TRADITIONAL, COMPLEMENTARY AND ALTERNATIVE MEDICINE USE AND MEDICATION ADHERENCE AMONG PATIENTS WITH MENTAL ILLNESS AT MOI TEACHING AND REFERRAL HOSPITAL, ELDORET- KENYA

BY

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THIS THESIS IS SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE AWARD OF THE DEGREE OF MASTER OF MEDICINE IN PSYCHIATRY OF MOI UNIVERSITY

DECLARATION

I declare that this thesis is my original work and has not been presented in any other learning institution for accreditation. This thesis has been complemented by referenced sources duly acknowledged and references cited using current APA system and in accordance with anti-plagiarism regulations. No part of this thesis may be reproduced without the permission of the author and/or Moi University.

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DEDICATION

I dedicate this thesis to the late Nabreham Jesang Chudasama. His sacrifice towards seeing me through my undergraduate studies and believing in me to not just being a graduate but a doctor has enabled me be who I am today. I am grateful.

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LIST OF ABBREVIATIONS

ATM	African Traditional Medicine
CAM	Complementary and Alternative Medicine
MHC	Mental Health Clinic
MMAS-8	Morisky Medication Adherence Scale -8
MTRH	Moi Teaching and Referral Hospital
SPSS	Statistical Package for the Social Sciences
SSA	Sub Saharan Africa
TCAM	Traditional Complementary and Alternative Medicine
TM	Traditional Medicine
UBACC	University of California Brief Assessment of Capacity to Consent
WHO	World Health Organization

DEFINITION OF TERMS

Medication adherence

Medication adherence refers to the extent to which a person's behavior in taking prescribed medications, whether it is by following a certain diet or executing lifestyle changes, should correspond with agreed recommendation from a healthcare provider (Brown & Bussell 2011).

Traditional, complemenetary and alternative medicine - TCAM

Traditional, complementary and alternative medicine sometimes referred to as complementary, alternative, nonconventional or parallel medicine refer to a broad set of health care practices that are part of a country's own tradition and are not integrated in its dominant health care system (WHO 2002).

Mental illness/ mental disorder

The terms refer to "a syndrome characterized by clinically significant disturbance in an individual's cognition, emotion regulation, or behavior that reflects a dysfunction in the psychological, biological and developmental processes underlying mental functioning. The disorders are usually associated with significant distress or disability in social, occupational or other important activities" (American Psychiatric Association, 2013).

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

ABSTRACT

Background: Traditional, Complementary and Alternative Medicine (TCAM) refer to a broad set of health care practices that are part of a country's own tradition and are not integrated in its dominant health care system (WHO 2002). Utilization of TCAM is reported to be common amongst patients with chronic illnesses, including mental illness. Medication adherence refers to the extent to which a person's behavior in taking prescribed medications, whether it is by following a certain diet or executing lifestyle changes, should correspond with agreed recommendation from a healthcare provider(Brown & Bussell 2011).Poor adherence to medicines has severe consequences which include; affecting the effectiveness of the treatment, quality of life of the patient and the burden it creates on the family as well as the health care system (Ennis 2014). This study seeks to find the association between the two with an aim to improve adherence.

Objective: To determine the association between TCAM use and medication adherence among mentally ill persons attending at Moi Teaching and Referral Hospital (MTRH).

Methods: This cross-sectional study was carried out at the Mental Health Clinic(MHC) in MTRH with a sample size of 426 respondents calculated using Fisher's formula. Systematic random sampling was used to pick the respondents. Data was collected over a period of 52 weeks by means of questionnaires. The self structured questionnaire collected data on socio-demographic characteristics and utilization of TCAM while data on medication adherence was collected using the Morisky Medictaion Adherence Scale 8 (MMAS-8). The ability to consent was assesed using the University of California Brief Assessment of Capacity to Consent (UBACC) questionaire. Key outcomes include the prevalence of TCAM, the types of TCAM utilized, level of adherence among patients with mental illness attending MTRH. Means and percentages were used for continous variables while pearson's chi square was used at bi variate level. At multivariate level logistic regression was used to assess relationships.

Results: Prevalence of TCAM use was 59.4% with the most used TCAM being herbal medication at 91.7% followed by spiritual type mainly prayer at 8.7%. The other forms of TCAM including manipulative (massage), mind and body medicine (yoga) and energy medicine(qigong). Older age (p 0.007) and married marital status (p 0.015) were significantly associated with use of TCAM. The level of medication adherence among the respondents was 70.7%. Other than TCAM (p 0.038) no other factor was significantly associated with low medication adherence. Use of TCAM significantly increased the odds of poor medication adherence AOR= 1.6 (1.02, 2.50).

Conclusion: Use of TCAM is common among mentally ill patients on follow up at MTRH with the commonest being herbal medication followed by spiritual intervention mainly prayer. TCAM use has been significantly associated with low medication adherence.

Recommendations: Healthcare workers should ask about TCAM use and offer psychoeducation on importance of adherence to medication as well as desensitize against use of TCAM. Further studies to investigate causal relations is recommended.

CHAPTER ONE

1.0 INTRODUCTION

1.1 Background of the Study

1.1.1Medication Adherence

World Health Organization, refers to medicine adherence or compliance as being associated with the long-term therapy and therefore it is the extent to which a person's behavior in taking prescribed medications, whether it is by following a certain diet or executing lifestyle changes, should correspond with agreed recommendation from a healthcare provider (Brown & Bussell 2011.) It is therefore a crucial goal for the success and the safe use of therapies (Mathes et al 2014). World Health Organization puts this rate at 50% amongst persons with chronic illness, both mental and physical (Ennis 2014).

Medication adherence is generally low among mentally ill patients with an estimated non-adherence rate of about 43% (Lucca et al 2015). Studies reveal that between a third and half of medications prescribed for long term conditions are unused because instructions given are not followed in that patients do not take their medications appropriately, or they stop taking them entirely (Chakrabarti 2014; Chukwujekwu & Adesokun 2017). This has severe consequences that include; affecting the effectiveness of the treatment, quality of life of the patient, the demand and burden it creates on the family as well as the health care system (Ennis 2014)

The success of medical adherence depends on the process, the effort of the patient and care givers as well as the physician and cost of the medications (Brown & Bussell 2011; Mathes et al 2014).

Despite the identified reasons for low adherence, Brown and Bussell (2011) state that it is not easy to measure medical adherence since it depends on the patient's individual behavior. Attempts made to measure the adherence include; subjective measurements gotten by way of questioning patients, family members, caregivers and physicians on the patient's use of the medicines, objective measurements through counting of the pills, examination of pharmacy refill records, or use of electronic medication event monitoring systems and biochemical measurements including a nontoxic marker to the medication and detecting its presence in blood or urine or measurement of serum drug levels or using a combination of all the above measures. Patients are assumed to be adherent if their medication adherence rate is above 80%. (Brown & Bussell 2011) .

1.1.2 Traditional, Complementary and Alternative Medicine

Traditional, complementary and alternative medicine sometimes referred to as complementary, alternative, nonconventional or parallel medicine, refer to a broad set of health care practices that are part of a country's own tradition and are not integrated in its dominant health care system (WHO 2002). This medicine is practiced globally and it is varied due to difference in culture, history, personal attitudes as well as philosophy of each country (WHO 2002). In view of this, there may not be a distinct definition, however, the Royal Commission on Aboriginal Peoples (RCAP) defines traditional or indigenous medicine as practices that existed before the spread of western scientific biomedicine which aimed at promoting mental, physical as well as spiritual welfare of an individual (Robbins & Dewar 2011.)

Generally, the medicines can be categorized as follows;

1) Biological, that use substances found from nature like herbs,

2) Skill-based or manipulative and body-based practices that involve manipulation or movement of body parts like massage,

3) Supernatural that uses energy medicine involving use of energy fields.

