SUBSTANCE USE LITERACY, ADHERENCE TO HIV MEDICATION AND ADDICTION SEVERITY AMONG ADULT SUBSTANCE USERS IN NAIVASHA DISTRICT HOSPITAL (KENYA)

DISSERTATION IN PART FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF MASTER OF SCIENCE IN CLINICAL PSYCHOLOGY OF

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DECLARATION

I Rachel Wanjiru Maina do hereby declare that this is my original work and that it has not

presented for the award of any degree to any other university.

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Date ……………………………..

CERTIFICATE OF APPROVAL

This is to satisfy that this bona fide research work has been carried out independently by Rachel Wanjiru Maina under our guidance and supervision

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DEDICATION

I generously dedicate this study to my Andrew Maina, Frasier Maina, Judy and Travis for their

overwhelming support and patience during the duration of this programme. Their words of

encouragement, tolerability of my late hours and pride at what I was pursuing has kept me in

joyful spirit throughout the course.

I also dedicate this study to the substance users who are undergoing HIV treatment yet lack the

literacy on management of their substance use ailment.

ACKNOWLEDGEMENTS

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ABBREVIATIONS

AIDS	Acquired Immune Deficiency Syndrome
ASI	Addiction Severity Index
ASSIST	Alcohol, Smoking and Substance Involvement Screening Test
CCC	Comprehensive Care Center
DSM IV TR	Diagnostic Statistical Manual Version IV Revised
HIV	Human Immuno-deficiency Virus
KNH	Kenyatta National Hospital
MMAS	The 8-item Morisky Medication Adherence Scale
NDH	Naivasha District Hospital
QuALiSMental	Questionnaire Assessment of Literacy in Mental Health
SPSS	Statistical Package for Social Sciences

OPERATIONAL DEFINITIONS

1.   A substance use vignette is a story line with a description of a person who has a substance

    use problem that fits into the criteria of DSM IV TR.

2.   Substance use literacy is the ability to recognize, manage and prevent substance use disorders

    bearing in mind the knowledge and beliefs that an individual has in achieving these ends.

3.   Adherence is one's ability to follow – up on a prescribed treatment formula.

ABSTRACT

Substance use knowledge has been found to be low among substance users despite numerous

substance awareness campaigns. This presents a worrying trend considering that substance use is

a major impediment to HIV medication adherence. Studies done on the association between

health literacy and HIV medication adherence have given mixed results. However, the impact of

substance use literacy on HIV medication adherence is yet to be known. This study embarked on

finding out if there is a significant relationship between substance use literacy and adherence to

HIV medication and whether severity of addiction modified this relationship. A cross-sectional

study among 179 HIV infected substance users was carried out whereby Questionnaire

Assessment of Literacy in Mental Health, Addiction Severity Test and 8-item Morisky

Medication Adherence Scale psychometric tests were administered. Data was coded and

analyzed using SPSS version 20. Descriptive statistics were used to calculate frequencies and

chi-square was used to calculate significant correlations. Data was presented in the form of

tables, pie charts and narratives. Results showed 50.3% of the respondents wrongly identified the

alcohol use vignette problem as stress. Not recognizing that there was a problem was

significantly correlated to moderate adherence (P = 0.003). Among the severely addicted, there

was a clear association between low adherence and not recognizing substance use as vignette

problem. Preference was given to informal sources of help like a close friend (83.2%, P = 0.050)

and psychosocial management like physical exercise (79.9%, P = 0.007) other than professionals

like psychiatrists (58.1%) leading to moderate adherence and addiction severity. Though 81% of

the severely addicted recognized a psychiatrist could help, 61.9% of them had low adherence.

The same inverse relationship was exhibited in recognizing effective medication like

antidepressants. Poor substance use literacy was found to lead to poor adherence with severe

addiction modifying this relationship.

1. CHAPTER ONE: INTRODUCTION

1.1. Introduction

The ability to access, understand and use information, in a bid to improve and maintain ones health is referred to as health literacy. However, the term does not significantly cover aspects of mental health. Mental health literacy as coined by Jorm and colleagues is the ability to recognize, manage and prevent mental disorders bearing in mind the knowledge and beliefs that an individual has in achieving these ends (Jorm et al., 1997). In acknowledging the elements that characterize mental health literacy, Jorm and colleagues bore in mind recognition of specific disorders; seeking mental health information; knowledge of risk factors, causes, self help remedies and professionals equipped with remedies; as well as, attitudes that aid recognition and fitting help-seeking (Jorm et al., 1997). Adherence on the other hand is one's ability to follow – up on a prescribed treatment formula.

Mental health literacy affects the health outcome of the exposed, as well as, the unexposed to ailment. In substance use, literacy studies are limited with one showing that substance use literacy is low in a mixed group of exposed and unexposed (Loureiro et al., 2013). However, broader research studies that concentrate on general health literacy among substance users have associated high health literacy with high substance use with substance abusers found to be "3 times more likely to have higher literacy than people without substance abuse disorders" (Lincoln et al., 2008) while others have found no significant relationship (Hawthorne, 1997; Wolf, Gazmararian, & Baker, 2007). These mixed results have culminated in a weak data base when it comes to informing effective health remedies. On medication adherence health outcome,

studies have shown similar insufficient and mixed results. Some studies have shown no significant relationship between adherence and literacy (Gazmararian et al., 2006; Paasche-Orlow et al., 2006), while others have shown low literacy is indeed associated with decreased adherence (EL, 2013; Waite, Paasche-Orlow, Rintamaki, Davis, & Wolf, 2008). One study examining adherence among patients with a history of alcohol found no significant relationship (Paasche-Orlow et al., 2006). Despite these outcomes, research done on substance use literacy is limited, as the mental health literacy concept specific to substance use is just taking root.

Low substance use literacy renders people who are at risk of substance use disorders susceptible to unhealthy and counterproductive decisions. Lack of knowledge and understanding about the appropriate information for prevention of disorders exposes them to these risks (Loureiro et al., 2013). Consequently, substance users will not be able to manage their ailments if they are not armed with the right information, understanding and managing prerequisites for preventing severe consequences.

Low substance use literacy results in severe health outcomes including non-adherence to medication regimen. This in the long run increases the severity of ailments. This is the case as pointed out by NACADA, which is a Kenyan governmental organization that campaigns against drugs. According to the institution, despite the numerous campaigns spearheaded across the country among other initiatives, drug use continues to be prevalent (NACADA, 2012). This raises the question as to whether the awareness initiatives increase substance use literacy and enhance adherence. With this in mind, this study undertook to measure substance use literacy against adherence to medication regimen and aimed to find out if there was a significant relationship between severely and moderately addicted substance users. Since studies in this

area are quite few, the study will add to the growing need for scholarly information in substance use literacy.

1.2. Background

Health literacy has been identified as a significant factor in improving health outcomes among the global population. However, little research has been done on substance use literacy. In Kenya, despite the overall adult literacy being 74% (UONDC, 2010), there is still a high prevalence rate of substance use (NACADA, 2012). In 2012, NACADA reported low drug awareness rates among substance abusers. Rift Valley was found to have a high rate of alcohol abuse (15.7%), as well as, a low alcohol awareness rate (50.3%). This association was also found in other drugs such as bhang and cocaine (NACADA, 2012). Studies on overall health literacy among substance users have found mixed results, which have been insufficient in informing interventions. In one study carried out among adolescents, higher substance use was associated with high health literacy (Murphy et al., 2010). In another study among older adults, no significant relationship was found between health literacy level and the current level of alcohol consumption (Wolf et al., 2007). In both studies by Murphy and Wolf, the confounding effect of depression was not adjusted. With regards to adherence, mixed findings have emerged. One study examining 100 percent adherence to medical treatment among people with a history of alcohol abuse found that low literacy was associated with high adherence odds (Paasche-Orlow et al., 2006). In another study, no significant relationship was found between adherence and health literacy among adolescents' current level of alcohol consumption (Murphy et al., 2010). In the latter, the study used Rapid Estimate of Adult Literacy in Medicine - REALM to measure literacy, which was not a comprehensive test for health literacy. The variation in studies creates a weak evidence base for theoretical formulations, as well as, interventions.

1.3. Conceptual Framework

Effect Modifiers/ Moderators
- ***Severe vs. moderate addiction***
- Social support- stigma

Substance Use Literacy → Adherence to Treatment

Mediators
- Outcome expectation
- Medication self-efficacy

Covariate

- Type of Substance

Confounders

Age	Education
SES	Depression
Sex	history of substance use
Income	
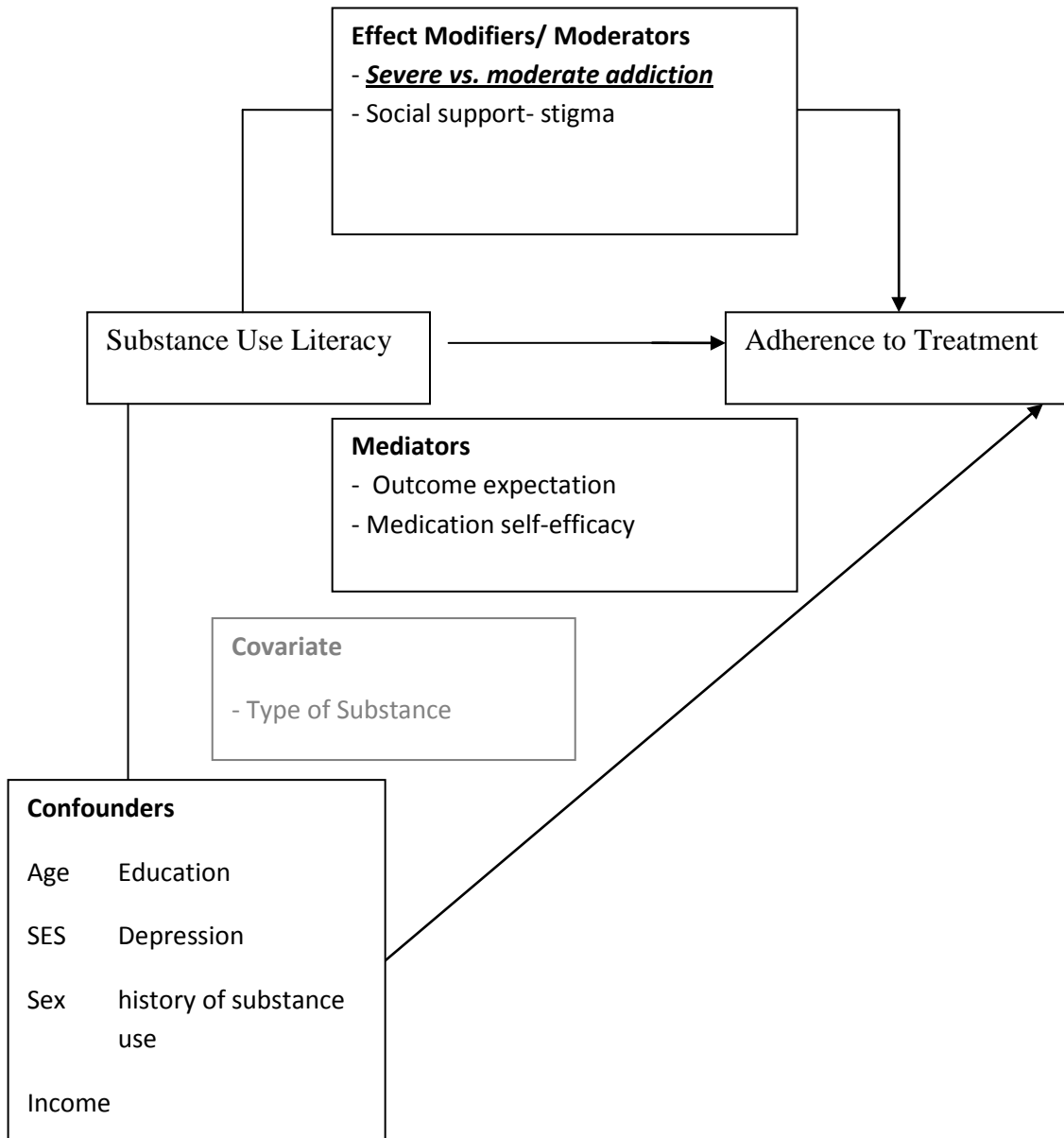
Note: *Effect Modifiers/ Moderators* in the conceptual framework project the conditions under which the predictor variable is likely to generate the outcome variable. *Mediators* in the framework give an explanation as to why or how the predictor variable may affect the outcome variable. The mediators are directly affected by the predictor variable; hence causes the outcome variable to vary. *Confounders* affect the relationship between the predictor and outcome variable directly, such that, their presence may either prevent or cause the outcome. *A covariate* is a variable that can possibly affect the relationship between the predictor and outcome variable, but its effect may not be quite significant.

1.4. Problem Statement

Substance use and non- adherence to treatment are conditions that deteriorate the health outcome of persons with substance use disorders. However, the increase in alcohol use, especially in Rift Valley, shows that drug addicts are not aware of these eventualities (NACADA, 2012). As such, the study embarked on finding out the substance use literacy level among moderately and severely addicted substance users in Naivasha, and its effect on their medical regimen adherence.

1.5. Significance of the Study

The results of this study would inform policy makers regarding treatment of substance use patients, especially on whether improving literacy levels of these patients is a viable treatment plan. If the viability is in question, this will justify cutoffs in literacy imparting interventions; hence increasingly viable interventions will get increased funding. If the viability is not in question, then funding organizations will have a stronger basis for supporting substance use literacy increasing interventions.

This research would also add to the growing need for scholarly information in substance use literacy. So far only the study done by Loureiro et al. (2013) has exclusively portrayed the prevalence of substance use literacy. However, it has not equated the literacy to medical regimen adherence. With this regard, this research would not only add to the scholarly literature, but also guide health professionals on areas to improve on in substance use literacy so as to increase adherence. Eventually, the general health outcome among substance users would be improved and unhealthy outcomes will be mitigated.

The research would also be an added advantage to medical sciences as the QuALiSMental

tool would be adapted to the Kenyan context. This would ensure a valid and reliable tool for

measuring mental health literacy is available for similar studies.

1.6. Research Question

What is the impact of substance use literacy on adherence to medical treatment among

substance users?

Independent Variable – Substance Use Literacy

Dependent Variable – Adherence to Medical Treatment

Subjects – Substance Users

1.7. Objectives/Aims

1.7.1. Broad Objective

To study the impact of substance use literacy and adherence to medical treatment among

adult substance users in Naivasha District Hospital

1.7.2. Primary Aims

1. To determine the association between substance use literacy and adherence to

   medical treatment among adult substance users

2. To determine

   a. The impact of socio demographic variables on adherence to medical

      treatment among adult substance users.

   b. The role of socio demographic variables in substance use literacy.

3. To determine association between substance use literacy and severity of

   addiction among substance use adults in Naivasha District Hospital.

1.8. Hypotheses

1Hypothesis – lack of substance use literacy leads to poor adherence among severely addicted

substance users

Ho – poor substance use literacy leads to poor adherence among severely addicted

substance users.

