

Impact of Side Effects of Antipsychotics on Attitude and Adherence to Treatment among Adult Psychiatric Outpatients at Mathari Hospital in Kenya

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Nairobi*

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DECLARATION

I hereby declare that this dissertation is my original work and has not been presented for examination to any other university.

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DEDICATION

Commitment, effort, and dedication were fundamental elements for the completion of this dissertation, but even more was the support of my family. To them I dedicate this important professional achievement because without their presence, support, and encouragement I would have not achieved my goal.

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ABBREVIATIONS/ACRONYMS

DAI	Drug Attitude Inventory
DSM-IV	Diagnostic and Statistical Manual of Mental Disorders, 4th Edition
CI	Confidence Interval
EPS	Extrapyramidal symptoms
FGAs	First Generation Antipsychotics
HIV	Human Immunodeficiency Virus
GASS	Glasgow Antipsychotic Side effect Scale
KNH	Kenyatta National Hospital
MARS	Medication Adherence Rating Scale
MBD	Mental Behavioral Disorders
PI	Principal Investigator
PTSD	Posttraumatic Stress Disorder
SE	Side Effects
SGAs	Second Generation Antipsychotics
UoN	University of Nairobi
WHO	World Health Organization

DEFINITION

Adherence

The extent to which a patient continues an agreed-upon mode of treatment without close supervision.

Attitude

In social or clinical psychology, a relatively stable and enduring predisposition or set to behave or react in a certain way towards persons, objects, institution or issues.

Compliance

The consistency and accuracy with which a patient follows the regimen prescribed by a physician or other health professional.

Psychosis

A mental and behavioral disorder causing gross distortion or disorganization of a person's mental capacity, affective response, and capacity to recognize reality, communicate and relate to others to the degree of interfering with the person's capacity to cope with the ordinary demands of every day.

Side effect

A result of drug or other therapy in addition to or in extension of the desired therapeutic effect; usually but not necessarily, connoting an undesirable effect.

ABSTRACT

Background

Early intervention with antipsychotic medication in psychotic disorders increases the likelihood of favorable long term outcome. However, the use of antipsychotics is associated with a significant number of side effects. These side effects affect the patients' quality of life and the attitude towards their use, which may culminate to non-adherence and hence poor clinical outcome.

Objective of the Study

To determine the impact of antipsychotic side effects on attitude and adherence to treatment among adult psychiatric outpatients at Mathari Hospital in Kenya.

Design

This was a cross-sectional study.

Method

A convenience sample of 164 adult outpatients on antipsychotic medication was recruited. Pre-designed questionnaires on, social demographic characteristics, drug attitude, antipsychotic side effects and medication adherence were administered. Data analysis was done using STATA version 10.

Results

The male to female ratio was 5:4. Most of patients reported experiencing at least one side effect due to their medication [94.14%]. More than half of the patients [53.65%] had a positive attitude towards their medications. Severity of Side effects was positively associated with negative attitude towards medication [$P < 0.001$]. Only 39.63% reported complete adherence to their medication. Extrapyramidal symptoms [$p < 0.001$], sedation [$p = 0.001$], cardiovascular side effects [$p = 0.002$] and gastrointestinal side effects [$p = 0.037$] were significantly associated with reduced likelihood of adherence. Patient who had moderate to severe side effects also had a reduced likelihood of adherence [$p < 0.001$]. Patient counseling on medication side effects significantly improved adherence to medication [$p = 0.028$].

Conclusion

There was a high prevalence of antipsychotic side effects. Attitude towards antipsychotics was principally determined by the severity of side effects. Most patients did not completely

adhere to their medications because of side effects. However patients who had a positive attitude towards medication had a high likelihood of adherence.

Recommendation

Efforts should be done to improve patient's attitude towards treatment by managing the side effects adequately and counseling the patient about his or her medication. Most importantly, clinicians should develop treatment strategies where the regimen with minimal side effects is chosen.

CHAPTER I: INTRODUCTION

1.1 Background

Psychotic disorders are disabling mental illnesses associated with disruption in cognition, emotion, psychosocial and occupational functioning [1]. Psychotic disorders are categorized by Diagnostic and Statistical Manual of Mental Disorders, 4th Edition (DSM-IV). They include schizophrenia, schizoaffective disorder, brief psychotic disorder, delusional disorder; substance-induced psychotic disorder, psychosis due to medical condition and postpartum psychosis. Moreover, mood disorders like major depressive disorder and bipolar disorder may result to psychotic features [2].

The scale of global challenge posed by mental illnesses is immense. About 14% of the global burden of disease is attributable to mental disorders. Even in sub-Saharan Africa, where communicable diseases are common, mental disorders account for nearly 10% of the total burden of disease. Further more mental disorders accounted for 25.3% and 33.5% of all years lived with a disability in low and middle-income countries, respectively [1]. Psychotic disorders impact negatively on the patient's ability to engage in productive work and social relationship [2]. In addition they are associated with a reduced life expectancy as a result of accidents, high comorbidity with medical conditions and suicide [2]

In Kenya like many other Sub-Saharan African countries the prevalence of mental disorders and more specifically psychotic disorders has not been widely studied. Studies done in Mozambique and Tanzania found the prevalence of psychoses like disorders to be 4.4% and 3.9% respectfully [3, 4]. In a study by Ndeti et al. [2012], on the prevalence of psychotic-like experiences in Kenyan youths; found a prevalence of 3.5% [5].

The treatment of psychotic disorders involves using a combination of antipsychotic medication, psychological therapies and social support [1]. Many antipsychotic medications are available with demonstrated efficacy in reducing the acute and chronic symptoms of schizophrenia and other related psychotic disorders, improving the well-being of patients, and enabling some to live a more meaningful life. Furthermore adherence to these medications is

important to receive optimal benefits [6]. However, the use of antipsychotic medications is associated with a significant number of side effects.

The results of nonadherence to antipsychotic medications are wide ranging and long lasting. Inadequate adherence to these medications increases the risk of relapse, rehospitalization and associated healthcare utilization costs [7]. A review by Sun et al. (2007) estimated that antipsychotic nonadherence in the USA was responsible for between \$1.4 and \$1.8 billion in rehospitalization costs alone [7]. In the financial year 1998/99, the Kenyan economy lost approximately US dollars 13,350,840 due to institutionalized Mental and Behavioral Disorder patients [8]. In most cases hospitalization of patients with mental disorders is due to nonadherence to medication among other factors. Adherence has been shown to be connected to medication efficacy and side effects, medication related tolerability, independent living, alliance, quality of life and physical health [9, 10].

1.2 Statement of the Research Problem

Adherence to treatment is a critical aspect of health care. International treatment guidelines recommend long term antipsychotic treatment in schizophrenia and related disorders[10]. Studies have shown that side effects influence the uptake and compromise the adherence to the antipsychotics leading to relapse and hospitalization [9, 10]. Moreover these side effects may impact on the general patient attitude towards medication use and hence adherence to treatment [11].

Few studies have been done in other countries assessing the impact of antipsychotic side effects on attitudes and adherence to treatment. In Kenya like many other African countries, there are no documented studies assessing the relationship between patient reported side effects and self-reported adherence. This patient perspective is vital as it provides insight into how the perception of side effects is associated with specific non-adherent behaviors; something that cannot be obtained from objective assessments of adherence. It is against this that the study set out to determine the impact of side effects on attitude and adherence to treatment among adult psychiatric outpatients.

1.3 Purpose of the study

The primary aim of this study was to establish the relationship between antipsychotic side effects and their impact on patients' attitude and adherence towards antipsychotic treatment. The secondary aim of this study was to determine the prevalence of antipsychotic side effects among psychotic outpatient at Mathari Hospital (MH).

1.4 Objectives

1.4.1 General Objectives

To determine the impact of antipsychotic side effects on attitude and adherence to treatment among adult psychiatric outpatients at Mathari Hospital (MH).

1.4.2 Specific Objectives

- 1) To determine the prevalence of side effects of antipsychotics in psychiatric adult outpatients at MH.
- 2) To determine the impact of side effects on patients' attitude towards antipsychotic medications at MH.
- 3) To determine the association between the side effects of antipsychotics and the level of adherence to treatment at MH.

1.5 Research Questions

This study was designed to answer the following questions.

- 1) What was the prevalence of side effects of antipsychotics among adult psychiatric adult outpatients in MH?
- 2) What was the relationship between the side effects of antipsychotics and patient attitude towards their use?
- 3) What was the relationship between the side effects of antipsychotics and the level of drug adherence among psychiatric adult outpatients at MH?

1.6 Study Justification

Much of the burden of psychotic disorders placed on patients, care givers, the health service and society, is the result of relapses, which normally disrupt psychosocial and occupational

adjustment, and increase the risk of hospitalization and suicide. Inadequate adherence to antipsychotics has been shown to be the major cause of relapse [12]. The public attitudes tends to characterize people suffering from psychotic disorders as dangerous, unpredictable, and unreliable. This can be compounded by the numerous antipsychotic side effects which may lead to more stigmatization and nonadherence to medication among the users [10, 13].

Understanding the association between the side effects, patient attitude and adherence towards medication is one step in achieving better health outcome. The findings of this study aimed to guide the development of suitable treatment strategies that intends to alleviate side effects and reduce negative attitude towards antipsychotic medications and improve adherence. The study also aimed to determine the extent of antipsychotic side effects among psychiatric outpatients and their impact on patient's treatment, a vital step towards holistic and individualized patient care.

CHAPTER II: LITERATURE REVIEW

2.1 Introduction

Mental disorders are linked to many other health conditions and are among the most costly medical disorders to treat [1]. Antipsychotics are the mainstay treatment in schizophrenia and other psychotic disorders. However, antipsychotics are associated with a number of side effects with potentially harmful side effects on patients function and quality of life. A combination of negative societal reaction related to having a serious mental illness and the socially undesirable side effects associated with antipsychotic medication leads to even more stigmatization [12, 13]. In addition these side effects may have a negative impact on the patient's attitude towards antipsychotic medication use leading to poor adherence [11].

2.2 Antipsychotic Medications Overview

The efficacy of antipsychotic medications in the acute and maintenance treatment of schizophrenia and other related disorders is well documented. They are divided into two groups: First-generation (typical) and second-generation (atypical) antipsychotics [14].

Table 1: Commonly Available Antipsychotics in the Kenyan Market

Typical Antipsychotics (Low Potency)	Typical Antipsychotics (High Potency)	Atypical antipsychotics
Chlorpromazine HCL	Fluphenazine	Olanzapine
Chlorprothixene	Haloperidol	Quetiapine
Thioridazine	Pimozide	Risperidone
Perphenazine	Thiothixene	Clozapine
	Flupentixol	Amisulpride
	Prochlorperazine	Aripiprazole

Typical antipsychotic drugs correlate closely their clinical potency in reducing psychotic symptoms with their relative ability to block D₂ receptors in the mesolimbic system of the brain [14]. Their non-selectivity in blocking dopamine receptors contribute to their side

effects. Atypical antipsychotic drugs block 5-HT (2A) receptors coupled with weaker antagonism of the dopamine D (2) receptors hence fewer side effects [14, 15].