4) Spiritual therapy like prayer (Alfian et al 2016; Naja et al 2017).

5) Whole medical systems like homeopathy and naturopathy.

The medicines include the use of herbs e.g Aloe vera, medicinal tea and certain ceremonies and rituals like acupuncture, manual therapies, qigong, tai jig, thermal therapy, yoga, spiritual healing, relaxation techniques and nutritional supplements. Other physical, mental, spiritual and mind–body therapies to enhance spiritual, mental, physical and psychological well-being because the belief is that imbalance in one aspect destabilizes the others (Okoronkwo et al 2014; Robbins & Dewar 2011; WHO 2002).

Other facts about indigenous traditional medicine are that the earth is viewed as a source of life and hence the health of the earth is connected to the human health. In view of this, understanding of traditional healing differs in communities due to the different needs as dictated by their environment (Robbins & Dewar 2011).

According to (WHO 2013) traditional contemporary medicine is used globally either as the mainstay of health care delivery or as a complement to it. For example, it is reported that most adult with multiple chronic conditions in the US have a high prevalence of TCAM use with common use of multivitamins, multi-minerals, or both (52.7%); vitamins (34.8%); and minerals (28.4%) (Falci, Shi, & Greenlee 2016).

However, in developing countries TCAM is used widely to meet primary health care needs and it is noted that in African countries, 80% of the population depend on it (Kramlich 2014; WHO 2002). Concerning mental illness, it is noted that majority of

families of the patient seek traditional healers as they believe that mental illnesses is caused by supernatural powers. In view of this, there is delay in seeking modern medicine and cures (Girma & Tesfaye 2011). The reason for the high dependence is due to economic challenges associated with non-communicable diseases (NCDs) and the socio-cultural attitude of the patients (Hughes et al 2015).

According to Alrowais and Alyousefi (2017) contemporary medicine is widely used in Saudi Arabia with the common ones being prayer, reciting the Quran alone or on water, herbs (8–76%), honey (14–73%) and dietary products (6–82%).

However, in developing countries TCAM is used widely to meet primary health care needs and it is noted that in African countries 80% of the population depend on it (Kramlich, 2014: WHO 2002).

Another aspect attached to the mental disorders in Kenya like in many parts of Afrca, is the strong belief that the illness is due to evil spirits hence many patients use traditional and faith healers (TFHs) who are found to be cheaper than conventional medicine and the fact that they are easily accesible and they form part of the communities' beliefs (Meyer & Ndetei, 2016). The problem is also compounded by the fact that medical personnel in this area of mental health in Kenya are very few and the few that are available are clustered in urban centres (Meyer & Ndetei, 2016). Despite the traditional faith healers being the first contacts in most cases, there is no form of collaboartion with modern health workers (Meyer & Ndetei, 2016)

The review above has necessitated this study to establish the association between TCAM and medication adherence among mentally ill persons on follow up at Moi Teaching and Refferal Hospital- Eldoret, Kenya.

1.2 Statement of the Problem

Low adherence is a major challenge for patients with mental disorders, physicians and the healthcare systems yet very little attention is given to it during clinical practice. TCAM use has been associtated with chronic disorders and is one of the factors that hinder medication adherence(Chapman & Horne 2013; Kane et al 2013). In our set up, anecdoctal data estimates that at least 50% of our admissions are as a result of low adherence after opting for alternative medicine.

Poor medication adherence among mentally ill persons has led to numerous but preventable casualty visits and days in hospital (Kane et al 2013). This has not only affected the outcome of treatment but is an enormous liability to society. In return it has put a strain on the already strained human resource and the financial resources of the affected families (Chakrabarti 2014).

Increasing effectiveness of adherence may have a greater impact on the health of the population than improvement in specific medical treatments (WHO, 2003).

By understanding the magnitude of TCAM use and its implications on adherence, we may be better placed to curb its use and in so doing, improve medication adherence which is key in ensuring quality of life to the mentally ill persons and well utilization of the available resources.

1.3 Objectives

1.3.1Main Objective

To determine the association between TCAM use and medication adherence among patients with for mental illness at MTRH

1.3.2 Specific Objectives

1. To determine the prevalence of TCAM use among patients with mental illness at MTRH.
2. To establish the types of TCAM used by patients with mental illness at MTRH
3. To determine the level of adherence to prescribed medication among patients with mental illness at MTRH
4. To determine the association between TCAM use and medication adherence among patients with mental illness at MTRH.

1.4 Justification

According to WHO in 2003, no medication is effective unless taken appropriately. Alternative medicine has been shown to significantly affect adherence (Kwobah et al,2013) There are a number of factors that can lead to poor adherence and some studies have been done in kenya in an attempt to address this gap. A good example is the study done by Kwobah, 2013 who looked at several factors both psychosocial and cultural that could affect adherence, indeed the study found that significant association between TCAM and low medication adherence. This study was broad and looked at several factors. Few, if any, have narrowed down to check the magnitude of specific factors on medication adherence.

Going by the anecdotal data, TCAM use is a glaring obvious in our set up. This finding has led to the choice of TCAM as a factor associated with low medication adherence among patients with mental illness at MTRH. This study seeks more understanding in this area inorder to improve the outcomes of conventional medicines.

CHAPTER TWO

2.0 LITERATURE REVIEW

2.1 Utilization of Alternative Medicine and the types of alternative medicines

According to WHO, one third of the population has no access to the essential modern medicine. In Africa, Asia and Latin America 50% of the population have no access to essential medicines(Bodeka et al 2005). In Africa 80% of the population and 70% in India use traditional medicines to meet their health care needs (Bodeka et al., 2005). On the other hand, 42% of the population in the USA uses alternative medicines while in Australia it is 48%, Canada 70% and Germany 77% (Bodeka et al 2005).

Utilization of TCAM is reported to be common amongst patients with chronic illnesses and large populations in Asian countries. Over 80% who used TCAM found the consultation helpful in a way (Peltzer et al, 2016)..

TCAM use is said to be popular among certain groups of people or specific disorders and they include women, low income countries, high levels of education, old age, specific chronic conditions like stroke, arthritis or musculoskeletal, mental disorder, cancer, two or more chronic diseases and adherence to traditional health belief (Peltzer et al, 2016). TCAM is also used in depression, insomnia, severe headache/migraine and gastrointestinal illness at a rate of 44.5% among American soldiers (Subramanian & Midha, 2016).

The TCAM is classified into five categories namely

1) Whole medical systems like homeopathy and naturopathy,
2) Spiritual like Prayer,
3) Biologically based practices such as dietary supplements and herbal remedies,

4) Manipulative and body-based practices like chiropractic medicine, osteopathic medicine, massage, yoga and meditation

5) Energy medicine that covers qigong and reek.

Other TCAM types include; Chinese traditional medicine and dietary supplements (Peltzer et al 2016). A study done in the middle East for twelve months revealed that the use of TCAM was very common and it involved use of herbalist 17.3 %, massage therapist 6.0 %, and acupuncturist 5.5 %, vitamins and herbal medicine was 41.0 %, own use of vitamins 26.5 % and own use of other supplements 9.7 % , prayer 30.1 %, meditation 13.9 % and relaxation techniques 9.9 % (Peltzer et al 2016). On the other hand, a study done in New Delhi among University students revealed that students were interested in those medicines that maintained their physical and mental fitness and it was due to the fact that the students had medical care (Subramanian & Midha 2016).

In Africa, African traditional medicine (ATM), is the way of the people in that it is part of their culture and for many countries it is a form of healthcare due to its availability and accessibility and 80% of the population use alternative medicines (Bodeka et al 2005).

