of first generation Antipsychotics did not, and the use of monotherapy with second generation antipsychotics did not go with go well with the international guideline recommendations.(67) They were also able to conclude that over the period of time the pattern of use remained more or less similar for FGAs, and there was a decreasing pattern in the use of TCAs, while an increasing pattern of use was seen in SSRIs, SGAs and tranquilizers.(67)

In a study done in 2014 in Florida by Hankin and friends on the adequacy of pharmacotherapy received by newly diagnosed OCD patients, a 9-year medical record of 843 newly diagnosed OCD patients who were on treatment for at least one year was reviewed and the results showed that only 38.3% received a minimally effective trial of treatment.(68) The study further recommended that factors like clinicians awareness of guidelines as well as adherence of patients should be pointed out and addressed (68)

A Swedish nationwide cohort study published in 2016 by Isomura and friends, reviewed the pharmacoepidemiology of OCD. After reviewing the medical records of 10,523 OCD patients, the majority of them (85%) were treated with at least one single medication, most of which 88% were treated with SSRIs. (69) The reports also showed that around 16 % received sub optimal doses. The study also highlighted that around 75 % of the patients were augmented with different medications like antipsychotics in (27%) and 17% with Selective serotonin and norepinephrine reuptake inhibitors (SNRIs).(69) It also reported that about 12 % of patients were put on medications that are not serotonin reuptake inhibitors. Also, while 12% of the patients were regular benzodiazepine users, 3 % were found to be heavy users. They additionally reported that the prescription patterns varied based on factors like age, gender and comorbidities. The study concluded that large numbers of patients could benefit from changes in their prescription. (69)

1.4 Conceptual framework

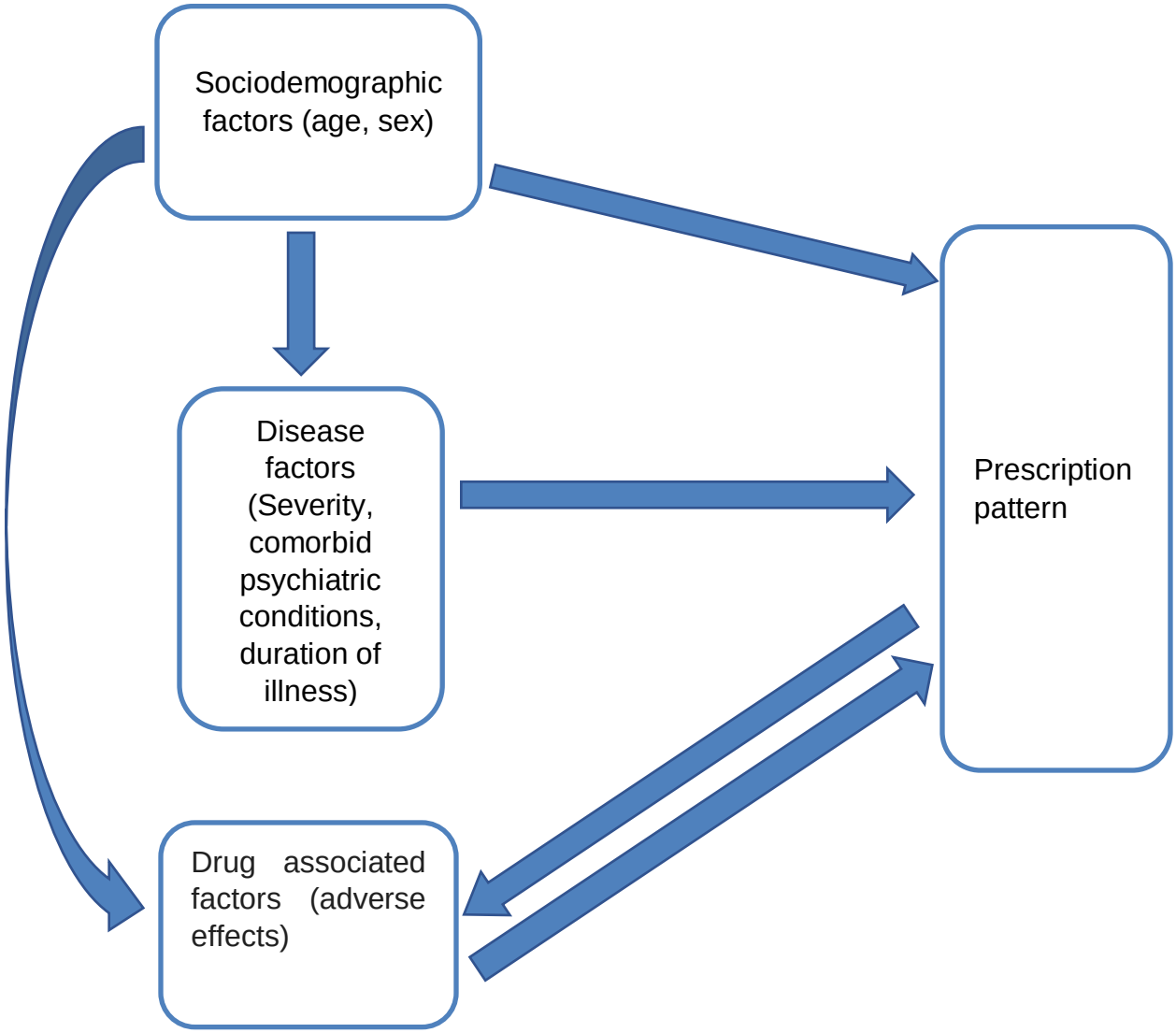


Figure 1: Conceptual framework of factors affecting prescription pattern

CHAPTER 2: RESEARCH QUESTIONS

1. What has the prescription pattern for OCD looked like in selected psychiatry clinics in Addis Ababa in the past 5 years?

2. What factors affect the prescription pattern for OCD in these selected clinics in Addis Ababa

CHAPTER 3: OBJECTIVES

3.1 General Objective

- To describe the prescription pattern for OCD and to identify factors associated with the pattern in selected psychiatry clinics in Addis Ababa in the past 5 years.

3.2 Specific Objectives

- To describe the prescription pattern for OCD in selected psychiatry clinics in Addis Ababa in the past 5 years.

- To identify factors that influence the prescription pattern in the selected Psychiatry clinics in Addis Ababa.

CHAPTER 4: RESEARCH METHODS AND MATERIALS

4.1 Study Design

The study is retrospective, with a review of patient charts and electronic medical records (EMRs). The values of different variables were acquired and were later analyzed to see the relationship they have with the prescription pattern.

4.2 Study Area

A total of 5 study settings were selected. Three of them are public hospitals while two are private institutions. These are Tikur Anbessa specialized hospital (TASH), Zewuditu memorial hospital (ZMH), Amanuel mental specialized hospital (AMSH), Sitota psychiatry and rehabilitation center and Lebeza Psychiatry Speciality Clinic. TASH, ZMH, and AMSH were selected as they are the sites for the clinical rotation of Addis Ababa University's psychiatry residents. While Sitota and Lebeza were selected as they are private institutions with high patient flow.

TASH is a comprehensive specialized hospital in Addis Ababa, Ethiopia, located in Arada sub city. It is the largest hospital in the country that provides inpatient and outpatient services. In 1995 E.C it started giving psychiatric service. Post graduate training was also started in the same year. Currently it has more than 20 psychiatrists and 4 clinical psychologists and 33 psychiatry residents and 5 clinical psychology students. There are 5 psychiatry outpatient clinics. According to the 2021/2022 report the hospital provided service for around 430 patients per month consisting of children and adults. It currently operates with electronic medical recording.

ZMH is a hospital in Addis Ababa, in Ethiopia in Kirkos sub city. Named after Empress Zewuditu, previously used to be owned by a religious organization but it was nationalized during the Derge regime around 1976. In addition to other disciplines, it also has an outpatient and inpatient psychiatry unit. The inpatient unit is particularly used for rehabilitation of patients with substance use. It currently has two adult outpatient clinics, one child and adolescent psychiatry clinic, and a substance clinic, along with an inpatient setting which primarily gives service in relation with substance use disorders. Patient charts have been replaced with electronic medical recordings since 2015 EC.

AMSH located in Addis Ababa, Ethiopia is the only mental health hospital. Established in 1937, throughout the years it has played a significant role in the history of mental health in Ethiopia. There are 259 beds and 24 outpatient units, and it is estimated that about 500 patients are seen daily in the outpatient units. The hospital has more than 380 medical professionals and 460 supporting staff. It is estimated that more than 60,000 patients are seen at Amanuel annually, with daily estimates of around 400 up

to 600 patients visiting the facility per day. It currently provides comprehensive care to the mental health service users, which comprises psychiatrists, psychologists, internists and family physicians. It also provides electro convulsive therapy. Electronic medical recording has taken over the manual charts since 2015 EC.

Sitota psychiatry and rehabilitation center is a private psychiatric center located in Addis Ababa, Ethiopia. It has been giving service for close to 18 years. Previously it used to be known as Addisu Michael Higher Clinic. It has more than 110 staff. It gives both an inpatient and outpatient service. There are more than 60 beds in the inpatient unit. It is one of the largest private psychiatry settings in the country, and has played a pivotal role in the provision of mental health service throughout the years. Its services include adult psychiatry, child and adolescent psychiatry along with psychotherapy, and a more recently initiated electro convulsive therapy. It also uses an electronic medical recording.

Lebeza psychiatry Clinic is a private institution established in December 2016. It has both inpatient and outpatient units. With a total of around 35 employees, it treats More than 2400 patients in a year. It currently has around 10 senior psychiatrists, 2 psychiatry residents and 6 psychiatric nurses. The newly established center has around 25 beds, while the earlier clinic has about 10 beds for an inpatient service. It has been using electronic medical recording since its establishment.

4.3 Study Period

The study period was from the 1st of December 2025 up to the 31st of May 2026.

4.4 Study participants

Patients who are assigned a diagnosis of OCD according to the DSM 5 and DSM 5 TR and who received treatment at the study sites in the past 5 years from January 1/ 2021 up to December 31/ 2025 (despite an earlier diagnosis) and who fulfill eligibility criteria are included in the study.

The inclusion criteria consist of patients whose charts or electronic medical records (EMRs) are accessible and whose minimal required essential clinical information on diagnosis and medication prescription is found documented. Study units are chart and EMR records.

A census approach was used to determine the sample size, and hence all patients that were diagnosed with OCD according to the DSM 5 and DSM 5 TR, and who received treatment in the selected study sites within the past 5 years (from January 1/2021 up to December 31/2025), despite having an earlier diagnosis and who fulfill the eligibility

criteria were included in the study. Considering the fact that OCD is often underdiagnosed it was believed that the census approach would ensure an adequate sample size. In order to estimate the sample size, a pilot review was done at TASH to see the number of OCD patients seen in a specific time period and the number of patients with the diagnosis of OCD seen at TASH in about 20 months period (a total of 1 year and 8 months) was determined from the health management information system (HMIS), and it was found that about 46 patients who had a diagnosis of OCD were seen in a total duration of 1 year and 8 months period. And from this finding it was aimed to have about 200 cases with a diagnosis of OCD treated in the past 5 years at the five study settings. And at the end of the study period the data for 213 OCD patients seen in the past 5 years in the respective study settings was acquired.

4.5 Study variables

4.5.1 Independent Variables

Age
Sex
Duration of time since the diagnosis of OCD
Academic background of prescribers
Study setting (public and private)
Treatment with psychotherapy

4.5.2 Dependent variable

- Prescription pattern

4.6 Operational definition

Prescription pattern: consists of frequency of use of psychotropic medications, types of medications prescribed, dose of medications, and patterns in the changing of medication type and dose. The recommended prescription for OCD consists of the use of SSRIs as first-line regimens with the use of maximum tolerable dose for a duration of 12 weeks, and with a recommended second-line approach of changing into another SSRI or using clomipramine with the use of maximum tolerable dose for a duration of

12 weeks. In treatment resistant cases the use of doses beyond formulary limits and adding adjunct second-generation antipsychotics is recommended.

4.7 Data collection procedures

After ethical acquiring approval, the medical record number (MRN) of patients who are assigned a diagnosis of OCD and have been on treatment in the past 5 years (despite an earlier diagnosis) was assessed from HMIS.

From TASH the MRN numbers were acquired from both the manual HMIS registry and from the HMIS in the EMR. Cases that were not reported in the EMR were acquired from the manual HMIS registry and duplicate cases were removed. And at ZMH and AMSH several HMIS registry books were reviewed and the MRN numbers of patients reported to have a diagnosis of OCD was collected. At Sitota psychiatric and rehabilitation center and Lebeza psychiatry specialty clinic, the MRN numbers of patients diagnosed with OCD were acquired directly from the EMR.

After the MRN numbers of the patients were acquired, the EMR recording of each patient was reviewed, and for those patients seen at the study sites prior to the establishment of EMR, medical charts were requested for, and for those patients whose medical charts were accessible the data was collected from the charts. And the cases in which both an EMR and chart recording were not available were excluded. Identification and the collection of MRN numbers from the HMIS and EMR registry was done by the principal investigator. The data from the EMR for the individual OCD cases was also collected by the principal investigator. The data was collected in an excel sheet which was later exported to SPSS.

4.8 Data analysis

Data was analyzed by statistical package for the social sciences (SPSS) Version 29, Descriptive statistics was used and continuous variables like age, duration of time since the diagnosis of OCD were summarized in terms of mean, median, standard deviation, and interquartile ranges. And categorical variables were analyzed using frequencies and percentages.

One way ANOVA was used for the analysis of dependent and independent factors. A p value of <0.05 was considered to be statistically significant.

4.9 Data quality assurance

A standard data collection form (an excel sheet) containing all of the variables was used. All of the variables were clearly defined to reduce error. And considering the fact that some patients could be seen at the different psychiatry clinics included in the study; in order to avoid double reporting, patient's name initials (up to grandfather's name) were collected, and were later coded with numbers in order to maintain confidentiality. And the Coded initials were cross checked to see any similarities in initials and if similarities in the three initials were found, further cross checking of sex, age and other variables was done. In addition to that patients who have reported to have been seen at another clinic which is included in the study setting were also cross checked, with initials and other variables. With these 11 patients reported to have been seen at two of the study sites and thus their coded initials as well as variables like age and sex, and time period of treatment along with other variables were cross checked and 2 patients were found to be seen at 2 of the study sites within the study's time frame. One seen at Sitota and Lebeza and the other seen at Amanuel and ZMH within the study's time frame. In order to avoid double reporting, the reporting from one of the study sites for each patient was omitted, based on the number of visits, both had a single visit at one of the sites and repeated visits at the other site, and the reporting from the site where they were seen only once was omitted considering the importance of the information with regards to the prescription pattern.

4.10 Ethical considerations

Ethical clearance was acquired from the department of Psychiatry, School of Medicine, College of Health Sciences, Addis Ababa University, Addis Ababa health bureau, Zewuditu memorial hospital, Amanuel mental specialized hospital, Sitota psychiatric and rehabilitation center and Lebeza psychiatry clinic. Patient identifiers were not mentioned. To prevent the possibility of double reporting, the initials of patient names were coded. Coding was used to avoid the possibility of initials of patient names serving as identifiers.

CHAPTER 5: RESULTS

A total of 213 cases diagnosed with OCD and treated in the past 5 years were included from the five study sites. Of these 39 (18.3%) were treated at TASH, 27(12.7%) at ZMH, 26 (12.2%) at AMSH, 74 (34.7%) at Lebeza while 47 (22.1%) were treated at Sitota. And 207 (97.2%) of the patients were treated on an outpatient basis, while 6 (2.8%) were treated both on an outpatient and inpatient basis.

Of these, 126 (59.2%) were male. The exact age of diagnosis was not available for 5 patients. The minimum age at diagnosis was 11, while the maximum was 85. The median age was 26 (IQR: 13) The age group with the highest number of OCD diagnoses was from 20-29, with 39% of the diagnosis taking place within this age group. And more than half (58.2%) of the cases were diagnosed between the ages 10-29 (Table 1). It's also essential to note that for the remaining sociodemographic variables apart from age, the data was not documented for a significant number of cases.