Antipsychotics are indicated in several conditions including: Schizophrenia Schizoaffective disorder, Bipolar disorder, Psychotic depression (in combination with antidepressants), Obsessive- compulsive disorder (Risperidone), Post traumatic stress disorder, Personality disorder, Autism (Aripiprazole and Risperidone) and among others [14,15].

2.3 Side Effects of Antipsychotics Drugs

The use of antipsychotic medication entails a trade-off between the benefits of alleviating psychotic symptoms and the risk of troubling side effects. Typical antipsychotics exhibit a broad range of side effects including extrapyramidal symptoms [16, 17], sedation, sexual – dysfunction [18], Anticholinergic, cardiovascular side effects, gastrointestinal side effects among others [19]. Atypical antipsychotic are commonly associated with weight gain and metabolic side effects [20].

2.3.1 Extrapyramidal Symptoms

Most patients who receive typical antipsychotics experience movement disorders, which not only can be wearisome to patients but also concern caregivers. These extrapyramidal symptoms (EPS) include dystonia, Parkinson-like symptoms, akathisia and Tardive dyskinesia [16, 17]. It is recommended that all patients should be assessed for the presence of EPS when treatment with antipsychotics begins and regularly thereafter [17].

Akathisia is characterized by a sense of inner restlessness and compulsion to move. Probably the most intolerable of the acute EPS and has been associated with violence and suicide. The prevalence of Akathisia due to FGAs and SGAs has been estimated to be at least [20% to 70%] and [0%to 12%] respectively [16, 17].Several approaches have been used to manage akathisia which includes: reduction of the dose, substitution with SGAs and treatment with lipophilic beta blockers (propranolol). Anticholinergic agents and benzodiazepines have also proved to be effective [17, 21].

Catatonic symptoms associated with antipsychotics include akinesia, stupor, and mutism, and less often catalepsy and waxy flexibility [16]. It develops within hours to days after drug exposure and is expected to resolve in a similar period of time after drug discontinuation. Dystonia is another acute and alarming involuntary movement disorder that commonly involves the head, neck, jaw, eyes and mouth. It results in spasmodic torticollis, trismus and dental trauma, forced jaw-opening or dislocation, grimacing, tongue biting, protrusion or twisting, and distortion of the lips. This can be painful and distressing, and can erode patient trust and adherence [16, 17].

Drug-induced Parkinsonism is characterized by masked faces, reduced arm swing, slowed initiation of activities, soft speech and flexed posture. Patients may also experience resting or action tremors, sialorrhea and postural or gait disturbance [17]. Studies have shown that FGAs are associated with higher risk of drug induced Parkinsonism compared to SGAs [22]. The stiffness, slowness of movement and tremor can make it difficult for patients to write, fasten buttons and tie shoelaces, leading to reduced quality of life [22]. These symptoms make the patient to stand out as different, hence contributing to stigma and non-adherence.

2.3.2 Tardive Dyskinesia

Tardive dyskinesia (TD) is the principal adverse effect of long-term treatment with conventional antipsychotic agents. It is characterized by involuntary muscle movements, most commonly associated with the mouth and tongue, although any muscle group may be affected [17]. In a study done by Gatere et al (2002) found a prevalence rate of Tardive dyskinesia among the psychiatric in-patient at Mathari Hospital to be 11.9% [23].

2.3.3 Cognitive Impairment

Disturbances in cognitive abilities are cardinal features of schizophrenia from its earliest phases and account for much of the functional disability associated with the illness. Long-term antipsychotic use has also associated with cognitive impairment which is probably due to oxidative stress-induced damage [19]. Cognitive impairment in patients with schizophrenia, subsequently affects patients' quality of life and this may lead to poor adherence to medications [19].

2.3.4 Sedation

Typical antipsychotics especially those with low potency are sedating, a likely effect of histamine blockade and it is usually dose related [14, 24]. Initially sedation may be beneficial in the treatment of highly agitated psychotic patients but at long term it is often mistaken for contrary behavior and interferes with rehabilitation [25]. Sedation can be difficult to distinguish from mental slowing of cognitive impairment [19]. Antipsychotic induced sedation causes daytime drowsiness and this may interfere with activities that require the maintenance of vigilance [24].

2.3.5 Sexual Dysfunction and Reproductive Side Effects

Sexual dysfunction is estimated to affect 30-80% of patients with schizophrenia and a major cause of poor quality of life and treatment adherence [18]. The associated sexual dysfunction symptoms may concern penile erection, lubrication, orgasm, libido, retrograde ejaculation, sexual arousal and overall sexual satisfaction. Hyperprolactinemia that results from Dopamine 2 receptor blockade has been shown to be the main mechanism of sexual dysfunction [27]. Patients with sexual dysfunction may experience poor relationship with their partners and this may compromise adherence especially if they associate it with antipsychotic use. Approaches employed to manage sexual dysfunction includes; dose reduction, drug holiday, symptomatic therapy, switching antipsychotic and even use of sildenafil [18,28].

2.3.6 Weight Gain

Typical antipsychotics though to a lesser extent than atypical antipsychotic are associated with drug induced weight gain ,that frequently result in obesity and secondary medical condition like diabetes [20,29]. It is recommended that clinicians should consider the effect of weight gain on quality of life when prescribing antipsychotics and should help patients adopt weight maintenance behaviors [29].

2.4 Attitude towards Antipsychotic Medication

The efficacy of antipsychotic medication is evident in acute and maintenance treatment of psychotic disorders, and most mental health professionals recognize antipsychotic drugs as a cornerstone in treating affected people [10]. However effectiveness and acceptability of these

medications not only depends on the drug's pharmacological profile but through the interaction of different factors, including patients' attitudes toward their prescribed medications among others [30, 31]. Attitude toward antipsychotic medication is considered as one of the main predictors for medication adherence in schizophrenia and related disorders [31].

The attitude towards antipsychotic medication is influenced by a number of factors of which medication side effects is important [11] In a Chiang et al [2011] study to determine the impact of side effects on attitude towards medication in schizophrenic patients, negative attitudes towards medication were positively correlated with side effects [11]. In another study by Lambert et al [2002], patients experiencing present side effects compared with patients without present side effects had a significantly more negative general attitude toward antipsychotics. In addition they were more doubtful about the efficacy of their medications and were less likely to encourage a relative to take such medication in case of need [32]. Similarly Rettenbacher et al [2004], found a positive correlation between compliance and the patients' feelings of a positive effect of the drug on the illness, between compliance and negative symptoms, and between compliance and antipsychotic-induced psychological side effects [33].

Other factors that affect attitude towards antipsychotic medications have been identified. In a study by Day et al [2005], the quality of relationships with clinicians during acute admission appeared to be an important determinant of patients' attitudes toward treatment and adherence to medication. A poor relationship with the prescriber, experience of coercion during admission, and low insight predicted a negative attitude toward treatment [34]. In another study by Freudenreich et al [2004], less awareness of current symptoms, presence of deficit symptoms, and employment predicted a negative attitude toward psychiatric medications. Moreover drug attitudes were no different between patients taking first- or second-generation antipsychotics or Clozapine [35]

When individuals with schizophrenia do not perceive themselves as ill, they are less inclined to enter or remain in treatment, under appreciate the benefits of medication, and put themselves at higher risk of discontinuing treatments, with concomitant increase in the risk of

relapse [36]. The long-term course of the illness is often characterized by impaired social and occupational functioning, in part because of the absence of a positive attitude toward available treatments, after realizing their benefits are limited [37]. It has also been established that continuous use of psychotropic medication shapes the opinion of the users toward a more beneficial perception of medications. However the opinion on the general population, where stigmatizing attitudes are born, is more negative toward them [38].

Psychiatrists and other health care providers must consider their patients' desire to participate in treatment decisions and explore how patients' views about psychiatric medications, influence their attitudes towards concordance [35]. Attitudes towards antipsychotic medication may be positive in individuals who recognize therapeutic drug effects; however other individuals may view medications negatively due to a sense of stigma brought about by the side effects [33].

2.5 Adherence to Antipsychotics

Adherence to treatment prescriptions is a critical aspect of health care; however, it is often given far less attention in routine clinical practice than necessary [12]. Rates of adherence among patients with schizophrenia have been estimated to be between 50%–60%, and among those with bipolar affective disorder the rates are as low as 35% [39]. Most of these studies have been done in western countries and the findings may differ with African countries which invest less than 1% of their total health budget in mental health [2]

Nonadherence to medication remains a challenging problem in the management of patients suffering from psychotic disorders. Poor adherence to treatment can have devastating consequences for patients with mental illness [1]. In a comprehensive literature review by Lacro et al (2002), among the 10 reports that met a strict set of study inclusion criteria, a mean rate of nonadherence was found to be 41.2%; the 5 reports that met a stricter set of inclusion criteria had a mean nonadherence rate of 49.5% in the 39 articles [40].

A review of dropout rates in clinical trials found that 28%-55% of schizophrenia patients drop out of clinical trials before the study is complete; dropout rates were higher with conventional antipsychotic medications compared with second generation antipsychotic

medications due to side effects [41]. Majority of the experts believe that the average patient with schizophrenia or bipolar disorder in their practices takes only 51%-70% of prescribed medication [42]. Up to 75% of all patients with schizophrenia discontinue treatment within 2 years of hospital discharge [42].

Five clinically relevant factors that have been identified to affect adherence includes medication efficacy, external factors (such as patient support and therapeutic alliance), insight, side effects, and attitudes toward medication [40]. Studies have suggested that antipsychotic medication side effects are associated with lower levels of adherence. Nevertheless they are often assumed by clinicians to be a major predictor of non-adherence [43]. In addition, some patients discontinue medication because of adverse effects that they might not even identify as such. Akinesia, for example, might not be identified by the patient as an adverse effect of medication, as might also be the case with akathisia. Even clinicians can fail to recognize or misdiagnose these phenomena [44].

When clinicians and patients are aware of the side effects, treatment can be adjusted to minimize the problems e.g. by dose reduction, prophylaxis, treatment of the side effect or to switch to an alternative antipsychotic with less tendency to cause side effects [43]. Many patients who adhere poorly to medication do not inform their clinicians and may sometimes go to great length to hide their non-adherence (covert non-adherence) [40]. Identification of risk factors for nonadherence is an initial step toward designing effective treatment strategies

CHAPTER III: METHODOLOGY

3.1 Research Design

Hospital based cross-sectional study design was used.