Traditional medicines according to WHO have a number of benefits that include; making health care affordable and easily accessible, also that traditional medicine reduces the financial burden for the individual who would have sought modern curative medicine for different kinds of ailments and in the process reduce cost (Oladosu et al 2012; Patwardhan 2005). Moreover the traditional medicines have few side effect compared to modern medicines because they are based on supplementary diet and natural remedy for preventive purposes (Oladosu et al 2012). Herbal

remedies like plants have a variety of pharmacological effects that include anti-inflammatory properties and ability to cause vasodilation among many others. Bridging the gap left by modern medicine is one of the roles of traditional medicines (Patwardhan 2005).

Challenges associated with traditional medicine include highly secretive process and it is undocumented hence can be lost if not passed down. It is localized and passed on orally and it has no description (Patwardhan 2005). The traditional healers lack skill to diagnose common mental illness and may need training to improve their skills (Ndetei 2013). Other challenges include lack of collaboration, negative perception with and by clinicians and the way they are perceived by clinicians. Lastly is the inability for the traditional healers to refer patients who fail to respond to medication or any other process of healing to the clinicians (Ndetei, 2013).

Additionally there are referral and dialogue gaps between the clinicians and the traditional faith healers (Musyimi et al 2016). Finally, the Traditional healers lack capacity as they are few yet they get large clientele and may not see all patients who come in one day so some go back home unattended (Ndetei, 2013).

Some of the TCAM methods employed include; use of medication from herbs e.g Rauwolfia and animal parts. Others include non-medication therapies like divination and psychotherapies, surgery like craniotomy in Kisii for diseases believed to be located inside the skull although it is not practiced today. Spiritual therapy, to bring peace and harmony between the living and the spiritual world, especially spirits of the ancestors. (Ndetei 2013).

2.2 Medication Adherence

The treatment of chronic illnesses includes long-term use of pharmacotherapy, however, full benefits for them are not realized because records reveal that almost 50% of patients do not use their prescribed medications (Brown & Bussell, 2011). This failure is attributed to various reasons including; poor health literacy, lack of participation in the treatment decision–making concerning the medicines in relation to complexity of the drug regimens, communication barriers, poor communication of information concerning the negative effects and too many physicians involved that the patient feel overwhelmed, set time limits for visitations, inaccessibility to care and lack of health information technology (Brown & Bussell, 2011).

Medication taking is complex and it needs various strategies to ensure the patients comply. They include; subjective measurements obtained by asking patients, family members, caregivers and physicians about the patient's medication use; whereas counting pills, examining pharmacy refill records, use of electronic medication event monitoring systems and use of biochemical measurements obtained by adding a nontoxic marker to the medication and detecting its presence in blood, urine or serum are more objective measurements (Brown & Bussell, 2011).

According to WHO there are five major factors for patient non adherence to medications and they include; socioeconomic, health care team and system in place, disease-related, therapy-related, and patient-related factors which are summarized into three broad factors of patient related, physician related and health system related (Brown & Bussell, 2011).

The patient related factors cover aspects like lack of understanding the disease, involvement in the treatment decision–making process, and suboptimal medical

literacy. A study done in India revealed that an overwhelming majority of the respondents (89.5%) were in the non-adherence group and they did not even understand the illness they were being treated for, while 9.6% were vaguely aware and only 0.9% mentioned the term depression (Banerjee & Varma, 2013).

Other reasons for non-adherence are related either medical related or facility related and the factors included facility being far away from home, poor weather and the rains, no direct transport to the facility, doctor did not spend time with me, long waiting hours at hospital and medicines not available (Banerjee & Varma, 2013).

The other factors for noncompliance were medication related and the respondent mentioned, fear of medication, effects of medicine, poor explanation, difficulty swallowing medication, medications being out of stock and having too many medications to take (Banerjee & Varma, 2013).

Poor adherence to medication prescribed has its consequences that include increased risk of relapse, recurrent rates of hospitalization and emergency department visits (Ho et al 2016). Others include, worsening of symptoms and a decrease in response and remission rates, poor clinical outcomes leading to escalated healthcare utilization (Ho et al 2016).

2.3 Prevalence of low adherence to Medicines

Kane et al (2013) state that low adherence to medicine is widespread across all branches of medicine, however, they assert that psychotic disorders which belong to chronic illnesses, create added challenges that intensify the risk. This includes possible severe clinical effects in that it hampers the quality of life of those affected and it also escalates the cost of care tramendouosly (Chakrabarti 2014; Lucca et al 2015). Estimations made reveal that 50% of persons with chronic disease do not take

medication after six months (Kane et al., 2013) while 30% stop in the first month (Hibdye et al, 2014) The mean low adherence rate in psychiatric disorders is reported as being of high degree in that it ranges from 40%-70% to 60%-92% depending on the type of disorder (Chakrabarti 2014; Hibdye et al 2014).

The degree and the harmful outcome of low adherence are estimated to be higher in low and middle-income nations due to the shortage of health-care resources, and the inadequate access to treatment for the many in these countries(Chakrabarti 2014) and Kenya falls in this category.

Sub Saharan Africa reports high rates of low adhrence in psychiatric patients for example, Nigeria has a rate of 55.7% (Effiong et al 2015; Ibrahim et al 2015) and Egypt has a rate of 74% (Ibrahim et al 2015), Ethiopia stands at 41.2% (Tesfay et al 2013) and Kenya's rate is 60.37% (Katayi 2014).

Low medication adherence is a major problem for scores of people (Wilder et al, 2010). Causes for these are attributed generally to poor efficacy of available medications for certain patients, side effects due to intolerance to medication, delusional reasoning, lack of understanding of the illness, co-existing substance abuse, absence of social support and low therapeutic alliance (Wilder et al 2010).

However for high income countries their reasons differ from those of low income ones and they included; low theraputic alliance, limited insight, presence of positive symptoms, unemployement, comorbid substance abuse, side effects and low social functioning (Lucca et al 2015). Reasons cited in Asian studies included, financial problems, distance from hospitals, social and cultural myths, illiteracy, lack of insight, and side effects to the patient (Lucca et al 2015).

On the other hand, the Africa continent reasons revealed from studies included; poverty, lack of family support, perspective of illness and stigma, lack of insight, cultural myths about the disease associated with spirits, failure to improve with treatment and long queues in out patient attendance appointments, level of education, belief that the disease is cured as well as stigma negative attitude towards treatment, having to take medicines more than twice a day and use of stimulants (Chukwujekwu & Adesokun, 2017; Hibdye et al 2014; Lucca et al 2015)

2.4 Complementary Alternative Medicine use and Medication Adherence in Mental Health

Treatment of mental illness faces a lot of medical pluralism where both modern prescriptions are used alongside TCAM and there is fear that this may affect adherence to medicines (Ennis 2014). Various studies have shown that persons with mental illness of all social groups namely; the young and old, men and women use a lot of TCAM (Kemper et al 2013; Weizman et al 2012). However, very few studies cover the association of TCAM use and medication adherence in patients with mental disorders. A study done on mental ill patients revealed that the use of TCAM alongside modern therapies did not yield any positive results (Ennis, 2014). However a study by Krousel-Wood et al. (2010) and Weizman et al. (2012), revealed the opposite that the use of TCAM and prescribed antihypertensive medicines led to low adherence to modern medicine.

A study in Indonesia yielded similar results from the above and it revealed that TCAM use decreased adherence to prescribed medication in Type Two Diabetes Mellitus and recommended proper training for care givers and patients for informed decisions on CAM use (T2DM) patients (Alfian et al., 2016). This review reveals

paucity of data in this area precipitating comparison with other chronic disorders instead of studies done on persons with mental illness.

There is a gap in this area where effects of TCAM use on adherence to conventional medications on persons with mental illness continues to be controversial and unresolved. This study attempts to fill the gap.

CHAPTER THREE

3.0 METHODOLOGY

3.1 Study Site

The study was carried out at the Moi Teaching and Referral Hospital (MTRH). MTRH is the second National Referral Hospital in Kenya which has an extensive network coverage of western Kenya, North rift, South rift and parts of Nyanza. Specifically the study was carried out at the Mental Health Clinic (MHC).