Table 1: Sociodemographic data

Variables	Group classification	Frequency/ percentages
Age	10-19	41 (19.2%)
	20-29	83 (39%)
	30-39	56 (26.3%)
	40-49	18 (8.5%)
	50-59	6 (2.8%)
	60-69	3 (1.4%)
	70-79	2 (0.9%)
	80-89	1 (0.5%)
	Age group not available	3 (1.4%)

Religious background	Orthodox	45 (21.1%)
	Muslim	15 (7%)
	Protestant	15 (7%)
	Catholic	1 (0.5%)
	Waqefeta	1 (0.5 %)
	Not documented	136 (63.8%)
Marital Status	Single	101 (47.7%)
	Married	51 (23.9%)
	Divorced	2 (0.9%)
	Separated	2 (0.9%)
	Widowed	1 (0.5%)
	Not documented	56 (26.3%)
Academic Status	Primary education	19 (8.9%)
	Secondary education	64 (30%)
	Post high school diploma	8 (3.8%)
	Bachelor’s degree	19 (8.9%)
	Master’s degree	8 (3.8%)
	Had formal education but level not specified	22 (10.3%)
	Not documented	73 (34.4%)

Occupational Status	Unemployed	60 (28.2%)
	Students	44 (20.7%)
	Employed but not specified as government employees or private employees	29 (13.6%)
	Government employe	6 (2.8%)
	Private employe	3 (1.4%)
	Self employed	10 (4.7%)
	Retired	3 (1.4%)
	Not documented	58 (27.2%)

5.1 Diagnosis of OCD

198 (93%) of the patients had a definitive diagnosis of OCD, while for 15 (7%) the diagnosis of OCD was listed with a sign (“?”), indicating OCD is a suspected/provisional diagnosis that is not yet confirmed.

In terms of diagnosis specifiers, 136 (63.8%) of the patients had the diagnosis of “OCD with good or fair insight”, while 28 (13.1 %) of the patients were diagnosed as “OCD with poor insight”, 4 (1.9 %) of the patients had “OCD with absent insight/delusional believe”. 1(0.5%) patient had the specifier “Tic related” and for 44 (20.7 %) of patients, level of insight was not documented either in the diagnosis section or under the mental state examination.

Throughout the course of treatment in 193 (90.6 %) the diagnosis of OCD was continued until the last documented follow up, in 5 (2.3 %) of the patients the diagnosis of OCD was changed into major depressive disorder, while in 3 (1.4 %) of the patients the diagnosis of OCD was changed in to anxiety disorders, in another 3 (1.4%) of the patients the diagnosis was changed to schizophrenia, in 2 (0.9 %) of the patients, diagnosis was changed into delusional disorder, in 1 (0.5%) of the patients the diagnosis was changed to attention deficit hyperactivity disorder, in 1(0.5%) patient diagnosis was changed into a psychotic disorder which was not specified, and for 5 (2.3 %) of patients diagnosis of OCD was dropped but not changed to another diagnosis

5.2 Duration since diagnosis

The minimum duration of time since diagnosis is 0.07 months while the maximum was 157.5 months, the mean duration since diagnosis was 11.75 months, and standard deviation was 18.49.

10 (4.7 %) of the patients had a prior follow up at another facility apart from the study site they presented to with the diagnosis of OCD, 3 (1.47 %) of patients had a prior follow up at another facility and OCD was not the working diagnosis in the previous clinical setting. 33 (15.5%) had a prior follow up at another facility but the working diagnosis is not known. Most of the patients 116 (77.6%) had no history of prior follow up at another facility apart from the study site they presented to. And for 10 (4.7 %) of patients, it is not clear whether they had prior follow up at another facility or not. With regards to the number of visits 184 (86.4 %) had more than one visit to the clinic while 28 (13.1 %) percent of patients had only a single visit to the clinic, and for 1 (0.5%) it was not clear whether they had a single visit or more than 1 visit. Below is the categorical table for the total duration of time since the time of OCD diagnosis. Only for 141 (76.2 %) of patients was the total duration since the diagnosis of OCD known.

Table 2: Duration of time from OCD diagnosis up to the last documented day of follow up.

Duration of time since the diagnosis of OCD	Frequency/ percentage
0-3 months	59 (27.7 %)
4-6 months	14 (6.6 %)
7-12 months	28 (13.1 %)
13-24 months	20 (9.4 %)
25-36 months	11 (5.2%)
37-48 months	3 (1.4 %)
49-60 months	3 (1.4 %)
85- 96 months	1 (0.5%)
≥ 121 months	2 (0.9 %)
Duration since diagnosis not available	72 (33.8%)
Total	213 (100%)

The duration of time since the diagnosis of OCD up to the last documented day of follow up is one important factor to note while analyzing the prescription pattern, as the duration of time since diagnosis is expected to affect the pattern of medication titration, medication dosage and change of medication in general. Here we see that for slightly more than a quarter of the cases (27.7%) the duration of time since the diagnosis of OCD up to the last day of follow up lies within three months, While for 47.4% it lies with in a period of one year and for more than half (56.8%) of the cases it lies within a period of two years. It is also worth noting that for a significant number of cases the duration since diagnosis was not available. This could happen due to the fact that in some cases the patients might have their first visits documented in a chart and when being registered on the EMR the summary since diagnosis may not be documented and charts may have been unavailable upon inquiry and at other times the diagnosis could have been made at another facility or earlier than the time frame of the study and may not be clearly documented on the chart/EMR.

5.3 Clinical Presentation

5.3.1 Chief Complaint

65 (30.5 %) of the patients presented with OCD symptoms as a chief complaint, 35 (16.4 %) of the patients presented with a chief complaint of symptoms of anxiety, 7 (3.3 %) of the patients presented with affective or mood symptoms as a chief complaint, 11 (5.2 %) presented with a chief complaint of sleep disturbance, 5 (2.3%) came with somatic symptoms, 4 (1.9%) presented with psychotic symptoms, 3 (1.4%) presented with cognitive (memory and concentration) difficulties, 2 (0.9 %) presented with aggression, 1 (0.5 %) presented with a chief complaint of suicidal or self-harming behavior, 53 (24.9%) presented with various other chief complaints, and 10 (4.7 %) came for a routine follow up and for 17 (8%) of the patients the chief complaint was not available.

5.3.2 Obsessions

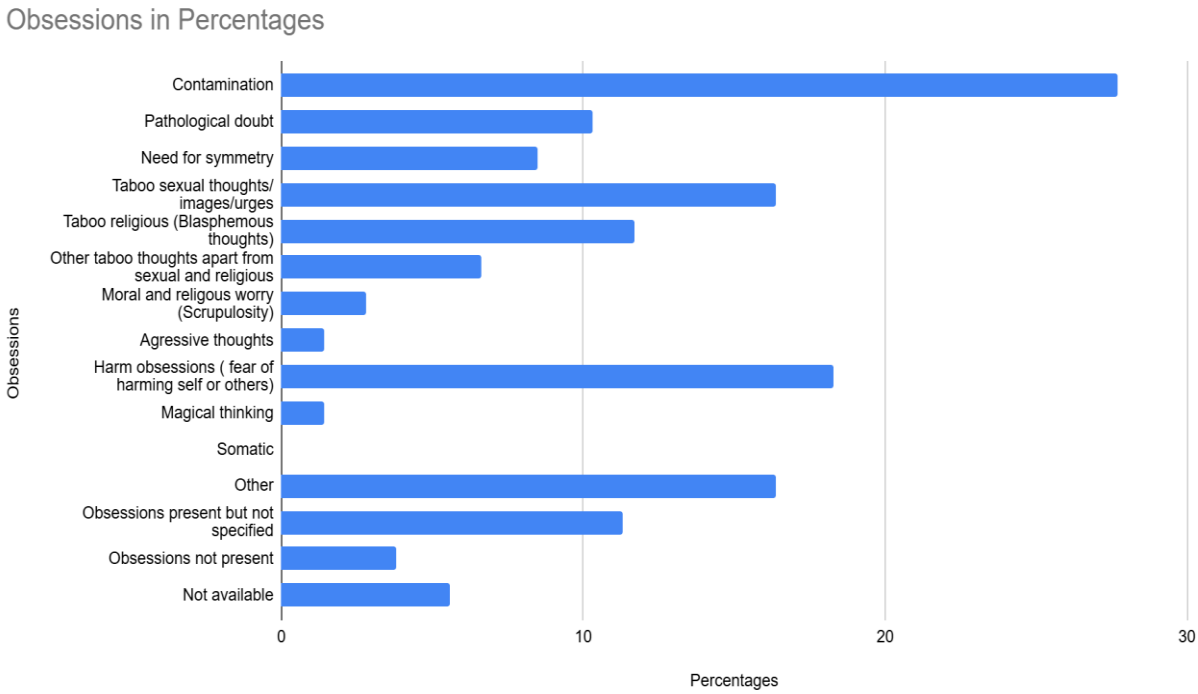


Figure 2: Obsessions in percentage

History of contamination obsessions were reported in 59 (29.7 %), Harm obsessions (fear of causing harm to self or others) were reported by 39 (18.3%) , pathological doubt was reported by 22 (10.3 %), need for symmetry by 18 (8.5%), taboo sexual thoughts in 35 (16.4%), taboo religious (blasphemous) thoughts were reported by 25 (11.7 %) , taboo thoughts (with themes other than sexual and religious) in 14 (6.6 %), moral and religious worry (scrupulosity) was reported in 6 (2.8%), aggressive thoughts in 3 (1.4%), magical thinking was present in 3 (1.4%), somatic obsessions were not reported, other obsessions apart from the above mentioned were reported by 35 (16.4 %), in 24 (11.3) obsession were present but specified, in 8 (3.8) obsessions were not present and for 12 (5.6) the information about the presence of obsessions was not available.

5.3.3 Compulsions

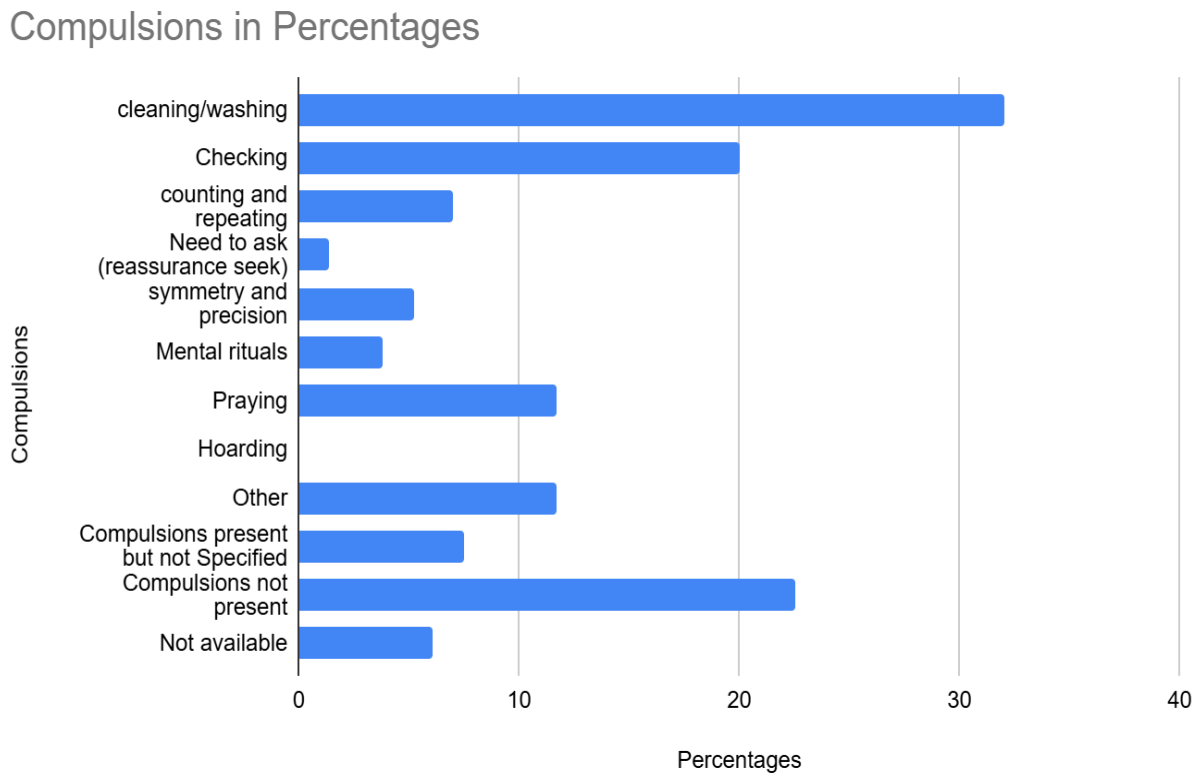


Figure 3: Compulsions in percentage

History of cleaning/ washing compulsions was reported by 70 (32.9 %), checking by 43 (20.2 %), praying by 25 (11.7 %), counting and repeating in 15 (7 %), need to ask (reassurance seeking) by 3 (1.4 %), symmetry and precision by 11 (5.2 %), mental rituals by 8 (3.8 %), hoarding was not reported, other compulsions apart from mentioned above in 25 (11.7 %), in 16 (7.5 %) compulsions were present but were not specified, in 48 (22.5 %) compulsions were not present, in 6 (6.1 %) the information for the presence of compulsions was not available.

5.3.4 Other psychopathologies present

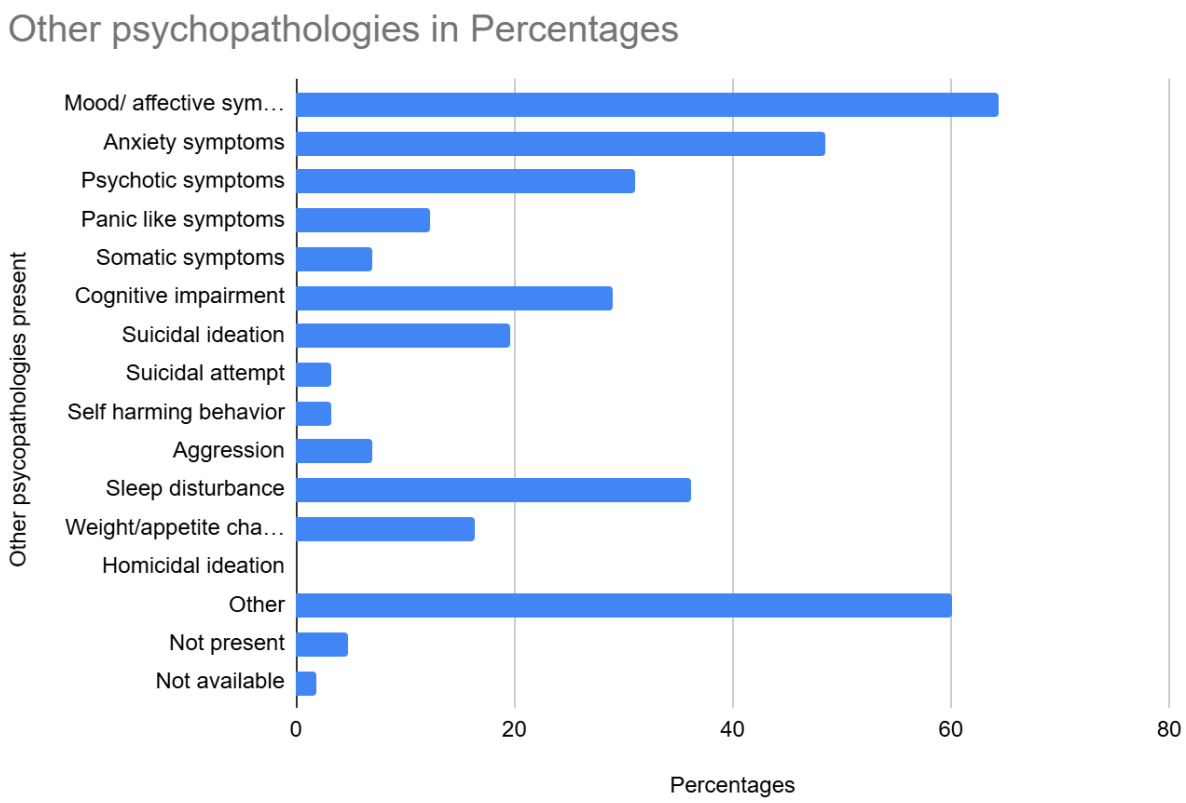


Figure 4: Other psychopathologies in Percentage

In addition to the OCD symptoms history of mood/affective symptoms were reported by 137 (64.3 %), anxiety symptoms were reported by 103 (48.4%), psychotic symptoms were reported in 66 (31 %), panic like symptoms in 26 (12.2.%), somatic symptoms in 15 (7 %), sleep disturbance was reported in 77 (36.2 %), cognitive difficulties (difficulties with memory and concentration) were reported in 62 (29.1 %), weight and appetite changes were reported by 35 (16.4 %) , history of suicidal ideation was reported by 42 (19.7 %) while history of suicidal attempt was reported by 7 (3.3 %), self-harming behaviors were reported in 7 (3.3 %), aggression was reported in 15 (7 %), other psychopathologies were reported apart from the ones mentioned above in 128 (60.1 %) , and psychopathologies other than OCD symptoms were not present in 10 (4.7 %), and for 4 (1.9 %) of the patients the data about the presence of other psychopathologies apart from obsessions and compulsions was not available.