3.2 Study Area and Site Description

The study was carried out in outpatient psychiatric clinics at Mathari Hospital between July and August 2014. Mathari Hospital is Kenya's national referral and teaching psychiatric hospital located in Nairobi County with a capacity of 700 beds. The staff that provides services to the hospital includes a total of 243 nurses, 7 psychiatrists, two of whom are in full-time administration, 2 pharmacists and several support staff. The hospital attends to a large number of both outpatient and inpatient drawn from all over the country.

3.3 Target Population

Adult psychiatric outpatients with a history of antipsychotic drug use at the hospital were eligible for the study.

3.4 Sampling Technique

3.4.1 Sampling Method

Convenient sampling method was used to draw sample from outpatients. Only participants who met the study inclusion criteria were selected.

3.4.2 Inclusion Criteria

- 1) Patients diagnosed with psychotic disorders according to the DSM-IV.
- 2) Patients who consented and were on antipsychotic medication for at least two week.
- 3) Patient aged ≥ 18 years.
- 4) Outpatients who were clinically stable.
- 5) Patients who were able to read or write either in English or Kiswahili.

3.4.3 Exclusion Criteria

- 1) Patients who did not consent to the study.
- 2) Patients who had severe physical illness.
- 3) Those who were too mentally disturbed to understand or follow instructions.
- 4) Need for an interpreter.

3.4.4 Sample Size

The sample size was based on the prevalence of tardive dyskinesia, the principal adverse effect of long-term treatment with conventional antipsychotic agents [17]. A study carried out at the same hospital found the prevalence of tardive dyskinesia to be 11.9% among patients using conventional antipsychotics [23]. Sample size was determined using statistical Fischer's formula for estimating of sample size [45].

$$N = Z^2 \times P (1-P) / d^2$$

Where **n** = Sample size,

P = Estimated prevalence rate of side effect (Tardive dyskinesia) = 0.119

Z = 1.96 which is Z-value corresponding to a significance level of 0.05

d = 0.05 which is the desired degree of accuracy for the study

$$n = \frac{1.96^2 \times 0.119(1-0.119)}{0.05^2} = 161$$

= A sample of 164 was recruited with an over-age of 2% to cater for non respondents

3.5 Sample Recruitment and Consenting Process

Psychiatrists and clinical staff were asked to identify participants fulfilling the study criteria with the help of a Study Eligibility Check List (Appendix 2). After potential participants were adequately informed of the study, they were asked by the principal investigator if they were interested in participating. A sample of 164 participants who met inclusion criteria was recruited. All participants were assessed on their comprehension of the consent information before signing of the Consent Declaration Form (Appendix 5). Any questions and concerns the participants may have had about the study were adequately answered by the principal investigator.

3.6 Data Collection Procedure

After obtaining consent from the participants, the research assistants (two trainee nurses) together with the principal investigator fully informed the participants about the study

protocol. The subjects completed self-administered questionnaires: Demographic Data Questionnaire, Glasgow Antipsychotic Side effects Scale (GASS modified version), Drug Attitude Inventory (DAI-10) and Medication Adherence Rating Scale (MARS). Data regarding psychiatric diagnosis, other comorbidities and medication history was retrieved from medical files. The research assistants were available to answer questions during the completion of the questionnaires. The duration of the participants' involvement in the study was approximately 20 minutes.

3.7 Research Instruments

3.7.1 Demographic Data Questionnaire

The Demographic Data questionnaire consisted of two parts. Part one consisted of 5 questions about age, gender, education level, marital status and employment status.

Part two was about patient clinical information. It consisted of three questions answered by writing the information in the provided space. This questionnaire addressed the patient's psychiatric diagnosis and other chronic comorbidities, antipsychotic medications and other medications being used. It also had section of identifying those patients who were counseled about their medication. The English version of the demographic questionnaire is included in Appendix 6.

3.7.2 Glasgow Antipsychotic Side Effect Scale (GASS) Modified Version

This research instrument was used to determine the prevalence and severity of antipsychotic side effects. Designed by Waddell and Taylor in 2007, this scale allows for a timely, sensitive and reliable method of gathering information on the number and severity of side effects an individual suffers from. GASS is an easy to understand, self-report side effect rating scale that can be filled in quickly .It consists of 22 questions which are devised to summarize and rank the prioritized side effects, which have long term medical consequences [46]. The side effects are clustered into sedation/cognition, cardiovascular side effects, extrapyramidal symptoms, anticholinergic side effects and prolactin/endocrine side effects.

The extent of side effects was rated from none (zero points) to everyday (3 points) for question 1-20 and yes (3 points) for question 21-22. A total score is interpreted as follows;

(0- 21) absent/mild side effects, (22-42) moderate side effects and (43-63) severe side effects. GASS as a clinical tool has been shown to have good discriminatory power and construct validity along with good re-test reliability [46]. The questionnaire was translated to Kiswahili for those who did not understand English. Reliability analysis for the original instrument and translated version was performed with 20 subjects, 60% (n=12) male and 40% (n=8). The English and Kiswahili translation are included in appendix 7a and 7b, respectively.

3.7.3 Drug Attitude Inventory -10 Questionnaire (DAI-10)

The 10-Item Drug Attitude Inventory (DAI-10) self-reporting questionnaire was used to assess attitude, experience and belief about antipsychotics. Scores ranged from -10 (very poor attitude) to +10 (best possible attitude) [47]. It is preferred due to its simplicity and good psychometric properties. In a Nielsen et al. study DAI-30 and DAI-10 were found to be homogenous ($r= 0.82$ and 0.72 , respectively) with a good test-retest reliability of 0.79 [47]. The correlation between the DAI-30 and DAI-10 version was high (0.94) [48]. Reliability analysis for the original instrument and translated version was performed with 20 subjects, 60% (n=12) male and 40% (n=8). The English and Kiswahili version are included in appendix 8a and 8b, respectively.

3.7.4 Medication Adherence Rating Scale (MARS)

Adherence to medication was assessed using Medication Adherence Rating Scale (MARS), an instrument that has previously shown evidence for reliability and validity [49]. The MARS consists of 10 items which include the presence and absence of adherence and non-adherence behavior indicators. Adherence is classified as a score of six and above out of 10 items. The MARS has been found to be reliable in determining medication adherence in psychoses [49]. The research instrument was translated to Kiswahili in order to achieve the research objectives. Pilot study was carried out to determine the reliability for the original instrument and translated version using 20 subjects, 60% (n=12) male and 40% (n=8). The English and Kiswahili version are included in appendix 9a and 9b respectively.

3.8 Pilot Study

The first 20 participants of this study comprised the subsample that evaluated possible language barriers, the level of comprehension and the internal consistency of the English and

Kiswahili translated version of DAI-10, GASS Modified Version and MARS. The inclusion criteria, settings and recruitment process of this subsample were identical to those of the principal study. Difficulties in comprehension were also assessed at the end of the process through the use of an open-ended question (Are any words or sentences difficult to understand?). Necessary corrections were made in order to achieve the study objectives.

3.9 Data Quality Assurance

The pre-designed questionnaires were pre-tested to ensure acceptability and comprehensibility. A pilot study was carried out to determine the reliability for the original instrument and translated version using the first 20 participants. The data collectors were trained for a day, focusing on the materials, methods and administration of the instruments. Data was rechecked at the field level by the principal investigator for any inconsistency.

3.10 Data Analysis

The data analysis was performed according to the research questions using STATA software version 10. Descriptive statistics were calculated to describe the patient characteristics, side effect, medication attitude and adherence for the entire sample. Unadjusted comparisons of patient characteristics between adherent and non-adherent groups were conducted using chi-square tests and ANOVA tests for categorical and continuous variables, respectively. The results of side effects were categorized based on GASS [46]. The degree of side effect was rated as mild, moderate and severe.

The results on attitude towards medication obtained by the patients on the DAI-10 scale were reported for all patients and clinical subgroups. In addition, patients were divided into two groups according to positive (≥ 0) or negative (< 0) scores on the 10-item DAI [47]. To determine the association between side effects and drug attitude, a logistic regression model was fitted for extent of side effect, adjusting for age, education, employment status and psychiatric diagnosis.

The results on medication adherence obtained by the patients on the MARS calculator were reported for all patients and clinical subgroups. Patients were divided into two groups according to adherent (≥ 6) or non-adherent (< 6) scores on MARS calculator. Age, gender,

education level, marital status, employment status, type of psychotic illness, side effects and type of antipsychotics were entered as independent variables. To examine the relationship between side effects and nonadherence, a logistic regression model was fitted for each side effect adjusting for independent variables. The significance level was set at $p \leq 0.05$ and Odds Ratio was used to show the level of significance.

3.11 Ethical Consideration

Study approval was sought from KNH/UoN Ethical and Research Committee (study reference number *P150/03/2014*). Consent was sought from participants who met inclusion criteria and a Consent Declaration Form (Appendix 5a and 5b) presented for signing, after going through a detailed consent explanation process (Appendix 3a and 3b). Participants were only allowed to sign the consent form, after demonstrating comprehension of the consent information with the help of a checklist (Appendix 4).

Respect, privacy and information confidentiality was protected using a numbered code on all questionnaires. The principal investigator (PI) assigned a study identification number to each subject in the order in which the research participants enrolled in the study. No names or identifying information was gathered on questionnaires. The PI maintained all consent forms and questionnaires in a locked and secure file cabinet in his office. The benefits and the risks involved in the study were adequately explained to the participants (Appendix 2a and 2b).

The data were entered into STATA software version 10, using only the numeric identification code to identify participants. The data entry and analysis was performed by the PI. After finishing data analysis, all of the administered questionnaires and consent forms were kept safely waiting destruction using a paper shredder after a period of two years.

Our research finding were presented to Mathari Hospital staff inform of continuous medical education and copy of the dissertation left with the institution. The study was also included in the UoN electronic archives for future reference.

CHAPTER IV: RESULTS

This chapter presents the study results of the study. The results of the study are presented according to the research questions. The results include sample socio-demographic characteristics, prevalence of antipsychotic side effects, attitude towards medication and adherence to treatment. The significance level was set at $p \leq 0.05$.

4.1 Study Participants Characteristics

The study consisted of 164 psychotic patients out of which 91 [55.49%] were males and the rest females. The mean age of the sample was 33 years [\pm SD 10.22 years]. The median age was 31 years, with a range of 18-68 years. Most of the participants had some form of education, with those with the highest academic achievement of primary education being [39.63%], secondary education [35.98%], college [10.37%] and 14.02% had university education. (Table2).