3.2 Research Design

This was a cross-sectional study. Data on adherence to medication, types of alternative medicine used and associated factors were collected at the same time. This was done to determine the association between TCAM and alternative medicine on medication adherence among patients at the MTRH-MHC.

3.3 Study Population

The study population comprised all the patients attending the Mental Health Clinic of MTRH once a week. On average 70 patients attend the clinic every week making it 280 patients seen monthly. This figure excludes new patients to this clinic. The longterm patients attend the clinic at least 4 times a year (this means they come after every three months). Hoping no recycling is done, it means that the eligible patients will be gotten by multiplying 280 patients/month by 3 months to get 840 eligible patients.

3.4 Sample Size

The sample size for this study was derived from Fisher's formula (Rosner, 2010) as shown below:

$$n = \frac{z^2 qp}{d^2}$$

Where;

z = standard normal deviate for α at 95% confidence, $Z_{1-\alpha/2} = 1.96$

p = estimated proportion of patients with low adherence (0.5) (from previous study done by Brown & Bussel 2011)

q = 1 – p (0.5)

d = level of precision (margin of error) at 5% (0.05)

n=sample size=384.16 ≈385

Assuming a non-response rate of 10%, the sample size will be further increased to 426 respondents.

3.5 Sampling Procedure

Study participants were selected through systematic random sampling. This means that after picking the first respondent, the subsequent ones were picked after every ninth respondent.

Data was collected once a week on Wednesdays, based on the sample size of 426 respondents over a period of 52 weeks, I targeted 8 respondents per week. On average, a weekly visit has 70 patients, therefore if divided by 8 repondents a week, I interviewed every ninth respondent on a particular clinic day.

3.6 Eligibilty Criteria

3.6.1 Inclusion Criteria

i. All patients above 18 years of age attending Mental Health Clinic at MTRH.

ii. Patients on follow up at Mental Health Clinic –MTRH for a period of 6 months willing and able to participate in the study.

3.6.2 Exclusion criteria

i. Any patient with severe physical or mental illness. This was achieved by either self reported by the patient or observer reported by the attending clinician.

3.7 Data Collection Tools

A sociodemographic questionnaire was designed to collect sociodemographic and additional information about the respondents. In addition to age, gender, residence and montlhy income. The questionnaire was used to obtain data on the mental health diagnosis, use and types of complimentary and alternative medicine.

University of Carlifornia Brief Assesment of Capacity to Consent (UBACC) questionaire was used to assess the ability of the respondent to give consent. It is simple to administer, validated and has been recommended by previous studies. The participants response was rated on a scale of 0-2, with 0 being the lowest and 2 being the highest. A total score of 15 or higher was needed for inclusion in the study.

The 8-item Morisky Medication Adherence Scale was administered to respondents. This was used to assess the level of adherence to medication. This tool has been used previously in East Africa – in Uganda (Okello et al., 2016), as well as in other countries to assess adherence to psychiatric medication (Sajatovic et al, 2010). In addition, it has previously been demonstrated to be “a reliable and valid measure of

medication adherence that can be used in a psychiatric outpatient setting (De las Cuevas & Peñate, 2015).”

The Morisky scale was scored as follows. The first 7 questions are binary in nature and are coded as Yes=1 and No=0. The last question is a 5-point likert scale that ranges from 0 to 1 in increments of 0.25 i.e. Never/rarely=0, Once in a while=0.25, Sometimes=0.5, Usually=0.75 and All the time=1 (Tan et al 2016). The final score is given by summing up the individual scores for each of the 8 questions and ranges from 0 to 8. Adherence scores are classified as follows: >2-8 low adherence, 1 to 2 medium adherence and 0 for high adherence (Tan et al., 2016).

3.8 Study Procedures

The first respondent was picked by balloting nine numbers, and the 3rd was picked. After that every 9th respondent was selected. If a respondent did not meet the eligibility criteria, we picked the next respondent.

After successful verbal recruitment of respondents, I explained the purpose of the study to the them and administered UBACC. Those who scored 15 and above were invited to give consent by signing the consent forms.

I then administered the sociodemographic questionnaire after which I administered Morisky Medication Adherence Scale 8 (Tan et al, 2016) as well as questions on the use of complementary and alternative medicine. Respondents found to have low adherence, were advised on the dangers of non-adherence. Data from the questionnaires was double entered onto MS-Access Database Management Software.

3.9 Data Storage and Analysis Methods

Data was entered into a Microsoft Access database. This helped in checking of errors and cleaning of data. After cleaning, the database was exported to the data analysis software and coded before analysis. The Statistical Package for the Social Sciences (SPSS) version 23 was used for data analysis. The main outcome variables were: The prevalence of traditional, complementary and alternative medicine, the types of complementary and alternative medicine used and the level of adherence to medication.

Discrete variables were summarized as frequencies and percentages and displayed as tables or figures. Continuous variables that are normally distributed have means and standard deviations provided, and in cases where these data was skewed medians and inter quartile ranges was provided. At the bi-variate level, the relationship between medication adherence and social demographic variables as well as TCAM use was demonstrated using Pearson's Chi Square. To adjust for confounding, all variables statistically significantly associated with medication, the outcome variables at the bivariate level were considered together using logistic regression. The level of statistical significance was set at $p<0.05$. All tests were two-sided.

3.10 Pilot Study

A pilot study was conducted at the Mental Health Clinic in Mosoriot Sub- county Hospital. Using a sample size of 5% of the study sample of 426, a total of 22 respondents were recruited for the pilot study. The purpose of this study was to check feasibilty as well as the clarity and understandability of the questionnaire. In addition, it shed light on the adequacy of the proposed study procedures and preparations enabling the main study to be implemented as smoothly as possible.

3.11 Ethical Consideratons

Ethical approval was sought and approved from the Moi University Institutional Research and Ethics Committee IREC FAN:002030. Written informed consent was sought and received from respondents. For those respondents that were iliterate, they were required to indicate their consent by means of their thumbprint in place of a signature.

Data collection took place in secluded consultation room to ensure the privacy of the respondents. In addition, the questionnaires were stored in a secure cabinet and computer data encrypted and password-protected to ensure confidentiality of data. No personal identifiers were stored in the data files.

3.12 Dissemination of Research Findings

The study's findings will be shared with various stakeholders through seminar presentations as well as publication in international peer-reviewed journals, continous medical education forums, press releases and the university website. This wide dissemination process will enable translation of the research findings into actionable knowledge that can be used to influence current policy and practice.

CHAPTER FOUR

4.0 FINDINGS

4.1 Socio-demographic Characteristics of the Participants

A total of 426 respondents participated in the study, the mean age was 38.2 years (Std=13) while the median age stood at 35 years (IQR: 28, 47). Of those who responded 218 (48.8%) were females and 208 (51.2%) were males. Majority of the respondents were Christians at 408 (96.4%). The respondents who had achieved primary education as the highest level of education were 36.4% while an extra 34% got to secondary school. Married respondents were 198 (46.8%) and those who were single were 185 (43.7%). As regards employment status 371 (87.2%) of them had some form of employment (Table 1).

Table 1: Socio-demographic Characteristics of the respondents

VARIABLE	LEVELS	FREQ	MEAN in %
Gender	Males	208	48.8
	Females	218	51.2
Religion	Christianity	409	96.4
	Other	19	3.5
Education	None	18	4.3
	Primary	155	36.4
	Secondary	147	34.5
	College	70	16.4
	University	36	8.5
Occupation	Farmer	153	35.9
	Business	53	12.4
	Casual	53	12.4
	Professional	46	10.8
	Student	55	12.9
	Other	66	15.5
Marital status	Never married	185	43.7
	Married	198	46.8
	Separated/divorced	27	6.3
	Widowed	14	3.2

4.2 Prevalence of TCAM use

A total of 253 respondents admitted to using TCAM thus making the prevalence of TCAM at 59.4% (95% CI: 54.6, 64.1). (Figure 1).