5.3.5 Comorbid psychiatric disorders

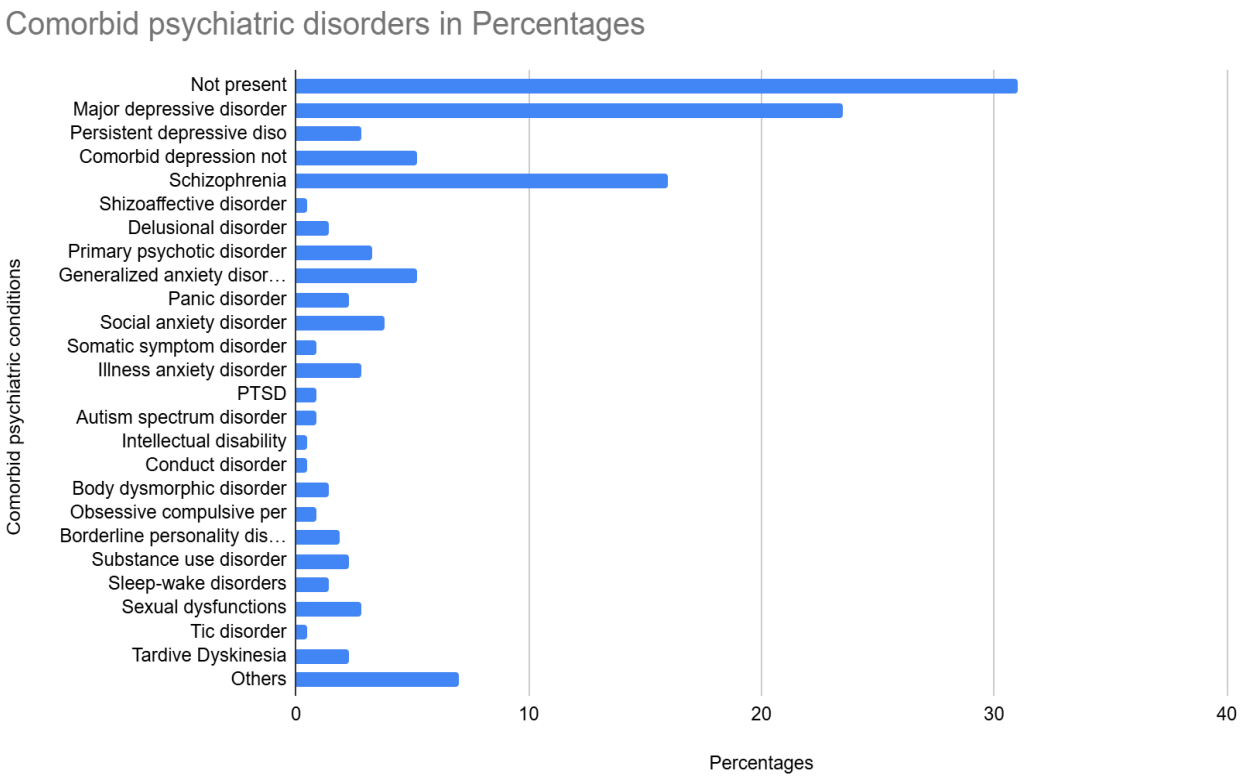


Figure 5: Comorbid psychiatric disorders

With regards to the presence of comorbidities, 66 (33 %) did not have a comorbid psychiatric condition, and comorbid major depressive disorder was diagnosed in 50 (23.5 %) of the patients and persistent depressive disorder in 6 (2.8 %) of the patients, Comorbid depression without the specific diagnosis was reported in 11 (5.2 %), comorbid schizophrenia was diagnosed in 34 (16 %), schizoaffective disorder in 1 (0.5 %), Delusional disorder in 3 (1.4 %), while a general diagnosis of psychotic disorder was made by 7 (3.3 %), comorbid generalized anxiety disorder was diagnosed in 11 (5.2 %), panic disorder was diagnosed was diagnosed in 5 (2.3 %), social anxiety disorder was diagnosed in 8 (3.8 %), somatic symptom disorder was diagnosed in 2 (0.9 %) , illness anxiety disorder was diagnosed in 6 (2.8 %), post-traumatic stress disorder (PTSD) was diagnosed in 2((0.9 %), autism spectrum disorder was diagnosed in 2 (0.9 %), , intellectual disability in 1 (0.5 %), conduct disorder in 1 (0.5 %), Body dysmorphic disorder in in 3 (1.4 %), Obsessive compulsive personality disorder in 2 (0.9 %), Borderline personality disorder in 4 (1.9 %), substance use disorder in 5 (2.3 %), Sleep wake disorders in 3 (1.4 %) , sexual disorders in 6 (2.8

%), Tic disorders in 1 (0.5 %), tardive dyskinesia in 5 (2.3 %) and other disorders apart from the ones mentioned above were diagnosed in 15 (7 %). Both settled diagnoses as well as those put in "?" were included in the comorbid psychiatric disorders.

5.3.6 Family history of mental illness

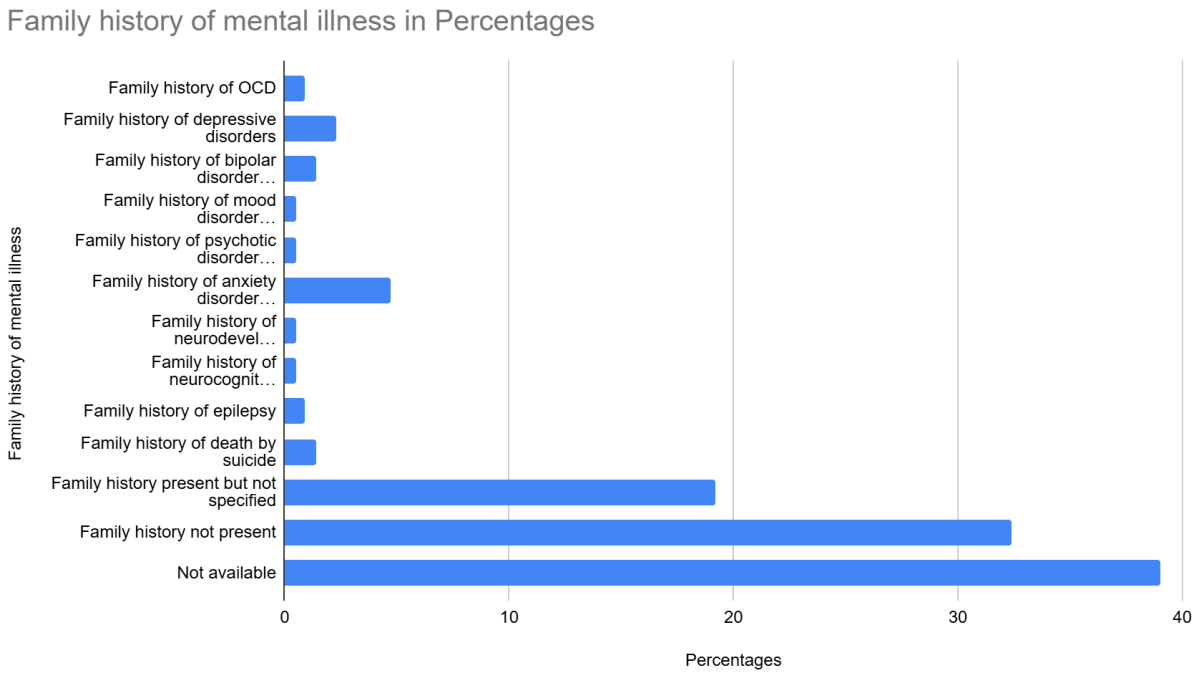


Figure: 6 Family history of mental illness

Family history was reported to be not present in 69 (32.4 %) of , in 41 (19.2 %) of the patients family history of mental illness was reported but diagnosis was not specified, while family history of OCD was reported by 2 (0.9 %), family history of depressive disorders was reported by 5 (2.3 %), family history bipolar disorder was reported by 3 (1.4 %) and family history of mood disorder without the specific diagnosis was reported by 1 (0.5 %), Family history of anxiety disorder was reported by 10 (4.7 %) Family history of neurocognitive disorders was reported by 1 (0.5 %), family history of epilepsy was reported by 2 (0.9 %) family history of psychotic disorder was reported by 1 (0.5 %), family history of death by suicide was reported by 3 (1.4 %), and for 83 (39 %) of patients the information on family history of mental illness was not available.

5.3.7 History of substance use

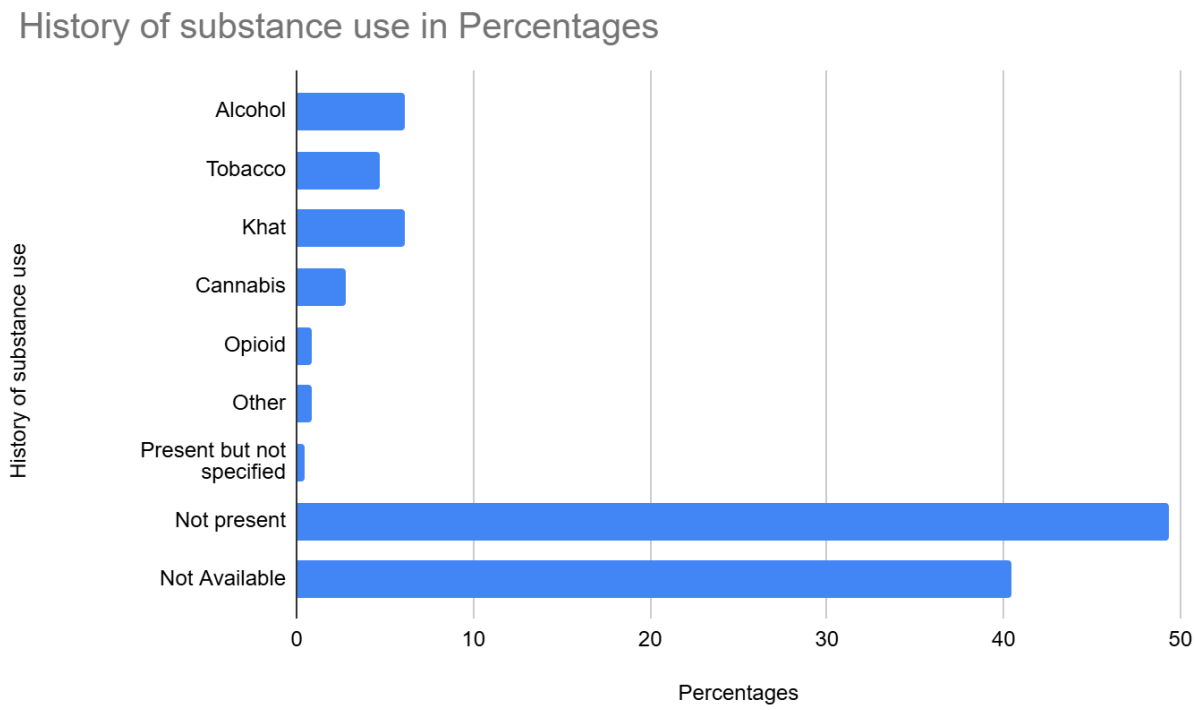


Figure 7: History of substance use

History of substance use , either current or past (in patients that reported that they were no more using the substances was acquired) , and it was found that 105 (49.3 %) of patients reported no history of substance use while 13 (6.1 %) of them reported history of Alcohol use, while 10 (4.7 %) of them had history of tobacco use and 13 (6.1 %) of them had history of Khat use, 6 (2.8 %) of them reported history of cannabis use, 2 (0.9 %) reported history of opioid use and another 2 (0.9 %) reported to have the use of other substance apart from reported above, in 1 (0.5 %) there was history of substance use but the specific substance is not mentioned and for 86 (40.4 %) of the patients history of substance use was not available.

5.3.8 Underlying chronic medical condition

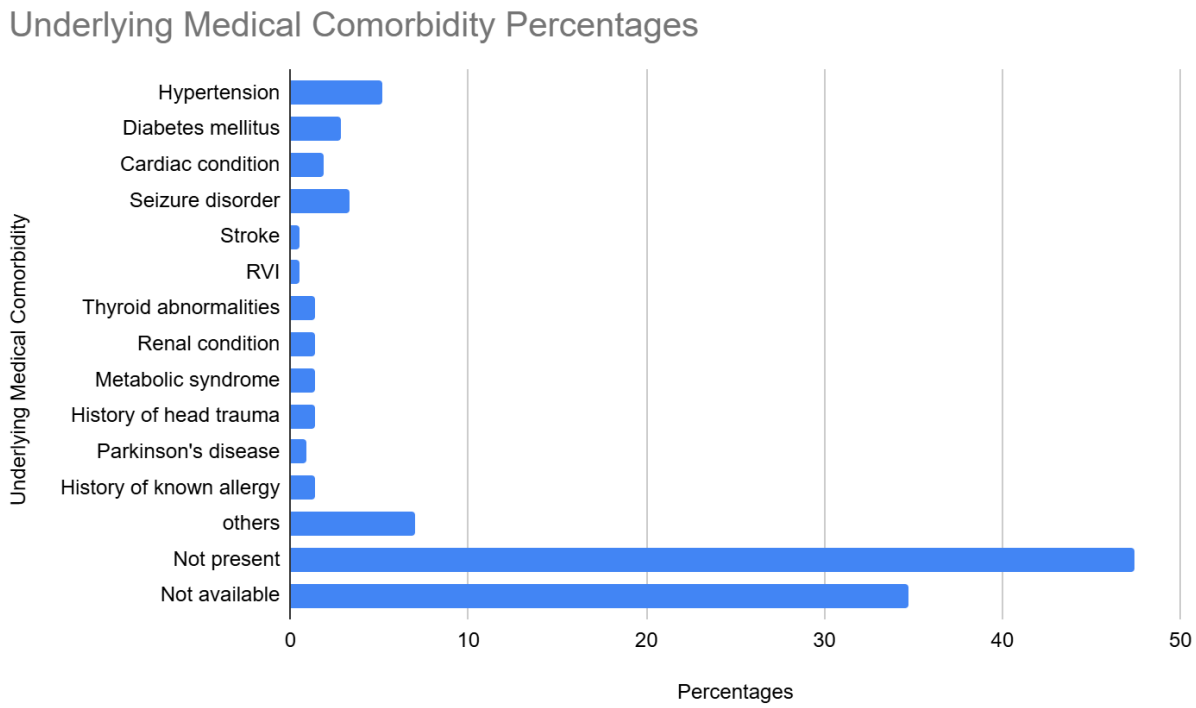


Figure 8: Underlying chronic medical condition

The presence of underlying medical comorbidities was also assessed and, it was found that medical comorbidities were not present in 101 (47.4 %) , hypertension present in 11 (5.2 %) , diabetes mellitus in 6 (2.8 %) , seizure disorder in 7 (3.3 %), history of head injury in 3 (1.4 %) , cardiac condition in 4 (1.9 %) , stroke in 1 (0.5 %) , thyroid abnormality in 3 (1.4 %) , retroviral infection (RVI) in 1 (0.5 %) , renal condition in 3 (1.4 %) , metabolic syndrome in 3 (1.4 %), Parkinson's disease in 2 (0.9 %), history of known allergy in 3 (1.4 %) and other medical comorbidities in 15 (7 %) and for 74 (34.7 %) the history of the presence of underlying medical comorbidity was not available.