Majority of the participants [56.10%] were single, [31.71%] were married and 7.93% were separated. A large number were unemployed [46.34%], with 32.93% of them being self employed and 4.27% students. Most were taking typical antipsychotics [87.20%] and a few were on atypical antipsychotic medication [21.34%], (Table 2). All patients at the time of the study were on neuroleptic medication. Majority of the patients were taking typical antipsychotics [87.20%] and a few were on atypical antipsychotics [21.34%] (Table2).

Table 2: Study Participants Characteristics

Variables	n	%
Gender		
Male	91	55.48
Female	73	44.51
Education Level		
Primary	65	39.63
Secondary	59	35.98
College	17	10.37
University	23	14.02
Marital Status		
Single	92	56.10
Married	52	31.71
Separated	13	7.93
Divorced	5	3.05
Widowed	2	1.22
Employment Status		
Full employment	27	16.46
Self employment	54	32.93
Unemployed	76	46.34
Student	7	4.27
Antipsychotic Medication		
Typical	143	87.20
Atypical	35	21.34
Age	Mean	SD
	33.32	10.22

The commonest diagnosis was schizophrenia, accounting for 77 cases [46.95%]; followed by schizoaffective disorder 28[17.07%]; bipolar disorder 24 [14.63%]; drug induced psychoses 8 [4.88%] and major depressive disorder 7[4.27%]. Other comorbidities included; 4 [2.44%] epileptic patients; 5[3.05%] HIV/AIDs patients; 2 [1.22%] diabetic patients and 3 [1.83%] hypertensive patients (**Figure 1**).

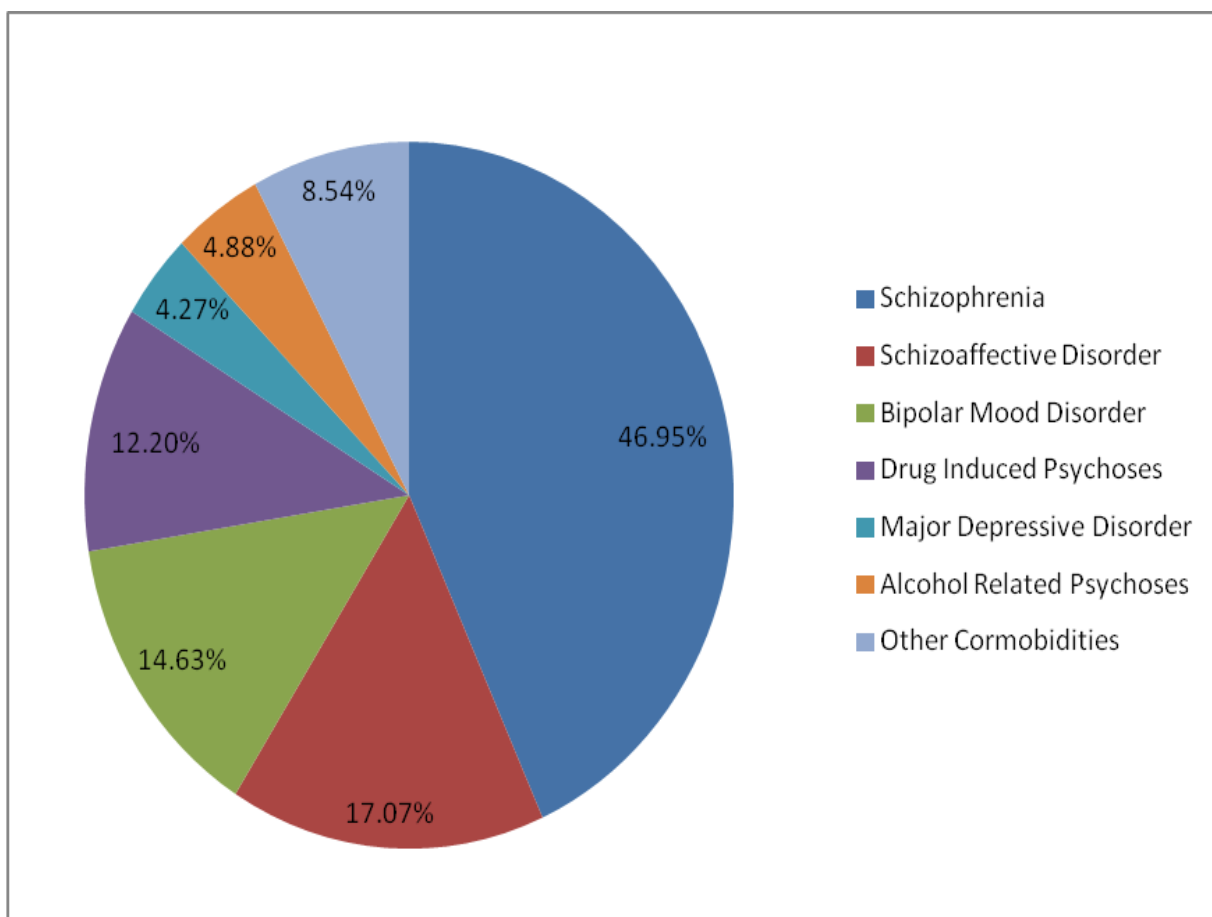


Figure 1: Principal Diagnoses among Psychiatric Outpatients

Haloperidol [57.93%], chlorpromazine [46.95%] and Fluphenazine [29.88%] were the most widely prescribed typical antipsychotics. Olanzapine [12.80%] was the most frequently prescribed atypical antipsychotic medication (Table 3).

Polypharmacy of antipsychotics and concurrent use of anticholinergics, anxiolytics, or antidepressants was more frequently found among participants. More than half of the patients were on more than one antipsychotic medication [64%]. Frequently used adjunctive medications were; benzhexol [55.49%], carbamazepine [59.76%], diazepam [9.76%], sodium valproate [7.32%], amitriptyline [7.93%] and thiamine [5.49%] (Table 3).

Table 3: Commonly Prescribed Drugs

Type of medication	n	%
Antipsychotic Medication		
Chlorpromazine	77	46.95
Haloperidol	95	57.93
Fluphenazine	49	29.88
Zuclopenthixol (acuphase)	13	7.93
Flupenthixol	4	2.44
Aripiprazole	4	2.44
Olanzapine	21	12.80
Quetiapine	5	3.05
Risperidone	5	3.05
Adjunct Medications		
Benzhexol	91	55.49
Carbamazepine	98	59.76
Sodium Valproate	12	7.32
Amitriptyline	13	7.93
Fluoxetine	9	5.49
Venlafaxine	1	0.61
Diazepam	16	9.76
Clonazepam	2	1.22
Thiamine	9	5.49

4.2 Prevalence of Medication Side Effects

Majority of patients reported experiencing at least one side effect due to their medication [94.14%]. Sedation and extrapyramidal symptoms were the most frequent reported side effects at 81.71% and 78.05%, respectively. Furthermore, other side effects reported included: anticholinergic side effects [66.46%], weight gain [54.88%], sexual dysfunction [40.24%] and gastro-intestinal side effects [36.56%] (Figure 2). Sedation side effect was highly associated with use of chlorpromazine (Odds Ratio [OR =2.92, CI= 1.214-7.018, p= 0.017]).

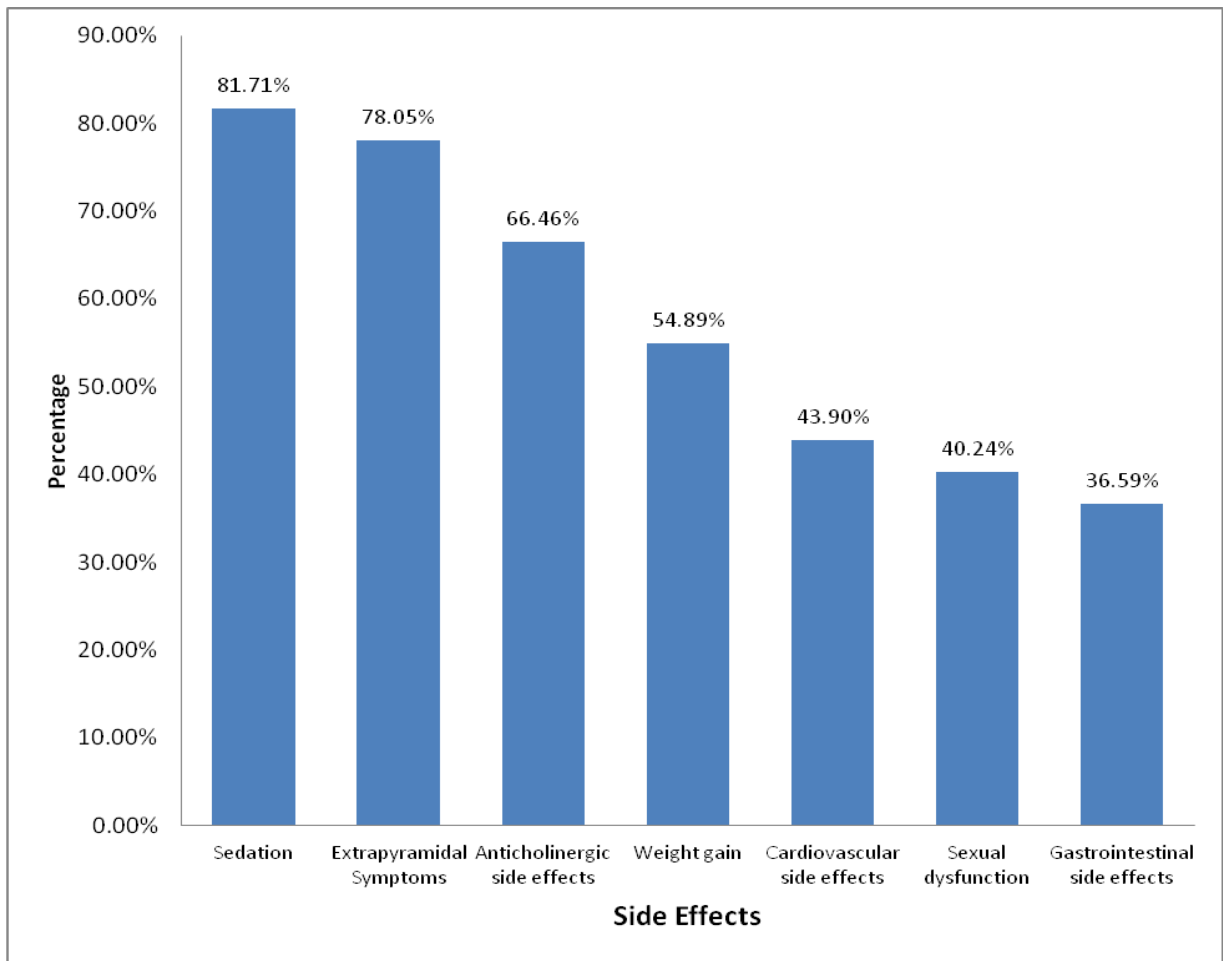


Figure 2: The Prevalence of Side Effects based on GASS.