Determination of Predictor and Outcome

	Severely Addicted	
Substance Use Literacy	⟶	**Adherence to Medical Treatment**
	Moderately Addicted	
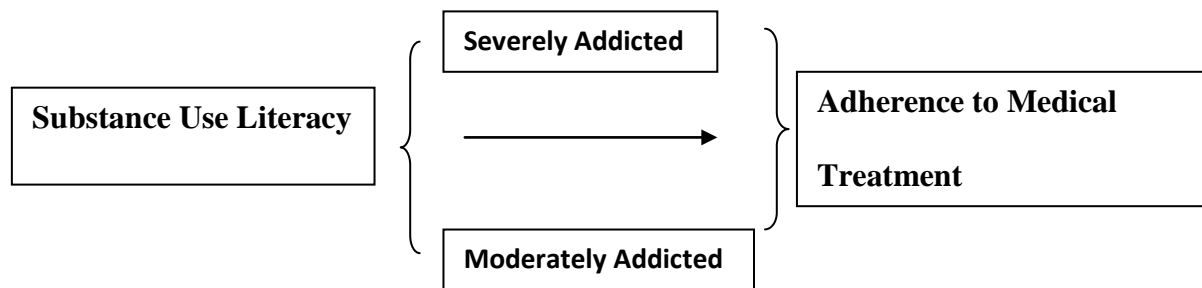
Cross-sectional research – compares substance use literacy to adherence to treatment

2. CHAPTER TWO: LITERATURE REVIEW

2.1. Introduction

Though limited, past research on substance use literacy has revealed mixed results with regards to the relationship between substance use literacy and substance use, as well as, adherence. Substance use literacy among substance users has been found to be high in some researches, while in others it has been found to be low and on others to have no significant relationship. Research and adherence among substance users has also shown mixed results. The mixed results in the adherence and substance use literacy studies have in part been generated by multiple factors in the conceptual framework. Some of the factors are confounding ones such as history of substance use, which were not adjusted during the studies. Others are limiting factors such as sample size, which limits the results to a particular population. This literature review discusses the interrelationship between literacy and adherence among substance users, as well as, the various factors that affect this relationship.

2.2. Literacy Verses Substance use

In a study done by Lincoln et al. (2008) substance abuse was related to high literacy levels when compared with other psychotic disorders, which were associated with low literacy. However, the research had a small sample size (n = 100) that could not sufficiently portray generalizable results. Moreover, the sample over-represented respondents with high education levels, and the primary instrument used to measure literacy did not cover all the dimensions of mental health literacy. The instrument used in the study was the Rapid Estimate of Adult Literacy in Medicine (REALM). In addition, the research used medical records to identify people with a certain psychiatric disorder including substance use. Previous research has shown that

health professionals usually get mixed findings when diagnosing for mental illness in the same

population. Therefore, this was not an effective way of identifying substance use respondents. A

preferable way would be using psychological tools such as ASSIST to identify substance users.

Substance use literacy has also been found to be low in some studies. In a study conducted by

Loureiro et al. (2013) substance use literacy was found to be low among a mixed population of

users and none users. The study was generalizable as it had a big sample size (n = 4938) and the

instrument of measuring mental health literacy was QuALiSMental, which measures all the

subsets of mental health literacy including substance use. However, the study was done in a

school setting and it took into account only respondents aged 14 – 24 meaning that the results

could only be generalized to adolescents and people in the early adult stage. The low mental

health literacy levels could probably be attributed to the ambivalence of the answers by

respondents who identified some helpful prevention strategies as helpful and others as harmful.

Though they recognized that talking to someone with a substance use problem as helpful, they

recognized questioning about suicidality as harmful (Loureiro et al., 2013). This showed the

significance of substance use literacy especially among a population that is highly susceptible to

suffering the adverse effects of substance use.

Some researchers have found no significant relationship between substance use literacy and

substance use (Hawthorne, 1997; Wolf et al., 2007). The study done by Hawthorne (1997)

depicted that the impact of literacy was not significant with regards to substance use. The study

was on predictors of experimentation using drugs, whereby, education was found to have a slight

impact in this prediction. The prediction of tobacco use among girls was associated with low

literacy (OR = 4.2), while this relationship was insignificant in prediction of alcohol and

analgesics use in the same population. Among boys, the prediction of tobacco use was associated

with low literacy (OR = 4.2) and the prediction of alcohol use was associated with poor literacy

(OR = 2.6), while this relationship was insignificant in prediction of analgesics use in the same

population. This research shows that education programs among at risk populations are likely to

have no significant impact; hence literacy may not be sufficient in protecting at risk groups. The

research had a sample size of 3,061 respondents with both genders equally represented though

the age range was 11-12 years. This means that the research extrapolates traits only seen among

early school age people.

The study done by (Wolf et al., 2007) found no significant relationship between health

literacy and substance use. In fact, people who had inadequate health literacy were more likely to

have never engaged in smoking (46.7%) and alcohol use (75.6%) (Wolf et al., 2007). Though the

study had a large sample size (n = 2923) of people receiving Medicare health insurance, the

research used Short Test of Functional Health Literacy in Adults (S-TOFHLA). S-TOFHLA is a

health literacy measuring tool prevalently used in research, but it does not capture the mental

health literacy components and by extension substance use literacy components.

As captured above, previous researches have failed to significantly capture the components

of substance use literacy in an adult population. This was made clear by use of literacy

measuring tools that do not capture the mental health literacy components as extrapolated by

Jorm (2000), as well as, substance use literacy components as extrapolated by Loureiro et al.

(2013). Moreover, the numbers of research studies done in this area are quite limited.

2.3. Adherence Verses literacy

Some studies in this area have culminated in depicting that there is no significant relationship between adherence and literacy (Gazmararian et al., 2006; Paasche-Orlow et al., 2006). The study done by Paasche-Orlow et al. (2006) was among a group of respondents with a history of alcohol use. The research showed that low literacy was not significantly associated with low adherence; hence concluding that people who have low literacy are most likely to adhere to medication drugs than those with high literacy, however, the research used the REALM test to measure literacy levels and as pointed out above, the tool does not capture the substance use literacy components. The same was depicted in the research by Gazmararian et al. (2006), whereby low adherence was associated with low literacy, but the odds ratio of the association was found to be insignificant after a multivariate analysis was done. The research used S-TOFHLA (Short Test of Functional Health Literacy in Adults), which does not capture the substance use literacy components. This mixed result does not favor any intervention strategy when it comes to improving adherence to medication regimen.

Other studies have shown low literacy is indeed associated with decreased adherence (EL, 2013; Waite et al., 2008). The study done by EL (2013) associated 100% adherence with high literacy, while those with low literacy were found to significantly lack the 100% adherence to medication regimen. However, the research was done using the TOFHLA scale. The research done by (Waite et al., 2008) also depicted the same results as low literacy resulted in low adherence. The research, however, used REALM, which was not adequate in capturing literacy in mental health. Moreover, the researches by (EL, 2013) and (Waite et al., 2008) did not capture the substance users as standalone subset of the research sample.

As depicted above, studies that associate substance use literacy and adherence are quite

limited. The few that have been captured serve as guides to the results that were expected in this

study. As portrayed one cannot predict the outcome of this research as previous studies have

portrayed mixed results.

The studies also show global variations in results related to substance use literacy and

adherence to medical regimen. So far, no research on substance use literacy has been conducted

in the regional or local areas. On the contrary, adherence to medical regimen is a common

research area that has been addressed in the regional and local areas. In Kenya, Kubo (2013)

found out that non adherence to medication regimen was significantly associated with higher

disease burden.

2.4. Factors related to substance use literacy and adherence

2.4.1. Confounding Factors
Age is one of the confounding factors that affect the relationship between various

substance use literacy studies. In one research that found a correlation between high literacy with

substance use, adjustment for age flipped the results to low literacy being associated with

substance use (Lincoln et al., 2008). This significant change portrays that age is a strong

confounding factor in substance use literacy research. Education, as well, is a strong confounding

factor. In a study done by Murphy et al. (2010) substance use and health literacy were positively

associated, but after adjusting for education and age, the association was no longer portrayed.

Depression is another confounding factor in the literacy-adherence studies. In a study

done by (Murphy et al., 2010), depression was identified as a confounding factor that was not

adjusted during the study. Not adjusting for depression was a limiting factor in the study. Other

studies have revealed that there is a significant association between literacy and depression, in

that, low literacy is significantly associated with severe depression (Lincoln et al., 2006).

Other confounding factors that seem to have a similar effect to the literacy-adherence

association as extrapolated above include social economic status (income, education and

occupation) (Berkman et al., 2011), gender (Nuwagaba-Biribonwoha et al., 2012), and history of

substance use (Kalichman, Ramachandran, & Catz, 1999). All the confounding factors were

taken into account during data collection and adjusted during analysis.

2.4.2. Mediators

Outcome expectation is one of the mediators to the literacy-adherence association. In a

study done on the effect of outcome expectation on adherence, the findings suggested that the

low heath literacy was associated with low level of outcome expectation, which in turn resulted

in decreased adherence (Navarra, Neu, Toussi, Nelson, & Larson, 2013). The level of outcome

expectation, hence mediates the relationship between adherence and health literacy.

Another mediator is medication self-efficacy. Studies have concluded that patients with

low health literacy may have poor health outcomes such as none adherence if they have low

medication self-efficacy (Berkman et al., 2011). Patient's medication self-efficacy, therefore,

mediates the relationship between adherence and literacy.

2.4.3. Effect Modifiers/ Moderators

Stigma is an effect modifier as it tends to moderate the relationship between literacy and

adherence. In a study done by Waite et al. (2008) perceived social stigma among the respondents

tended to mediate the literacy-medication adherence relationship (AOR = 3.1). Low literacy was

found to be independently associated with stigma suggesting that none adherence was not only

associated with literacy levels, but also the stigma involved in taking medication. In tandem with

this conclusion, social support, as well, modifies the direction of the relationship between

adherence and literacy. A study on adherence and literacy in patients with high blood pressure

concluded that social support, as well as, the traits in a health care system redirect and/ or modify

the magnitude of the association between literacy and adherence (Berkman et al., 2011). Social

support is, therefore, an effect modifier.

Severity of addiction is another effect modifier that was used in this research to

dichotomize the sampling group of substance users. Past studies have revealed mixed results

with regard to the effect that addiction severity has on the association between literacy and

adherence. In one study, addiction severity was found to have no significant association with

literacy (Lincoln et al., 2006). However, another study revealed that the likelihood of none

adherence increases with severity of addiction ranging from problem drinking, harmful drinking

and eventually dependent drinking (Nuwagaba-Biribonwoha et al., 2012). Severity of addiction,

therefore, mediates the relationship.

2.4.4. Covariate

The type of substance used may be a covariate as it may affect the literacy and adherence

variables among other variables though probably not significantly.

2.5. Rationale/ Justification

Substance use literacy is vital in improving recovery outcomes in substance users. As

such, measurement of the strengths and weaknesses of substance use literacy could aid in

improving awareness, enhancing communication tools, increasing empowerment and lowering

costs of health care.

Substance use literacy as opposed to mere awareness is vital in improving health

outcomes among substance use patients. Though literacy and awareness may be used

synonymously in some cases, literacy covers a wider scope as it encompasses not only

awareness, but also the ability to recognize, manage and prevent substance use disorders. This

difference is exemplified by the NACADA study results where Rift Valley was projected to have

a high and increasing rate of drug use despite having high drug awareness rates. Rift Valley has a

high rate of alcohol abuse, which has increased from 12.5% in 2007 to 15.7% in 2012, as well as,

a high awareness rate in alcohol (99.1%) (NACADA, 2012). This clearly shows that substance

use literacy is indeed lacking despite the awareness. The increased substance use could predict

non-adherence to medical regimens.

3. CHAPTER THREE: RESEARCH DESIGN AND METHODOLOGY

3.1. Study Design

This was a cross sectional study, which evaluated substance use literacy, adherence to medical treatment and addiction severity among adult substance users attending Naivasha district hospital's Comprehensive Care Center (CCC). The study compared the severely addicted to the moderately addicted individuals. The predictor variable was substance use literacy, while the outcome variable was adherence to medical treatment.

3.2. Study Population

3.2.1. Setting

The study took place in the Naivasha District Hospital, which is a level 4 hospital specializing in inpatient and outpatient medical services. The medical facility is located on Kenyatta Avenue in Naivasha town, Rift Valley. It is a government hospital, which can admit over 5,000 patients per month. In November, the general ward had 5,343 new cases, and 417 re-attendances. The lowest number of patients admitted was seen in December, where 728 new patients were admitted. However, the Medical Outpatient Care Unit attends to a far greater number of patients as 9,441 new cases were attended to in November, while December saw the lowest number of new patients; 3,442. Despite the general ward having quite a huge number of patients, the number of patients with mental disorders admitted in November was 31, while in December there were 4 admitted patients. Despite this small number, the psychiatrist in charge said that he sees on average 300 substance use patients on a monthly basis. Though Naivasha District Hospital has a small bed capacity, the patient capacity is more than the beds, due to

population increase in Naivasha town as a result of the thriving horticulture businesses. General

medical services offered in the hospital include maternity, palliative care, antiretroviral services,

psychiatric services and laboratory services.

3.2.2. Target Population – Substance users

Respondents in the study were substance users randomly identified while attending the

Naivasha District Hospital's CCC.

3.3. Sampling Frame

3.3.1. Sampling Size

According to Dr. Joseph Nganga, who is the treating psychiatrist at Naivasha District

Hospital, the hospital sees an average of 10 substance use patients on a daily basis with 3 – 5

new cases daily. Based on this statistic, the total population of substance use patients could be

averaged at 300 per month accounting for an average of 10 cases on a daily basis.

Therefore, n = 300

This study involved categorical variables; hence Cochran's sample size formula was the

most appropriate. Cochran's formula also takes into account an important risk element that the

researcher wants to accept at 95% confidence interval. This confidence interval is within the true

margin error also called type 1 error or an alpha level of .05. This measure is ideal as it would aid

in arriving at a statistically significant difference between the dichotomized test groups. With this

measure, any deviation from the null hypothesis would be discovered; hence aid in identifying a

difference between the dichotomized groups.

Using Cochran's formula for calculating sample size, this was the sample size:-

$$no= \frac{(t)^2 * (p)(1 - p)}{(d)^2}$$

Where:-

t   is the alpha level, which has been set at .05. Therefore each tail is .025 resulting in

a value of 1.96, which corresponds with the 95% confidence level.

p   is the prevalence of substance use in general medical facilities, which is 52.78%

(Ndetei et al., 2009). As a proportion, this will be 0.53 with $(1-p) = 0.47$

n_o is the sample size

d   is the acceptable margin of error or degree of accuracy, which was set at .05

(Bartlett, Kotrlik, & Higgins, 2001)

Therefore:-

$$n_o= \frac{(1.96)^2 * (0.53) (0.47)}{(0.05)^2} = 383$$

However, sample size exceeds 5% of n=300 (300*.05 = 15)

Using Cochran's correction formulae

$$n_1= \frac{n_o}{(1 + n_o / Population)}$$

Required return sample size (n_1) is:-

$$n_1= \frac{(383)}{(1 + 383/300)} = 168$$

The calculated sample size was, however increased by 10%, because the expected attrition rate

was 10%. The response rate was predicted to decrease because of participants who would have

chosen to pull out of the research at the beginning or mid way through the questionnaire filing.

Moreover, some of the questionnaires may not have been fully filled; hence the anticipated none response rate. With this regard, the adjusted sample (n_2) was calculated to be:-

$$n_2 = 168 \ (110/100) = 185$$

The sampled group was dichotomized into severe and moderate addiction groups. A Severity Addiction Test – Self Report was carried out to determine in which categories the respondents were eligible. The respondents in both groups were then tested for substance use literacy and adherence to medical treatment.

3.3.2. Sampling method

Purposive sampling was carried out as each patient attending the hospital was subjected to an ASSIST questionnaire to identify if he or she uses any substance. The patients were purposively selected because they meet the substance use criteria. This sampling method was carried out in the CCC. The CCC clinic functions from Monday to Friday.