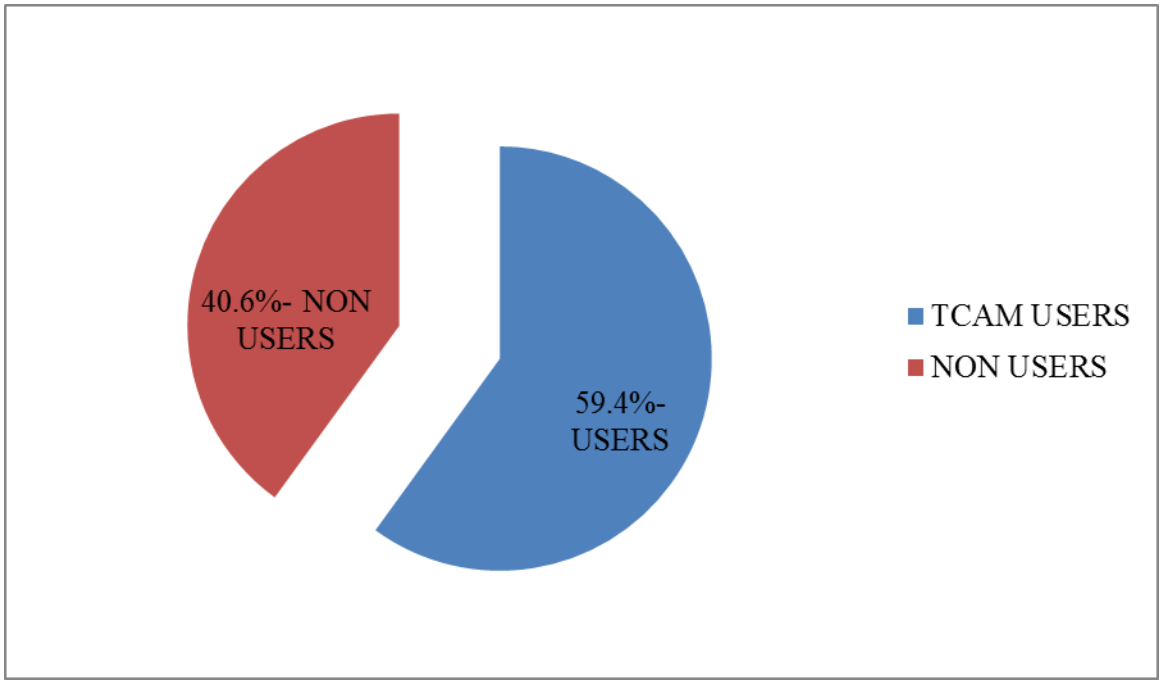

Figure 1- Prevalence of TCAM use

Worth noting is that the older age (p-value 0.007) was significantly associated with TCAM use. This implies that the older you get the more likely you are to use TCAM. Married marital status was also significantly associated with the use of TCAM (p-value 0.015).

Table 2: Factors associated with TCAM

Variable	No	Yes	p-value
	Freq (%) / Median (IQR)	**Freq (%) / Median (IQR)**	
Age in years	33.5 (25.0, 44.5)	37.0 (30.0, 48.0)	0.007[1]
Sex			0.871[2]
Male	85 (40.9)	123 (59.1)	
Female	88 (40.1)	130 (59.9)	
Education			0.087[2]
None	10 (52.6)	9 (47.4)	
Primary	54 (34.8)	101 (65.2)	
Secondary	57 (39)	89 (61)	
Tertiary	52 (49.1)	54 (50.9)	
Marital status			0.015[2]
Never married	91 (48.1)	98 (51.9)	
Married	70 (35.5)	127 (64.5)	
Separated/ Divorced/Widowed	12 (30)	28 (70)	

[1] Wilcoxon rank sum test [2] Chi square test

4.3: The types of TCAM used

The majority of the respondents who admitted using TCAM said they used herbal medication which fell in the biological class of TCAM. They were about 232 (91.7%) respondents while 21 (8.3%) respondents were using spiritual intervention.

No respondent admitted to using the other forms of TCAM namely: Manipulative in the form of massage, mind and soul medicine like yoga and energy medicine like qigong.

All the respondents who admitted to using either herbal medicine or spiritual intervention supplemented with conventional medicine (Figure 2).

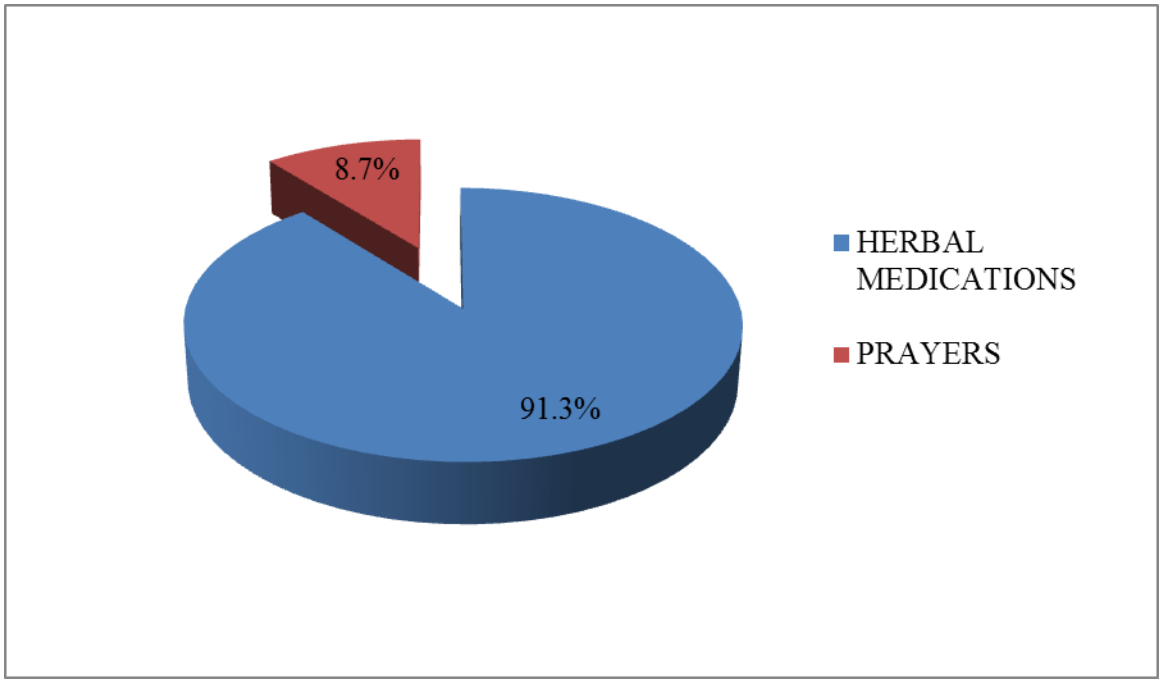

Figure 2: Types of TCAM used

4.3: Level of adherence to prescribed medication among patients attending the mental health clinic at MTRH

The respondents who had medium levels of adherence were 289 (68%) while those with low adherence were 125 (29%). Most of the respondents were not adherent to their medication with only 12 (3%) of the respondents scoring 0 making them compliant to their medications (Figure 3).

Table 3: Level of adherence to prescribed medication among patients attending the mental health clinic at MTRH

	Frequency	Percent%
High	12	2.8
Medium	289	67.8
Low	125	29.4

Other than TCAM (p-value of 0.038) no other factor had any significant association with low level of adherence.