5.3.9 Use of objective clinical scale for the assessment of severity

In 26 (12.2 %) of the patients Yale brown obsessive-compulsive scale was used to assess severity, in 2 (0.9 %) the obsessive-compulsive inventory was used to assess severity, while in 176 (83.6 %) an objective clinical scale for an assessment of severity was not used and for 7 (3.3 %) of the patients the data on the use of an objective clinical scale was not available. From the 28 cases in which objective scale was used (either YBCOS or the obsessive-compulsive inventory) 27 of them were seen at a private center while 1 was seen at a public hospital.

5.4 Descriptive statistics of the prescription pattern

5.4.1 History of treatment with medication and types of medications prescribed

The history of treatment with medications and the type of medications prescribed was assessed only within the time frame of the study (in the past 5 years), in the study settings. History of medication treatment, which falls to be out of the time frame, and which was prescribed in other clinical settings, is not included in the study.

Of the 213 patients, 193 (90.6 %) were treated with medications while 20 (9.4 %) were not treated with medication.

From those patients treated with medications, SSRIs were prescribed for 167 (86.5 %) of the patients, and from those patients for which SSRIs were prescribed, Fluoxetine was prescribed in 116 (69.5 %), and sertraline was prescribed for 69 (41.3%), Escitalopram was prescribed for 2 (1.2 %), Citalopram was prescribed for 1 (0.6 %) and paroxetine was prescribed for 1 (0.6 %).

Tricyclic antidepressants were prescribed for 50 (25.9 %), and from those patients for whom TCAs were prescribed, clomipramine was prescribed in 39 (78%), Amitriptyline was prescribed for 19 (38 %), and Imipramine was prescribed for 7 (14 %)

First generation anti psychotics were prescribed for 14 (7.3 %), from those patients in which first generation antipsychotics was prescribed, Haloperidol was prescribed in 11 (78.6%) chlorpromazine was prescribed for 2 (14.3%), Fluphenazine decanoate was prescribed for 2 (14.3 %) and Trifluoperazine was prescribed for 1 (7.1 %)

Second generation anti psychotics were prescribed for 81 (42 %), and from the patients for whom second generation antipsychotics were prescribed, Risperidone was prescribed for 57 (70.4 %), olanzapine was prescribed for 36 (44.4%), quetiapine was prescribed for 2 (2.5%), clozapine was prescribed for 3 (3.7 %)

Mood stabilizers were prescribed for 11 (5.7 %), from those patients for whom mood stabilizers were prescribed, for 7 (63.6%) sodium valproate was prescribed, carbamazepine was prescribed for 4 (36.4%), and Lamotrigine was prescribed for 1 (9.1 %)

Tetra cyclic antidepressants were prescribed for 10 (5.2 %), from those, Mirtazapine was prescribed for all of them. For 68 (35.2 %) of the patients benzodiazepines were prescribed. Sedatives/ hypnotics were prescribed for 17 (8.8 %), anticholinergics were prescribed for 17 (8.8 %)

A combination of two or more medications was prescribed simultaneously for 129 (66.8 %) of the patients. The combination of SSRIs and antipsychotics was prescribed for 64 (49.6 %), for 40 (31%) of the patients and a combination of SSRIs and benzodiazepines was prescribed for 40 (31 %), for 20 (15.5 %) of the patients a combination of TCAs and antipsychotics was used, for 4 (3.1 %) of the patients a combination of TCAs and benzodiazepines was used. For 2 (1.6 %) of the patients a combination of SSRIs and TCAs was used, for 3 (2.3%) a combination of SSRI, TCA and antipsychotic was prescribed for 14 (10.9 %) of the patients the combination of SSRI, antipsychotic and benzodiazepine was used. And for 5 (3.9 %) of the patients the combination of TCAs, benzodiazepines and antipsychotics was used.

5.4.2 Duration of time between the diagnosis of OCD and the initiation of medication

Table: 3 Duration of time between the diagnosis of OCD and the initiation of medication

Duration of time between the diagnosis of OCD and the initiation of medication	Frequency/percentage
Immediately up on diagnosis	119 (61.7 %)
≤ 1 week after diagnosis	6 (3.1 %)
More than 1 week but less than or equal to 2 weeks, after diagnosis	2 (1 %)
More than 2 weeks but less than or equal to 3 weeks, after diagnosis	3 (1.6 %)
More than 3 weeks but less than or equal to 4 weeks after diagnosis	1 (0.5 %)
More than 4 weeks but less than or equal to 6 weeks after diagnosis	2 (1 %)
More than 6 weeks but less than or equal to 8 weeks after diagnosis	1 (0.5 %)
More than 8 weeks but less than or equal to 12 weeks after diagnosis	1 (0.5 %)
More than 6 months but less than or equal to 12 months after diagnosis	1 (0.5 %)

More than 1 year but less than or equal to 2 years after diagnosis	4 (2.1 %)
Diagnosis was made prior to the time frame of the study and the duration of time between the diagnosis and medication initiation is not available	1 (0.5 %)
Diagnosis was made at another facility and the duration of time between the diagnosis and medication initiation is not available	7 (3.6 %)
Diagnosis was made at the respective site within the study's time frame but the duration of time between diagnosis and medication initiation is not available	2(1%)
The medication prescribed has been started earlier to treat another diagnosis at the study site selected with in time frame of the study, hence continued immediately when OCD was diagnosed	22 (11.4 %)
The medication prescribed has been started earlier to treat unspecified diagnosis at another facility and was continued immediately within the study's time frame when OCD was diagnosed	4 (2.1 %)
Not clear when and where the diagnosis was made since the patient had a prior follow up, thus the duration is unknown	9 (4.7%)
Not available	8 (4.1 %)

For the majority (61.7%) of the patients of the patients medication was started immediately after diagnosis and for another 11.4% medication which was started to treat another diagnosis was continued after the diagnosis of OCD was made, hence about 73.1% of the patients were either started or continued on medication immediately after the OCD diagnosis was made. While for 2.1%, it took more than a year to initiate medication.

Considering the fact that in recent years several biological underlying pathophysiological mechanisms are identified for the development of OCD, addressing the biological factors via medication as soon as possible or in other words starting patients on medication soon after diagnosis can be generally considered as favorable but it's also important to note that certain treatment guidelines like the NICE (19) and the standard treatment guideline prepared by AMSH (20) provide the option of using psychotherapy as first-line option for mild cases. And in classifying clinical presentations as mild, moderate and severe, the importance of using clinical rating scales is indisputable as it helps in ascertaining a common objective understanding of severity.

In settings like ours where the practice of using objective severity measures like the YBOCs is notably behind (13.1%, in this study), it is difficult to make a strong conclusion (in light of the recommendations mentioned above by NICE and the standard treatment guideline by AMSH) by simply looking at the above table as an objective measure of severity is not available in the majority of the cases.

5.4.3 First-line medications prescribed at different study settings.

Table 4: Medications prescribed as first-line treatment options at the different study settings

Study setting	SSRIs used as first-line	Clomipramine as first-line	Medications other than SSRIs and clomipramine used as first-line	Not treated with medication	Total
AMSH	SSRIs in general 19 (73.1%)	6 (23.1 %)	1 (3.8%)	0 (0%)	26 (100%)
	Fluoxetine 16 (84.2%)				
	Sertraline 3 (15.8%)				

	Citalopram 0 (0%)				
Study setting	**SSRIS used as a first-line**	**Clomipramine as first-line**	**Medications other than SSRIs and clomipramine used as first-line**	**Not treated with medication**	**Total**
TASH	SSRIs in general 30 (76.9%)	0 (0%)	4 (10.3%)	5 (12.8%)	39 (100%)
	Fluoxetine 26 (86.7%)				
	Sertraline 4 (13.3%)				
	Citalopram 0 (0%)				
ZMH	SSRIs in general 21 (77.8%)	1 (3.7%)	2 (7.4%)	3 (11.1%)	27 (100%)
	Fluoxetine 20 (95.2%)				
	Sertraline 1 (4.8%)				
	Citalopram 0 (0%)				
Lebeza	SSRIs in general 46 (62.2%)	17 (23%)	3 (4%)	8 (10.8%)	74 (100%)
	Fluoxetine 16 (34.8%)				
	Sertraline 29 (63%)				
	Citalopram 1 (2.2%)				
Sitota	SSRIs in general 34 (72.3 %)	3 (6.4%)	6 (12.8%)	4 (8.5%)	47 (100%)
	Fluoxetine 22 (64.7%)				
	Sertraline 12 (35.3%)				

	Citalopram 0 (0%)				
Total	150 (70.4 %)	27 (12.7%)	16 (7.5%)	20 (9.4%)	213 (100%)

In the study it was shown that, from the 193 patients who were put on medication, SSRIs were prescribed as the first-line medications in 150 (77.7%) of the cases. The SSRIs prescribed as the first-line are fluoxetine, sertraline and citalopram. Thus, regarding the choice of first-line medications the pattern for the majority of the cases complies with guideline recommendations. Guidelines like the APA (9), NICE (19) and the standard treatment guideline developed by AMSH (20) recommend SSRIs to be used as first-line pharmacotherapeutic agents and Clomipramine to be used as second-line. In the study Fluoxetine was among the most frequently prescribed SSRI in the four study settings, while at Lebeza sertraline was the most prescribed SSRI followed by fluoxetine. And from the 193 patients who were treated with medication in 27 (13.9%) clomipramine was prescribed as a first-line agent. From those cases in which Clomipramine was prescribed as a first-line medication in 23 (85.9%) of the cases it was prescribed in two of the study settings.

In 16 (8.3%) cases neither SSRIs nor Clomipramine were used as first-line medications. In settings like ours several factors could contribute for not following guideline recommendations, amongst which are medication availability/accessibility and diagnostic uncertainty. And such factors require further exploration.

5.4.4 Descriptive statistics of SSRIs prescribed as a first-line for the treatment of OCD

Of the 193 patients who were treated with medications, in 150 (77.7 %), SSRIs were prescribed as a first-line treatment regimen. And from the 150 patients for whom SSRIS were prescribed as first-line medications, fluoxetine was prescribed as a first-line medication for 100 (66.7 %), Sertraline was prescribed for 49 (32.7 %) and for 1 patient (0.7 %) citalopram was prescribed as a first-line regimen.

5.4.4.1 Starting dose of fluoxetine

From the 100 patients for whom Fluoxetine was prescribed as a first-line regimen for 5 (5 %) the starting dose of fluoxetine was 20 mg po every other day; which was started at the study site within the study's time frame and for 2 (2%) 20 mg po every other day was continued from a time period earlier to the study's time frame or it was continued after it was started for another diagnosis.

For 69 (69 %) 20 mg po daily was the starting dose prescribed at the study site within the study's time frame. For 1 (1%) fluoxetine 20 mg po daily was continued after being started at a health facility other than the particular study site within the study's time frame. And for another 1 (1%) fluoxetine 20 mg was continued from a time period earlier to the study's time frame or continued after it was started for another diagnosis.

For 3 (3 %) 40 mg po per day was the starting dose prescribed at the study site within the study's time frame and for another 3 (3%) 40 mg po daily was continued after being started at a health facility other than the study site selected within the study's time frame, and for 6 (6%) 40 mg po daily was continued from a time period earlier to the study's time frame or continued after it was started for another diagnosis

For 5 (5 %) of the patients 60 mg po daily was continued from a time period earlier to the study's time frame or after it was started for another diagnosis, and for 1(1%) 60 mg po daily was continued after being started at a health facility other than the particular study site within the study's time frame.

For 2 (2 %) of the patients 80 mg po daily was continued from a time period earlier to the study's time frame or continued after it was started to treat another diagnosis.

For another 2 (2 %) of the patients the starting dose of Fluoxetine was not available.

5.4.4.2 Academic background of prescribers who prescribed fluoxetine as a first-line regimen with the above starting dose

Of the 100 prescribers that prescribed fluoxetine as a first-line regimen with the above-mentioned dose distribution, 52 (52 %) were Psychiatry residents, 36 (36 %) were senior psychiatrists, 5 (5 %) were MSC psychiatry professionals. While for 7 (7 %) of patients, academic background of prescriber was not available.

5.4.4.3 Subsequent dose change and maximum dose of fluoxetine

From the 100 patients for which Fluoxetine was prescribed as a first-line medication, for 60 (60 %) of the patients, there was a subsequent dose change, for 38 (38 %) there was no subsequent dose change after the starting dose, for 2 (2%) the information about subsequent dose change was not available.

Excluding the patients for whom there was no subsequent dose change after the starting dose, from the 60 of the patients for whom there was a subsequent dose change, the maximum prescribed dose of fluoxetine was 20 mg in 8 (12.9 %) 40 mg in 25 patients (40.3 %) and it was 60 mg in 19 (30.6 %), and it was 80 mg in 8 (12.9 %) of patients.

And if the patients for whom there was no dose change were included, from the 98 patients which incorporate both groups of patients with subsequent dose change and with no subsequent dose change after the starting dose, the maximum dose of fluoxetine was 10 mg in 1 (1%) , it was 20 mg in 35 (35.7%) , it was 40 mg in 31 (31.6 %), it was 60mg in 22 (22.4 %) and it was 80mg in 9 (9.2%).

In summary, when the cases for which there was no subsequent dose change are included, applying the dose classification used by Bloch and colleagues (8) the maximum prescribed doses of Fluoxetine were in the range of low to medium for 68.3%.

5.4.4.4 Academic background of prescribers who prescribed the above maximum dose of fluoxetine

From the above maximum dose prescriptions, in those cases where there was subsequent dose change after the starting dose, from the 60 patients for 27 (45 %) of the patients the maximum dose was prescribed by psychiatry residents, for 23 (38.3 %) the maximum dose was prescribed by senior psychiatrists, for 2 (3.3 %) the maximum doses was prescribed by MSC psychiatry professionals, and for 1 (1.6 %) the maximum dose was prescribed by a General practitioner, and for 7 (11.6 %) of the patients the academic background of the professionals who prescribed the above maximum dose was not available.

And including the cases where there was no subsequent dose change after the starting dose , from the 98 patients that comprise those with subsequent dose change and with no subsequent dose change after the starting dose, for 47 (47.95%) of the patients the maximum dose was prescribed by psychiatry residents, for 36 (36.73 %) the maximum dose was prescribed by senior psychiatrist, for 6 (6.1%) by MSC psychiatry professional, for 1 (1.02%) by general practitioner and for 8 (8.1 %) of the patients the academic background of the prescriber who prescribed the maximum dose was not available.

5.4.4.5 Change of medication from fluoxetine to another and reason for change

From the 100 patients for whom fluoxetine was prescribed as first-line regimen, for 17 (17 %) of them fluoxetine was changed into another medication.