3.3.3. Sampling procedure

On data collection day, all patients attending the CCC were approached and requested to sign up for the study. The request was in form of a verbal explanation of the study, as well as, a written consent. The respondents who gave consent were then shown to a room set aside for the study and given an Alcohol, Smoking and Substance Involvement Screening Test (ASSIST) questionnaire. The questionnaire determined their eligibility for the study. A score of 1 and above made one eligible for the study. In addition, the subjects must have had a medical record in the hospital. The people recruited must also have known how to read and write in English, which was ascertained by simply asking if they knew how to do these functions.

3.4. Measurement

Substance use literacy refers to "people's understanding and beliefs" about substance use disorders (JORM, 2000). This variable is significant among users and non users as it aids in making knowledgeable health judgments. This variable was measured through substance use literacy questionnaire using substance use vignette incorporated in the QuALiSMental. The vignette contained a description of a person with a substance use disorder and the accompanying questions deciphered whether or not the respondent knew about this problem, as well as, prognosis, treatment and help seeking behaviors. The response to these questions were grouped into five components namely Alcohol abuse recognition; Recognition of professional help and available treatments; Recognition of the effectiveness of self-help strategies; Knowledge and skills to provide support and first aid to others; as well as, Knowledge of how to prevent mental disorders. Each component had its own set of questions. Disorder recognition was captured in question 1. Recognition of professional help and available treatments was captured in question 3, 4, 5, 6, 10 and 11. Recognition of the effectiveness of self-help strategies was captured in question 2, 12 and 13. Knowledge and skills to provide support and first aid to others was captured in question 7, 8, 9 and 16. Knowledge of how to prevent mental disorders was captured in question 13, 14, 15, 17, 18 and 19.

Adherence to medical treatment refers to the degree in which individual's diagnosed with a certain medical illness and put under treatment are able to maintain and follow-up on the treatment regimen. The 8-item Morisky Medication Adherence Scale identified the level of adherence of each of the respondents. The responses were coded as 1 for Yes responses and 0 for No responses. The scores were summed up and respondents scoring a total of 0 were grouped

in the high adherence category; those scoring a total of 1-2 were grouped into medium adherence category; as well as, those scoring above 2 total score being categorized as low adherents.

3.5. Variables Description

The variables of interest that were collected first were the socio-demographic variables. These variables included age, gender, education background, income, and social economic status. The predictor variable, substance use literacy, was collected using the QuALiSMental, while the outcome variable, Medical adherence was collected using the 8-item Morisky Medication Adherence Scale. The moderating variable, severity of addiction, was measured and collected using an Addiction Severity Test – Self Report.

3.6. Instruments Description

The socio-demographic questionnaire was researcher designed. It incorporated components such as age, gender, education background, income, occupation and history of substance use.

The exposure variable, substance use literacy, was measured using QuALiSMental, which had a substance use vignette. The QuALiSMental - Questionnaire Assessment of Literacy in Mental Health had already been used by Loureiro et al. (2013) in a similar study among the Portuguese. The instrument assesses the level of mental health literacy in five domains, which are explored using a disorder vignette. The domains include disorder recognition; recognition of professional help and available treatments; recognition of the effectiveness of self-help strategies; knowledge and skills to provide support and first aid to others; as well as, knowledge of how to prevent mental disorders. The instrument consists of a vignette describing a person suffering from a mental disorder. The description takes into account the DSM IV TR criteria for

the disorder described. A series of multiple response items are asked with regards to the vignette. The instrument is a qualitative measure; and scoring is based on how correctly and knowledgeably the participant responds to the components' questions. The instrument was adapted from the Mental Health Literacy Survey originally created and validated by JORM (2000); Jorm et al. (1997). Jorm's questionnaire contains several vignettes related to mental disorders with one that links depression and substance use. However, the questionnaire does not contain a vignette on substance use as a standalone subset. Loureiro et al.(2013) recognized this deficit and created a substance use vignette though with questions similar to those contained in the Mental Health Literacy Survey. He called it the QuALiSMental. The QuALiSMental was ethically quantified and endorsed by the Ethics Committee of the Health Sciences Research Unit-Nursing (UICISA-E) in the Nursing School of Coimbra (No.:p58-12/2011) (Loureiro et al., 2013). Though standardization and validation studies have not been conducted on the QuALiSMental, several similar studies have been conducted on Jorm's Mental Health Literacy Survey. In a study conducted by Kelly et al. (2011), the depression and schizophrenia vignettes in Jorm's questionnaire were found to have a strong inter-rater reliability. The kappa coefficient in the depression vignette responses was 0.94, while that of schizophrenia was 0.96 (Kelly et al., 2011). The vignette responses also showed construct validity as the knowledge about mental health problems mean score tended to increase from 11.44 (SD – 3.23) during the pre-training period to 15.86 (SD = 2.63) during the post training period (Kelly et al., 2011). This showed that there was a significant association between the vignette questions and the responses, which yielded theoretical support.

The 8-item Morisky Medication Adherence Scale (MMAS) measured the outcome variable; adherence to medical treatment. The instrument categorizes adherence measures into

low, medium or high adherence measures. The instrument has already been used in Kenya to assess adherence to hypertensive medications in a study used to determine elements linked to hypertension within a population of renal transplant recipients (Kubo, 2013). The MMAS – 8 has already shown strong reliability and validity measures as tested using both the Item Response Theory (IRT) and Classical Test Theory (CTT). The instrument has been found to have a reliability score of Cronbach's alpha 0.72 to 0.83 (Gupta & Goren, 2013). Though the instrument was originally created for measuring adherence to hypertension medication, it has been found to have content validity in measuring adherence to various forms of medication including Antiretroviral drugs.

The Addiction Severity Index is an instrument popularly used to assess the severity of addiction among substance users. The instrument contains several subsets that identify problem areas in the life of addicts, and the severity of these problems. In this study, the alcohol and drugs subset was used to assess the severity of substance use. According to the participants' responses in the test, the results were dichotomized into either moderately addicted or severely addicted. The composite scores in this test range from 0 for no symptoms to 1.0 for high severity (Marcus & Zgierska, 2013). This instrument has been found to have high inter-rater reliability and applicable across different populations including among substance abusers who have mental illness (Marcus & Zgierska, 2013). In a study that assessed alcohol and drug addiction severity in schools, the instrument was found to be highly reliable and valid. The ASI scores for reliability ranged from .84 for alcohol to .69 for drug addiction, while Cronbach's alpha ranged from .78 for alcohol to .68 for drug addiction (Marcus & Zgierska, 2013). The scores show that the instrument has internal consistency; hence it is reliable. The instrument also has high concurrent validity. The drug subset has been found to have a high correlation of 0.61 which corresponds

with the Short Index of Problems-Drugs (SIP-D), while the alcohol subset had a correlation of

0.68 when compared with the SIP for alcohol consequences (Cacciola, Alterman, Habing, &

McLellan, 2011). This showed that the ASI was capable of accurately deriving the current

severity of problems with regards to drug and alcohol subset. The instrument has been used in

Kenya to assess patterns and level of various substances of abuse (Ong'any, 2004).

The World Health Organization's ASSIST - Alcohol, Smoking and Substance

Involvement Screening Test is a useful tool in identifying substance users. The tool has been

used prevalently in screening psychoactive substance users in various settings. In Kenya,

ASSIST has been used in identifying substance use prevalence in medical facilities, as well as,

among street children (Ndetei et al., 2009; Othieno, Ndetel, Obondo, & Kathuku, 2000). The tool

has been found to be quite reliable and valid. ASSIST has shown a test-retest reliability as found

in a study conducted in nine countries, as well as, concurrent, predictive, construct and

discriminative validity (Ali & Humeniuk, 2006). The tool is, therefore, consistent, sensitive and

accurate in measuring substance use. The tool consists of 8 items that are scored as low,

moderate or high substance involvement risk.

3.7. Data Collection Procedure

Before data collection, a questionnaire incorporating all the study tools was formed. An

informed consent was also prepared before hand, and a consent form giving permission to recruit

the respondents was signed. Several copies of the questionnaire and informed consent were made

in accordance to the sample size.

First, the respondents were recruited from the CCC in Naivasha District Hospital. The

recruitment procedure involved approaching every adult patient in the clinic aged 18 years and

above, and informing them about the research both orally and in written form, as well as, getting an informed consent from the patients. Patients who gave an informed consent were then shown to a room where the study was conducted and requested to fill in the ASSIST questionnaire. Patients who met the substance use criteria were recruited into the study. A questionnaire incorporating all the data collection tools was then administered. In the questionnaire, the respondents first attended to the socio-demographic questionnaire. The participants were then evaluated using Self Report test of the Addiction Severity Index, the QuALiSMental and lastly the 8-item Morisky Medication Adherence Scale.

As discussed above, the instruments have been used locally and have been proven to be valid and reliable. However, the QuALiSMental is a unique tool to the Kenyan context having been used only in Portugal. As such, some of the wordings in the questions were modified to suit the Kenyan context. The questionnaire was solely in English, and hence respondents who could not understand English were excluded. This was instilled, in a bid, to ensure all the respondents understood the questions and responded rationally.

The researcher collected the data. The researcher's background is in Clinical Psychology, and the training in substance use and induced disorders put the researcher in a qualified position to correctly identify substance users. Moreover, the researcher tapped into the expertise of health care givers in the hospital who were conversant with the patients.

3.8. Piloting

Since quite a variety of tools were incorporated in the research, only the subsets that were applicable to this study were used, in a bid, to shorten the questionnaires. The alcohol and drug subset was the only subset derived from the Addiction Severity Index, while the substance use

vignette was the only one derived from the QuALiSMental. The socio-demographic questionnaire was designed by the researcher. The QuALiSMental is the only tool that has not been used in Kenya. A pilot test was carried out among 20 substance users in Kenyatta National Hospital. During the test, many of the respondents did not completely fill in their questionnaires citing they were too long and they did not have time to fill them.

3.9. Ethical Considerations

A written informed consent was given right before data collection. Among other things, the informed consent identified the right of the respondents to volunteer to the research, as well as, back out at any time during data entry. The consent identified the confidentiality of all responses.

The respondents were given a token of appreciation for their participation in the research.

Since the research purely involved filling in a questionnaire, no physical harm or risks were induced on the respondents. However, in cases where a respondent was identified as having a serious medical or psychological condition that may impair their response, the respondents were referred to the treating physician at the hospital. Naivasha District Hospital has Dr. Joseph Nganga who is the psychiatrist in charge of the Psychiatric Clinic.

A letter seeking permission to conduct research in Naivasha District Hospital was given to the medical superintendant, as well as, the Ministry of Health. A similar letter also seeking permission to conduct research was addressed to the KNH/UON ERC.

3.10.   Data Analysis and Presentation

After data collection, the data was cleaned and all the questionnaires that were not completely filled were removed. The rest of the questionnaires were numerically coded and

identifiers attached to differentiate between the patients. The data was then computerized and analyzed using chi square in SPSS version 20. The chi square analysis was used to decipher whether the substance use literacy had a statistically significant effect on adherence to medical treatment. The data was presented in the form of bar graphs, histograms, pie charts and frequency tables, which also explain distribution and dispersion of relevant factors.

3.11. Quality Assurance

The questionnaires were piloted among 20 substance users in Kenyatta National Hospital's CCC clinic. This was done a month before data collection. According to the piloting results, the questions in the questionnaire were refined, as well as, standardized. Data collected was computerized daily. However, questionnaires with missing information were not entered.

4. CHAPTER FOUR: RESULTS

4.1. Response Rate

The sample size required for the study was 185 substance users' the number of respondents that participated in the study was 179. The response rate was therefore almost **97%.**

4.2. Socio-Demographic Factors

Table 1: Socio-Demographic Profile

	Frequency/ Percent (**N/%**)		Frequency/ Percent (**N/%**)
Gender		**Period of Use**	
Male	88(49.2%)	Days	31(17.3%)
Female	90(50.3%)	Months	28(15.6%)
No Response	1(0.6%)	Years	113(63.1%)
		No Response	7(3.9%)
Age			
18 to 25yrs	12(6.7%)	**Income**	
26-to 33 yrs	35(19.6%)	0-9,999	128(71.5%)
34 to 41yrs	49(27.4%)	10,000-19,999	18(10.1%)
42 to 49 yrs	38(21.2%)	20,000-29,999	9(5.0%)
50 to 57yrs	12(6.7%)	30,000-39,999	2(1.1%)
58 yrs & above	9(5.0%)	40,000 & above	1(0.6%)
No Response	24(13.4%)	No Response	21(11.7%)
Education Background		**Occupation**	
None	11(6.1%)	Unemployed	45(25.1%)
Primary	94(52.5%)	Employed	59(33.0%)
Secondary	64(35.8%)	Self employed	66(36.9%)
University(U-Graduate)	9(5.0%)	Others	6(3.4%)
University(Masters)	1(0.6%)	No Response	3(1.7%)

As shown in Table 1, most of the respondents were females (50.3%) and a significant number of the respondents were aged between 34-41 years (27.4%).

4.3. Substance Use Literacy

Substance use literacy involves the following four components:

1. Disorder recognition.

2. Recognition of professional help and available treatments.

3. Recognition of the effectiveness of self-help strategies.

4. Knowledge and skills to provide support and first aid to others.

5. Knowledge of how to prevent mental disorders.

Respondents were responding to the following vignette

> Jorge is a 25 year old who attends college. Last year he began drinking alcohol and got drunk at all the parties / gatherings that he was at. His parents worried because Jorge had declining academic performance, was missing classes due to hangovers, and was having his parents called to college because he was appearing intoxicated in class. At the last party, friends called a nearby hospital because he was unconscious.

Table 2: Substance Use Literacy Profile - Respondents Disorder Recognition Abilities

Responses To What Is The Subject's Problem	Frequency/ Percent (N/%)		Frequency/ Percent (N/%)
Don't know	24(13.4%)	Nervous Breakdown	19(10.6%)
There is nothing wrong	14(7.8%)	Substance Abuse e.g. Alcohol	76(42.5%)
Depression	78(43.6%)	It's a crisis of her age	13(7.3%)
Schizophrenia	8(4.5%)	Psychological/ Mental / Emotional Problems	31(17.3%)
Psychosis	16(8.9%)	Anorexia	7(3.9%)
Mental illness	38(21.2%)	Has a problem	59(33.0%)
Bulimia	7(3.9%)	Alcoholism	73(40.8%)
Stress	90(50.3%)	Cancer	17(9.5%)

Table 3: Substance use Literacy Profile - Respondents Ability to Recognize Professional Help & Available Treatment

	Frequency/ Percent (N/%)		Frequency/ Percent (N/%)
Seeking Help		**Feeling of Confidence**	
My Mother	58(32.4%)	Extremely Confident	35(19.6%)
My Father	9(5.0%)	Very Confident	82(45.8%)
A Friend	35(19.6%)	Confident	41(22.9%)
My Girlfriend/Boyfriend	3(1.7%)	Little Confident	3(1.7%)
A Teacher	5(2.8%)	Not At All Confident	11(6.1%)
A Health Care Professional	66(36.9%)	No Response	7(3.9%)
Other	2(1.1%)		
No Response	1(0.6%)		
Ease of Talking To Your Parents			
With The Mother			106(59.2%)
With The Father			62(34.6%)
My Parents Are Not Present			9(5.0%)
My Parents Are Not Available			22(12.3%)
My Parents Are Not Aware Of These Issues			32(17.9%)
Do Not Know			13(7.3%)
Other Reasons			6(3.4%)
What Could Prevent Asking For Help			
Think that the person will have a negative opinion about me			103(57.5%)
Think that the person doesn't value what I say			47(26.3%)
Think that the person is likely to tell other people			84(46.9%)
Think that a person can come to think about me			36(20.1%)
Think that nothing could help me			44(24.6%)
Think that you would know that I'm getting help from a health professional			43(24.0%)
Thinking that I may have difficulty accessing this person/ health professional			24(13.4%)
Think that the treatment has side effects			32(17.9%)
Being very shy, ashamed			53(29.6%)
Other reasons			7(3.9%)