Many participants [48.78%] were distressed by at least one side effect. The most distressing side effects included: sedation [19.51%], sexual dysfunction [7.93%], extrapyramidal side effects [6.71%], anticholinergic side effects [6.71%] and weight gain [5.49%]. Extrapyramidal symptoms, anticholinergic side effects, and Sexual dysfunction, were rated as statistically significantly more distressing [$p < 0.05$]. Sedation and weight gain were not statistically significantly distressing (Table 4).

Table 4: The Association between Side Effects and Distress Level, among the Study Participants

Side Effects	The number distressed by side effects			
	n	%	OR	P value
Sedation	32	19.51	1.230	0.104
Sexual dysfunction	13	7.93	1.141	0.043
Extrapyramidal side effects	11	6.71	1.325	0.002
Anticholinergic side effects	11	6.71	1.307	0.004
Weight gain	9	5.49	1.101	0.231
Gastro-intestinal side effects	4	2.44	1.250	0.006
Total	80	48.78		

Extent of Side Effects

The extent of side effects was rated as mild, moderate and severe side effects according to Glasgow Antipsychotic Side-effect Scale. Majority of participants reported experiencing mild side effects [52.44%], those with moderate side effects were 44.51% and severe side effects [3.05%] (Figure 3). Most of those who felt moderate to severe side effects were on more than one antipsychotic medication.

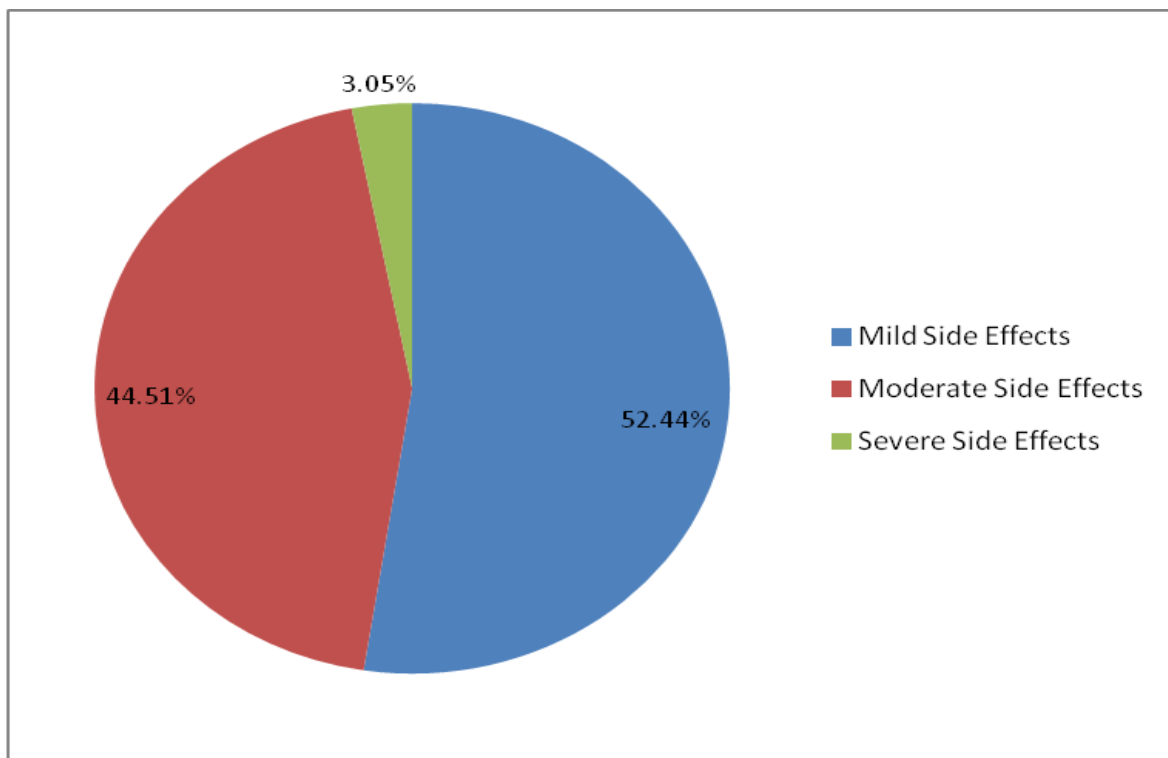


Figure 3: The extent of side effects among participants

4.3 Attitude towards Antipsychotic Medication

A total of 53.65% of the patients presented with a positive subjective attitude towards antipsychotics treatment. Severity of side-effects was a significant correlate of attitude, as a large number [65.79%] of patients with moderate side effects had overall negative subjective attitude towards antipsychotic treatment [$p < 0.001$, $\chi^2 = 20.02$]. Other demographic characteristics including; age, gender, education level, marital status and diagnosis did not statistically significantly influence attitude towards medication [$p > 0.05$], (Table 5). On the DAI, majority of patients agreed that the good things about medication outweigh the bad [60.98%]. However many [57.32%] also responded “I take medication only when I feel ill”. These were probable indicators of future nonadherence.

Table 5: Social-demographic and Clinical Characteristics According to Attitude towards Treatment

Variables	Positive DAI-10 Score (n= 88)		Negative DAI-10 Score (n=76)		P value	χ^2
	n	%	n	%		
Gender (Male)	50	56.81	41	53.94	0.691	0.16
Single	49	55.68	43	56.58	0.141	3.28
Employed	9	10.22	18	23.68	0.884	0.02
Unemployed	41	46.59	35	46.05		
Schizoaffective	14	15.91	8	10.53	0.280	7.23
Bipolar Disorder	17	19.32	7	9.21		
Moderate SE	23	26.14	50	65.79	< 0.001	20.02
Sedation	67	76.13	67	88.15	0.001	12.66
EPS	61	69.31	67	88.15	0.002	10.39
Sexual dysfunction	28	31.82	38	50.00	0.024	5.32
Weight gain	47	53.41	43	48.86	0.994	0.056
Anticholinergic SE	57	67.77	52	68.42	0.153	2.04
GIT side effects	25	59.09	35	46.05	0.219	1.53
Cardiovascular SE	31	35.22	41	53.94	0.003	9.16

Note : Patients were grouped according to positive (≥ 0) or negative (≤ 0) score on the Drug Attitude Inventory (DAI-10) , χ^2 -Chi-square, SE- side effects, EPS- extrapyramidal symptoms

Negative subjective attitude towards medication were positively and statistically significantly associated with side effects. After bivariate analysis, sedation [p=0.001], extrapyramidal side effects [p=0.002], cardiovascular side effects [p=0.003] and sexual dysfunction [p=0.024] were statistically significantly associated with negative attitude towards antipsychotic use.

4.4 Adherence to Antipsychotic Medication

Only 39.63% [n=65] reported complete adherence to medication. Table 6 below summarizes bivariate comparison between characteristics of adherent and nonadherent patients. There were no statistically significant differences in patient characteristics between groups. Variables like gender, high education level, marital status, employment status and psychiatric diagnosis did not significantly impact on patients' adherence to medication [$p > 0.05$] (Table 6).

Table 6: Characteristic of Participants Adherent and Non-adherent to Antipsychotic Medication

Variables	Adherent MARS (n= 65)		Nonadherent MARS (n=99)		P value
	n	%	n	%	
Gender (Female)	25	38.46	48	48.48	0.761
Education (university)	12	18.46	11	11.11	0.125
Marital status (Single)	35	53.84	57	57.58	0.349
Unemployed	28	43.07	48	48.48	0.118
Schizophrenia	36	55.38	41	41.41	0.907
Schizoaffective disorder	14	21.53	8	8.08	0.341
Bipolar Disorder	17	26.15	7	7.07	0.252

Note : Patients were grouped according to adherent (≥ 6) or non-adherent (≤ 6) score on the Medication Adherence Rating Scale (MARS) calculator

Most side effects were associated with statistically significantly reduced likelihood of adherence. When grouped as side effect clusters in a single model, extrapyramidal symptoms (EPS)/agitation [OR = 0.43, CI=0.286-0.633, $p < 0.001$], sedation [OR = 0.23, CI= 0.103-0.545, $p = 0.001$], cardiovascular side effects [OR = 0.81, CI= 0.702 -0.925, $p = 0.002$], and GIT side effects [OR = 0.20, CI= 0.099-0.430, $p = 0.037$] were all statistically significantly associated with lower rates of adherence. The severity of side effects was also positively associated with nonadherence. Patients who had moderate to severe side effects were more likely to be non-adherent to medication [OR= 0.89, CI=0.812-0.993, $p < 0.001$] (Table 7).

More than half of the patients reported that they sometimes forgot to take their medication [57.42%]. Some reported that they stopped taking their medication when they felt better or worse. A number of patients did not agree that staying on medication will prevent them from getting sick.

Table 7: Relationship between Side Effects and Adherence Levels

Side Effect	OR	95% C I	P value
Sedation	0.23	0.103- 0.545	0.001
Extrapyramidal side effect	0.43	0.286- 0.633	< 0.001
Sexual dysfunction	0.82	0.651- 1.022	0.014
Weight gain	0.98	0.832 -1.148	0.786
Anticholinergic side effects	0.91	0.818- 1.022	0.117
GIT side effects	0.20	0.099-0.430	0.037
Cardiovascular side effects	0.81	0.702 -0.925	0.002

Patients who had a positive attitude towards medication had an increased likelihood of adherence to medication [OR=7.41, $p < 0.001$]. Regression analysis indicated that nonadherence was influenced by negative attitude towards antipsychotic medications [OR= 3.58, CI 2.42-5.29, $p < 0.001$] (Table 8).

Table 8: The Relationship between Attitude towards Medication and Adherence

Attitudes	Adherent (n=65)		Non –adherent (n=99)		OR	P value
	n	%	n	%		
Positive Drug Attitude	54	83.08	34	34.34	7.41	< 0.001
Negative Drug Attitude	11	16.92	65	65.65	3.58	< 0.001

Majority of patients 112 [68.29%], reported that they were not counseled on the side effects of their medication. Those patients who reported to have been counseled on medication side effect had a high likelihood of being adherent [OR= 0.137, CI= 0.066-0.282, $p= 0.028$].

CHAPTER V: DISCUSSION, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter presents the discussion of our research findings within the perspective of previous research literature. The study findings and data analyses are also integrated throughout the discussion. The study limitations, conclusions, implications for the psychiatric practice, and recommendations for future research are also presented.