And the reason for change was inadequate improvement of symptoms for 10 (58.8 %), for 1 (5.9 %) due to no improvement of symptoms. For 1 (5.9 %) due to developing side effects secondary to fluoxetine, and 1 (5.9 %) due to other reasons. And for 4 (23.5%) of the patients the reason for the change of fluoxetine was not available.

5.4.4.6 Second-line regimen after fluoxetine was changed

Of the 7 patients for whom Fluoxetine was changed into another regimen, for 10 (58.8%) it was changed into Sertraline, for 5 (29.4%) it was changed into Clomipramine, for 1(5.9%) it was changed to a tricyclic antidepressant other than Clomipramine, for another 1 (5.9%) it was changed into a tetracyclic antidepressant.

5.4.4.7 Adjunct antipsychotics in cases where fluoxetine was prescribed as a first-line regimen

From the 100 cases where fluoxetine was prescribed as a first-line regimen, adjunct antipsychotics were prescribed in 38 (38 %) of the patients, and from these first generation antipsychotics were prescribed for 3 (7.9 %), second generation antipsychotics were prescribed for 31 (81.6 %), and both first and second generation antipsychotics were prescribed for 4 (10.5 %)

5.4.4.8 Sertraline as a first-line regimen

From those patients for which SSRIs were prescribed as a first-line regimen; Sertraline was prescribed for 49 (32.7 %) of the cases

5.4.4.9 Starting dose of sertraline

For 1 (2 %) patient the starting dose of sertraline was 25 mg po daily which was started at the study site within the study's time frame. And for 34 (69.4 %) 50 mg po daily was the starting dose prescribed at the study site within the study's time frame. For 1 (2%) 50 mg po daily was continued after it was started at another health facility other than the study site within the study's time frame. And for another 1 (2%) 50 mg po daily was continued from an earlier time frame or continued after it was started to treat another diagnosis.

For 4 (8.2 %) 100 mg po daily was the starting dose prescribed at the study site within the study's time frame and for 1 (2%) 100 mg po daily was continued from an earlier time frame or continued after it was started to treat another diagnosis.

For 1 (2%) the starting dose was 150 mg po daily prescribed at the study site within the study's time frame. And for 3 (6.1%) 150 mg po daily was continued from an earlier time frame or continued after it was prescribed to treat another diagnosis,

For 1 (2 %) 200 mg po daily was continued from an earlier time frame or continued after it was prescribed to treat another diagnosis. And for another 1 (2 %) 250 mg po daily was continued after it was started at a health facility other than the study setting, within the study's time frame. And for 1 (2%) the starting dose of sertraline was not available.

5.4.4.10 Academic background of prescribers who prescribed Sertraline as a first-line regimen with the above starting dose.

From the 49 of the cases in which sertraline was prescribed as a first-line agent, in 37 (75.5 %) it was prescribed by seniors, while in 9 (18.4 %) of the cases it was prescribed by psychiatry residents, and in 1 (2 %) it was prescribed by MSC psychiatry professional, and for 2 (4.1 %) of the cases the academic background of the prescribers was not available.

5.4.4.11 Subsequent dose change and maximum dose of sertraline

From the 49 cases for whom sertraline was prescribed as a first-line regimen, there was a subsequent dose change for 26 (53. 1 %), for 22 (44.9 %) there was no dose change after the starting dose and for 1 (2%), the information regarding a subsequent dose change is not available.

From the 26 patients for whom there was a subsequent dose change in 1 (3.8 %) the maximum prescribed dose of sertraline was 75 mg po daily and 100 mg po daily was prescribed as the maximum dose for 15 (57. 7 %), 125 mg po daily was prescribed as the maximum dose in 1 (3.8 %) and 150 mg po daily was prescribed as the maximum dose in 3 (11.5 %) of the cases, and 200 mg po daily was prescribed as a maximum dose in 6 (23.1 %)

And including the cases where there was no subsequent dose change after the starting dose, from the 48 cases that comprise both groups with subsequent dose change or no subsequent dose change after the starting dose for 1(2.1%) the maximum dose of sertraline was 25mg, for 14 (29.2%) the maximum prescribed dose of sertraline was 50mg , for 1 (2.1%) the maximum dose of sertraline was 75 mg, for 19 (39.6%) the maximum prescribed dose of sertraline was 100mg, for 1 (2.1%) the maximum dose of sertraline was 125, for 4 (8.3%) the maximum dose of sertraline was 150mg , for 7(14.6%) the maximum dose of sertraline was 200mg, for another 1 (2.1%) the maximum dose of sertraline was 250 mg.

When the cases for which there was no subsequent dose change are included, applying the dose classification used by Bloch and colleagues (8) the maximum prescribed doses of sertraline were in the range of low to medium for 83.4%.

5.4.4.12 Academic background of prescribers who prescribed the above maximum dose of Sertraline

From the 26 patients for whom there was a subsequent dose change after the starting dose, for 19 (73.1 %) the maximum dose was prescribed by senior psychiatrist, for 4 (15.4 %) it was prescribed by psychiatry resident, and the prescriber academic background was not available in 3 (11.5 %)

And including the cases where there was no subsequent dose change after the starting dose, from the 48 patients that comprise those with subsequent dose change and with no subsequent dose change after the starting dose, for the 37 (77.08 %) the maximum dose of sertraline was prescribed by senior psychiatrists, for 8 (16.66%) it was prescribed by psychiatry residents and for 3 (6.25 %) the academic background of the prescriber who prescribed the maximum dose of sertraline is not available.

5.4.4.13 Change of medication from sertraline to another and reason for change

From the 49 cases for whom sertraline was prescribed as a first-line regiment, for 8 (16.3 %) of the cases the sertraline was changed into another second-line regimen.

From the 8 cases for whom sertraline was changed into another medication, for 3 (37.5 %) of them the sertraline was changed due to an inadequate improvement of symptoms, for 1 (12.5 %) it was changed due to the development of side effects secondary to sertraline, for another 1 (12.5 %) it was changed due to the stockout of sertraline and for the 3 (37.5 %) the reason for the change of sertraline was not available.

5.4.4.14 Second-line regimen after sertraline was changed.

From the 8 patients that sertraline was changed into another medication, for 6 (75%) it was changed into Fluoxetine, for 1(12.5 %) it was changed into Escitalopram, for another 1 (12.5 %) it was changed to a tetracyclic antidepressant.

5.4.4.15 Adjunct antipsychotics in cases where Sertraline was prescribed as a first-line regimen

From the 49 cases in which sertraline was prescribed as a first-line medication, adjunct antipsychotics were prescribed in 18 patients, and from these second-generation antipsychotics were prescribed as an adjunct for 15 (83.3 %) and both first- and second-generation antipsychotics were prescribed for 3 (16.7 %)

5.4.5 Descriptive statistics of Clomipramine prescribed as a first-line medication for the treatment of OCD

From the 193 patients who were treated with medication Clomipramine was prescribed as a first-line regiment for 27 (14 %) of the patients.

5.4.5.1 Starting dose of Clomipramine

The starting dose of clomipramine was 25mg po daily for 14 (51.9 %) of the patients prescribed at the study site within the time frame of the study. For 9 (33.3 %) of patients 50 mg po daily was prescribed as a starting dose at the study site within the study's time frame. For 1 (3.7%) 75 mg po daily was prescribed as a starting dose at the study

site within the study's time frame. For another 1 (3.7%) 75 mg po daily was continued from a period earlier to the study's time frame or continued after it was started to treat another diagnosis. And for 1 (3.7%) 150 mg was continued from a period earlier to the study's time frame or after it was started to treat another diagnosis. For 1 (3.7%) of the patients the starting dose of clomipramine was not available.

5.4.5.2 Academic background of prescribers who prescribed Clomipramine as a first-line regimen

Of the 27 patients for whom Clomipramine was prescribed as a first-line regimen, 19 (70.4 %) was prescribed by senior psychiatrists. And in 5 (18.5 %) of the cases it was prescribed by MSC psychiatry professionals and in 2 (7.4 %) of the cases it was prescribed by psychiatry residents, for 1 (3.7 %) of the cases the academic background of the prescribers was not available.

5.4.5.3 Subsequent dose change and maximum dose of Clomipramine

From the 27 of the cases in which Clomipramine was prescribed as a first-line medication, for 14 (51. 9 %) of the patients there was a subsequent dose change and for 12 (44.44%) there was no subsequent dose change after the starting dose, for 1 (37 %) of the patients, the information regarding a subsequent dose change is not available.

From the 14 of the patients for whom there was a subsequent dose change; 50 mg po daily was prescribed as a maximum dose in 4 (28.6 %) of the patients, 75 mg po daily was prescribed as a maximum dose for 2 (14.3 %) of the patients, and 100 mg po daily was prescribed as a maximum dose for 2 (14.3%) of patients, 125 mg po daily was prescribed as a maximum dose for 1 (7.1 %) of patients and 150 mg po per day was prescribed for 3 (21.4 %) while 200 mg po daily was prescribed for 1 (7.1 %) as a first-line medication, 250 mg po daily was prescribed for 1 (7.1 %) as a maximum dose.

And including the cases where there was no subsequent dose change after the starting dose, from the 26 cases that comprise both groups with subsequent dose change and no subsequent dose change after the starting dose for 6 (23.1%) the maximum prescribed dose of clomipramine was 25 mg, for 7 (26.9 %) the maximum prescribed dose of Clomipramine was 50 mg, for 4 (15.4%), the maximum dose was 75mg, for 2 (7.7%) the maximum dose was 100mg, for 1 (3.8%) the maximum dose was 125mg, for 4 (15.4%) the maximum dose was 150mg, for 1(3.8%) the maximum dose was 200mg, for another 1(3.8%), the maximum dose was 250mg.

5.4.5.4 Academic background of prescribers who prescribed the above maximum dose of Clomipramine

From the 14 patients for whom there was a subsequent dose change of Clomipramine, for 12 (85.7 %) the maximum doses was prescribed by senior psychiatrists, for 1 (7.1 %) of the cases it was prescribed by MSC psychiatry professionals, for another 1 (7.1 %) the academic background of the professionals who prescribed the above maximum dose of clomipramine was not available.

And including the cases where there was no subsequent dose change after the starting dose, from the 26 patients that comprise those with subsequent dose change and with no subsequent dose change after the starting dose, for 18 (69.23%) the maximum dose was prescribed by a senior psychiatrist, for 5 (19.23%) , it was prescribed by MSC psychiatry professionals, for 2 (7.69%) by psychiatry residents, and for 1 (3.84%), the academic background of the prescriber who prescribed the maximum dose is not available.

5.4.5.5 Change of medication from Clomipramine to another and reason for change

From the 27 patients for whom clomipramine was prescribed as a first-line regimen, for 17 (63 %), clomipramine was changed into another second-line regimen.

The reason why clomipramine was changed into another medication was due to stock out of Clomipramine in 7 (41.2%), and for 1 (5.9 %) it was due to inadequate symptom improvement, and for another 1 (5.9 %) it was due to worsening of symptoms, for 1 (5.9 %) it was due to side effect of clomipramine, and other reasons were reported in another 1 (5.9 %) and for 6 (35.3 %) of the patients the reason for change of dose was not available.

5.4.5.6 Second-line medication after clomipramine was changed

From the 17 patients for whom clomipramine was changed into another medication, for 8 (47.1%), it was changed into a TCA other than Clomipramine, for 5 (29.4%) it was changed into sertraline and for 4 (23.5%) it was changed into Fluoxetine

5.4.5.7 Adjunct antipsychotics in cases where Clomipramine was prescribed as a first-line regimen

And from the 27 cases from whom Clomipramine was prescribed as a first-line regimen, for 10 (37 %) adjunct antipsychotic was prescribed. And from these, in 1 (10 %) first generation antipsychotic was prescribed as an adjunct, and second-generation antipsychotics were prescribed in 9 (90 %) of the cases.

5.4.6 Duration of time from the starting of treatment until the reach of maximum dose of Fluoxetine, Sertraline and Clomipramine (for those patients in which there was a subsequent dose change after the starting dose)

Table 5: Duration of time from the starting of treatment until the reach of maximum dose of Fluoxetine, Sertraline and Clomipramine

Duration of time until the reach of maximum dose	**Fluoxetine**	**Sertraline**	**Clomipramine**
Within ≤ 1 week	8 (13.3 %)	4 (15.4%)	1 (7.1%)
More than 1 week but less than or equal to 2 weeks	8 (13.3 %)	1 (3.8%)	1 (7.1%)
More than 2 weeks but less than or equal to 3 weeks	7 (11.7 %)	3 (11.5%)	0
More than 3 weeks but less than or equal to 4 weeks.	0	1 (3.8%)	3 (21.4%)
More than 4 weeks but less than or equal to 6 weeks	6 (10%)	2 (7.7%)	3 (21.4%)
More than 6 weeks but less than or equal to 8 weeks	4 (6.7%)	1 (3.8%)	2 (14.3%)
More than 8 weeks but less than or equal	10 (16.7%)	5 (19.2%)	0

to 12 weeks			
More than 3 months but less than or equal to 6 months	5 (8.3%)	4 (15.4%)	2 (14.3%)
More than 6 months but less than or equal to 12 months	4 (6.7%)	3 (11.5%)	0
Greater than 1 year	3 (5 %)	0	1 (7.1%)
Not available	5 (8.3 %)	2 (7.7%)	1 (7.1%)
Total	60 (100%)	26 (100%)	14 (100%)

According to the APA, rapid dose increment might result in earlier improvements in patients with OCD, (9) while slower dose increment might reduce the risk of developing medication side effects particularly to vulnerable groups (9). And thus the guideline suggests a gradual dose increment, and in the process measuring both clinical outcome and mediation adverse effects. It recommends a duration of a minimum 12 weeks on the maximum tolerated dose to appropriately evaluate outcome. The NICE guideline suggests starting with moderate doses and if symptoms persist to increase the doses to the maximum (19) Here again it's important to underline the benefit of using clinical rating scales to measure clinical responses objectively , to have a common understanding of what one understands as an improvement is also understood in the same manner with another.

In the study from the 100 patients for whom Fluoxetine was prescribed as a first-line medication, for 60 (60%) of them there was a subsequent dose change, and from the 60 cases for more than half 32 (53.4 %) of the cases it took more than 4 weeks to reach to the maximum dose. While in the case of Sertraline from the 49 patients who were prescribed sertraline as a first-line, for 26 of them there was a subsequent dose change. And from the 26 cases for 13 (49.9 %) of them it took more than 6 weeks to reach the maximum prescribed dose. And in the case of Clomipramine from the 27 patients who were prescribed Clomipramine as first-line, 14 of them underwent subsequent dose change , and for more than half 8 (57.1%) of them it took more than 4 weeks to reach the maximum dose.

Given this data, in order to reach a clear conclusion as for whether recommended protocols were followed or not, it's important to consider at least two crucial points. One of which is that the total duration of time since the start of follow-up up to the last documented follow-up visit varies amongst the patients as reported on table 2 and the maximum doses prescribed also differs amongst patients as reported in the sections

above. This could impact our interpretation of the above data on the duration of time it took to reach the maximum dose. The other crucial point to consider is defining the term "Gradual titration" which was mentioned on the APA recommendation of dose titration. Which duration of dose titration is considered to be gradual and which is not should be clearly defined. It's also important to note that the group which incorporates those who reached at the maximum dose within less than or equal than one week also includes those in which the starting dose is the highest dose prescribed and there was subsequent dose decrement.