Professional Help	Mean	Standard Deviation(±)	Knowledge Of Helpful Drugs	Mean	Standard Deviation(±)
A Family Doctor	1.24	.709	Vitamins	1.36	.885
A Teacher	1.49	.954	Teas	2.31	1.281
A Psychologist	1.63	1.160	Tranquilizers	2.83	1.242
A Nurse	1.25	.676	Antidepressant	2.71	1.327
A Social Worker	1.71	1.120	Antipsychotics	2.68	1.318
A Psychiatrist	1.94	1.281	Sleeping Pills	2.36	1.065
A Telephone Counselor	2.05	1.226	No Response	1.36	.885
A Close Family Member	1.30	.775			
A Close Friend	1.29	.747			

Solve His Own Problems	2.13	0.971

Table 4: Substance Use Literacy Profile - Respondents Ability to Recognize Effectiveness of Self Help Strategies

	Yes	No	Do Not Know
If The Respondents Will Seek Help	159(88.8%)	12(8.7%)	7(3.9%)

Activities That Could Help	**Mean**	**Standard Deviation(±)**
Do Physical Exercise	1.39	.884
Practicing Relaxation Training	1.70	1.082
Practicing Meditation	1.87	1.219
Doing Acupuncture	2.67	1.367
Getting Up Early In The Morning	2.03	1.126
Therapy With A Specialist	1.78	1.204
Consulting A Site Containing Information About The Problem	1.46	.929
Reading A Self Help Book On The Problem	1.54	1.031
Join A Support Group For People With Similar Problems	1.34	.780
Find Expert Help In Mental Health	1.56	1.019
Using Alcohol To Relax	2.17	.770
Smoking To Relax	2.20	.760

Table 5: Substance Use Literacy Profile - Respondents Ability to Recognize Knowledge & Skills that Provide Support& First Aid to Others

How Respondent Could Help	**Frequency (N)**
Offer Advice/Counseling	162(90.5%)
Offer No Advise	4(2.2%)
No Response	13(7.3%)
Extremely Confident	31(17.3%)
Very Confident	8(49.2%)
Confident	42(23.5%)
Little Confident	6(3.4%)
Not At All	8(4.5%
No Response	4(2.2)

Options That Respondents Could Use	**Mean**	**Standard Deviation(±)**
Listen To His Problems Comprehensively	1.34	.777
Tell Him Firmly To Go Forward	1.97	.825
Suggest That He Seek Help From A Health Professional	1.39	.897

	Mean	Standard Deviation(±)
Have Him Make An Appointment At The GP With Your Knowledge	1.97	1.235
Ask If He Has Suicidal Tendencies	2.06	1.100
Suggest Having A Few Drinks To Forget Problems	2.12	.818
Gather A Group Of Friends To Cheer Him Up	1.99	.947
Options That Respondents Could Use	**Mean**	**Standard Deviation(±)**
Not Valuing His Problem, Ignoring It Until He Feels Better	2.09	.853
Keep Him Busy So He Does Not Think Much About His Problems	1.67	1.032
Encourage Him Exercise	1.67	1.072

Table 6: Substance Use Literacy Profile - Respondents Ability to Recognize Knowledge on How to Prevent Mental Disorders

	Yes	No	Do Not Know
Reducing Risks of Developing A Condition			
Practice Physical Exercise	140(78.2%)	26(14.5%)	13(7.3%)
Avoid Situations That Cause Stress	156(87.2%)	11(6.1%)	9(5.0%)
Maintain Regular Contact With Friends	116(64.8%)	48(26.8%)	6(3.4%)
Maintain Regular Contact With Family	145(81.0%)	20(11.2%)	6(3.4%)
Not Using Drugs	137(76.5%)	27(15.1%)	7(3.9%)
Practicing Relaxing Activities Regularly	119(66.5%)	32(17.9%)	16(8.9%)
Do Not Drink Alcoholic Beverages	150(83.8%)	18(10.1%)	4(2.2%)
Had A Religious Belief Or Spiritual	138(77.1%)	17(9.5%)	17(9.5%)

Personal Opinion On Situation	Mean	Standard Deviation(±)
If Jorge Wanted To, He Could Come out of This Situation For Me	2.38	1.608
His Situation Is A Sign of Personal Weakness	2.57	1.547
This Is Not A True Disease	2.84	1.635
Jorge Is Dangerous To Others	3.23	1.566
The Best Way To Avoid Developing A Situation Like His Is To Distance Myself From Him	3.39	
His Situation Makes Him An Unpredictable Person	3.02	1.685
Never Tell Anyone If I Had A Situation Like His	3.53	1.519

Other People's Opinion On Situation	Mean	Standard Deviation(±)
Believe that If Jorge Wanted To, He Could Come out of This Situation For Me	2.50	1.439
" " His Situation Is A Sign of Personal Weakness	2.56	1.507
" " This Is Not A True Disease	2.72	1.646
" " Jorge Is Dangerous To Others	3.46	1.636

" " The Best Way To Avoid Developing A Situation Like His Is To Distance Myself From Him	3.28	1.593
" " His Situation Makes Him An Unpredictable Person	3.12	1.761
" " Never Tell Anyone If I Had A Situation Like His	3.67	1.479

If Someone In Your Family/ Close Circle Of Friends In A Similar Situation	Yes	No	NR
	106(59.2%)	73(40.8%)	0(0%)
Are They Receiving Any Help?	**Yes**	**No**	**NR**
	83(46.4%)	70(39.1%)	26(14.5%)

Respondents Opinions On Statements Regarding Mental Illness	Mean	Standard Deviation(±)
Mental Illnesses Are Cyclical	3.31	2.025
If People Care About Themselves They Can Prevent Mental Illnesses	3.95	2.001
People With Mental Illnesses Are Able To Live In Their Communities If They Have Adequate Support	4.35	1.863
Mental Illness Of Individuals Results From Lack Of Care	3.76	1.940
Delays In Treatment Worsen The Success Of Healing Mental Illness	4.43	1.907
Initial Treatments Of Mental Illnesses Require The Use Of Medicines	3.95	2.023
Misunderstandings About Mental Illnesses Makes It Difficult For The Mentally Ill To Live In The Society	3.65	2.113
A Person With Mental Illness Should Have A Job Which Requires Little Responsibility	3.48	2.127
Mental Illness Is A Disease Of The Head	3.87	2.084
The Behavior Of A Person With Mental Disease Is Unpredictable	3.63	2.104
Mental Illnesses Require More Time To Be Healed Than Other Diseases	3.92	2.002
I Suffer From A Mental Illness	2.28	1.789
Rehabilitation Is Effective In Improving Mental Illness	4.04	2.099
People Who Have Received Treatment For Mental Illness Once Require Further Treatment In The Future	4.01	1.992
It Must Be Difficult For People With Mental Illness To Follow Social Rules Such As Punctuality Or To Fulfill The Promises They Make	4.07	2.016
Drugs Are Effective In Improving The Symptoms In Mental Illness	3.75	2.141
A Person With Mental Illness Is More Likely To Become A Criminal	3.19	2.069
If You Were To Suffer From Mental Illness, It Is Because You Didn't Have The Care You Should Have Had	3.28	2.047
The Mentally Ill Tend To Be Dangerous	3.80	2.003
Taking Medicines For Lifelong Mental Illness makes People Dependent On These Drugs	3.49	2.076
People With Mental Illness Have Little Ability To Live Alone Because They Cannot Take Responsibility	3.59	2.120
Individuals That Are Diagnosed As Mentally Ill, Have Symptoms Throughout Their Lives	3.32	2.060

If The Mentally Ill Live In The Family And Community; It Influences The Recovery Of His Illness	3.88	2.005

4.4. Medical Adherence
Figure 1: Medical Adherence Profile

Overall Medication Adherence Scores
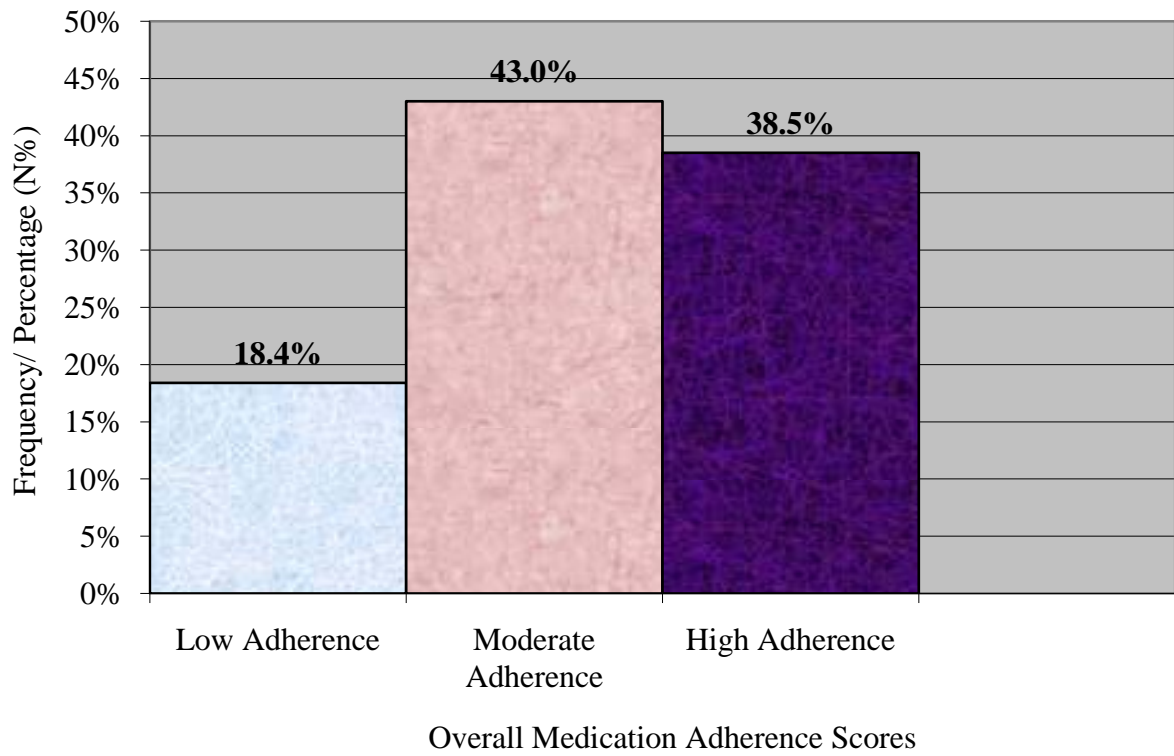
4.5. Substance Use Addiction Severity

Figure 2: Addiction Severity Profile
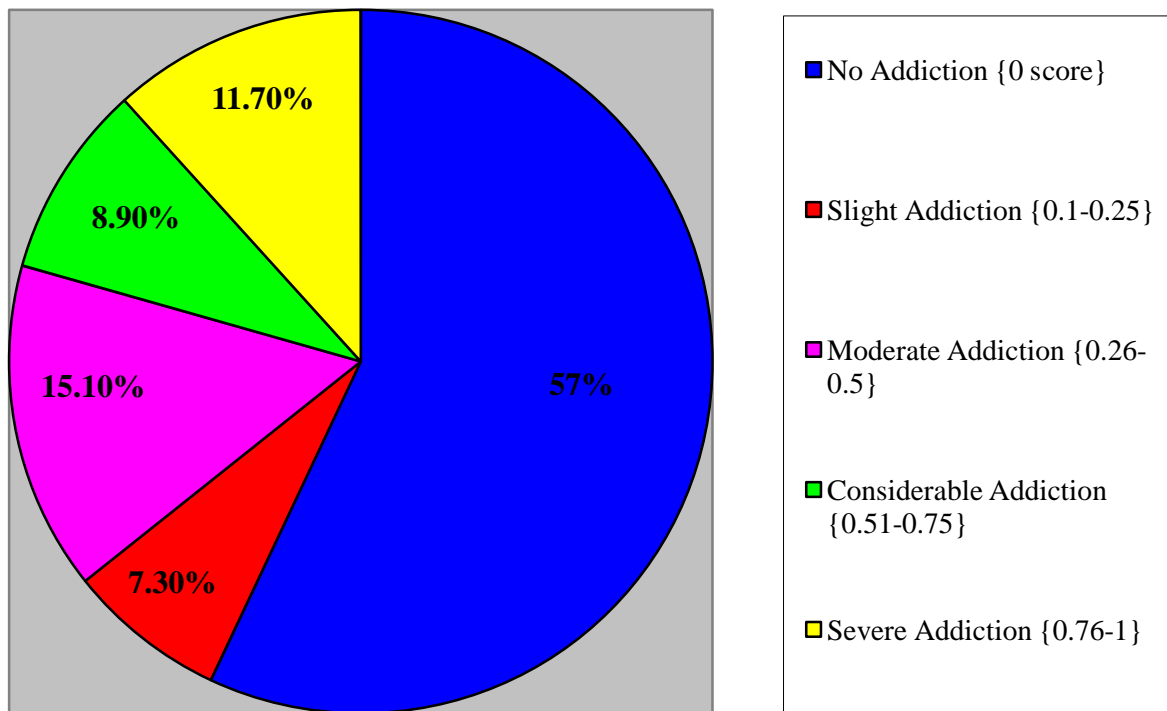
Most of the respondents were not addicted (57.0%) followed by moderate addiction at 15.1% and

severe addiction at 11.7%.

4.6. Objective 1: To Determine the Association between Substance Use Literacy and Adherence to Treatment among Substance Users

Table 7: Summary Showing Significant Association between Substance Use Literacy and Treatment Adherence

Disorder Recognition Elements

Responses To What Is The Subject's Problem	Adherence to Treatment (P-value)Chi-Square	Adherence to Treatment			Frequency
		Low Adherence	Moderate Adherence	High Adherence	
There's Nothing Wrong	0.003**	1(7.1%)	12(85.7%)	1(7.1%)	14 (7.8%)
Bulimia	0.008**	0(0.0%)	7(100.0%)	0(0.0%)	7(3.9%)

Respondents Ability to Recognize Professional Help & Available Treatment

Help & Treatment Recognition Elements	Adherence to Treatment (P-value)Chi-Square	Majority Response	Adherence to Treatment		
			Low Adherence	Moderate Adherence	High Adherence
Seeking Help	0.013**	My Mother	11(18.97%)	24(41.4%)	23(39.7%)
		A Healthcare Professional	9(13.6%)	24(36.4%)	33(50.0%)
Professional Help A Close Friend	0.050*	Useful/Helpful	22(15.2%)	62(42.8%)	61(42.1%)
Knowledge of Drugs Available Vitamins	0.004**	Useful/Helpful	25(16.9%)	59(39.9%)	64(43.2%)

Respondents Ability to Recognize Effectiveness of Self Help Strategies

	Treatment Adherence (P Value)-Chi-Square	Majority Response	Adherence to Treatment			Frequency
			Low Adherence	Moderate Adherence	High Adherence	
Activities That Could Help Do Physical Exercise	0.007*	Useful/Helpful	25(17.5%)	55(38.5%)	63(44.1%)	143(79.9%)
Join A Support Group For People With Similar Problems	0.043*	Useful/Helpful	23(16.0%)	60(41.7%)	61(42.4%)	144(80.4%)

Respondents Ability to Recognize Knowledge & Skills That Provide Support and First Aid to Others

	Treatment	Majority	Adherence to Treatment	Frequency

	Adherence (P Value)	Response	Low Adherence	Moderate Adherence	High Adherence	
Options That Respondents Could Use						
Not Valuing His Problem, Ignoring It Until He Feels Better	0.016*	Harmful	18(18.9%)	39(41.1%)	38(40.0%)	95(53.1%)

Respondents Ability to Know How to Prevent Mental Disorders

	Treatment Adherence(P-Value)	Majority Response	Adherence to Treatment		
			Low Adherence	Moderate Adherence	High Adherence
Personal Opinion On Situation					
If Jorge Wanted To, He Could Come out of This Situation For Me	0.029*	I Fully Agree	15(19.2%)	30(38.5%)	33(42.3%)
If Someone In Your Family/ Close Circle Of Friends In A Similar Situation					
	0.036*	Yes	25(23.6%)	47(44.3%)	34(32.1%)
Respondents Opinions On Statements Regarding Mental Illness					
Mental Illnesses Are Cyclical	0.016*	I Disagree Completely	12(19.0%)	18(28.6%)	33(52.4%)
Mental Illnesses Require More Time To Be Healed Than Other Diseases	0.007**	I Agree Completely	10(16.1%)	30(48.4%)	22(35.5%)
If You Were To Suffer From Mental Illness, It Is Because You Didn't Have The Care You Should Have Had	0.010*	I Disagree Completely	10(17.9%)	15(26.8%)	31(55.4%)

* Correlation is significant at the 0.05 level (2-tailed).