5.2 Discussion

In our study there was a high prevalence of side effects with 94.14% of patients reporting at least one side effect due to their medication. Sedation [81.71%] and extrapyramidal symptoms [78.05%] were the most frequently reported side effects. Other reported side effects included; anticholinergic side effects [66.46%], cardiovascular side effects [43.90%], GIT side effects [36.53%], sexual dysfunction [40.24%] and weight gain [54.88%]. The possible explanation for this observation was the high prevalence use of typical antipsychotic medication [87.20%], which have been reported to cause many side effects [15,16]. The high prevalence of side effects in our study is consistent with findings from other studies. For example in a cross-sectional survey of schizophrenic patients in the USA, nearly 80% reported at least one side effect due to their antipsychotic medication [12]. In another study done by Chiang et al [2011], many patients on antipsychotics experienced psychic [80.2%], extrapyramidal [69.8%] and miscellaneous side effects [61.5%] [11].

Nearly half [48.78%] of the participants reported being distressed by at least one side effect. Extrapyramidal side effects, anticholinergic side effects, GIT side effects and sexual dysfunction were found to be significantly distressing [$p < 0.05$]. Participants reported restlessness, tremor and drooling to be among extrapyramidal symptoms that were more distressing. Akathisia which is characterized by a sense of restlessness and a compulsion to move has been identified as one of the most troublesome acute extrapyramidal symptom that more often lead to discontinuation of medication at the acute treatment phase [16,

17]. Remarkably sedation and weight gain were subjectively less distressing, a finding that is similar to other studies [32].

More than half of the patients in our study had a positive attitude toward their antipsychotic medications [53.65%]. Results of studies in other countries have been variable, with many reporting a similar pattern of predominantly positive attitudes among their patients [32,35,50]. Nonetheless, other studies have indicated predominant negative attitudes towards antipsychotic medications [52]. The high proportion of positive attitudes could be a function of the population that was studied, which was mainly made up of chronic and relatively stable patients. These kind patients are more likely to have a positive outlook about their medications than acutely ill patients [53], because they may have been accustomed to their treatment.

Patients with a higher burden of side effects were more likely to have a negative attitude toward their medication [$p < 0.001$, $\chi^2 = 20.02$]. Our finding is in agreement with several previous studies [32]. A study carried out by Lambert et al (2004) found out that antipsychotic side effects, whether present or past, can have a durable negative impact on patient's attitude toward antipsychotic treatment and adherence [32]. Similarly in another study, patients who experienced psychic and hormonal side effects were at an increased risk of developing negative attitudes towards medication [11].

As much as our study focused on side effects as a key determinant of attitude towards antipsychotic treatment, other contributing factors have been identified. In a study by Day et al [2005], the quality of relationships with clinicians during acute admission appeared to be an important determinant of patients' attitudes toward treatment and adherence to medication [34]. In another study by Freudenreich et al (2004), less awareness of current symptoms, presence of deficit symptoms, and employment predicted a negative attitude towards psychiatric medications. Extrapyramidal symptoms did not predict drug attitude [35]. Longer duration of illness as well as the amelioration of psychopathological symptoms had a positive

impact on subjective response to treatment. Correlations between antipsychotic-induced side effects and drug attitude tended to be weak [51]. These differences may be as a result of the study sample characteristics and duration of illness, among other factors.

Side effects strongly associated with negative attitude towards medication were: sedation [$p=0.001$, $\chi^2=12, 66$], extrapyramidal symptoms [$p=0.002$, $\chi^2=10.39$], cardiovascular side effects [$p=0.003$, $\chi^2=9.16$] and sexual dysfunctions [$p=0.024$], probably because majority of patients in our study were on typical antipsychotics which are known to cause more side effects [17, 20]. Remarkably cardiovascular side effects were found to have statistically and significantly negative impact on patient attitude toward medication, a finding that has not been mentioned in many other studies [11, 32].

Many studies have shown that nonadherence to medication in psychiatric patients is a major problem [40,43]. In our study only 39.63% of patients reported complete adherence to their medication which is lower than that reported in other countries [12,40,54]. Lacro et al (2002) reviewed the studies published between 1980 and 2000 which identified risk factors for medication nonadherence. Across these studies, the mean non-adherence frequency was 40.5% (median=40%, range=4-72%) [40]. Our study found a higher rate of non-adherence to antipsychotic medication among psychiatric outpatients at Mathari Hospital (60.36%). Non-adherence in more recent studies was reported to be 48.4% (USA, nationwide, N=876, self-report) [12] and 40.3% (Nigeria, N=313, self-report) [54]. A large proportion 57.32% of patients indicated that they only took medication when they fell sick. This implies that the patients were more likely to become non-adherent when psychiatric symptoms disappear.

Non-adherence is highly influenced by patient knowledge, attitudes towards their illness and medication, side effects, as well as past experiences with their illness and its treatment [12]. In our study sociodemographic characteristics such as gender, marital status and education level did not significantly influence adherence. This is in agreement with others previous studies [12, 56]. Moreover psychiatric diagnoses had no statistically significant impact on

adherence to treatment. Notably our study revealed that the more the side effects, the less the likelihood of adherence. Sexual dysfunction [OR=0.82, p= 0.014], Extra pyramidal symptoms [OR = 0.43, p < 0.001], sedation [OR = 0.23, p = 0.001], cardiovascular side effects [OR = 0.81, p = 0.002], and GIT side effects [OR = 0.20, p = 0.037] were all statistically significantly associated with lower rates of adherence. These results are in agreement with other previous studies [32].

In this study weight gain as a side effect was not statistically significantly associated with decrease in adherence rate [p > 0.05]. This is in contrast with previous studies which indicated a negative association between weight gain and adherence [40, 53]. Perhaps these are chronic stable patients who have been accustomed to some side effects like weight gain, whose benefits do not outweigh the risk of stopping the medication. In addition, there may be less stigma associated with weight gain in this culture and patients may continue to take medication due to the perceived benefits. In contrast, a patient who sees little benefit from medication and is unconvinced by the explanation of their diagnosis or need for pharmacotherapy may stop treatment at the first sign of a side effect that causes relatively minor inconvenience to others [42, 55]. It is, therefore imperative to explain to the patient the expected side effects and come up with strategies of managing these side effects as soon as they are noted by the patient.

Study Limitations

One of the limitations in our study is that patient may have under-reported or over-reported their experiences. This is common with cross-sectional study designs like ours; however, this information bias was minimized by confirming patients' histories from their files. In addition, only stable participants were included in the study hence it minimized disease severity as a determinant of attitude and adherence to treatment. Other factors associated with attitude and adherence to treatment like, patient-clinician relationship, were not included in our study. The validated MARS questionnaire as structured excluded other risk factors of nonadherence, but this is a weakness of the study design involving assessing adherence by self-reporting and using validated tools.

5.3 Conclusions

The findings showed that there was a high prevalence of antipsychotic side effects. Attitude towards antipsychotics was principally determined by the severity of side effects. Most patients did not completely adhere to their medications because of side effects. However patients who had a positive attitude towards medication had a high likelihood of adherence.

5.4 Recommendations

There is high prevalence of side effects due to use of typical antipsychotic which would consequently lower adherence and have some negative attitude towards the treatment. Therefore, effort should be done to improve patient's attitude towards treatment by treating side effects adequately and counseling the patient about his or her medication. Most importantly, clinicians should develop treatment strategies where the regimen with minimal side effects is chosen. Further research should be done to identify other risk factors for non-adherence among psychotic patients in Kenya.

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APPENDICES

Appendix 1: Proposal Approval Letter



UNIVERSITY OF NAIROBI
COLLEGE OF HEALTH SCIENCES
P O BOX 19676 Code 00202
Telegrams: varsity
(254-020) 2726300 Ext 44355

KNH/UON-ERC
Email: uonknh_erc@uonbi.ac.ke
Website: www.uonbi.ac.ke



KENYATTA NATIONAL HOSPITAL
P O BOX 20723 Code 00202
Tel: 726300-9
Fax: 725272
Telegrams: MEDSUP, Nairobi

Ref: KNH-ERC/A/221

Link: www.uonbi.ac.ke/activities/KNHUoN

4th July 2014

Dr. Edward Okinda Katavi
Dept. of Pharmaceutics and Pharmacy
School of Pharmacy
University of Nairobi

Dear Dr. Katavi

Research proposal: Impact of side effects of Antipsychotics on attitude and adherence to treatment among adult psychiatric outpatients at Mathari Hospital in Kenya (P150/03/2014)

This is to inform you that the KNH/UoN-Ethics & Research Committee (KNH/UoN-ERC) has reviewed and **approved** your above proposal. The approval periods are 4th July 2014 to 3rd July 2015.

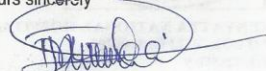
This approval is subject to compliance with the following requirements:

- a) Only approved documents (informed consents, study instruments, advertising materials etc) will be used.
- b) All changes (amendments, deviations, violations etc) are submitted for review and approval by KNH/UoN ERC before implementation.
- c) Death and life threatening problems and severe adverse events (SAEs) or unexpected adverse events whether related or unrelated to the study must be reported to the KNH/UoN ERC within 72 hours of notification.
- d) Any changes, anticipated or otherwise that may increase the risks or affect safety or welfare of study participants and others or affect the integrity of the research must be reported to KNH/UoN ERC within 72 hours.
- e) Submission of a request for renewal of approval at least 60 days prior to expiry of the approval period. (*Attach a comprehensive progress report to support the renewal*).
- f) Clearance for export of biological specimens must be obtained from KNH/UoN-Ethics & Research Committee for each batch of shipment.
- g) Submission of an *executive summary* report within 90 days upon completion of the study. This information will form part of the data base that will be consulted in future when processing related research studies so as to minimize chances of study duplication and/or plagiarism.

For more details consult the KNH/UoN ERC website www.uonbi.ac.ke/activities/KNHUoN.

Protect to Discover

Yours sincerely



PROF. M. L. CHINDIA
SECRETARY, KNH/UON-ERC

- c.c. The Principal, College of Health Sciences, UoN
The Deputy Director CS, KNH
The Chairperson, KNH/UoN-ERC
The Assistant Director, Health Information, KNH
The Dean, School of Pharmacy, UoN
The Chairman, Dept. of Pharmaceutics and Pharmacy Practice, UoN
Supervisors: Dr. David Nyamu, Dr. T.B. Menge,

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Appendix 2: Study Eligibility Check List

Title: Impact of Side Effects of Antipsychotics on Attitude and Adherence to Treatment among Adult Psychiatric Outpatients at Mathari Hospital in Kenya

Date:

Clinician signature:

Include if any of the criteria is marked NO the participant is not eligible for enrolment)

Yes No

[] [] 1. Psychiatric outpatient

[] [] 2. Participant who is mentally stable

[] [] 3. Participants who can read in English or Swahili

Is the participant eligible for the study?