Table 4: Factors associated with medication adherence

Variable	High Freq (%) / Median (IQR)	Low Freq (%) / Median (IQR)	P-value
Age in years	36 (29,47)	35 (27,48)	0.71[1]
Sex			0.52[2]
Male	150 (72.1)	58 (27.9)	
Female	151 (69.3)	67 (30.7)	
Education			0.81[2]
None	11 (61.1)	7 (38.9)	
Primary	109 (70.3)	46 (29.7)	
Secondary	106 (72.1)	41 (27.9)	
Tertiary	75 (70.8)	31 (29.2)	
Marital			0.46[2]
Never married	136 (72.3)	52 (27.7)	
Married	140 (70.7)	58 (29.3)	
Separated/ Divorced/Widowed	25 (62.5)	15 (37.5)	
TCAM			0.04[2]
No	132 (76.2)	41 (23.8)	
Yes	169 (66.8)	84 (33.2)	

[1] Wilcoxon rank sum test [2] Chi square test

Objective 4: Association between TCAM and medication adherence

The results show a strong association between use of TCAM and the level of medication adherence. Out of the respondents who had high levels of adherence, only 4 (32%) admitted to using TCAM while those with low adherence the reverse was true with 84 (67.2%) respondents having used TCAM. For the respondents with medium adherence 57.1% used TCAM. The summary is shown on the table below.

Table 5: Logistic regression results on low adherence

Variable	Adjusted Odds Ratio	P-value	95% Confidence interval
Age		0.28	0.97, 1.01
Sex			
Male	1		
Female	1.22	0.37	0.79, 1.88
Education level			
None	1		
Primary	0.57	0.29	0.2, 1.62
Secondary	0.52	0.23	0.18, 1.51
Tertiary	0.61	0.38	0.20, 1.83
Marital status			
Never married	1		
Married	1.23	0.50	0.72, 2.10
Separated/ Divorced/Widowed	1.80	0.16	0.80, 4.07
TCAM			
No	1		
Yes	1.6	0.04	1.02, 2.5

CHAPTER FIVE

5.1 DISCUSSION

This study found the prevalence of TCAM among patients attending MHC, MTRH to be 59.4%.

The global prevalence of TCAM use in patients on follow up for chronic illness is at 52.7% (Falci et al, 2016). Woodward et al, 2009 found that the use of TCAM in the U.S. ranged between 35% and 45% while 9% of those who used TCAM admitted to consulting a TCAM practitioner. According to Bodeka et al, he found similar results as Woodward et al, 2009 with U.S. having a prevalence of 42% while Australia 48%, Canada 70%, Germany 77%, India 70% and Africa led the pack with 80%. This prevalence falls in the range of what most researchers have found. Due to paucity of data, I have been unable to find similar studies that have been conducted globally that are looking at TCAM use among patients with mental illness specifically.

In Africa, more so Sub Saharan Africa, the is scarcity of data. Currently, Nigeria and South Africa are leading in published literature yet little is available from other SSA countries. This could be attributed to the fact that most TCAM users (55.8%–100%) in SSA fail to disclose TCAM use to their healthcare providers, with the main reasons for non-disclosure being fear of receiving improper care, healthcare providers' negative attitude and a lack of enquiry about TCAM use from healthcare providers (James et al, 2018).

In Nigeria, prevalence of TCAM use among patients with schizophrenia is at 73.5% (Odinka et al, 2014) and that of patients presenting with psychosis in South Africa is at 11.5% (Tomita et al, 2015). In Ghana and Malawi, both being west African countries have recorded lower rates of prevalence compared to Nigeria at 23.3%

(Ibrahim et al, 2016) and 22.7% (Kauye et al, 2015) respectively. Narrowing down regionally, a study conducted in Uganda revealed 80% of the mentally ill patients used both TCAM and conventional medicine (Abbo et al, 2009) yet in Sudan 41% of the mentally ill patients used TCAM prior to seeking conventional care (Sorketti et al, 2012).

In Kenya, few studies have been conducted to determine prevalence of TCAM use among mentally ill patients however studies that have been done are on other chronic illness like diabetes by Mwangi et al, 2014 who found the prevalence of TCAM use among diabetic patients to be 12.4%.

The wide range in the prevalence could be attributed to the differences in definition of TCAM, the different methodologies used by the researchers leading to diverse sample sizes, recall bias by the respondents and varied assessment techniques of TCAM use (Sarmiento et all, 2016).

The most used TCAM was the biological type mainly herbal medication at 91.7% followed distantly by spirituality at 8.3%. This compares closely with what was found in Ethiopia that herbal medication was the most used TCAM at 55.7% (Girma et al, 2011). This similarity in results could be attributed to the diverse flora cover Africa enjoys.

However, it differs from other studies done in different regions where supplements were preferred over herbs. In the US, they have a high prevalence of TCAM use with common use of multivitamins, multi-minerals, or both (52.7%); vitamins (34.8%); and minerals (28.4%) respectively (Falci, Shi, & Greenlee 2016).Contemporary medicine is widely used in Saudi Arabia with the common ones being prayer, reciting

the Quran alone or on water. Unlike African countries, Arabic countries preferred prayer over herbs (Alrowais and Alyousefi 2017) .

The factors associated with increased TCAM use were older age (p=0.007) and a married marital status (p=0.015). This is very similar to what was found by Peltzer et al, 2016 old age was a factor that predisposed one to use TCAM. Woodward, 2009 also found that the old generation between the ages of (30 – 50 years) used more TCAM at 38% than the young adults at 32%. The similarity in our results could be explained by the increased social networks that come with age and so one is predisposed to an array of advice and is at liberty to try the different alternatives given. Similar to what I found, Okoronko et al, found that most TCAM users were married and this could be explained by the fact that once you get married you are considered one and almost everything is shared by the couple, influence from the couple or couples could be a factor that leads married persons to use alternative medicines. Inconsistencies were noted in sex and religious affiliations by James et al, 2018. This study did not yield any significant associations between use of TCAM ana sex or religion.

Patients attending MHC in MTRH were found to be adherent to their medication at a level of 70.7%. The results corresponds well with what (Chakrabarti et al, 2014) found when they reported medication adherence levels among patients on follow up for mental illness to fall in a range of 40% to 70% while Hibdye et al, 2014 found a range of 60% to 92% depending on the type of disorder.

Kane et al, 2013 found a lower figure of 50%, this was general adherence level for chronic illness. This low figure could be explained by the fact that mentally ill patients are not only patients on follow up for chronic illness but are also vulnerable persons who are prone to memory lapses and delusions pertaining medication use

compared to patients who are only being managed for chronic illness with good insight and mental stability.

Regionally, (Effiong et al, 2015) in Nigeria found the level of adherence to be 55.7% among patient with schizophrenia while (Ibrahim et al, 2015) found a rate of 74% in Egypt among patients with mental illness. In Sudan a rate of 41% was found by (Tesfaye et al, 2013) among patients with mental illness.

In Kenya, the studies that have been conducted in this field with the notable one being by (Katayi et al, 2014) who recorded a level of adherence of 60.4%. This is similar to 66.7% that Kwobah, 2013 found. The similarity in our results could be attributed to the study sites which were leading mental health institutions in the country.

Once again, there is a wide range between different studies in the region which could be well attributed to geographical distributions, different methodologies used and more so tools for adherence assessment.

In this study we found an association between TCAM use and low medication adherence AOR = 1.6 (1.02, 2.50). This implies that use of TCAM increases the odds of low medication adherence by 60%.

In India, (Barnejee et al, 2013) found low adherence rate of 89.5% which was attributed to medical pluralism where we see both TCAM and conventional medicine being concomitantly used by the patients on follow up for mental illness with a possible effect on adherence. However, Ennis et al, 2014 did not yield positive results in his study. A study in Indonesia yielded similar results from the above and it revealed that TCAM use decreased adherence to prescribed medication in type two diabetes mellitus (Alfian et al., 2016).