** Correlation is significant at the 0.01 level (2-tailed

As shown in Table 7, there was a significant correlation between adherence and recognizing that there was nothing wrong with the vignette in the subject (P value of 0.003). Of the respondents who recognized that the vignette had no problem, 85.7% of them had moderate adherence.

With regards to professionals who could help the vignette subject, Table 7 shows that a close was significantly correlated with adherence (P value of 0.050) with most respondents who considered a close friend as useful/helpful having moderate adherence (42.8%). Also noteworthy

is that the mere act of seeking help was significantly correlated with adherence (P value of 0.013).

Considering the medicines and items that could help the vignette subject only Vitamins were significantly correlated to adherence (P value of 0.004) with majority of responses considering vitamins as useful/helpful having high adherence (43.2%)

When asked the effectiveness of interventions as shown in Table 7, most respondents considered useful/helpful joining a support group (80.4%) and this was significantly associated with adherence (P- value of 0.043) with majority of the respondents supporting this intervention having high adherence (42.4%). In addition, there was a significant association between adherence and doing physical exercises (P- value of 0.007) with most respondents recognizing the intervention as useful/helpful having high adherence (44.1%).

In assessing respondents' ability to recognize knowledge and skills that provide support and first aid to others component, not valuing his problem and ignoring it until he feels better was significantly correlated with adherence (P-value of 0.016). It should be noted that most respondents considered this option as harmful (53.1%) and most of them had moderate adherence (41.1%). There was a disturbingly low endorsement for the option on asking if the subject vignette had suicidal tendencies (39.1%).

With regards to respondents ability to know how to prevent mental disorders as shown in the Table 7, having had someone in the family or friend who had gone through a situation similar to the vignette subject was significantly associated to treatment adherence (P- value 0.036) with most respondents who had this experience having moderate adherence (44.3%).

There was significant association between adherence and some elements of respondent's opinions on statements regarding mental illness such as:-

a. "If Jorge wanted to, he would come out of this situation for me" (P- value of 0.029) with majority fully agreeing with this statement and having a high adherence (42.3%).

b. "Mental illnesses are cyclic" (P- value of 0.016) with majority of the respondents disagreeing completely with this statement and having a high adherence (52.4%).

c. "Mental illnesses required more time to treat" (P- value of 0.007) with majority of the respondents agreeing completely with this statement and having a moderate adherence (48.4%).

d. "If you suffer from mental illnesses it is because of the care that you didn't have" (P- value of 0.010) with majority of the respondents disagreeing completely with this statement and had high adherence (55.4%).

4.7. Objective 2a: To Determine the Role of Socio Demographic Variables in Substance Use Literacy

Table 8: Significant Correlations between Substance Use Literacy and Socio Demographic

Variables

		Gender	Age	Education Background	Occupation	Income	Period Of Use	Having Support?
Recognition of Disorder								
There Is Nothing Wrong	P-Correlation	.045	.139	.023	-.083	-.062	**.263**[**]	.053
	Sig. (2-tailed)	.551	.084	.758	.274	.436	.000	.485
	N	178	155	179	176	158	172	175
Bulimia	P-Correlation	**.148**[*]	.056	.076	-.057	-.002	.050	.068
	Sig. (2-tailed)	.049	.490	.315	.453	.983	.512	.372
	N	177	154	178	175	157	172	174
Substance Abuse	P-Correlation	.095	**-.160**[*]	.026	-.046	-.007	.001	-.099
	Sig. (2-tailed)	.210	.048	.735	.542	.932	.993	.193
	N	177	154	178	175	157	171	174
Alcoholism	P- Correlation	.044	-.071	.003	-.020	**-.263**[**]	-.047	.066
	Sig. (2-tailed)	.563	.381	.970	.790	.001	.539	.386
	N	178	155	179	176	158	172	175
ASI Scores	P-Correlation	.034	-.119	**.188**[*]	.057	.099	-.018	.080
	Sig. (2-tailed)	.655	.141	.012	.452	.217	.814	.293
	N	178	155	179	176	158	172	175

		Gender	Age	Education Background	Occupation	Income	Period Of Use	Having Support?
Recognition of Professional Help & Available Treatment								
From Whom Would You Seek Help?	P-Correlation	-.116	.073	**.212****	-.029	.142	.136	.054
	Sig. (2-tailed)	.124	.366	.005	.701	.076	.077	.478
	N	177	154	178	175	157	171	174
Think That The Person Is Likely To Tell Other People	P-Correlation	.044	-.184*	**-.194****	-.022	-.145	.032	-.120
	Sig. (2-tailed)	.557	.022	.009	.776	.069	.678	.115
	N	178	155	179	176	158	172	175
Ease of Talking: Yes With My Mother	P-Correlation	**-.186***	.122	.021	.012	-.019	.007	.046
	Sig. (2-tailed)	.014	.133	.777	.870	.816	.925	.549
	N	176	154	177	174	156	170	173
Yes, With My Father	P-Correlation	**.268****	-.068	.027	.062	**-.200***	-.006	.032
	Sig. (2-tailed)	.000	.399	.719	.414	.012	.936	.673
	N	178	155	179	176	158	172	175
A Psychologist	P-Correlation	**.208****	-.030	-.098	-.058	-.109	-.107	-.128
	Sig. (2-tailed)	.006	.716	.196	.450	.178	.169	.097
	N	173	150	174	171	154	167	170
A Psychiatrist	P-Correlation	**.174***	-.118	-.038	-.004	-.032	-.133	.075
	Sig. (2-tailed)	.023	.155	.620	.958	.695	.090	.337
	N	170	147	170	167	150	163	166
A Close Friend	P-Correlation	.040	-.053	-.080	-.090	-.089	**-.194***	-.122
	Sig. (2-tailed)	.602	.522	.299	.244	.274	.012	.115
	N	171	149	172	169	151	165	168
Antipsychotics	P-Correlation	.118	.034	-.024	-.018	.016	**-.172***	-.035
	Sig. (2-tailed)	.126	.678	.755	.817	.846	.028	.654
	N	169	149	170	167	150	163	167

		Gender	Age	Education Background	Occupation	Income	Period Of Use	Having Support?	ASI Scores
Recognition of Effectiveness of Self Help Strategies									
If You Are Experiencing A Similar Situation; Would You Seek Help	P-Correlation	-.105	-.059	-.047	**.161***	-.103	-.063	.106	.093
	Sig. (2-tailed)	.162	.465	.534	.033	.201	.412	.165	.215
	N	177	154	178	175	157	171	174	178
Do Physical Exercise	P-Correlation	-.003	-.003	-.136	.031	-.075	**-.260****	.036	**.160***
	Sig. (2-tailed)	.973	.967	.071	.683	.353	.001	.633	.032
	N	177	155	178	175	157	171	174	178

		Gender	Age	Education Background	Occupation	Income	Period Of Use	Having Support?	ASI Scores
Knowledge & Skills To Provide Support First Aid									
To What Extent Do You Feel Confident That You Could Help	P-Correlation	**-.179***	-.079	-.031	.060	-.047	-.086	-.038	.026
	Sig. (2-tailed)	.018	.331	.687	.434	.564	.265	.619	.736
	N	174	152	175	172	154	168	171	175
Listen To His Problems Comprehensively	P-Correlation	**-.155***	-.036	-.095	-.115	-.105	-.089	-.063	-.019
	Sig. (2-tailed)	.041	.658	.208	.132	.195	.252	.414	.800
	N	175	152	176	173	155	169	172	176
Suggest That He Seek Help From A Health Professional	P- Correlation	.073	.050	**-.157***	-.117	-.150	-.124	-.062	.032
	Sig. (2-tailed)	.333	.536	.036	.123	.061	.107	.415	.668
	N	177	154	178	175	157	171	174	178
Encourage Him To Exercise	P-Correlation	-.075	.077	-.094	**-.158***	-.058	-.123	.032	.084
	Sig. (2-tailed)	.336	.355	.228	.043	.485	.120	.680	.283
	N	166	146	167	165	149	160	164	167

		Gender	Age	Education Background	Occupation	Income	Period Of Use	Having Support?	ASI Scores
Knowledge on How to Prevent Mental Disorders									
Maintain Regular Contact With Family	P-Correlation	.016	**-.173**[*]	-.044	-.075	-.042	-.130	.026	.066
	Sig. (2-tailed)	.841	.035	.566	.333	.608	.097	.743	.388
	N	170	148	171	168	151	164	167	171
Do Not Drink Alcoholic Beverages	P-Correlation	-.006	**-.210**[*]	.031	.032	-.110	-.039	-.061	.039
	Sig. (2-tailed)	.934	.010	.690	.679	.180	.619	.434	.608
	N	171	148	172	170	151	165	168	172
Jorge's Situation Is A Sign Of Personal Weakness	P-Correlation	.036	-.096	-.076	-.037	-.082	-.062	**-.198**[**]	.019
	Sig. (2-tailed)	.632	.238	.316	.630	.309	.423	.009	.802
	N	176	153	177	174	156	170	173	177
Jorge Is Dangerous To Others	P-Correlation	**.178**[*]	**-.231**[**]	.084	-.087	-.022	-.098	-.049	.041
	Sig. (2-tailed)	.018	.004	.267	.257	.790	.206	.520	.585
	N	175	152	176	173	155	169	173	176
The Best Way To Avoid Developing A Situation Like Jorge's Is To Distance Myself From Him	P-Correlation	**.189**[*]	**-.213**[**]	-.024	.024	.043	-.013	-.057	-.018
	Sig. (2-tailed)	.012	.008	.753	.754	.591	.866	.455	.809
	N	177	154	178	175	157	171	174	178
Believe That Jorge's Situation Is Not A True Disease	P- Correlation	**.164**[*]	-.078	-.058	-.080	.000	-.117	-.036	-.010
	Sig. (2-tailed)	.031	.340	.451	.298	.997	.133	.642	.898
	N	173	151	174	171	153	167	170	174
Believe That Jorge Is Dangerous To Others	P-Correlation	.033	-.052	**.187**[*]	.012	.083	-.110	.009	.008
	Sig. (2-tailed)	.662	.524	.013	.875	.310	.156	.905	.919
	N	173	152	174	171	153	167	170	174
Never Tell Anyone If I Had A Situation Like Jorge's	P- Correlation	.058	.029	.077	-.142	**.181**[*]	-.011	-.065	.076
	Sig. (2-tailed)	.452	.725	.313	.063	.025	.886	.400	.320
	N	173	151	174	172	153	167	170	174

		Gender	Age	Education Background	Occupation	Income	Period Of Use	Having Support?	ASI Scores
Knowledge on How to Prevent Mental Disorders									
If Yes; Have They Received Any Help Or Treatment From Professionals Specializing In These Situations	P-Correlation	-.108	**.182**[*]	-.091	-.052	.018	.149	.097	**-.160**[*]
	Sig. (2-tailed)	.187	.034	.265	.523	.835	.072	.239	.049
	N	152	135	153	151	135	147	150	153
People With Mental Illnesses Are Able To Live In Their Communities If They Have Adequate Support	P- Correlation	.011	-.014	**.189**[*]	-.039	.052	.096	.007	.057
	Sig. (2-tailed)	.883	.864	.012	.605	.519	.213	.930	.447
	N	177	155	178	175	157	171	174	178
Delays In Treatment Worsen The Success Of Healing Mental Illness	P-Correlation	**.150**[*]	.049	.067	.029	.114	.023	-.047	.028
	Sig. (2-tailed)	.046	.545	.376	.702	.154	.766	.541	.712
	N	177	155	178	175	157	171	174	178
A Person With Mental Illness Should Have A Job Which Requires Little Responsibility	P-Correlation	.057	-.029	-.047	-.076	.014	.064	**-.167**[*]	-.055
	Sig. (2-tailed)	.448	.721	.534	.315	.862	.403	.027	.464
	N	177	154	178	175	157	171	174	178
The Behavior Of A Person With Mental Disease Is Unpredictable	P- Correlation	-.012	.014	.086	-.024	**.237**[**]	.119	.069	-.048
	Sig. (2-tailed)	.869	.864	.255	.754	.003	.121	.369	.526
	N	177	154	178	175	157	171	174	178
Rehabilitation Is Effective In Improving Mental Illness	P- Correlation	.101	**.164**[*]	-.011	.054	.126	.029	-.003	.095
	Sig. (2-tailed)	.184	.043	.887	.478	.117	.708	.964	.212
	N	174	153	175	172	156	168	171	175

		Gender	Age	Education Background	Occupation	Income	Period Of Use	Having Support?	ASI Scores
Knowledge on How to Prevent Mental Disorders									
A Person With Mental Illness Is More Likely To Become A Criminal	P- Correlation	.067	.095	**-.181**[*]	.112	.037	-.055	-.014	.035
	Sig. (2-tailed)	.374	.239	.016	.139	.643	.474	.853	.638
	N	177	154	178	175	157	171	174	178
Individuals That Are Diagnosed As Mentally Ill, Have Symptoms Throughout Their Lives	P-Correlation	.101	-.058	-.040	-.056	.002	-.068	.008	**.150**[*]
	Sig. (2-tailed)	.184	.476	.601	.459	.976	.376	.917	.047
	N	176	153	177	174	156	170	173	177
If The Mentally Ill Live In The Family And Community; It Influences The Recovery Of His Illness	P- Correlation	.109	-.053	-.017	-.076	**.190**[*]	.093	.026	.071
	Sig. (2-tailed)	.151	.515	.825	.320	.017	.228	.734	.350
	N	175	152	176	173	156	169	172	176

** Correlation is significant at the 0.01 level (2-tailed).

* Correlation is significant at the 0.05 level (2-tailed).

As shown in Table 8, all socio demographic variables were in one way or another significantly associated with substance use literacy; hence socio demographic variables had a significant role to play in determining the level of substance use literacy. Of note is that gender and education background had a significant role to play in each of the components of substance use literacy.