5.4.7 Duration of time the patient stayed on the maximum dose (for patients who had a subsequent dose change)

Table 6 : Duration of time the patient stayed on the maximum dose up to the last day of follow up

Duration of time the patient stayed on the maximum dose	Fluoxetine	Sertraline	Clomipramine
Within ≤ 1 week	6 (10%)	5 (19.2%)	0 (0%)
More than 1 week but less than or equal to 2 weeks	2 (3.3 %)	1 (3.8%)	1 (7.1%)
More than 2 weeks but less than or equal to 3 weeks	3 (5%)	0 (0%)	0 (0%)
More than 3 weeks but less than or equal to 4 weeks.	5 (8.3%)	0 (0%)	1 (7.1%)
More than 4 weeks but less than or equal to 6 weeks	2 (3.3%)	4 (15.4%)	0 (0%)
More than 6 weeks but less than or equal to 8 weeks	6 (10%)	0 (0%)	1(7.1%)
More than 8 weeks but less than or equal to 12 weeks	1((1.7%)	2 (7.7%)	1 (7.1%)

More than 3 months but less than or equal to 6 months	5 (8.3%)	5 (19.2%)	4 (28.6%)
More than 6 months but less than or equal to 12 months	8 (13.3%)	2(7.7%)	0 (0%)
Greater than 1 year	1 (1.7%)	0 (0%)	0 (0%)
Not available	21 (35%)	7 (26.9%)	6 (42.9%)
Total	60 (100%)	26 (100%)	14 (100%)

The relevance of the above table has to do with the APA guidelines (9) recommendation of putting patients at the maximum tolerable dose for at least 12 weeks before changing medications. In the study of the 60 patients who were on fluoxetine and had a subsequent dose change, 14 (23.3%) stayed on the maximum dose for more than 12 weeks , while 1 (1.7%) stayed on the dose between 8 to 12 weeks. For 21(35%) the duration of time the patients were put on the maximum dose is not available.

For sertraline from the 26 patients who had a subsequent dose change 7 (26.9 %) stayed on the maximum dose for more than 12 weeks while 2 (7.7 %) stayed on the maximum dose between 8 to 12 weeks. And for 7 (26.9%), the duration of time they stayed at the maximum dose is not available.

For clomipramine from the 14 patients who had a subsequent dose change ,4 (28.6 %) stayed on a maximum dose for more than 12 weeks, while 1(7.1%) stayed on the maximum dose between 8 to 12 weeks. And for 6 (42.9%) the duration of time the patients were put on the maximum dose is not available.

Again reaching into conclusion by only looking at the above table could be difficult given the fact that the total duration of time in which the patients stayed on the maximum dose was measured from the day the patient was prescribed the maximum dose up to the last day of follow up included in the study's time frame. Which makes the result to be highly dependent on the total duration of time the patient had been on follow-up. For instance, a patient who has been on follow up for 2 months, and had the maximum dose prescribed a week before the last day of follow up, is going to be grouped among those who stayed on the maximum dose for a week. So in this case we cannot directly interpret the duration in light of the APAs 12 weeks recommendation as the patient had been on follow up for only 2 months. Similarly if a patient had follow up for a total of 20 weeks and if the maximum dose was prescribed on the 15th week, and if the patient had been on it for 5 weeks in general, it is still inconvenient to reach in to a conclusion in light of the APAs recommendation as the duration on the maximum dose is dependant on the total duration of follow up. Also important to note is that some of the

patients included under the “duration not available" group are those for whom the maximum dose was prescribed at the last day of follow up.

5.4.8 Total duration of time patients stayed on the first-line regimen before it was changed to another medication (for those cases where there was a medication change)

Table 7: Total duration of time patients stayed on the first-line regimen before it was changed to another medication

Duration of time	Fluoxetine	Sertraline	Clomipramine
Less than or equal to one month	4 (23.5%)	3 (37.5%)	4 (23.5%)
More than one month but less than or equal to 3 months	4 (23.5%)	1 (12.5%)	4 (23.5%)
More than 3 months but less than or equal to 6 months	3 (17.6%)	1 (12.5%)	2 (11.8%)
More than 6 months but less than or equal to one year	3 (17.6%)	0 (0%)	3 (17.6%)
More than 1 year but less than or equal to 2 years	0 (0%)	0 (0%)	0 (0%)
More than 2 years but less than or equal to 5 years	0 (0%)	0 (0%)	0 (0%)
Greater than 5 years	0 (0%)	0 (0%)	0 (0%)
Not available	3 (17.6%)	3 (37.5%)	4 (23.5%)
Total	17 (100%)	8 (100%)	17 (100%)

The above table summarizes the total duration of time the patients took the first-line medications before they were changed into a second-line regimen for those cases in which there was a change of medication. In the case of fluoxetine, from the hundred patients for whom fluoxetine was prescribed as a first-line regimen for the 17 of them there was a change of medication, and from those for 8 (47%) fluoxetine was changed into another medication with in less than or equal to 12 weeks. And for a total of 6 (35.2%) , it was changed in a duration more than 3 months but less than or equal to 1 year. And for 3 (17.6%) the duration was not available.

In the case of sertraline from the 49 cases in which sertraline was prescribed as a first-line regimen, for 8 of them there was a change of medication and from the those for 4 (50%), sertraline was changed into another medication with in less than or equal to 12 weeks and for 1 (12.5%) , it was changed in to another medication within more than 3 months but less than or equal to 6 months. And for 3 (37.5%) of the cases the duration is not known.

And from the 27 patients for whom Clomipramine was prescribed as a first-line medication, there was a change of medication for the 17 cases. And from the 17, for 8 (47 %) of the cases it was changed in to another medication with in less than or equal to 12 weeks., and for 5 (29.4%) of the cases , it was changed into another medication with in more than 3 months but less than or equal to one year. And for 2 (23.5%) the duration was not available.

We can see that in all the three medications in the majority of the cases the change into a second-line regimen took place within less than or equal to 12 weeks. The NICE guideline recommends a 12 weeks period of trial while on the first-line SSRI before considering an inadequate response. (19) While on the APA guideline the recommendation is to put the patient on the maximum tolerable dose for 12 weeks before changing into a second-line regimen. (9). Note that both APA and NICE guidelines recommend SSRIs to be used as the first-line and clomipramine as the second-line. (9.19)

In light of these recommendations the fact that the study shows a change of medication into a second-line regimen with less than or equal to 12 weeks in the majority of the cases (without considering those for whom the duration was not available) could indicate a pattern of early shift into a second-line regimen. Several factors could contribute to these in a setting like ours including medication availability and tolerability. The reason for change from first-line to second-line medications is outlined in the above sections. Here it's also important to note that the medication with the highest rate of change into another medication when used as the first-line was clomipramine and one main key reason was stock out of clomipramine in 41.2 % of the cases as mentioned in the above section.

5.5 Reported medication side effect

Of the 193 patients who were treated with medication, around 122 (63.3 %) of the patients did not report side effects and for 9 (4.7 %) of patients the data on medication side effects was not available.

And from the remaining 62 who reported medication side effects, 23 (11.9 %) reported medication side effects due to fluoxetine, 11 (5.7 %) reported side effect due to sertraline, 12 (6.2 %) due to clomipramine, 12 (6.2 %) due to Risperidone, 8 (4.1 %) due to olanzapine, 2 (1 %) due to clozapine, and 3 (1.6 %) reported medication side effects, but the specific medications were not outlined.

5.6 Medication discontinuation

From the 193 patients who were treated with medications 132 (68.4 %) of patients did not have a history of medication discontinuation, while 46 (23.8 %) had history of medication discontinuation, and 5 (2.6 %) had history of not starting a medication after it was prescribed by the treating professional and 2 (1 %) had both history of discontinuation and history of not starting a medication after it was prescribed. While for 8 (4.1%), the data on medication discontinuation is not available

5.7 Treatment with Psychotherapy

From the 213 patients included in the study, about 86 (40.4 %) of patients were treated with psychotherapy, while around 122 (57.3) were not treated with psychotherapy, and for 5 (2.3%) the data on treatment with psychotherapy is not available. Of those patients treated with psychotherapy, For 38 (44.2 %), cognitive behavioral therapy was done, for 26 (30.2 %) exposure response prevention therapy was done, for 4 (4.7%) supportive psychotherapy is done, for 2 (2.3 %) other psychotherapeutic modalities were done and for 27 (31.4 %) , though psychotherapy was done the type of modality was not specified.

5.8 Analytical analysis of Prescription pattern

5.8.1 One-way ANOVA results for prescriber's academic background and medication dose

One way ANOVA revealed no statistically significant difference in the starting dose of fluoxetine among the prescribers in this case (senior psychiatrists, Psychiatry residents and MSC psychiatry professionals), F (3, 94) = 0.389, p=0.761. This means there is no evidence of difference in the starting dose of fluoxetine among the different groups of prescribers.

Similarly, one way ANOVA revealed no statistically significant difference in the Maximum dose of fluoxetine among the prescribers in this case (senior psychiatrists, Psychiatry residents, MSC psychiatry professionals and general practitioners), F(4, 92) = 0.851, p=0.497, meaning there is no evidence of difference in the maximum dose of fluoxetine in the different groups of prescribers.

Also, one way ANOVA revealed no statistically significant difference in the starting dose of sertraline among the prescribers in this case (senior psychiatrists, Psychiatry residents and MSC psychiatry professionals) F (3, 44) = 1.396, p=0. 257, meaning there is no evidence of difference in the starting dose of fluoxetine amongst the different groups of prescribers.

In another analysis, one way ANOVA showed a statistically significant difference in the maximum dose of sertraline across prescribers, in this case senior psychiatrists and psychiatry residents, F (2, 45) = 3.389, p=0.043. However, a post hoc comparison was done afterwards using Tukey and it showed no statistically significant differences between any of the groups as all of the p values were > 0.05.

Similarly, one way ANOVA showed a statistically significant difference in the starting dose of Clomipramine across the prescribers; this time senior psychiatrists, psychiatry residents and MSC psychiatry professional F (2, 23) = 7.438, p=0.003. However, a post hoc comparison was done using Games_Howell and it showed no statistically significant differences between any of the groups as all of the p values were > 0.05.

And for the relationship between maximum dose of clomipramine and prescriber groups which are senior psychiatrists, psychiatry residents and MSC psychiatry professionals, the one-way ANOVA showed no statistically significant difference among the prescribers F(3, 21)= 0.898, p) 0.458

CHAPTER 6: DISCUSSION

To start from the important sociodemographic characteristics of the of the patients included in the study, it was shown that the number of male patients was greater than females, though other studies done worldwide suggest the opposite, showing that a greater number of females are affected than males. (11,24) It's important to note that the study was not done on a general population rather than on a clinical population hence several factors like accessibility of treatment as well as treatment seeking behavior might have affected the outcome. In terms of age distribution, the majority of the cases were diagnosed between the ages 20-29, this could also be expected as symptoms of OCD usually begin before the age of 25, at early adolescence and childhood.

Important clinical variables were also outlined by the study, like the nature of obsessions and compulsions patients presented with, the common comorbid psychiatric conditions present, common psychopathologies reported apart from obsessions and compulsions, the presence of family history of mental illness. In terms of obsessions and compulsions ,the study showed that the most reported type of obsession was contamination obsession, associated with the compulsion of cleaning and washing; this also coincides with international reports. (24,36) checking compulsions were also found to be the second most reported compulsions, this also aligns with reporting from other studies (24,36,37,40). In addition, a combination of presentations was commonly reported by the patients included in the study as shown by the summation of the percentage of both obsessions and compulsions exceeding one hundred percent, this also holds true for the findings reported by other studies. (36,37,40). Mood and anxiety symptoms were reported by a significant number of patients, again this could have been impacted by the high prevalence of comorbid psychiatric conditions including depressive and anxiety disorders. In the study only 33 % of the patients were reported as not having a comorbid psychiatric diagnosis, which means the rest 67 % had been diagnosed with one or more comorbid conditions, as there was no data that was filled as not available. This finding is strikingly close to a finding reported by a study published in 2021, in which, the prevalence of comorbid psychiatric conditions was reported to be 69 %. (12) with mood and anxiety disorders being highly prevalent. Similarly, in this study mood disorders were the most highly prevalent comorbid conditions.

In terms of the practice of using objective clinical scales like the YBOCS, as shown by the study, only in fewer cases were the scales used. This could be due to two reasons, one could be due to the fact that the scales are not being used as much as they should be in the clinical practice, the other possibility could have to do with the documentation practice, in which case the scales might have been used to assess severity but no documentation was there that could prove that they were actually used.

Regarding the prescription pattern, In the study, it was noted that the significant majority of the patients diagnosed with OCD were treated with medication, which considering the biological evidences for the psychopathology of OCD and the international recommendations for the treatment of OCD can be seen as a desirable practice, which will have a positive impact in the overall outcome of OCD patients. However this should also be seen in light of the presence of other comorbid psychiatric conditions, which often require treatment with medication, thus the presence of comorbid psychiatric conditions in the majority of the cases could have also impacted the pattern.

In the study it has also been shown that SSRIs were the most prescribed medications followed by second generation antipsychotics and benzodiazepines. Similarly, a 10-year retrospective data analysis on the pharmacotherapy for OCD, has shown that SSRIS, followed by anxiolytics and antipsychotics were the most frequently prescribed medications. (21) In the study among the SSRIs, fluoxetine was the most widely prescribed SSRI, followed by Sertraline. This could be affected by several factors in a setting like ours, like by the availability/accessibility of medication, as fluoxetine is a widely available medication in the setting. Unlike clomipramine, which compared to the other medications, had the higher number of discontinuations attributed to stock out.

The study has also shown that combination therapy was used in the majority of patients, which was also seen in the earlier study mentioned above with nearly 80 % being treated with a combination of medications. (21)

Again, it was shown in the study that in the majority of cases SSRIs were prescribed as first-line regimens which aligns with international recommendations, though clomipramine was prescribed as a first-line regimen in fewer cases and medications other than SSRIs and clomipramine were prescribed as first-line agents in even more fewer cases.

The study also showed that the choice for the type of first-line medications had variation across the different prescribers with different academic backgrounds. For example, in the case of fluoxetine in the majority of cases it was prescribed by psychiatry residents, then followed by senior psychiatrist and in fewer cases by MSC psychiatry professionals. While in the case of sertraline, in the significant majority of cases it was prescribed as first-line by senior psychiatrists, followed by psychiatry residents and in fewer cases by MSC psychiatry professionals. In the case of clomipramine, in a significant majority of cases it was prescribed as a first-line by senior psychiatrists, then followed by MSC psychiatry professionals and in fewer cases by psychiatry residents.

Some notable differences are also seen in the choice of first-line medications across study settings. While Fluoxetine was among the most frequently prescribed SSRI in the four study settings, Sertraline was the most frequently prescribed SSRI in one of the private study settings. And from those cases in which Clomipramine was prescribed as a first-line medication in 85.9% of the cases it was prescribed in two of the study settings. This variation in the choice of medication across study settings could be due to several factors, one of which is the nature of distribution of prescribers across the

study settings. Some settings are dominated by senior psychiatrists as prescribers while others are dominated by residents as prescribers, and in the cases of the MSC psychiatry professionals in the study, they were only practicing at one of the study sites which is AMSH. And as the first-line medication choice showed variation amongst the group of prescribers, it is expected to see variation across the study settings based on the distribution of the groups of prescribers in the settings. Another factor could be the nature of distribution of patients with different socio demographic backgrounds across the study settings as the accessibility of medications could vary across different groups of population.

The starting doses of Fluoxetine and sertraline that were shown in the study in the majority of cases go along with the common clinical practice. Regarding the maximum doses prescribed in the study, seeing the findings in light of a classification used by Bloch and colleagues, for Fluoxetine considering doses 20 to 30 mg to be low dose, and doses 40-50 mg to be medium doses and 60 to 80 mg high dose, (8) in this particular study considering only the cases for whom there was a subsequent dose change after the starting dose, it was shown that in the slight majority the maximum dose of fluoxetine falls to be in low and medium range 20-40 mg, and less than half of the patients have been prescribed high doses of fluoxetine as a maximum dose. And when considering the cases for whom there was no subsequent dose change after the starting dose of fluoxetine, even a higher percentage of the patients received a maximum dose of fluoxetine which falls into the category of low to medium dose, and for more fewer patients the maximum dose falls under high dose category.