Yes [] No []

This form will be completed by the clinician attending to the patient then handed to the researcher through the participant.

Appendix 3a: Consent Explanation Form

Title: Impact of Side Effects of Antipsychotics on Attitude and Adherence to Treatment among Adult Psychiatric Outpatients at Mathari Hospital in Kenya

To be read and questions answered in language in which the subject is fluent in (Kiswahili or English).

Introduction

My name is Dr. **Edward Okinda Katayi**, a postgraduate student in Clinical Pharmacy at the University of Nairobi. As part of my training I am required to carry out a research project. This study by my team and I seeks to determine the impact of side effects of antipsychotics on attitude and adherence to treatment among adult outpatients at Mathari hospital. I would like to seek your permission to participate in the study.

Your agreement to enroll is voluntary and you will be at liberty to opt out from the study any time. Refusal to participate will involve no penalty or loss of benefits to which you are otherwise entitled to.

Study Title

Impact of Side Effects of Antipsychotics on Attitude and Adherence to Treatment among Adult Psychiatric Outpatients at Mathari Hospital in Kenya

Objectives

To determine the impact of antipsychotics side effects on the patient attitude towards antipsychotic treatment and adherence among psychiatric adult outpatients at Mathari Psychiatric Hospital.

Confidentiality

Study participants will be assured of confidentiality and anonymity. Their names will only appear on the consent form, which will be signed and kept separately by the principal investigator for identification.

Other study documents and research instruments will be identified only by a serial number. Access to the data will be limited to the principal investigator.

Study Implementation

The researcher will interview and administer the questionnaires to you. The administration of questionnaire will take 15 to 20 minutes. All information will be handled with confidentiality and will only be used for the purpose of this study.

Participation

Your agreement to participate in this study is voluntary. You are free to opt out from the study at any point without necessarily giving any reason and this will not in any way jeopardize the care that you are receiving at this hospital.

Benefits

The findings of the study will assist the clinicians in formulating better treatment strategies. For those patients suffering from side effect, appropriate information will be given to help in alleviating the symptoms.

Risks

Participant will be asked some questions concerning their private life e.g. their sexuality and how they perceive their body.

Participants will be asked some questions concerning their social life e.g. how the drugs affect their social life and well being.

There are no anticipated physical risks which will occur during your participation in the study. The research will involve use of interviews and questionnaires to collect data and no physical examination or invasive procedures will be used.

Question

In case of any questions or clarifications about the study, you are free to contact any of the persons in the contacts provided below. If you have any ethical concerns or questions about your rights as a patient you may contact the Secretary of Kenyatta National Hospital /University of Nairobi /Ethical and Research Committee (KNH/UoN-ERC). Full contacts are provided below.

Contacts

1. Principal investigator (PI)

Dr. Edward O. Katayi, Post-graduate student (Clinical Pharmacy),

Department of Pharmaceutics and Pharmacy Practice, P.O. Box 30197–00400, School of Pharmacy, University of Nairobi, Mobile Number: +254 723006706

2. The first Supervisor;

Dr. David Nyamu

Lecturer, Department of Pharmaceutics and Pharmacy Practice, P.O. Box 30197–00400, School of Pharmacy, University of Nairobi, Department's telecom No: 2726300 Ext. 43673

3. The second supervisor;

Dr. T.B Menge

Lecturer, Department of Pharmaceutics and Pharmacy Practice, P.O. Box 30197–00400, School of Pharmacy, University of Nairobi, Department's telecom No: 2726300 Ext. 43673

4. The Secretary, KNH/UoN-ERC

Kenyatta National Hospital,

P.O Box 20723-00202, Nairobi

Tel No. 2726300-9 / 2716450 ext. 44102, Fax: 725272

Ethical Approval

Ethical approval will be granted by Kenyatta National Hospital /University of Nairobi /Ethical and Research Committee (KNH/UoN-ERC) to conduct this study at the KNH, medical outpatient clinic.

I, therefore, kindly request you to sign the attached consent form. Thank you for your consideration.

Appendix 3b: Fomu ya Maelezo ya Kukubali

Kichwa. Athari za Madhara ya Madawa ya Magonjwa ya Akili Juu ya Tabia na Kuzingatia Matibabu Miongoni mwa Wagonjwa wa Akili Katika Hospitali ya Mathari Inchini Kenya

Isomwe kwa lugha anayoilewa mshiriki.

Utangulizi

Jina langu ni **Dr. Edward Okinda Katayi**; Mwanafunzi wa shahada ya uzamili ya utabibu wa dawa katika shule ya famasia, chuo kikuu cha Nairobi. Nafanya utafiti juu ya athari za madhara ya madawa ya magonjwa ya akili juu ya tabia na kuzingatia matibabu miongoni mwa wagonjwa wa akili katika hospitali ya Mathari inchini Kenya.

Hivyo basi, nakuomba kwa ruhusa yako ukubali kushiriki katika utafiti huu. Tafadhali jisikie huru kuuliza maswali yoyote wakati ninapokupatia maelezo ya nini kitafanyika.

Utafiti

Athari za Madhara ya Madawa ya Magonjwa ya Akili Juu ya Tabia na Kuzingatia Matibabu Miongoni Mwa Wagonjwa wa Akili katika Hospitali ya Mathari inchini Kenya

Malengo

Lengo kuu la utafiti huu ni kubainisha athari za madhara ya madawa ya magonjwa ya akili juu ya tabia na kuzingatia matibabu miongoni mwa wagonjwa wa akili.

Utekelezaji wa Utafiti

Utafiti itakuwa kwa njia ya mahojiano na kujibu maswali. Hi yote itachukua muda wa dakika 15 hadi 20. Taarifa yote itachukuliwa kwa siri na kutumika tu kwa ajili ya utafiti huu pekee.

Ushiriki

Kukubali kwako kushiriki katika utafiti huu ni hiari. Uko huru kujitoa katika utafiti huu katika hatua yoyote bila lazima ya kutoa taharifa na hii haitaathiri kwa aina yoyote huduma anazopata katika hospitali ya Mathari.

Faida

Matokeo ya utafiti itasaidia daktari kuunda njia bora ya kutibu magonjwa yako.

Ikiwa utapatika kuwa na shida na ikiwa utakuwa na swali lolote kuhusu utumizi wa madawa yako utasaidiwa njia ya kupunguza shida hizo.

Hatari

Baadhi ya maswali yatahusu maisha yako ya kibinafsi kwa mfano habari kuhusu maisha yako ya mapenzi.

Baadhi ya maswali yatahusu mahusiano yako na waku wengine wa karibu. Maswali haya yanaweza uhisi vibaya.

Hakuna matarajia ya hatari ya kimwili ambayo yatatokea wakati wa kushiriki kwako katika utafiti.

Utafiti utafanyika kwa njia ya matumizi ya mahojiano na maswali na hakuna uchunguzi wa kimwili utakaofanyika.

Usiri

Taharifa zote utakazotoa zitatumika kwa usiri mkubwa, namba zitatumika badala ya jina lako kwa ajili ya kuhifadhi utambulisho wako, taharifa zitakazokusanywa zitahifadhiwa na mtafiti mkuu pekee kipindi chote cha utafiti.

Maswali

Kwa maswali zaidi au ufafanuzi juu ya utafiti huu unaweza kuwasiliana na yeyote kati ya anwani zilizoandikwa hapo chini. Kama una wasiwasi wowote wa kimaadili au maswali kuhusu haki zako kama mgonjwa unaweza kuwasiliana na katibu wa hospitali ya taifa ya Kenyatta/chuo kikuu cha Nairobi/Kamati ya maadili ya utafiti (KNH/UON-ERC). Mawasiliano kamili hapo chini.

Mawasiliano.

1. Mtafiti mkuu;

Dkt. Edward Okinda Katayi , mwanafunzi uzamili (utabibu dawa),

Idara ya Pharmaceutics na Pharmacy Practice, S.L.P 30197–00400, Shule ya Pharmacy, Chuo kikuu cha Nairobi, Simu Namba: +254 705 144 687.

2. Msimamizi wa kwanza;

Dkt. David Nyamu

Mhadhiri, Idara ya Pharmaceutics na Pharmacy Practice, P.O. Box 30197–00400, Shule ya Pharmacy, chuo kikuu cha Nairobi, simu ya idara No: 2726300 Ext. 43673

3.Msimamizi wa pili;

Dkt. T.B Menge.

Mhadhiri, Idara ya Pharmaceutics na Pharmacy Practice, P.O. Box 30197–00400, Shule ya Pharmacy, chuo kikuu cha Nairobi, simu ya idara No: 2726300 Ext. 43673

3.Katibu mkuu, KNH/UoN-ERC

Hospitali ya taifa ya Kenyatta,

S.L.P 20723-00202, Nairobi

Tel No. 2726300-9 / 2716450 ext. 44102, Fax: 725272

Uthibitisho wa kimaadili

Utafiti huu utathibitishwa kimaadili na Hospitali ya taifa ya Kenyatta/chuo kikuu cha Nairobi/ Kamati ya maadili ya utafiti (KNH/UoN-ERC) ili ufanyike Hospitali ya Mathari kliniki ya wagonjwa wan nje.

Appendix 4: Assessment of Comprehension of Consent Information Check List

To be read in a language the participant understands better.

Patient Serial No.		Date:	
Open ended question/ Statement	Required points of comprehension.	√	Comment
1	Please describe your understanding of the purpose of the study?	1. How side effects influence adherence. 2. How side effects influence attitude towards treatment.	
2	What do you understand about the possible risks of participating in this study?	1.A feeling of stigmatized 2.No physical harm	
3	What are the benefits of participating in the study?	Counseling, management of side effects.	
4	What should the participant do if he or she has a question about the study or a problem related to being in the study?	Conduct the study staff	
5	Are the participants who join the study allowed to leave the study?	Although participants will be asked for the option of staying in the study, yes he or she may opt out of the study without penalty.	
Instruction: Ask the question and then tick each sub-item the participant demonstrate comprehension. For items that are ticked, commentary category a or b should appear. For items that are not ticked, comment category c or d should appear		Comment category a -Answered correctly on first try b -Answered correctly after probing c -Could not answer.	
Staff signature			

To be completed by the researcher before administering the questionnaire

Appendix 5a: Consent Declaration Form

Title: Impact of Side Effects of Antipsychotics on Attitude and Adherence to Treatment among Adult Psychiatric Outpatients at Mathari Hospital in Kenya

I _____(name of participant), being 18 years and more and having full capacity to consent, hereby do consent to voluntarily participate in this study. The nature of the study has been explained to me by the principal investigator and I have been given opportunity to ask questions concerning the study which have been answered to my satisfaction. The benefits and risks of this study have been clearly explained to me and I am aware that I am free to withdraw from this study at any point and this will not jeopardize the care I receive at the hospital.