4.8. Objective 2b: To Determine the Impact of Socio Demographic Variables on Adherence to Medical Treatment among Adult Substance Users

Table 9: Comparing Socio-Demographic Factors & Adherence to Medical Treatment

	Treatment Adherence			
	Low Adherence	Moderate Adherence	High Adherence	P-Value (Chi-Square)
Gender				
Male	15(17.0%)	39(44.3%)	34(38.6%)	0.877
Female	18(20.0%)	38(42.2%)	34(37.8%)	
Age				
18 to 25yrs	5(41.7%)	5(41.7%)	2(16.7%)	0.057
26-to 33 yrs	5(14.3%)	21(60.0%)	9(25.7%)	
34 to 41yrs	10(20.4%)	21(42.9%)	18(36.7%)	
42 to 49 yrs	7(18.4%)	14(36.8%)	17(44.7%)	
50 to 57yrs	1(8.3%)	3(25.0%)	8(66.7%)	
58 yrs & above	2(22.2%)	1(11.1%)	6(66.7%)	
Education Background				
None	2(18.2%)	2(18.2%)	7(63.6%)	0.097
Primary	17(18.1%)	40(42.6%)	37(39.4%)	
Secondary	9(14.1%)	32(50.0%)	23(35.9%)	
University(Undergraduate)	4(44.4%)	3(33.3%)	2(22.2%)	
University(Masters)	1(100.0%)			
Occupation				
Unemployed	9(20.0%)	17(37.8%)	19(42.2%)	0.995
Employed	11(18.6%)	26(44.1%)	22(37.3%)	
Self employed	12(18.2%)	29(43.9%)	25(37.9%)	
Others	1(16.7%)	3(50.0%)	2(33.3%)	
Income				
0-9,999	26(20.3%)	54(42.2%)	48(37.5%)	0.552
10,000-19,999	2(11.1%)	8(44.4%)	8(44.4%)	
20,000-29,999	2(22.2%)	3(33.3%)	4(44.4%)	
30,000-39,999	1(50.0%)	1(50.0%)		
40,000 & above	1(100.0%)			
Period of Substance Use				
Days	6(19.4%)	14(45.2%)	11(35.5%)	0.228
Months	14(45.2%)	17(60.7%)	6(21.4%)	
Years	21(18.6%)	43(38.1%)	49(43.4%)	

Additional Variables

	Treatment Adherence			
	Low Adherence	**Moderate Adherence**	**High Adherence**	**P-Value (Chi-Square)**
Receiving Social Support				
Yes	17(23.6%)	32(44.4%)	23(31.9%)	0.276
No	16(15.5%)	44(42.7%)	43(41.7%)	
In the past 1month have you Felt down, depressed & hopeless				
Yes	14(70.0%)	18(35.8%)	14(34.1%)	0.020
No	6(30.0%)	33(64.7%)	27(65.9%)	

With regards to Table 9, of note is that only depressive symptoms were significantly associated with treatment adherence (P- value 0.020) where majority of the respondents with depressive symptoms had low adherence (70.0%).

4.9. Objective 3: To Determine the Association between Substance Use Literacy & Severity of Addiction among Substance Users Adults in Naivasha District Hospital

Table 10: Summary of Correlation between Substance Use Literacy & Severity of Addiction

1.Correlation Between Disorder Recognition Capabilities & Severity of Addiction		ASI Scores
Nervous Breakdown	P-Correlation	-.198[**]
	Sig. (2-tailed)	.008
	N	179
2. Correlation Between Recognition Of Professional Help & Available Treatment Element Of Substance Use Literacy & Severity of Addiction		ASI Scores
Think that the treatment has side effects	P-Correlation	-.164[*]
	Sig. (2-tailed)	.028
	N	179
A Psychiatrist	P-Correlation	.156[*]
	Sig. (2-tailed)	.043
	N	170
3. Correlation Between Recognition of Effectiveness of Self Help Strategies Elements Of The Substance Use Literacy & Addiction Severity Index		ASI Scores
Do Physical Exercise	P-Correlation	-.160[*]
	Sig. (2-tailed)	.049
	N	153
4. Correlation Between Knowledge & Skills To Provide Support First Aid To Others Element Of The Substance Use Literacy & Addiction Severity Index		ASI Scores
There was no significant correlation		
5. Correlation Between Knowledge of how to prevent Mental Disorders Element Of The Substance Use Literacy & Addiction Severity Index		ASI Scores
If Yes; Have They Received Any Help Or Treatment From Professionals Specializing In These Situations	P-Correlation	-.160[*]
	Sig. (2-tailed)	.049
	N	153
Individuals That Are Diagnosed As Mentally Ill, Have Symptoms Throughout Their Lives	P-Correlation	.150[*]
	Sig. (2-tailed)	.047
	N	177

**. Correlation is significant at the 0.01 level (2-tailed).

*.Correlation is significant at the 0.05 level (2-tailed).

With regards to the impact of addiction severity on substance use literacy Table 10 shows only

the elements that had significant association. There was a significant association between

addiction severity and wrongly recognizing the disorder as nervous breakdown (P- value 0.008) where most of the respondents supporting this response had low addiction severity (p-correlation -0.198). In addition, addiction severity was significantly associated with seeking professional help with regards to thinking that the medication would have side effects as a hindrance to seeking help (P- value 0.028) and seeking a psychiatrist (P- value 0.043). Of note is that respondents with low addiction severity were more likely to endorse the former (p-correlation -0.164), while those with moderate addiction severity were likely to recognize a psychiatrist as neither helpful nor harmful (p-correlation 0.156).

As would be expected, doing physical exercises, as well as, having had someone who had a situation like that of the vignette subject were significantly associated with low addiction severity (P- value 0.049, p-correlation -0.160 & P- value 0.049, p-correlation -0.160 respectively). Individuals with moderate addiction severity were more likely to agree with the statement that individuals with mental illness have symptoms in their entire life (P- value 0.047, p-correlation 0.150).

4.10. Hypothesis Test

In testing the hypothesis, the number of severely addicted was below 30 and nearly all of them, 17 out of 21, had low adherence hence a biased sample. There was a clear association hence used percentages to determine whether the hypothesis was true or not. ANOVA could not be used due to the clear bias.

Table 11: Severely Addicted - Association between Disorder Recognition and Adherence

Severely Addicted Individuals Rx Adherence Levels			Alcoholism		Total
			Yes	No	
Adherence	High Adherence	Count	1(4.8%)	3(14.3%)	4(19.0%)
	Low Adherence	Count	6(28.6%)	11(52.4%)	17(81.0%)
		Total			21(100.0%)

			Substance Use		Total
			Yes	No	
Adherence	High Adherence	Count	2(9.5%)	2(9.5%)	4(19.0%)
	Low Adherence	Count	6(28.6%)	11(52.4%)	17(81.0%)
					21(100.0%)

Table 12: Severely Addicted - Association between Recognition of Professional Help & Available Treatment & Adherence

Professional Help-(Useful)	Psychiatrist	Psychologist	A family doctor (N/%)	Telephone counselor
High adherence	4(19.0%)	2(9.5%)	1(4.8%)	2(10.5)
Low Adherence	13(61.9%)	11(52.4%)	5(23.8%)	14(57.9%)
Treatment -(useful)	**Vitamins**	**Tranquilizers**	**Antidepressants**	**Sleeping pills**
High adherence	2(10.0%)	3(15.0%)	1(5.3%)	4(19.0%)
Low Adherence	6(30.0%)	12(60.0%)	4(21.1%)	13(61.9%)

Table 13: Severely Addicted: Association between Recognition of the Effectiveness of Self Help Strategies and Adherence

Self Help Strategies-useful	Physical Exercise	Joining A Group	Seeing A Mental Health Expert	Using Alcohol to Relax	Smoking To Relax	Self Help Book
High adherence	0(0.0%)	2(9.5%)	3(14.3%)	3(14.3)	3(14.3%)	1(4.8%)
Low Adherence	3(14.3%)	5(23.8%)	12(57.1%)	11(52.4%)	12(57.1%)	8(38.1%)

Table 14: Severely Addicted - Knowledge & Skills to Provide Support & First Aid to Others & Adherence

Knowledge & Skills to Provide Support & First Aid	Offer Advice/Counseling	Offer No Advise	Suggest That He Seek Help From A Health Professional	Suggest Having A Few Drinks To Forget Problems	Ask if he has suicidal tendencies	Gather A Group Of Friends To Cheer Him Up
High adherence	0(0.0%)	4(19.0%)	4(19.0%)	1(5.0)	3(14.3%)	4(19.0%)
Low Adherence	1(4.8%)	16(76.2%)	16(76.2%)	8(40.0%)	15(71.4%)	13(61.9%)

Table 15: Severely Addicted - Knowledge of How to Prevent Mental Disorders & reduction of Risk and Adherence

Knowledge of How to Prevent Mental Disorders	Reducing Risks of Developing A Condition			
	Not using drugs	Practice physical Exercise	No drinking alcoholic drinks	Having religious beliefs
High adherence	3(14.3%)	4(19.0%)	3(15.8%)	4(20.0%)
Low Adherence	13(61.9%)	15(71.4%)	11(57.9%)	11(55.0%)

Initial Treatments Of Mental Illnesses Require the use of medicines	Pearson Correlation	.433
	Sig. (2-Tailed)	.050

As shown in the tables above, the alternate hypothesis was rejected.

H_0 "poor substance use literacy leads to poor adherence among severely addicted substance

users" rejected

5. CHAPTER FIVE: DISCUSSION

The study had 179 respondents (50.3% being females) with majority aged between 34 – 41 years. Most of the respondents had primary level of education 94 (52.5%) and 128 (71.5%) of them earned below Kshs. 10,000 on a monthly basis. Interestingly Gender and education were the prevalent socio demographics with significant correlations as more males than females identified bulimia as the vignette problem (P = 0.049) and viewed a psychiatrist and psychologist as helpful (P = 0.023, P = 0.006 respectively). In addition, respondents with primary level of education were more likely to suggest seeking help from a health professional (P = 0.036) but noted that the person approached likelihood of telling other people would be a barrier to help seeking (P = 0.009). Noteworthy is that adherence was not significantly correlated with the socio demographic variables.

Among HIV positive adults in Naivasha, substance use literacy was found to be low with more than half of the respondents recognizing that the subject in the vignette had stress (50.3%). Surprisingly, correctly recognizing the alcohol use disorder was not significantly associated with adherence, but not recognizing that there was any problem was significantly associated with adherence (P = 0.003).This low substance use literacy could be explained by the low level of education. However, despite the low substance use literacy rates, most of the respondents had no addiction (57%) and had moderate adherence to the HIV medication (43%). The moderate adherence could be rationalized by the high endorsement for psychosocial interventions such as physical exercises 143(79.9%) and joining a support group 144(80.4%). This is because a majority of these interventions were found to be significantly associated with adherence (0.007* for physical exercise and 0.043* for social support). There was a low recognition and endorsement for professionals such as psychiatrists (58.1%) and psychologists (73.2%) , as well

as, medication such as antidepressants (29.6%) and antipsychotics (29.1%), with seeking help from a close friend (83.2%) and taking vitamins as medication (87.7%), being high and significantly associated to adherence (0.050 and 0.004 respectively). Of note is that although seeking help from a health professional or parents was not significantly associated with adherence, there was an almost equal endorsement for both people with most respondents saying that they would seek help from their mother 58(32.4%) while others preferred a health care professional 66(36.9%). When asked which parent they would mostly prefer, 106(59.2%) preferred their mother. Of note is that having had a friend or family member who had an alcohol use problem similar to that of the vignette was significantly associated with the respondents adherence (P = 0.036). However, there was no significant correlation with whether the friend or family member had sort help or not. Low addiction severity was significantly correlated with few of the substance use literacy elements like doing physical exercises (P = 0.049) and having had someone with an alcohol use problem who sort professional help (P = 0.049). However, there was an inverse relationship among the severely addicted as out of the five components it is only in disorder recognition that substance use literacy and adherence was low. In the other components, severely addicted individuals with low adherence had high substance use literacy as they could recognize helpful mechanisms such as psychiatrists (61.9%), Psychologist (52.4%) and enquiring about suicidal tendencies (71.4%) among others.

The outcome of this research supports findings that substance use is indeed associated with poor adherence to HIV medication (Assefa, Damen, & Alemayehu, 2005; Nicholas et al., 2014). Moreover, the outcome supports reports that substance use literacy is low among substance users (Loureiro et al., 2013). However, the outcome does not support findings that severity of addiction is not significantly associated with literacy (Lincoln et al., 2006). However,

there are no studies that portray the relationship between substance use literacy, as defined in this research, and adherence to medical treatment. With this study, this relationship has been well defined.

Poor adherence is facilitated by lack of knowledge on how to identify whether there is a problem or not; lack of recognition of professional people and treatment best placed to help a substance user; lack of knowledge on self help skills that are vital in management; as well as, illiteracy on prevention mechanisms.

The findings of this research imply that most substance users are well oriented to psychosocial forms of management. However, this only aid in acquiring moderate adherence hence health outcomes continue to be low. Therefore, as part of HIV medication therapy, extensive psycho-education on recognition of substance use disorders; professional help and available treatment; effectiveness of self help strategies; knowledge and skills that provide support and first aid; as well as, prevention of mental disorders should be incorporated. Moreover, this form of therapy should be tailored with regards to severity of addiction.

6. CHAPTER SIX

6.1. Conclusion

Substance use literacy does determine adherence to medical treatment and severity of addiction modifies this association. Literacy does not stop with recognition of a problem as there are other components of literacy that determine adherence such as recognition of medication that could help and professionals who are best placed to help. As such, it is significant that all the facets of substance use literacy are imparted in a bid to ensure high adherence.

6.2. Recommendations

Future Research: The results of this study should be used to come up with an effective and result oriented manual for psycho-education therapy on substance use.

Policy: The fight against HIV cannot by fully addressed without incorporating measures against substance use. With this regard, substance use literacy should be adopted into the medication regimen of every newly diagnosed HIV patient with a goal of improving adherence.

Clinical Work: Psychosocial counselors should be given CME training sessions on improving substance use literacy and the knowledge that is crucial in improving adherence.

6.3. Study Limitations

The study was held in a clinical setting and hence results and implications may not be generalized to a community setting. In addition, the study reflects adherence to HIV medication and hence the findings may not be true for other forms of medication. However, the health outcomes of people with HIV are quite sensitive to any change in medication adherence. Another limitation is that all the respondents in the study had a history of substance use and hence the

results may not reflect the findings on people who have never taken any substance. Moreover,

the instrument was not validated and adapted for the Kenyan population.

6.4. Financial Disclosure

BUDGET

Description	Unit	Cost per Unit (Kshs.)	Total Cost (Kshs.)
Proposal writing			
1. Internet search	100 hours	60	6,000
2. Typing and printing	70	40	2,800
3. Photocopy	240	3	720
4. Binding	3	80	240
5. Writing pad	2	50	100
6. Writing pens (10 @20), 3 pencils, and 3 erasers	16	20	320
7. KNH ethical committee	1	2,000	2,000
8. Clearance by Ministry of Health	1	1,000	1,000
Preparation of Instrument			
1. Typing and printing	25	40	1,000
2. Questionnaires photocopy (200 copies)	5,000	3	15,000
3. Stapler and staples	1	500	500
4. Folders	10	50	500
5. Paper punch	1	280	280
6. Participation Token	100	500	50,000
Staff Cost			
1. Statistician	1	60,000	60,000
2. Transport from Nairobi to Naivasha	4	1000	4,000
3. Accommodation (Half board – 22 nights)	22	4,000	88,000
4. Lunch (22 days)	22	300	6,600
5. Airtime	1	2,000	2,000
Data processing and Binding			
1. Typing and printing preliminary results	20	40	800
2. Photocopy to supervisors	60	3	180
3. Typing and printing final draft	90	40	3,600
4. Printing final copy	90	10	900
5. Binding final copy	1	80	80
Sub Total			246,620
Contingencies (10%)			24,662
Grand Total			271,282

TIME SCHEDULE

Activity	Oct - Feb 2013	Mar – May 2014	May - Sept 2014	Oct – Dec 2014	Dec – Jan 2014	Feb – Mar 2014	Apr – May 2014	Jun – Jul 2014
Proposal writing and Defense	X							
Ethical approval and correction of the proposal		X	X					
Printing of questionnaires and pretesting			X					
Analysis and evaluation of pretest			X					
Finalizing and printing research instruments			X					
Field data collection				X				
Data entry					X			
Data analysis and report writing					X			
Findings Discussion with Supervisors						X		
Defense of project report							X	
Dissemination, submission and publication								X

REFERENCES

Ali, R., & Humeniuk, R. (2006). Validation of the Alcohol , Smoking and Substance Involvement Screening Test (ASSIST) and Pilot Brief Intervention: A Technical Report of Phase II Findings of the WHO ASSIST Project Prepared by Rachel Humeniuk & Robert Ali on behalf of the WHO ASSIST P. Switzerland: World Health Organisation. Retrieved from http://www.who.int/substance_abuse/activities/assist_technicalreport_phase2_final.pdf

Assefa, S., Damen, M. H., & Alemayehu, W. (2005). The association between substance abuse and HIV infection among people visiting HIV counseling and testing centers in Addis Ababa, Ethiopia. *The Ethiopian Journal of Health Development*, *12*(2), 116–125.