In the case of sertraline, if we again refer to the classification used by Bloch and friends for sertraline, the low dose was from 50 to 75 mg, medium dose was from 100 to 175 mg and high dose was 200 mg. (8), again considering only the cases for whom there was a subsequent dose change, for the significant number of the patients the maximum prescribed dose falls under the medium dose category, while fewer patients received a maximum dose grouped as high dose. And when considering the cases for whom there was no subsequent dose change after the starting dose, in an even more significantly higher percentage of the patients, the maximum prescribed dose of Sertraline falls under the category of low and medium dose, while for even fewer percentages of patients the maximum dose goes under the category of high dose, compared to the outcome that included the patients who only had a subsequent dose change after the starting dose. In both cases of fluoxetine and sertraline only the starting doses and maximum doses were analyzed, and the in-between doses that fall in between the starting dose and the maximum dose were not analyzed in the study. Another crucial point to consider is that the variation in the total duration of treatment is an important factor that could affect the amount of doses prescribed.

The study also showed the use of Clomipramine to be higher than the use of other TCAs. As clomipramine has shown superiority over the other TCAs in several studies, the practice of prescribing clomipramine over the rest of the TCAs is also a practice which considering the guideline recommendations is acceptable. (47, 48)

Regarding the choice of second-line medication choices in those cases where there was a change of medication type, for the patients in which SSRIs including fluoxetine and sertraline were prescribed as first-line regimens, in the majority of the cases other SSRIs were used as second-line medication, for some cases in which fluoxetine was prescribed as first-line, clomipramine was prescribed as a second-line. In both cases the practice goes along with the APA (9) and NICE (19) recommendations, while in fewer cases where SSRIs were prescribed as first-line regimen, TCAs other than clomipramine and tetracyclic antidepressants were prescribed as second-line regimen.

Using one way ANOVA, prescriber's academic background was analyzed with the starting and maximum doses of fluoxetine, sertraline and clomipramine and showed no statistically significant difference in the starting and maximum doses of the medications among the different groups of prescribers.

With regards to the use of psychotherapy as treatment modality, it was shown that only less than half of the patients were treated with psychotherapy, with CBT and ERPT being the most commonly used therapeutic modalities, though generally the use of combination of psychotherapy with medications is shown to be highly effective (9,19). Several factors could play a role in the use of psychotherapy like the availability of trained personnel.

CHAPTER 7: STRENGTHS AND LIMITATIONS OF THE STUDY

7.1 Strengths of the study

Some of the strengths of the study include the fact that it is a multisite study incorporating five study settings, with both public and private institutions being represented. And the fact that it covered a five-year period retrospectively can also be considered as strength.

The study has included the values of several clinical variables, and the incorporation of these variables can be helpful in not only understanding the prescription pattern but in understanding the clinical picture of OCD as a whole in a setting like ours where published studies on the clinical picture of OCD lack significantly.

In line with that, the study touched on a topic that is less explored in the Ethiopian context, with existing literature on OCD usually measuring prevalence, this study has gone as far as exploring the prescription pattern along with the inclusion of several clinical variables. It can also serve as a benchmark for several other studies to be followed.

7.2 Limitations of the study

The fact that it is a retrospective chart review makes it highly dependent on factors like the documentation pattern of prescribers and the subjective judgment of prescribers for some important variables like severity. Thus, the outcomes are also dependent on what is documented and what is not documented, rather than what actually was done. And in a setting like ours where there is a significant gap in documentation, the quality of the study could be affected. Several values for different variables like medication type, dose, prescriber status , duration of treatment are missed and were reported as not available, which in return might have an impact on the findings of the study.

The other limitation of the study is that even though it followed a census approach, in some of the study settings like AMSH and TASH, it was not possible to find all of the HMIS registry books. Especially at AMSH it was noted that several HMIS registries were discarded after the COVID era, and HMIS registries only starting from 2014 EC were available hence several cases might have been missed, similarly in TASH few HMIS registries were not available. And at Lebeza, several cases could have been missed as the EMR system does not list MRN numbers based on diagnosis, and there was no manual HMIS registry, the MRN numbers were searched from the EMR manually, which also could have resulted in missed cases. It is also important to note that the number of cases from the five study settings is not comparable, for instance from Lebeza around 74 cases were included while from Amanuel only 26 cases were

included, which might also be considered as a limitation, due to the disproportionate distribution of cases.

Moreover, the fact that the majority of the patients included in the study had a comorbid psychiatric condition can be taken as a limitation. The presence of comorbid psychiatric conditions is expected to influence the pattern of prescription, resulting in outcomes that are not solely attributable to OCD but are also impacted by other comorbid psychiatric conditions. In addition, the fact that the study did not include a separate analysis of the prescription pattern for the pediatric and adolescence age group can also be considered as a limitation.

Another limitation of the study is that it incorporated cases with huge variations in the total duration of treatment, while some cases were only seen once others have been seen over a course of years, even though the inclusion of the various cases contributes positively to the sample size and to the acquisition of several important clinical variables, the variation in the duration can also be a hindering factor in the attempt to reach in to a strong conclusion with regards to the prescription pattern.

CHAPTER 8: CONCLUSION

The objectives of the study were to have an overview of the prescription patterns for patients with OCD, and to identify factors that are associated with the prescription patterns. The preceding hypothesis was that patients were highly likely to be undertreated in terms of medication dose. The study reviewed the prescription patterns for OCD patients in five different clinical settings, the pattern was defined by variables like medication type, medication dose and duration for titration of dose and change of medication. And possible factors that might influence the prescription pattern were analyzed. And here are the conclusions reached following the findings of the study.

The clinical data of the patients diagnosed with OCD have shown a closely similar pattern with earlier studies done in other settings. The practice of using an objective clinical scale in the assessment of severity and treatment outcome is notably low amongst prescribers.

Majority of patients were treated with pharmacotherapy, and SSRIs were the most prescribed medications as a first-line regimen, from the SSRIs fluoxetine being the most widely prescribed followed by sertraline. Next to SSRIs, Clomipramine was used as the second most commonly prescribed first-line regimen. The study showed that the choice of first-line regimens by prescribers at the study sites aligns with international recommendations in the majority of cases. Variations were seen amongst prescribers with different academic backgrounds and across different study settings regarding the choice of first-line medications. The choice of second-line regimens in those cases where there was a change in medication type also complies with the APA and NICE recommendations in the majority of the cases.

But with regards to medication dose the APA guidelines along with several studies recommend higher doses of SSRIs to be used for the treatment of OCD, doses higher than used for depression and other disorders. The study has shown that most patients treated with Fluoxetine and sertraline were treated with maximum doses that fall in the category of low to medium dose, hence in terms of medication dose, the pattern shows inadequate dosing for the diagnosis of OCD. But it’s very important to note that medication doses highly depend on factors like symptom severity and treatment outcome in which case the use of an objective scales like YBOCS would have been much more useful.

Prescriber's academic background did not show a significant association with the dose of medications used.

Psychotherapy was used as a treatment modality for less than half of the patients.

CHAPTER 9: RECOMMENDATIONS

As the study is a retrospective chart review, the first recommendation is about documentation. Studies like this can have a significant positive clinical outcome, yet inadequate documentation makes their impact less effective. In this study, while an attempt was made to have the values of several variables both clinical and socio demographic, it was noted that several of the values were not available. And hence clinicians are recommended to have detailed documentation of sociodemographic data, clinical presentations as well as the subsequent interventions.

The use of objective clinical scales as a means of following symptom severity and treatment outcome should be part of the routine clinical practice as objective measures provide a better perspective for prescribers in understanding the severity of symptoms, even if clinical rotations occur. As vague terminologies may not give adequate ground to say whether a patient has improved or not. Hence the use of scales like YBOCS are recommended to be practiced.

In cases where it is possible for prescribers to follow patients for a certain duration, it's recommended to do that instead of frequent rotations being practiced, as at times patients are seen by different prescribers resulting in inconsistency in the dosing practice. It at times also results in the frequent change of working diagnosis, which makes the treatment process more complex.

For institutions it is recommended to train prescribers on updated treatment guidelines.

Another important recommendation would be regarding medication stock outs especially in the case of clomipramine, as it was shown by the study that it was a major reason for clomipramine to be discontinued. Responsible stakeholders are recommended to work on solving the issue, as clomipramine is a medication that is proven to be more effective than other TCAs in the treatment of OCD

And finally further investigation of the prescription pattern, and the association it has with several other factors is recommended in order to have a better understanding of the trend and to identify intervention points that may result in the overall improvement of the treatment outcome of patients with OCD.

CHAPTER 10: REFERENCES

1. Diagnostic and Statistical Manual of Mental Disorders : Fifth Edition Text Revision DSM-5-TR™.

2. Clinical Descriptions and Diagnostic Requirements for ICD-11 Mental, Behavioural and Neurodevelopmental Disorders. 1st ed. Geneva: World Health Organization; 2024. 1 p.

3. Stein DJ, Costa DLC, Lochner C, Miguel EC, Reddy YCJ, Shavitt RG, et al. Obsessive–compulsive disorder. Nat Rev Dis Primer. 2019 Aug 1;5(1):52.

4. Williams MT, Mugno B, Franklin M, Faber S. Symptom Dimensions in Obsessive-Compulsive Disorder: Phenomenology and Treatment Outcomes with Exposure and Ritual Prevention. Psychopathology. 2013 Apr 20;46(6):365–76.

5. Stein DJ, Costa DLC, Lochner C, Miguel EC, Reddy YCJ, Shavitt RG, et al. Obsessive-compulsive disorder. Nat Rev Dis Primer. 2019 Aug 1;5(1):52.

6. Brock H, Rizvi A, Hany M. Obsessive-Compulsive Disorder. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2025 [cited 2025 Jul 8]. Available from: http://www.ncbi.nlm.nih.gov/books/NBK553162/

7. Mathews C. Obsessive-Compulsive Disorders. Contin Minneap Minn. 2021 Dec 1;27(6):1764–84.

8. Bloch MH, McGuire J, Landeros-Weisenberger A, Leckman JF, Pittenger C. Meta-Analysis of the Dose-Response Relationship of SSRI in Obsessive-Compulsive Disorder. Mol Psychiatry. 2010 Aug;15(8):850–5.

9. APA - American Psychiatric Association Publishing Textbook of Anxiety Trauma and OCD-Related Disorders Thi [Internet]. [cited 2025 Jul 9]. Available from: https://www.appi.org/American_Psychiatric_Association_Publishing_Textbook_of_Anxiety_Trauma_and_OCD-Related_Disorders_Third_Edition

10. Stein DJ, Ruscio AM, Altwaijri Y, Chiu WT, Sampson NA, Aguilar-Gaxiola S, et al. Obsessive-compulsive disorder in the World Mental Health surveys. BMC Med. 2025 Jul 9;23(1):416.

11. Women Are at Greater Risk of OCD Than Men: A Meta-Analytic Review of OCD Prevalence Worldwide [Internet]. [cited 2025 Jun 10]. Available from: https://www.psychiatrist.com/jcp/ocd-prevalence-and-gender/

12. Sharma E, Sharma LP, Balachander S, Lin B, Manohar H, Khanna P, et al. Comorbidities in obsessive-compulsive disorder across the lifespan: a systematic review and meta-analysis. Front Psychiatry. 2021;12:703701.

13. Macy AS, Theo JN, Kaufmann SCV, Ghazzaoui RB, Pawlowski PA, Fakhry HI, et al. Quality of life in obsessive compulsive disorder. CNS Spectr. 2013 Feb;18(1):21–33.

14. Sücüllüoğlu Dikici D, Eser E, Çökmüş FP, Demet MM. Quality of Life and Associated Risk Factors in Caregivers of Patients with Obsessive Compulsive Disorder. Psychiatry Clin Psychopharmacol. 2019 Oct 2;29(4):579–86.

15. Dell'Osso B, Benatti B, Arici C, Palazzo C, Altamura AC, Hollander E, et al. Prevalence of suicide attempt and clinical characteristics of suicide attempters with obsessive-compulsive disorder: a report from the International College of Obsessive-Compulsive Spectrum Disorders (ICOCS). CNS Spectr. 2018 Feb;23(1):59–66.

16. Benatti B, Dell'Osso B, Shen H, Filippou-Frye M, Varias A, Sanchez C, et al. Prevalence and Correlates of Current Suicide Risk in an International Sample of OCD Adults: A Report from the International College of Obsessive-Compulsive Spectrum Disorders (ICOCS) Network and Obsessive Compulsive and Related Disorders Network (OCRN) of the European College of Neuropsychopharmacology. J Psychiatr Res. 2021 Aug;140:357–63.

17. Stahnke B. A systematic review of misdiagnosis in those with obsessive-compulsive disorder. J Affect Disord Rep. 2021 Dec 1;6:100231.

18. Katzman MA, Bleau P, Blier P, Chokka P, Kjernisted K, Van Ameringen M, et al. Canadian clinical practice guidelines for the management of anxiety, posttraumatic stress and obsessive-compulsive disorders. BMC Psychiatry. 2014 Jul 2;14(1):S1.

19. Recommendations | Obsessive-compulsive disorder and body dysmorphic disorder: treatment | Guidance | NICE [Internet]. NICE; 2005 [cited 2025 Jul 20]. Available from: https://www.nice.org.uk/guidance/cg31/chapter/Recommendations#steps-3-to-5-treatment-options-for-people-with-ocd-or-bdd

20. Standard Treatment Guideline for Psychiatric Disorders.

21. Oh S, Cho S, Moon SY, Lee J, Kim M, Lee TY, et al. Pharmacotherapy for obsessive-compulsive disorder: Real-world evidence from a 10-year retrospective data analysis. Asian J Psychiatry. 2024 Jan;91:103847.

22. Howes OD, Thase ME, Pillinger T. Treatment resistance in psychiatry: state of the art and new directions. Mol Psychiatry. 2022;27(1):58–72.

23. Cohen SE, Storosum BW, Vulink NC, De Koning PP, Namavar Y, Zantvoord JB, et al. Adequacy of treatment in outpatients with obsessive-compulsive disorder. Compr Psychiatry. 2025 Jan 1;136:152546.

24. Sasson Y, Lustig M. Epidemiology of Obsessive-Compulsive Disorder: A World View.

25. Uguz F, Ayhan MG. Epidemiology and clinical features of obsessive-compulsive disorder during pregnancy and postpartum period: a review. Psychiatry Behav Sci. 1970 Jan 1;1(4):178–178.

26. Kaya V, Uguz F, Sahingoz M, Gezginc K. Pregnancy-Onset Obsessive-Compulsive Disorder: Clinical Features, Comorbidity, and Associated Factors. Klin Psikofarmakol Bül-Bull Clin Psychopharmacol. 2015 Sep 1;25(3):248–58.

27. Starcevic V, Eslick GD, Viswasam K, Berle D. Symptoms of Obsessive-Compulsive Disorder during Pregnancy and the Postpartum Period: a Systematic Review and Meta-Analysis. Psychiatr Q. 2020 Dec 1;91(4):965–81.

28. Jacoby RJ, Leonard RC, Riemann BC, Abramowitz JS. Predictors of quality of life and functional impairment in Obsessive–Compulsive Disorder. Compr Psychiatry. 2014 Jul 1;55(5):1195–202.

29. Benatti B, Ferrari S, Grancini B, Girone N, Briguglio M, Marazziti D, et al. Suicidal ideation and suicidal attempts in patients with obsessive-compulsive tic-related disorder vs obsessive-compulsive disorder: results of a multicenter Italian study. CNS Spectr. 2021 Aug;26(4):354–61.

30. Vismara M, Benatti B, Fineberg NA, Hollander E, Ameringen MV, Menchon JM, et al. Lessons from a multicenter, international, large sample size analysis of patients with obsessive–compulsive disorders: an overview of the ICOCS Snapshot studies. CNS Spectr. 2024 Feb;29(1):40–8.