In a systemic review done in Malaysia by Farrukh et al 2018, they found a high prevalence of TCAM use and non-adherence to anti-epileptic drugs among epilepsy patients. This is similar to what we found despite having different medical conditions.

5.2 Study Limitations

1. This study may have been limited by under reporting of TCAM use by respondents mainly attributed to either recall bias and/or social desirability bias. This demonstrates that the magnitude of this problem could be greater than what has been reported.
2. Having carried out the study in MTRH, which is a tertiary institution in provision of mental health services, it does not give a clear picture of the statistics in the community. It is however a good starting point that can pave way for further longitudinal studies.
3. Stigma associated with mental illness as well as medical conditions co - occuring with mental illness are areas that were not explored in this study. This gap can be further explored in future studies.

CHAPTER SIX

6.0 CONCLUSION AND RECOMMENDATION

6.1 Conclusion

This study has revealed widespread use of TCAM among patients with mental illness at MTRH. Older age and a married marital status have been significantly associated with increased TCAM use.

The most common type of TCAM used by these patients is herbal medication followed distantly by spiritual intervention mainly prayer. The other types of TCAM namely manipulative procedures, mind and soul medicine and energy medicine were not reported.

Low medication adherence is a major problem among patients with mental illness at MTRH. Factors associated with medication adherence include but not limited to TCAM use.

The use of TCAM increases the odds of low medication adherence by 60%.

6.2 Recommendations

1. Clinicians should ask about TCAM use and take time to psychoeducate the respondents on the importance of medication adherence as they desensitize them against the use of TCAM.
2. The hospital needs to increase psychoeducation on medication adherence and discourage use of TCAM among patients on management for mental illness. This can be achieved by way of holding small educative talks at waiting bays, printing illustrative pamphlets and projecting videos with this content.
3. At the community level, health talks should be administered on importance of medication adherence.
4. Further studies should be conducted in this area e.g A community study will be helpful in confirming the findings of these study at the community level while a longitudinal study will aid in investigating causal associations between TCAM and medication adherence.

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APPENDICES

Appendix I: Informed Consent Form

Study Title: TRADITIONAL, COMPLEMENTARY AND ALTERNATIVE MEDICINE USE AND MEDICATION ADHERENCE AMONG PATIENTS WITH MENTAL ILLNESS AT MOI TEACHING AND REFFERAL HOSPITAL, ELDORET.

Name of Principal Investigator: Sarah Bahati Standa

Study site: Moi University and Moi Teaching and Refferal Hospital

Name of Sponsor: Self

Informed Consent Form for:

1. Adults aged 18 years and above

This Informed Consent Form has two parts:

- Information Sheet (to share information about the study with you)
- Certificate of Consent (for signatures if you choose to participate)

You will be given a copy of the signed Informed Consent Form.

Part I: Information Sheet

Introduction:

You are being asked to take part in a research study. This information is provided to tell you about the study. Please read this form carefully. You will be given a chance to ask questions. If you decide to be in the study, you will be given a copy of this consent form for your records.

Taking part in this research study is voluntary. You may choose not to take part in the study. Saying no will not affect your rights to health care or services. You are also free to withdraw from this study at any time. If after data collection you choose to quit, you can request that the information provided by you be destroyed under supervision- and thus not used in the research study. You will be notified if new information becomes available about the risks or benefits of this research. Then you can decide if you want to stay in the study.

Purpose of the study:

The purpose of this study is to determine the association between traditional complimentary and alternative medicine on medication adherence among patients attending the mental health clinic at Moi Teaching and Referral Hospital

Type of Research Project/Intervention:

The study will involve an interview in order to answer the study questions.

Commonly asked questions

- **Why have I been identified to Participate in this study?**

428 patients attending Mental Health Clinic-MTRH and who meet the eligibilty criteria for the study are being invited to participate.

- **How long will I be involved in the study?**

You will be involved in the study only during the interview which is one day. If any medical or psychiatric condition is detected and referral is needed, you will be linked to the appropriate mental health services.

- **What will happen to me during the study?**

We are asking you to help us learn more about mental illnesses and use of traditional complimentary and alternative medicine. If you accept, you will be asked to answer a number of questions concerning the subject

You will be required to answer personal questions about yourself the current illness or possible mental illness.

- **What side effects or risks I can expect from being in the study?**

We shall not be applying any interventions or giving any medication, therefore we don't anticipate any risks.

- **Are there benefits to taking part in the study?**

The possible benefits of this study to society may include, better understanding of how the association between traditional complementary or alternative medicine and medication adherence will affect management of mental illness.

Respondents who are found to have problems with medication adherence will receive appropriate advise to ensure they benefit fully from any medication prescribed during routine care.

- **Reimbursements:**

There shall be no reimbursements to those who volunteer to participate in the study

- **Who do I call if I have questions about the study?**

For questions about the study, call Sarah Bahati Standa on Tel No: 0721808482

For questions about your rights as a research subject: You may contact Institutional Review Ethics Committee (IREC) 053 33471 Ext.3008. (IREC is a group of people that reviews studies for safety and to protect the rights of study subjects).

? **Will the information I provide be kept private?**

All reasonable efforts will be made to keep your protected information (private and confidential. Protected Information is information that is, or has been, collected or maintained and can be linked back to you. Using or sharing ("disclosure") of such information will follow National privacy guidelines. By signing the consent document for this study, you are giving permission ("authorization") for the uses and disclosures of your personal information.

As part of the study, Sarah Bahati Standa may share the results of your [age, residence, level of education health status e.t.c]. These may be study or non-study related. They may also share portions of your medical record, with the groups named below:

- The Institutional Review and Ethics Committee,
- MTRH and Moi University

National privacy regulations may not apply to these groups; however, they have their own policies and guidelines to assure that all reasonable efforts will be made to keep your personal information private and confidential.

The study results will be retained in your research record for at least 7 years after the study is completed. At that time, the research information not already in your medical record will be stored in a secure location, only accessible to the researcher. Research information will be kept for a period of 7 years and will then be destroyed permanently.

Part II: Consent of Subject:

I have read (or have had read to me) the description of the research study. The investigator or his/her representative has explained the study to me and has answered all of the questions I have at this time. I have been told of the potential risks, discomforts and side effects as well as the possible benefits (if any) of the study. I freely volunteer to take part in this study.

_____ _____ _____

Name of Participant Signature of subject/thumbprint

Date

_____ _____ _____

Printed name of Investigator Signature of Investigator Date

Appendix II: Data Collection Tools

SECTION 1: SOCIO-DEMOGRAPHIC CHARACTERISTICS			
NO	**Question**	**Response**	**Code**
1	SEX **(SEX)**	F=1 M=2	**[ ]**
2	AGE **(AGE)**		**[ ]**
3	Religion **(RELIG)**	1. Christian 2. Hindu 3. Muslim 4.Other (specify)	**[ ]**
4	Education level **(EDULEV)**	1. None 2. Primary 3. Secondary 4. College 5. University 6. Other (specify)	**[ ]**
5	Occupation **(OCCUP)**	1. Farmer 2. Trader/Business 3. Casual labourer 4. Professional 5. Student 6. Other (specify)	**[ ]**
6	Marital status **(MARST)**	1. Never married 2. Married	**[ ]**

		3. Separated 4. Divorced 5. Widowed	
7	Average income/ per month **(INCM)**		**[ ]**
s8a	Existing Mental Illness?	1. Yes 2. No	**[ ]**
8b	If Yes, indicate diagnosis		
9a	Currently on treatment?	1. Yes 2. No	**[ ]**
9b	If Yes, Indicate treatment		
10a	Is there any other treatment or medication being taken for the mental condition, other than what was prescribed at the hospital?	1. Yes 2. No	**[ ]** **[ ]**
10b	If Yes, which of these types of other treatment did you use?	1.Biological e. g Herbal medication 2. Manipulative/Skill based e. g massage 3. Spiritual e. g prayer 4. Mind and Body Medicine e. g Yoga 5. Energy medicine e. g qigong.	