Bartlett, J., Kotrlik, J., & Higgins, C. (2001). Organizational Research: Determining Appropriate Sample Size in Survey Research. *Information Technology, Learning, and Performance Journal*, *19*(1), 43–50.

Berkman, N. D., Sheridan, S. L., Donahue, K. E., Halpern, D. J., Viera, A., Crotty, K., … Viswanathan, M. (2011). Health literacy interventions and outcomes: an updated systematic review. *Evidence Report/technology Assessment*, (199), 1–941. Retrieved from http://www.ncbi.nlm.nih.gov/pubmed/23126607

Cacciola, J., Alterman, A., Habing, B., & McLellan, T. (2011). Recent Status Scores for Version 6 of the Addiction Severity Index (ASI-6). *Addiction*, *106*(9), 1588–1602. doi:10.1111/j.1360-0443.2011.03482.x.Recent

EL, N. A. N. S. J. (2013). Health Literacy and Adherence to Antiretroviral Therapy Among HIV-Infected Youth.LID - S1055-3290(12)00257-9 [pii]LID - 10.1016/j.jana.2012.11.003 [doi]. *J Assoc Nurses AIDS Care*.

Gazmararian, J. A., Kripalani, S., Miller, M. J., Echt, K. V, Ren, J., & Rask, K. (2006). Factors associated with medication refill adherence in cardiovascular-related diseases: a focus on health literacy. *Journal of General Internal Medicine*, *21*, 1215–1221. doi:10.1111/j.1525-1497.2006.00591.x

Gupta, S., & Goren, A. (2013). Application of Item Response Theory in Validating the Morisky Medication Adherence Scale in Patients with Hypertension by Shaloo Gupta , MS , and Amir Goren , PhD August 2013. Retrieved from http://www.kantarhealth.com/docs/white-papers/application-of-item-response-theory-in-validating-the-morisky-medication-adherence-scale-in-patients-with-hypertension.pdf?sfvrsn=4

Hawthorne, G. (1997). Preteenage drug use in Australia: the key predictors and school-based drug education. *The Journal of Adolescent Health : Official Publication of the Society for Adolescent Medicine*, *20*, 384–395. doi:10.1016/S1054-139X(96)00181-4

JORM, A. F. (2000). Mental health literacy: Public knowledge and beliefs about mental disorders. *The British Journal of Psychiatry*. doi:10.1192/bjp.177.5.396

Jorm, A. F., Korten, A. E., Jacomb, P. A., Christensen, H., Rodgers, B., & Pollitt, P. (1997). "Mental health literacy": a survey of the public's ability to recognise mental disorders and their beliefs about the effectiveness of treatment. *The Medical Journal of Australia*, *166*, 182–186. Retrieved from https://www.mja.com.au/journal/1997/166/4/mental-health-literacy-survey-publics-ability-recognise-mental-disorders-and

Kalichman, S., Ramachandran, B., & Catz, S. (1999). Adherence to Combination antiretroviral Therapies in HIV Patients of Low Health Literacy. *Journal of General Internal Medicine*, *14*(5), 267–273. doi:10.1046/j.1525-1497.1999.00334.x

Kelly, C. M., Mithen, J. M., Fischer, J. a, Kitchener, B. a, Jorm, A. F., Lowe, A., & Scanlan, C. (2011). Youth mental health first aid: a description of the program and an initial evaluation. *International Journal of Mental Health Systems*, *5*(1), 4. doi:10.1186/1752-4458-5-4

Kubo, M. N. (2013). Factors Associated With Uncontrolled Hypertension Among Renal Transplant Recipients Attending Nephrology Clinics In Nairobi. Retrieved from http://erepository.uonbi.ac.ke/handle/123456789/58843

Lincoln, A., Espejo, D., Johnson, P., Paasche-Orlow, M., Speckman, J. L., Webber, T. L., & White, R. F. (2008). Limited literacy and psychiatric disorders among users of an urban safety-net hospital's mental health outpatient clinic. *The Journal of Nervous and Mental Disease*, *196*, 687–693. doi:10.1097/NMD.0b013e31817d0181

Lincoln, A., Paasche-Orlow, M. K., Cheng, D. M., Lloyd-Travaglini, C., Caruso, C., Saitz, R., & Samet, J. H. (2006). Impact of health literacy on depressive symptoms and mental health-related: quality of life among adults with addiction. *Journal of General Internal Medicine*, *21*, 818–822. doi:10.1111/j.1525-1497.2006.00533.x

Loureiro, L. M. de J., Barroso, T. M. M. D. de A., Mendes, A. M. de O. C., Rodrigues, M. A., Oliveira, R. A. A. N., & Oliveira, N. R. N. de. (2013). Literacia em saude mental de adolescentes e jovens portugueses sobre abuso de alcool. *Escola Anna Nery*, *17*(3), 474–481. doi:10.1590/S1414-81452013000300010

Marcus, M., & Zgierska, A. (2013). *Mindfulness-Related Treatments Addiction Recovery - Marcus*. California: Routledge. Retrieved from http://books.google.co.ke/books?id=zenaAAAAQBAJ&pg=PR1&lpg=PR1&dq=Mindfulness-Related+Treatments+Addiction+Recovery+-+Marcus&source=bl&ots=CeS7BXsITJ&sig=bweMb2_UV-GQe37aNy6DaBl3D6E&hl=en&sa=X&ei=3_6mUpTMN8mShgf_kYCgAg&ved=0CDYQ6AEwAQ#v=onepage&q=Mindfulness-Related Treatments Addiction Recovery - Marcus&f=false

Murphy, D. A., Lam, P., Naar-King, S., Robert Harris, D., Parsons, J. T., & Muenz, L. R. (2010). Health literacy and antiretroviral adherence among HIV-infected adolescents. *Patient Education and Counseling*, *79*, 25–29. doi:10.1016/j.pec.2009.07.014

NACADA. (2012). *Rapid Situation Assessment of the Status of Drug and Substance Abuse in Kenya, 2012*. Nairobi. Retrieved from http://www.google.co.ke/url?sa=t&rct=j&q=&esrc=s&source=web&cd=1&cad=rja&ved=0 CCwQFjAA&url=http%3A%2F%2Fwww.nacada.go.ke%2Fdocuments-and-resources%2Fcategory%2F8-research-survey-findings%3Fdownload%3D40%3Arapid-assessment-of-alcohol-and-drug-abuse-situation-in-kenya-2012&ei=Nf14Uo3ZJqz20gX03YCADg&usg=AFQjCNGaoDF_0YTeCMuFB1yUKKrUd NZQmA&sig2=dPw8EuJXMa1ZM0RN4cNNcQ&bvm=bv.55980276,d.d2k

Navarra, A.-M., Neu, N., Toussi, S., Nelson, J., & Larson, E. L. (2013). Health Literacy and Adherence to Antiretroviral Therapy Among HIV-Infected Youth. *The Journal of the Association of Nurses in AIDS Care : JANAC*, 1–11. doi:10.1016/j.jana.2012.11.003

Ndetei, D. M., Khasakhala, L. I., Ongecha-Owuor, F. A., Kuria, M. W., Mutiso, V., & Kokonya, D. A. (2009). Prevalence of substance abuse among patients in general medical facilities in Kenya. *Substance Abuse : Official Publication of the Association for Medical Education and Research in Substance Abuse*, *30*(2), 182–90. doi:10.1080/08897070902802125

Nicholas, P. K., Willard, S., Thompson, C., Dawson-rose, C., Corless, I. B., Wantland, D. J., … Moezzi, S. (2014). Engagement with Care , Substance Use , and Adherence to Therapy in HIV / AIDS. *AIDS Research and Treatment*, *2014*(October 2013), 7. doi:10.1155/2014/675739

Nuwagaba-Biribonwoha, H., Pals, S., Kidder, D., Carpenter, D., Katuta, F., Bupamba, M., … Bachanas, P. (2012). Factors associated with non-adherence to antiretroviral therapy among patients attending HIV care and treatment clinics in Kenya, Namibia, and Tanzania. *7th International Conference on HIV Treatment and Prevention Adherence Miami, FL United States*, *11*, 400. doi:http://dx.doi.org/10.1177/1545109712450276

Ong'any, A. A. (2004). Assesment of the Level and Pattern of Substance Abuse among Children and Young Persons in Nairobi. *University of Nairobi Repository*. Retrieved from http://erepository.uonbi.ac.ke/bitstream/handle/123456789/26895/ongany0001.pdf?sequenc e=1

Othieno, C. J., Ndetel, D. M., Obondo, A. A., & Kathuku, D. M. (2000). Patterns of Substance Use among Kenyan Street Children. *Southern African Journal of Child and Adolescent Mental Health*. doi:10.1080/16826108.2000.9632379

Paasche-Orlow, M. K., Cheng, D. M., Palepu, A., Meli, S., Faber, V., & Samet, J. H. (2006). Health literacy, antiretroviral adherence, and HIV-RNA suppression: a longitudinal perspective. *Journal of General Internal Medicine*, *21*, 835–840. doi:10.1111/j.1525-1497.2006.00527.x

UONDC. (2010). *[National Focal Point]*. Retrieved from
http://www.unodc.org/docs/treatment/CoPro/Web_Kenya.pdf

Waite, K. R., Paasche-Orlow, M., Rintamaki, L. S., Davis, T. C., & Wolf, M. S. (2008). Literacy,
social stigma, and HIV medication adherence. *Journal of General Internal Medicine*, *23*,
1367–1372. doi:10.1007/s11606-008-0662-5

Wolf, M. S., Gazmararian, J. A., & Baker, D. W. (2007). Health literacy and health risk
behaviors among older adults. *Am J Prev Med*, *32*, 19–24. doi:S0749-3797(06)00356-4
[pii]\r10.1016/j.amepre.2006.08.024

APPENDICES

Appendix I: Informed Consent Explanation.

My name is Rachel W. Maina and I am a Clinical Psychology student at the University of Nairobi. I am conducting a research that is aimed at finding out the impact of substance use literacy on adherence to medical treatment with regards to severity of addiction.

As a participant, you will be required to answer questions pertaining to this research, which may take 30 minutes to complete. There will be no invasive procedures or risks in this research, and neither will you be denied any treatment if you choose not to partake in the research. The research is voluntary, and one can opt to terminate his or her participation in the course of the research. All the information that will be shared will be held in strict confidence and will not be traced to the respondent.

The findings of this research may not benefit you directly, but they will benefit future treatment plans among substance users. However, in answering the questions you will get increased insight into your substance use problem, which may aid in self care. Moreover, a token of appreciation will be given once you finish answering the questions.

For further clarification on the research, as well as, problems that may be encountered, please contact me, Ms Rachel W. Maina, the principal investigator on mobile number 0726439624. You may also opt to contact Ethics and Research Review Committee KNH/ UON on the following number:

KNH/UON-ERC Secretariat Tel 726300 Ext: 44102

Subject's Statement: The above study has been fully explained to me and I do agree to partake in the study. I have fully understood the essence of the research study and that participation is voluntary and I can withdraw from the study at any time without repercussions. I hereby voluntarily agree to take part in the study.

PATIENT SIGNATURE ………………………….. DATE ………………………………….

PRINCIPLE INVESTIGATOR/ WITNESS SIGNATURE…………… DATE………………

Appendix II: Research Questionnaire

A. ASSIST - Alcohol, Smoking and Substance Involvement Screening Test

In your life, which of the following substances have you ever used? *(NON-MEDICAL USE ONLY)*	No	Yes
a. Tobacco products (cigarettes, chewing tobacco, cigars, etc.)	0	3
b. Alcoholic beverages (beer, wine, spirits, etc.)	0	3
c. Cannabis (marijuana, pot, grass, hash, etc.)	0	3
d. Cocaine (coke, crack, etc.)	0	3
e. Amphetamine type stimulants (speed, diet pills, ecstasy, etc.)	0	3
f. Inhalants (nitrous, glue, petrol, paint thinner, etc.)	0	3
g. Sedatives or Sleeping Pills (Valium, Serepax, Rohypnol, etc.)	0	3
h. Hallucinogens (LSD, acid, mushrooms, PCP, Special K, etc.)	0	3
i. Opioids (heroin, morphine, methadone, codeine, etc.)	0	3
j. Other - specify:	0	3

If "No" to all items, terminate the questionnaire filling
If "Yes" to any of the questions, continue with the questionnaire filling

B. Demographic Questionnaire – Researcher Designed.

(Tick where applicable to you)

1. **Gender:**

Male ☐

Female ☐

2. **Age:** _____ **years**

3. **Education Background**

None ☐

Primary ☐

Secondary ☐

University (Undergraduate) ☐

University (Masters) ☐

University (PhD) ☐

4. **Occupation**

Unemployed ☐

Employed ☐

Self Employed ☐

Other Specify ☐

5. **Income (Kshs per month)**

A (0 – 9,999) ☐

B (10,000 – 19,999) ☐

C (20,000 – 29,999) ☐

D (30,000 – 39,999) ☐

E (40,000 and above)

6. **For how long have you been using the substance?**

Days

Months

Years

7. **Do you have someone who supports you throughout?**

Yes

No

8. **Are you currently receiving treatment for depression?**

Yes

No

9. **During the past month have you often been bothered by feeling down, depressed, or hopeless?**

Yes

No

10. **During the past month have you often been bothered by little interest or pleasure in doing things?**

Yes

No

11. **What is your current diagnosis?** _____

C. Addiction Severity Index

1. How many days did you drink alcohol **in the past 30 days?** _____

Number of days

2. How many days did you drink alcohol to intoxication **in the past 30 days?** _____

Number of days

3. How much money would you say you spent on alcohol **in the past 30 days?** Kshs _____

4. **In the past 30 days**, how many days have you experienced alcohol problems? _____

Number of days

5. How troubled or bothered have you been by these alcohol problems **in the past 30 days?**

Not at all   **Slightly**   **Moderately**   **Considerably**   **Extremely**

6.   How important to you now is treatment for these alcohol problems?

Not at all   **Slightly**   **Moderately**   **Considerably**   **Extremely**

7. In the past 30 days, have you used any of the following drugs?

(Not including drugs taken as prescribed by your doctor) NO / YES answers

a. Heroin…………….…………………………………………………………………..

b. Methadone …………………………….……………………………….……..

c. Other opiates/analgesics *((Morphine; Dilaudid; Demerol; Percocet; Darvon; Talwin;*

Codeine; Tylenol 2,3,4; Syrups, Robittusin, Fentanyl) ………………

d. Barbiturates *(Nembutal, Seconol, Tuinol, Amytal, Pentobarbital, Secobarbital,* Phenobarbital,

Fiorinol)…………………….………………….………………..

e. Sedatives/Hypnotics/Tranquilizers *(Valium, Xanax, Librium, Ativan, Serax, Quaaludes,*

Tranxene, Dalmane, Halcion, Miltown)………………………….

f. Cocaine *(Cocaine Crystal, Free-Base Cocaine, or "Crack" or "Rock") ..*…….

g. Amphetamines *(Monster, Crank, Benzedrine, Dexedrine, Ritalin, Preludin,*

   Methamphetamine, Speed, Ice, Crystal) ...…………………………………..

h. Cannabis *(Marijuana, Hashish, Pot)*....…………………………………………...

i. Hallucinogens *(LSD [Acid], Mescaline, Mushrooms [Psilocybin], Peyote, Green, PCP*

[Phencyclidine], Angel Dust, Ecstasy….……………….……………

8. How many days have you used more than one substance (including alcohol) **in the past 30**

   days? _____ **number of days**

9. **In the past 30 days,** how many days have you experienced drug problems? _____

                                                                                Number of days

10. How troubled or bothered have you been by these drug problems **in the past 30 days?**

Not at all☐   **Slightly**☐   **Moderately**☐   **Considerably**☐   **Extremely**☐

11. How important to you now is treatment for these drug problems?

Not at all☐   **Slightly**☐   **Moderately**☐   **Considerably**☐   **Extremely**☐

   D. QuALiSMental - Questionnaire Assessment of Literacy in Mental Health
     The aim of these questions focuses on the characterization and understanding of what is the

understanding and knowledge of people on substance use. In responding to this questionnaire

you must read all questions and fill each question as guided, indicating a cross (x) when you are

asked, or by expressing your opinion on issues for the purpose. There is no right or wrong

answer, only your opinion.