I therefore give consent to be interviewed and answer the questionnaires and that information from my file can also be used having understood the purpose of the study.

Signature:

Date:

Researcher's Declaration Statement

IBeing the study researcher have adequately explained to the above named participant on the nature and purpose of the study and has agreed to voluntarily participate in the study.

Signature:

Date:

Contacts:

Appendix 5b: Thibitisho la Kushiriki

Mimi..... (jina la mshiriki), nikiwa na umri wa miaka 18 au zaidi na nikiwa na akili timamu ya kushiriki kwenye utafiti huu. Ninakubali kushiriki kwenye utafiti huu. Aina ya utafiti na yatakayofanyika nimeelezwa kwa ufasaha na mtafiti mkuu, nimepewa fursa ya kuuliza maswali na kupata ufafanuzi zaidi, nimeridhika. Faida ya matokeo ya utafiti huu nimeelezwa na nimeelewa kwamba naweza kujitoa katika utafiti huu wakati wowote bila kuhathiri huduma ninazopata hospitalini hapa.

Kwahiyo ninaruhusu kuulizwa maswali na kujibu maswali na kuchukuliwa kwa taharifa za matibabu yangu katika faili langu kwa madhumuni ya utafiti huu.

Sahihi:

Tarehe:

Azimio la Mtafiti

MimiNikiwa mtafiti wa utafiti huu nimeelezea vya kutosha mshiriki juu ya asili na madhumuni ya utafiti na amekubali kwa hiari kushiriki katika utafiti.

Sahihi :

Tarehe:

Numbari ya simu :

Appendix 6 : Socio-Demographic and Patient Clinical Data Questionnaire

1. Serial No: Date:
2. Age in years:
3. Gender .Male [] or Female []
4. Education Status. Informal [] Primary [] Secondary [] College [] or University []
4. Marital Status. Single [] Married [] Divorced [] Separated [] Widowed []
5. Employment Status. Employed Full Time [] Self-Employed [] Unemployed [] Student []

Patient Clinical Data

6. Psychiatric Diagnosis
7. Other comorbidities.....
8. Antipsychotic medication(s) and total daily dose
Antipsychotic Medication(s) Daily dose

Other medication(s)

9. Have you been counseled about your medication Yes [] No []

Appendix 7a: Glasgow Antipsychotic Side-Effect Scale (GASS) Modified Version

Serial No:

Date:

This questionnaire is about how you have been recently. It is being used to determine if you are suffering from excessive side effects from your antipsychotic medication. Please place a tick in the column which best indicates the degree to which you have experienced the following side effects.

Also tick the end of last box if you found that the side effect was distressing for you.

Over the past week	Never	Once	A few times	Everyday	Tick this box if distressing
1. I felt sleepy during the day.					
2. I felt like drugged or like a zombie					
3. I felt dizzy when I stood up and/or have fainted.					
4. I have felt my heart beating irregularly or unusually fast.					
5. My muscles have been tense or jerky					
6. My hands or arms have been shaky					
7. my legs have felt restless and /or I couldn't sit still					
8. Saliva has been coming out of my mouth					
9. my movements or walking have been slower than usual					
10. I have had uncontrollable movement of my face or body.					
11. My vision has been blurry					
12. My mouth has been dry.					

13. I have had difficulty passing urine.					
14 (a) I have felt like I am going to be sick or have vomited.					
14 (b) I have had a problem opening my bowel (constipation)					
15. I have wet the bed					
16. I have been very thirsty and/ or passing urine frequently.					
17. The areas around my nipple have been sore and swollen.					
18.I have noticed fluid coming from my nipples					
19.I have had problem enjoying sex					
20. Men only. I have had problem getting an erection,					
Tick yes or no for the last three months					
	Yes	No	Tick this box if distressing		
21. Women only. I have noticed a change in my periods					
22. Men and women. I have been gaining weight.					

THANK YOU FOR YOUR PARTICIPATION

**Appendix 7b: Glasgow Antipsychotic Side-Effect Scale (GASS) Modified Version
(Swahili Translation)**

Nambari ya kujitambulisha:

Tarehe:

Maswali haya ni kuhusu jinzi umekua ukijihisi hivi karibuni. Yatatumika kubainisha madhara ya madawa ya akili unayoyatumia. Weka alama kulingana na kiwango cha madhara unayohisi.

Weka alama mwisho wa sanduku kama madhara haya yanakusumbua zaidi

Tangu wiki iliopita	Hapana	Mara moja	Mara chache	Kila siku	Weka alama kama inakusumbua sana.
1.Nahisi usingizi mchana					
2.Sijifahamu					
3.Nahisi kizunguzungu nikisimama					
4.Naskia moyo ukipiga					
5.Misuli yangu hukakamaa					
6.Mikono yangu inatingika					
7.Miguu yangu inahisi kutotulia/ Siwezi kaa mahali pamoja.					
8.Mate imekua ikitoka kwa mdomo					
9. Mwendo wangu umekua wa pole.					
10.Uso wangu unasonga songa					
11.Sioni vizuri					
12.Mdomo wangu umekua mkavu					
13.Nimekua na ugumu wa kukoja.					
14 Nimekua na shida kwenda haja kubwa					
15 Nakojoa kwa kitanda					

16 Nimekua na kiu na kukoja kila mara				
17 Matiti yangu imekua imefurafura				
18 Nimeonama maji ikitoka kwa matiti				
19 Nina shida ya kufurahia ngono				
20 Nina shida ya nguvu za kiume				
	Ndio	La	Kama linakusumbua sana	
21 Kwa wanawake. Kuna mabadiliko ya hedhi				
22 wanawake na wanaume. Kuna mabadiliko ya uzito				

Appendix 8a: Drug Attitude Inventory (DAI-10)

Serial no:

Date:

The aim of this questionnaire is to gain some understanding of what people think about medications and what experiences people have on them. Your answers will be used for research purposes only, are strictly confidential and will in no way affect your treatment.

How to fill in this questionnaire;-

1. Read each statement and decide whether it is true as applied to you or false.
2. If a statement is TRUE to you, circle the T at the end of the line.
3. If a statement is FALSE to you, circle the F at the end of the line.
4. If you want to change an answer, mark an X over the incorrect answer and circle the correct answer
5. If a statement is not worded quite the way you would put it, please decide whether the answer is mostly true or mostly false to you.

There is no right or wrong answer. Please give YOUR OWN OPINION, not what you think we might want to hear.

Do not spend too much time on any one question.

Please answer every question.

The medications referred to are those for mental health needs only.

1	For me the good things about medication outweigh the bad.	T F
2	I feel strange “doped up “on medication.	T F
3	I take medications of my own free choice.	T F
4	Medications make me feel more relaxed.	T F
5	Medication makes me feel tired and sluggish.	T F
6	I take medication only when I feel ill.	T F
7	I feel more normal on medication.	T F
8	It is unnatural of my mind and body to be controlled by medication.	T F
9	My thoughts are cleared on medication.	T F
10	Taking medication will prevent me from having a breakdown.	T F

Appendix 8b: Drug Attitude Inventory (DAI-10) (Swahili Translation)

Nambari ya kutambulisha:

Tarehe:

Lengo la dodoso hili ni kupata baadhi ya uelewa wa nini watu wanadhani kuhusu dawa na uzoefu wao juu ya dawa hizo. Majibu yako zitatumika kwa madhumuni ya utafiti tu, ni madhubuti za siri na hakuna njia ya kuathiri sana matibabu yako.

Jinsi ya kujaza dodoso hili; -

1. Soma kila kauli na kuamua kama ni kweli kulingana na wewe au uongo.
2. Kama taarifa ni kweli kulingana na wewe, weka alama kwa Ndio.
3. Kama taarifa ni ya uongo kulingana na wewe weka alama ya mviringo kwa La.
4. Kama unataka kubadili jibu,weka alama X juu ya jibu kasha uweke mviringo kwa jibu sahihi.Hakuna jibu sahihi au jibu lisilo sahihi. Tafadhali toa maoni yako, unavyofikiri.

Usitumie muda mwingi kujibu swali moja. Jibu maswali yote.

Maswali haya yana husu madawa ya magonjwa ya akili pekee.

	Swali/ taarifa	Ndio	La
1	Huwa unasahau kumeza dawa?		
2	Huwa unazingatia wakati wa kumeza dawa?		
3	Unapopata nafuu ,huwa unawacha kumeza dawa?		
4	Wakati mwingine ukihisi vibaya ukimeza dawa huwa unawacha kuzitumia?		
5	Huwa nameza dawa nikiwa mgonjwa?		
6	Si kawaida akili na mwili wangu kutegemea dawa.		
7	Mawazo yangu yako sawa nikiwa natumia dawa.		
8	Kwa kuendelea kumeza dawa nazuia kuwa mgonjwa.		
9	Madawa yananifanya kuwa mlegevu.		
10	Matumizi ya dawa yatanizuia mimi kujihisi vibaya		

Appendix 9a: Medication Adherence Rating Scale (M.A.R.S Calculator)

Serial No:

Date:

No.	Question / Statement	Yes	No
1	Do you ever forget taking medication?		
2	Are you careless at times about taking your medication?		
3	When you feel better, do you sometimes stop taking your medication?		
4	Sometimes when you feel worse when you take medicine, do you stop taking it?		
5	I take my medication only when I am sick.		
6	It is unnatural for my mind and body to be controlled by medications.		
7	My thoughts are cleared on medication.		
8	By staying on medication, I can prevent getting sick.		
9	I feel weird, like a zombie on medication.		
10	Medication makes me feel tired and sluggish.		

Appendix 9b: Medication Adherence Rating Scale (M.A.R.S Calculator) (Kiswahili Translation)

Namabri ya kujitambulisha:

Tarehe.....

Nambari	Swali	Ndio	La
1	Huwa unasahau kumeza dawa?		
2	Huwa unazingatia wakati wa kumeza dawa?		
3	Unapopata nafuu huwa unawacha kumeza dawa ?		
4	Wakati mwingine ukihisi vibaya unapozitumia dawa,huwa unawacha kuzitumia?		
5	Huwa nameza dawa nikiwa mgonjwa.		
6	Si kawaida akili na mwili wangu kutegemea dawa		
7	Mawazo yangu yako sawa nikiwa kwa madawa.		
8	Kwa kuendelea kumeza dawa nazuia kuwa mgonjwa.		
9	Nahisi kutojifahamu nikiwa kwa madawa.		
10	Madawa yananifanya kuwa mlegevu.		

ASANTE KWA KUSHIRIKI