11a	Do you have any other medical condition of chronic nature that you are on management for?	1.Yes 2. No
11b	If Yes, indicate the diagnosis.	
12a	i) Are you currently on treatment?	1.Yes 2.No
	ii) If Yes, Which ones?	
12b	The other medication you used for treatment in (10b above), was it for treating the mental illness or this other condition that you have?	1.Mental illness 2. Other condition.
13a	Did you use the other medication alone or you combined it with the medication that was prescribed by the doctor?	1.Alone 2. With other prescribed medication.
13b	I) If alone, was it of help?	1. Yes 2. No
	ii) If Yes, How was it of help?	
13c	i) If with prescribed medication, did it help?	1.Yes

		2. No	
14a	ii) If yes, how was it of help?		
14b	Briefly would you advise any other person to use the other medication(s) you have been using? If yes, why?	1.Yes 2. No.	
SECTION 2: MORISKY MEDICATION ADHERENCE SCALE (MMAS-8)			
11	Do you sometimes forget to take your pills?	1. Yes 0. No	**[ ]**
12	People sometimes miss taking their medications for reasons other than forgetting. Thinking over the past two weeks, were there any days when you did not take your medicine?	1. Yes 0. No	**[ ]**
13	Have you ever cut back or stopped taking your medicine without telling your doctor because you felt worse when you took it?	1. Yes 0. No	**[ ]**
14	When you travel or leave home, do you sometimes forget to bring your medicine?	1. Yes 0. No	**[ ]**
15	Did you take all your medicine yesterday?	1. Yes 0. No	**[ ]**

16	When you feel like your symptoms are under control, do you sometimes stop taking your medicine?	1. Yes 0. No	**[ ]**
17	Taking medicine every day is a real inconvenience for some people. Do you ever feel hassled about sticking to your treatment plan?	1. Yes 0. No	**[ ]**
18	How often do you have difficulty remembering to Take all your medicine?	A. Never/rarely B. Once in a while C. Sometimes D. Usually E. All the time	**[ ]**

UCSD Brief Assessment of Capacity to Consent (UBACC)
Adapted for Use with the COATS Project

Instructions: After reviewing study details and the informed consent document, explain that you are going to ask a few brief questions about the study. Participants should be allowed to refer to the Informed Consent Form when answering these questions, but should be encouraged to respond in their own words. If a participant has trouble understanding one of the questions on the UBACC, rephrase the question. Rate the participant's responses on a scale of 0 – 2, with "0" being the lowest (little to no understanding of this aspect of the study) and "2" being the highest (clear understanding of this aspect of the study). A score of 15 or higher is needed for inclusion in the study. If a patient scores lower than 15, the person obtaining consent can review the study details and have the patient return on another day in order to re-do the UBACC and obtain consent.

	Score
1. What is the purpose of the study that was just described to you? Response: (2 = To compare the risks and benefits of three medications used to treat schizophrenia and schizoaffective disorder)	0 1 2
2. What makes you want to consider participating in this study? Response: (2 = Find a medication that works for me, help others)	0 1 2
3. Do you believe this is primarily research or primarily treatment? Response: (2 = Research)	0 1 2
4. Do you have to be in this study if you do not want to participate? Response: (2 = No)	0 1 2
5. If you withdraw from this study, will you still be able to receive regular treatment? Response: (2 = Yes)	0 1 2

6. If you participate in this study, what are some of the things you will be asked to do? Response: (2 = At least 2 of the following: take medication, answer questions, bring medications to my appointments, have my blood drawn, participate in diet and exercise program)	0 1 2
7. Please describe some of the risks or discomforts that people may experience if they participate in this study. Response: (2 = At least 2 of the following: the medication won't work for me, side effects of the medications (e.g., weight gain, feelings of restlessness, nausea), blood draws could be uncomfortable)	0 1 2
8. Please describe some of the possible benefits of this study. Response: (2 = Might learn more about my health, might lose weight, society might learn more about antipsychotic medications)	0 1 2
9. Is it possible that this study will not have any benefit to you? Response: (2 = Yes)	0 1 2
10. Who will pay for medical care if you are injured as a direct result of participating in this study? Response: (2 = These costs would be billed to me or my insurance company)	0 1 2

Total Score:	___ ___

Appendix III:IREC Approvals

INSTITUTIONAL RESEARCH AND ETHICS COMMITTEE (IREC)

MOI TEACHING AND REFERRAL HOSPITAL
P.O. BOX 3
ELDORET
Tel: 33471//2/3

MOI UNIVERSITY
COLLEGE OF HEALTH SCIENCES
P.O. BOX 4606
ELDORET

Reference: IREC/2017/222
Approval Number: 0002030

6th February, 2018

Dr. Sarah Bahati Standa,
Moi University,
School of Medicine
P.O. Box 4606-30100,
ELDORET-KENYA.

06 FEB 2018

Dear Dr. Standa,

RE: FORMAL APPROVAL

The Institutional Research and Ethics Committee has reviewed your research proposal titled:-

"Association between Traditional, Complementary and Alternative Medicine Use and Medication Adherence among Psychiatric Patients at Mental Health Clinic in Moi Teaching and Referral Hospital, Eldoret, Kenya ".

Your proposal has been granted a Formal Approval Number: ***FAN: IREC 2030*** on 6th February, 2018. You are therefore permitted to begin your investigations.

Note that this approval is for 1 year; it will thus expire on 5th February, 2019. If it is necessary to continue with this research beyond the expiry date, a request for continuation should be made in writing to IREC Secretariat two months prior to the expiry date.

You are required to submit progress report(s) regularly as dictated by your proposal. Furthermore, you must notify the Committee of any proposal change (s) or amendment (s), serious or unexpected outcomes related to the conduct of the study, or study termination for any reason. The Committee expects to receive a final report at the end of the study.

Sincerely,

DR. S. NYABERA
DEPUTY-CHAIRMAN
INSTITUTIONAL RESEARCH AND ETHICS COMMITTEE

cc	CEO	-	MTRH	Dean	-	SOP	Dean	-	SOM
	Principal	-	CHS	Dean	-	SON	Dean	-	SOD

Appendix IV:Hospital Approval (MTRH)

An ISO 9001:2015 Certified Hospital

MOI TEACHING AND REFERRAL HOSPITAL

Telephone:(+254)053-2033471/2/3/4
Mobile: 722-201277/0722-209795/0734-600461/0734-683361
Fax: 053-2061749
Email: ceo@mtrh.go.ke/directorsofficemtrh@gmail.com

Nandi Road
P.O. Box 3 – 30100
ELDORET, KENYA

Ref: ELD/MTRH/R&P/10/2/V.2/2010

9th February, 2018

Dr. Sarah Bahati Standa,
Moi University,
School of Medicine,
P.O. Box 4606-30100,
ELDORET-KENYA.

APPROVAL TO CONDUCT RESEARCH AT MTRH

Upon obtaining approval from the Institutional Research and Ethics Committee (IREC) to conduct your research proposal titled:-

"Association between Traditional, Complementary and Alternative Medicine Use and Medication Adherence among Psychiatric Patients at Mental Health Clinic in Moi Teaching and Referral Hospital, Eldoret, Kenya".

You are hereby permitted to commence your investigation at Moi Teaching and Referral Hospital.

MOI TEACHING AND REFERRAL HOSPITAL
CEO
APPROVED
09 FEB 2018
P.O. Box 3 - 30100, ELDORET

DR. WILSON K. ARUASA, *MBS*
CHIEF EXECUTIVE OFFICER
MOI TEACHING AND REFERRAL HOSPITAL

cc - DCEO, (CS)
- Director of Nursing Services (DNS)
- HOD, HRISM