31. Nicolini H, Salin-Pascual R, Cabrera B, Lanzagorta N. Influence of Culture in Obsessive-compulsive Disorder and Its Treatment. Curr Psychiatry Rev. 2018 Feb 20;13(4):285–92.

32. Tek C, Ulug B. Religiosity and religious obsessions in obsessive–compulsive disorder. Psychiatry Res. 2001 Nov 1;104(2):99–108.

33. Vismara M, Benatti B, Fineberg NA, Hollander E, Van Ameringen M, Menchon JM, et al. Lessons from a multicenter, international, large sample size analysis of patients with obsessive–compulsive disorders: an overview of the ICOCS Snapshot studies. CNS Spectr. 2024;29(1):40–8.

34. Obsessive-compulsive disorder in black South Africans - A case series [Internet]. [cited 2025 Jun 14]. Available from: https://scholar.sun.ac.za/handle/10019.1/7229

35. Malemela RD, Mashegoane S. The prevalence of obsessive-compulsive disorder symptoms and their psychological correlates amongst pregnant clinic attendees in the Capricorn District, South Africa. Afr J Reprod Health. 2019 Oct 7;23(2):44–55.

36. Prevalence and clinical characteristics of obsessive-compulsive disorder and obsessive compulsive symptoms in Afrikaner schizophrenia and schizoaffective disorder patients : original article | African Journal of Psychiatry [Internet]. [cited 2025 Jun 14]. Available from: https://journals.co.za/doi/abs/10.10520/EJC72640

37. Okasha A, Ragheb K, Attia AH, Seif el Dawla A, Okasha T, Ismail R. Prevalence of obsessive compulsive symptoms (OCS) in a sample of Egyptian adolescents. L'Encephale. 2001;27(1):8–14.

38. Okasha A, Lotaief F, Ashour AM, el Mahalawy N, Seif el Dawla A, el-Kholy G. The prevalence of obsessive compulsive symptoms in a sample of Egyptian psychiatric patients. L'Encephale. 2000 Jul 1;26(4):1–10.

39. Ndetei DM, Pizzo M, Ongecha FA, Khasakhala LI, Maru H, Mutiso V, et al. Obsessive-compulsive (oc) symptoms in psychiatric in-patients at Mathari hospital, Kenya. Afr J Psychiatry. 2008 Aug;11(3):182–6.

40. Ibn Auf A, Osman M. Phenomenology of Obsessive-Compulsive Disorder in Sudan and its association with Socio-demographic Factors. Indian J Ment Health [Internet]. 2022 Oct 1 [cited 2025 Jun 14];9(4). Available from: https://indianmentalhealth.com/pdf/2022/vol9-issue4/8-OR4.pdf

41. Hathorn SK, Lochner C, Stein DJ, Bantjes J. Help-Seeking Intention in Obsessive-Compulsive Disorder: Predictors and Barriers in South Africa. Front Psychiatry [Internet]. 2021 Sep 24 [cited 2025 Jun 14];12. Available from: https://www.frontiersin.org/journals/psychiatry/articles/10.3389/fpsyt.2021.733773/full

42. Madoro D, Endeshaw M, Alemwork A, Negash M, Yenealem B. Prevalence and associated factors of obsessive compulsive symptoms among under graduate medical and health science students in Dilla university, Ethiopia: a cross-sectional study. BMC Psychiatry. 2025 Apr 15;25(1):380.

43. Mental disorders among the Borana semi-nomadic community in Southern Ethiopia - PMC [Internet]. [cited 2025 Jun 15]. Available from: https://pmc.ncbi.nlm.nih.gov/articles/PMC1414684/

44. Temesgen A, Abdeta T, Alemu D, Aliye K, Zewudie A, Abdi D, et al. Obsessive–compulsive symptoms and associated factors among people with schizophrenia attending services at referral hospitals in Eastern Ethiopia. BMC Psychiatry. 2025 Feb 19;25(1):146.

45. Fornaro M, Gabrielli F, Albano C, Fornaro S, Rizzato S, Mattei C, et al. Obsessive-compulsive disorder and related disorders: a comprehensive survey. Ann Gen Psychiatry. 2009 May 18;8:13.

46. Pittenger C, editor. Obsessive-compulsive disorder: phenomenology, pathophysiology, and treatment. New York, NY: Oxford University Press; 2017. 756 p.

47. Fineberg NA, Brown A, Reghunandanan S, Pampaloni I. Evidence-based pharmacotherapy of obsessive-compulsive disorder. Int J Neuropsychopharmacol. 2012 Sep 1;15(8):1173–91.

48. Fineberg NA, Gale TM. Evidence-based pharmacotherapy of obsessive-compulsive disorder. Int J Neuropsychopharmacol. 2005 Mar;8(1):107–29.

49. Escitalopram in obsessive-compulsive disorder: a randomized, placebo-controlled, paroxetine-referenced, fixed-dose, 24-week study - PubMed [Internet]. [cited 2025 Aug 12]. Available from: https://pubmed.ncbi.nlm.nih.gov/17407626/

50. Romano S, Goodman W, Tamura R, Gonzales J. Long-term treatment of obsessive-compulsive disorder after an acute response: a comparison of fluoxetine versus placebo. J Clin Psychopharmacol. 2001 Feb;21(1):46–52.

51. Pampaloni I, Sivakumaran T, Hawley C, Al Allaq A, Farrow J, Nelson S, et al. High-dose selective serotonin reuptake inhibitors in OCD: a systematic retrospective case notes survey. J Psychopharmacol (Oxf). 2010 Oct;24(10):1439–45.

52. McDougle CJ, Goodman WK, Leckman JF, Lee NC, Heninger GR, Price LH. Haloperidol addition in fluvoxamine-refractory obsessive-compulsive disorder. A double-blind, placebo-controlled study in patients with and without tics. Arch Gen Psychiatry. 1994 Apr 1;51(4):302–8.

53. McDougle CJ, Epperson CN, Pelton GH, Wasylink S, Price LH. A double-blind, placebo-controlled study of risperidone addition in serotonin reuptake inhibitor-refractory obsessive-compulsive disorder. Arch Gen Psychiatry. 2000 Aug 1;57(8):794–801.

54. Bystritsky A, Ackerman DL, Rosen RM, Vapnik T, Gorbis E, Maidment KM, et al. Augmentation of serotonin reuptake inhibitors in refractory obsessive-compulsive disorder using adjunctive olanzapine: a placebo-controlled trial. J Clin Psychiatry. 2004 Apr 1;65(4):565–8.

55. Carey PD, Vythilingum B, Seedat S, Muller JE, van Ameringen M, Stein DJ. Quetiapine augmentation of SRIs in treatment refractory obsessive-compulsive disorder: a double-blind, randomised, placebo-controlled study [ISRCTN83050762]. BMC Psychiatry. 2005 Jan 24;5:5.

56. Denys D, de Geus F, van Megen HJGM, Westenberg HGM. A double-blind, randomized, placebo-controlled trial of quetiapine addition in patients with obsessive-compulsive disorder refractory to serotonin reuptake inhibitors. J Clin Psychiatry. 2004 Aug;65(8):1040–8.

57. Muscatello MRA, Bruno A, Pandolfo G, Micò U, Scimeca G, Romeo VM, et al. Effect of Aripiprazole Augmentation of Serotonin Reuptake Inhibitors or Clomipramine in Treatment-Resistant Obsessive-Compulsive Disorder: A Double-Blind, Placebo-Controlled Study. J Clin Psychopharmacol. 2011 Apr;31(2):174.

58. Pessina E, Albert U, Bogetto F, Maina G. Aripiprazole augmentation of serotonin reuptake inhibitors in treatment-resistant obsessive–compulsive disorder: a 12-week open-label preliminary study. Int Clin Psychopharmacol. 2009 Sep;24(5):265.

59. Gualtieri G, Cuomo A, Pardossi S, Fagiolini A. When Standard Is Not Enough: A Narrative Review of Supratherapeutic SSRI Doses in Resistant Obsessive Compulsive Disorder. J Clin Med. 2025 May 30;14(11):3858.

60. Xu J, Hao Q, Qian R, Mu X, Dai M, Wu Y, et al. Optimal Dose of Serotonin Reuptake Inhibitors for Obsessive-Compulsive Disorder in Adults: A Systematic Review and Dose–Response Meta-Analysis. Front Psychiatry. 2021 Sep 23;12:717999.

61. Levy DM, Arush OB, Carmi L, Wetzler AJ, Zohar J. Off-label higher doses of serotonin reuptake inhibitors in the treatment of obsessive-compulsive disorder: Safety and tolerability. Compr Psychiatry. 2024 Aug 1;133:152486.

62. Issari Y, Jakubovski E, Bartley CA, Pittenger C, Bloch MH. Early onset of response with selective serotonin reuptake inhibitors in obsessive-compulsive disorder: a meta-analysis. J Clin Psychiatry. 2016;77(5):21133.

63. Treatments used for obsessive–compulsive disorder—An international perspective - Brakoulias - 2019 - Human Psychopharmacology: Clinical and Experimental - Wiley Online Library [Internet]. [cited 2025 Jun 15]. Available from: https://onlinelibrary.wiley.com/doi/abs/10.1002/hup.2686

64. Brakoulias V, Starcevic V, Belloch A, Dell'Osso L, Ferrão YA, Fontenelle LF, et al. International prescribing practices in obsessive-compulsive disorder (OCD). Hum Psychopharmacol. 2016 Jul;31(4):319–24.

65. Knebel J, Kennedy MLH. Prescribing patterns in patients with obsessive-compulsive disorder: Retrospective, single-center study. Hum Psychopharmacol. 2024 Sep;39(5):e2900.

66. Pampaloni I, Sivakumaran T, Hawley C, Al Allaq A, Farrow J, Nelson S, et al. High-dose selective serotonin reuptake inhibitors in OCD: a systematic retrospective case notes survey. J Psychopharmacol (Oxf). 2010 Oct 1;24(10):1439–45.

67. Pharmacotherapy for obsessive compulsive disorder in clinical practice - Data of 842 inpatients from the International AMSP Project between 1994 and 2012 - PubMed [Internet]. [cited 2025 Jun 15]. Available from: https://pubmed.ncbi.nlm.nih.gov/27130958/

68. Hankin CS, Koran LM, Bronstone A, Black DW, Sheehan DV, Hollander E, et al. Adequacy of Pharmacotherapy Among Medicaid-Enrolled Patients Newly Diagnosed with Obsessive-Compulsive Disorder. CNS Spectr. 2009 Dec;14(12):695–703.

69. Isomura K, Nordsletten AE, Rück C, Ljung R, Ivarsson T, Larsson H, et al. Pharmacoepidemiology of obsessive-compulsive disorder: A Swedish nationwide cohort study. Eur Neuropsychopharmacol J Eur Coll Neuropsychopharmacol. 2016 Apr;26(4):693–704.

70. Baweja R, Waschbusch DA, Rajalakshmi AK, Petrovic-Dovat L, Waxmonsky JG. National Trends in Pediatric Obsessive compulsive disorder Management: Insights from a Retrospective Cohort Study. J Child Adolesc Psychopharmacol. 2025 Jun 9;

71. Cohen SE, Storosum BW, Vulink NC, De Koning PP, Namavar Y, Zantvoord JB, et al. Adequacy of treatment in outpatients with obsessive-compulsive disorder. Compr Psychiatry. 2025 Jan;136:152546.

CHAPTER 11: APPENDIX

Data collecting questionnaire.

Section 1: Sociodemographic data

Variable	Code
1.Sex	1. Male 2. Female
2.Age	_____ (years)
3.Marrital status	1. Single 2. Married 3. Divorced 4. Widowed 5. Not available
4.Educational status	1.Cannot read and write 2. No formal education 3. Formal education 4. If formal education, years of schooling 5. Not available
5.Religion	1.Orthodox 2.Mulsim 3. Protestant 4. Catholic 5. Other_____ 6. Not available
6. Occupational status	1.Unemployed 2.Student 3. Government employees 4. Private employee 5. Other 6. Not available

Section 2: Study setting and Prescriber's academic status

Variable	Code
7. Specific study are	1. Tikur Anbessa specialized hospital 2. Zewuditu Memorial hospital 3. Amanuel mental specialized hospital 4. Sitota psychiatry and rehabilitation center 5. Lebeza psychiatry clinic

8. Prescriber's academic status	1. Psychiatry resident 2. Senior psychiatrist 3. General practitioner 4. BSc psychiatry professional 5. MSc Psychiatry professional 6. Other 7. Not available

Section 3: Clinical data

Variable	Code
9. Chief complaint	_____
10. Diagnosis	_____
11. Time of Diagnosis of OCD	1.__/___/___ (DD/MM/YY) 2. Not available
12. Obsessions	
13. Compulsion	
14. Major psychopathologies	_____
15. Family history of psychiatric illness	1. Yes 2. No
16. If the answer for question number 13 is yes, specify diagnosis	1. _____ (specific diagnosis) 2. Diagnosis not available
17. Presence of comorbid psychiatric illness	1. Yes 2. No
18. If the answer for question number 15 is yes, specify the comorbid diagnosis	_____
19. Change of diagnosis from OCD to another psychiatric condition	1. Yes 2. No
20. If the answer for question number 16 is yes, specify the new diagnosis	_____
21. History of Prescence of underlying medical condition	1.Yes 2.No
22. If there is an underlying medical illness present, specify	_____
23. History of substance use	1.Yes 2. No
24. If there is History of substance use	Specify_____
25. Objective measure of severity	1. Yale Brown obsessive-compulsive scale (Y-BOCS) 2. Obsessional compulsive Inventory-Revised (OCI-R) 3. National Institute of mental health-Global Obsessive-compulsive scale (NIMH-GOCS) 4. Dimensional Obsessive-Compulsive Scale (DOCS) 5. Other 6. Not available

Section 4: Prescription pattern

Variable	Code
26. Treatment with medication	1. Yes 2. No (If No, skip to question number 31
27. Duration of time between the diagnosis of OCD and the initiation of medication (if treated with medication)	
28. First-line Medication	_____
29. Academic background of the prescriber who prescribed the first-line medication mentioned above	
30. Starting dose of the first-line medication	_____
31. Academic background of the prescribers who prescribed the above starting doses.	
32. History of change in medication type	1. yes 2. No If the answer is no, skip to question number 28**.**
33. If there is history of medication change, specify the change of medication	_____
34. If there is history of medication change, specify the duration of time a single medication is taken before being changed to another	_____
35. If there is history of medication change specify the reason for change of medication	1._____ 2. Not available
36. History of change in mediation dose	1. yes 2. No If the answer is no, skip in to question number 32.
37. If there is history of change of medication dose, specify the change of medication dose	_____
38. If there is history of change of medication dose, specify the duration of time each dose is taken before being changed	_____
39. If there is history of change of medication dose specify the reason for change of dose	1._____ 2. Not available
40. If there is history of change of medication dose, specify the academic background of the prescriber who prescribed the maximum dose.	_____
41. Documented medication side effect	1. Yes 2. No
42. If there is a documented medication side effect specify the medication type, dose and associated side effect documented	_____ ,_____ ,_____
43. History of medication discontinuation	1. yes 2. no

44. If there is history of medication discontinuation, specify the medication and the reason for discontinuation	_____
45. History treatment with psychotherapy	1. yes 2. No
46. if there is history of treatment with psychotherapy specify the type of psychotherapeutic modality	_____

DECLARATION

I the undersigned, declare that this thesis report is my original work, where my work is indebted to the work of others, it has not been accepted or presented for a degree in this or any other university and that all sources of materials used for the thesis have been fully acknowledged.

If proven otherwise, I understand that appropriate actions will be taken based on the Senate Legislation of Addis Ababa University and the Guidelines provided by the Ministry of Education.

Name of Investigator: _____

Signature: _____

Date of submission: _____

This thesis has been submitted for examination with my approval as University Supervisor

Name and Signature of the first Supervisor _____

Name and Signature of the second supervisor _____