Instructions:

Below is the story of a young man named Jorge. This is not a real person; however there are people in a similar situation. Read the story carefully and then answer all questions as guidelines.

Jorge is a 25 year old who attends college. Last year he began drinking alcohol and got drunk at all the parties / gatherings that he was at. His parents worried because Jorge had declining academic performance, was missing classes due to hangovers, and was having his parents called to college because he was appearing intoxicated in class. At the last party, friends called a nearby hospital because he was unconscious.

14. In your opinion, what is going on with Jorge? (You can tick more than one answer).

Do not know ☐

There is nothing wrong ☐

Depression ☐

Schizophrenia ☐

Psychosis ☐

Mental illness ☐

Bulimia ☐

Stress ☐

Nervous breakdown ☐

Substance abuse (e.g., alcohol) ☐

It is a crisis of her age ☐

Psychological / mental / emotional problems ☐

Anorexia ☐

Has a problem ☐

Alcoholism ☐

Cancer ☐

Other (Specify which) _____

15. If you were currently experiencing a situation like that of Jorge, would you seek help?

Yes ☐

No ☐

Do not know ☐

16. If you did seek help, who would speak to or who would you have asked?

My mother ☐

My father ☐

A friend ☐

My girlfriend / boyfriend ☐

A teacher ☐

A health care professional. Specify which: _____

Some other person. Specify which: _____

17. To what extent do you feel confident that you would ask for help from this person(s)?

Extremely Confident	Very Confident	Confident	Little Confident	Not at all Confident

18. What could prevent you from asking for help from this person(s)? (You can tick more than one response)

Think that the person will have a negative opinion about me ☐

Think that the person does not value what I say ☐

Think that the person is likely to tell other people ☐

Think that a person can come to think about me ☐

Think that nothing could help me ☐

Think that you would know that I'm getting help from a health professional ☐

Thinking that I may have difficulty accessing this person / health professional ☐

Think that the treatment has side effects ☐

Being very shy, ashamed ☐

Another. Specify which: _____

19. If you were currently experiencing a situation like that of Jorge, would you feel at ease talking to your parents about it? (You can tick more than one response)

Yes, with my mother ☐

Yes, with my father ☐

No, my parents are not present (e.g., Living in another country) ☐

No, my parents are not available (e.g., Work hard) ☐

No, my parents are not aware of these issues ☐

Do not know ☐

No. Because: _____

7. Imagine that Jorge is a longtime friend and is a person you care about so much. How do you think that you could help?

8. To what extent do you feel confident that you could help Jorge?

Extremely	Very Confident	Confident	Little Confident	Not at all

Confident				Confident

9. **Presented below are different options you could use to help Jorge. Check your opinion for each.**

	Useful/ Helpful	Harmful	Neither Helpful or Harmful	Do not know
Listen to his problems comprehensively				
Tell him firmly to go forward				
Suggest that he seek help from a health professional				
Have him make an appointment at the GP with your knowledge				
Ask if he has suicidal tendencies				
Suggest having a few drinks to forget problems				
Gather a group of friends to cheer him up				
Not valuing his problem, ignoring it until he feels better				
Keep him busy so he does not think				

much about his problems			
Encourage him to exercise			

10. There are different people and health professionals who can help Jorge. Check your

opinion for each.

	Useful/ Helpful	Harmful	Neither Helpful or Harmful	Do not know
A family doctor				
A teacher				
A psychologist				
A nurse				
A social worker				
A psychiatrist				
A telephone counselor				
A close family member				
A close friend				
Solve her own problems				

11. Which of the following drugs / products, in your opinion, would be useful or may help

Jorge? Check your opinion for each.

	Useful/ Helpful	Harmful	Neither Helpful or Harmful	Do not know
Vitamins				
Teas (e.g., Chamomile or St. John's wort)				
Tranquilizers / Sedatives				
Antidepressants				
Antipsychotics				
Sleeping pills				

12. There are different activities that may help Jorge. Check your opinion for each.

	Useful/ Helpful	Harmful	Neither Helpful or Harmful	Do not know
Do physical exercise				
Practicing relaxation training				
Practicing meditation				
Doing acupuncture				

Getting up early every morning and go sunbathing				
Therapy with a specialist				
Consult a site that contains information about the problem				
Read a self-help book on the problem				
Join a support group for people with similar problems				
Find expert help mental health				
Using alcohol to relax				
Smoking to relax				

13. Do you think that the risk of developing a condition like that of Jorge is reduced if young people:

	Yes	No	Do not know
Practiced physical exercise			
Avoid situations that cause stress			

Maintain regular contact with friends			
Maintain regular contact with family			
Not using drugs			
Practicing relaxing activities regularly			
Do not drink alcoholic beverages			
Had a religious belief or spiritual			

14. The next questions contain statements about the situation of Jorge. Indicate your

PERSONAL opinion for each statement.

	I fully agree	I agree	I do not agree or disagree	I disagree	I disagree fully	Do Not know
If Jorge wanted to, he could come out of this situation for me.	1	2	3	4	5	6
Jorge's situation is a sign of personal weakness.	1	2	3	4	5	6
This is not a true disease.	1	2	3	4	5	6

Jorge is dangerous to others.	1	2	3	4	5	6
The best way to avoid developing a situation like Jorge's is to distance myself from him.	1	2	3	4	5	6
Jorge's situation makes him an unpredictable person.	1	2	3	4	5	6
Never tell anyone if I had a situation like Jorge's.	1	2	3	4	5	6

15. The next questions contain statements about the situation of Jorge. Indicate your opinion about what you think MOST PEOPLE believe for each statement.

	I fully agree	I agree	I do not agree or disagree	I disagree	I disagree fully	Do Not know
Believe that if Jorge wanted to, he could come out of this situation for them.	1	2	3	4	5	6

Believe that Jorge's situation is a sign of personal weakness.	1	2	3	4	5	6
Believe that Jorge's situation is not a true disease.	1	2	3	4	5	6
Believe that Jorge is dangerous to others.	1	2	3	4	5	6
Believe that the way to avoid developing a situation like Jorge's is to keep away from him.	1	2	3	4	5	6
Believe that Jorge's situation makes him an unpredictable person.	1	2	3	4	5	6
Never tell anyone if they had a situation like Jorge's.	1	2	3	4	5	6

16. To what extent would you be willing to (use the grid response):-

	Not at	2	3	4	5	6	Without a

	all **1**						**problem** **7**
Spend the week-end with Jorge?	1	2	3	4	5	6	7
Working on a project or group with Jorge?	1	2	3	4	5	6	7
Invite Jorge to your house?	1	2	3	4	5	6	7
Go to Jorge 's house?	1	2	3	4	5	6	7
Being a personal friend of Jorge?	1	2	3	4	5	6	7

17. Is someone in your family or close circle of friends in a similar situation to that of Jorge?

Yes ☐

No ☐

18. If yes, have they received any help or treatment from professionals specializing in these situations?

Yes ☐

No ☐

19. Below are several statements relating to mental illness. Read each one and check the grid below by placing a cross on the number that best corresponds to your opinion. There is no right or wrong answer, just your honest opinion.

	I disagree completely	I disagree almost completely	I disagree slightly	I agree slightly	I agree almost completely	I agree completely
Mental illnesses are cyclical (back from time to time)	1	2	3	4	5	6
If people care about themselves, can prevent mental illness	1	2	3	4	5	6
People with mental illness are able to live in their communities if they have adequate support	1	2	3	4	5	6
Mental illness of individuals results from lack of care	1	2	3	4	5	6
Delays in treatment worsen	1	2	3	4	5	6

the success of healing mental illness						
Initial treatment of mental illness requires the use of medicines	1	2	3	4	5	6
Misunderstandings about mental illnesses makes difficult for the mentally ill to live in society	1	2	3	4	5	6
A person with mental illness should have a job which requires little responsibility	1	2	3	4	5	6
Mental illness is a disease of the head	1	2	3	4	5	6

The behavior of a person with mental disease is unpredictable	1	2	3	4	5	6
Mental illnesses require more time to be healed than other diseases	1	2	3	4	5	6
I suffer from a mental illness	1	2	3	4	5	6
Rehabilitation is effective in improving mental illness	1	2	3	4	5	6
People who have received treatment for mental illness once require further treatment in the future	1	2	3	4	5	6

It must be difficult for people with mental illness following social rules such as punctuality, or to fulfill the promises they make	1	2	3	4	5	6
Drugs are effective in improving the symptoms in mental illness	1	2	3	4	5	6
A person with mental illness is more likely become a criminal	1	2	3	4	5	6
If you were to suffer from a mental illness it is because you did not have the care	1	2	3	4	5	6

you should have had						
The mentally ill tend to be dangerous	1	2	3	4	5	6
Taking medicines for lifelong mental illness makes people dependent on these drugs	1	2	3	4	5	6
People with mental illness have little ability to live alone because they cannot take responsibility	1	2	3	4	5	6
Individuals who are diagnosed as mentally ill, have symptoms throughout their	1	2	3	4	5	6

lives						
If the mentally ill live in the family and community, it influences the recovery of his illness	1	2	3	4	5	6

E. Morisky 8-Item Medication Adherence Questionnaire

(Answer with either Yes or No)

1. Do you sometimes forget to take your medicine? _____

2. People sometimes miss taking their medicines for reasons other than forgetting. Thinking over the past 2 weeks, were there any days when you did not take your medicine? _____

3. Have you ever cut back or stopped taking your medicine without telling your doctor because you felt worse when you took it? _____

4. When you travel or leave home, do you sometimes forget to bring along your medicine? ____

5. Did you take all your medicines yesterday? _____

6. When you feel like your symptoms are under control, do you sometimes stop taking your medicine? _____

7. Taking medicine every day is a real inconvenience for some people. Do you ever feel hassled about sticking to your treatment plan? _____

8. How often do you have difficulty remembering to take all your medicine?
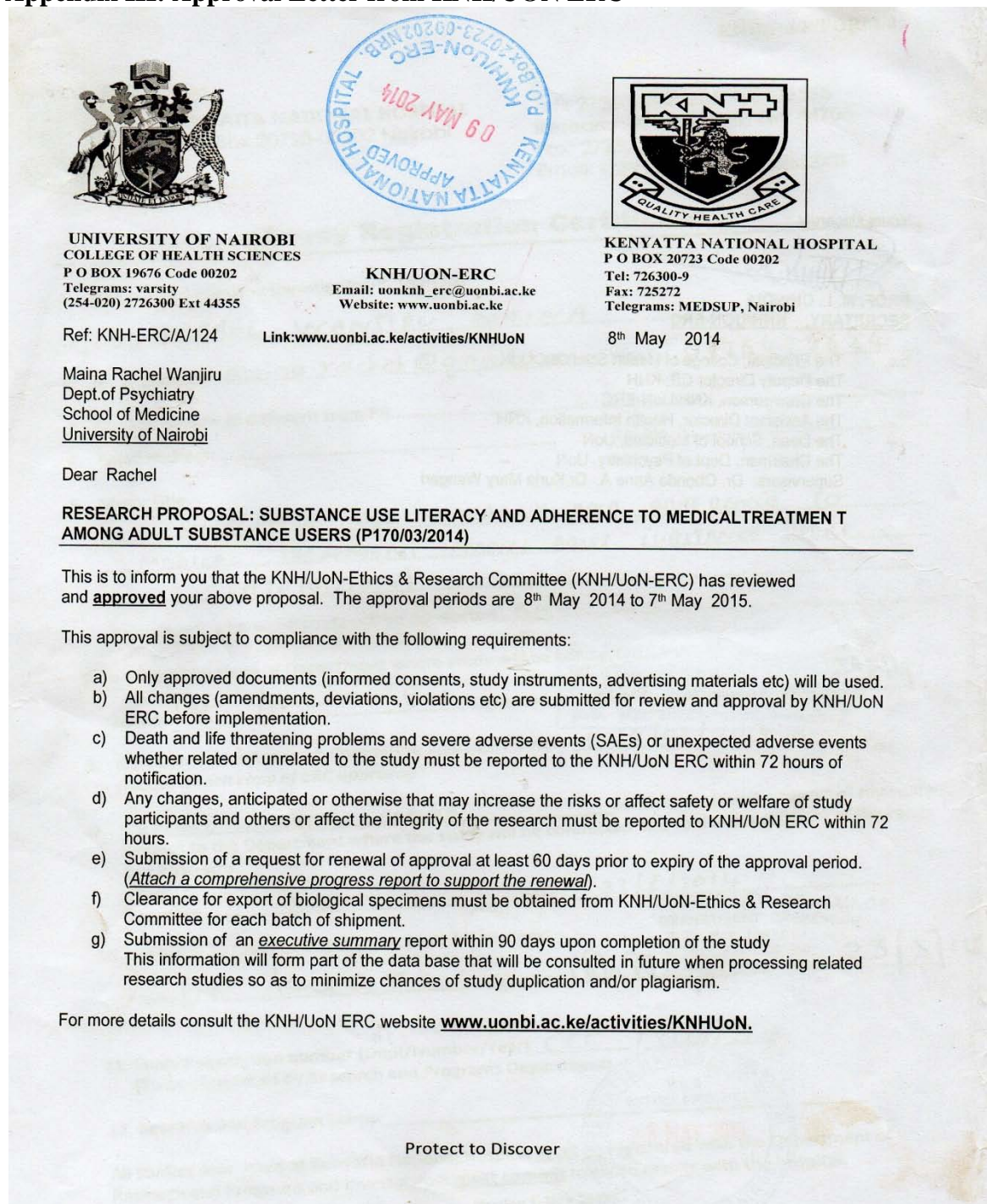
   A. Never/rarely ☐

   B. Once in a while ☐

   ☐

C. Sometimes

D. Usually ☐

E. All the time ☐

Appendix III: Approval Letter from KNH/UON ERC

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/124   Link:www.uonbi.ac.ke/activities/KNHUoN   8ᵗʰ May 2014

Maina Rachel Wanjiru
Dept.of Psychiatry
School of Medicine
University of Nairobi

Dear Rachel

RESEARCH PROPOSAL: SUBSTANCE USE LITERACY AND ADHERENCE TO MEDICALTREATMEN T AMONG ADULT SUBSTANCE USERS (P170/03/2014)

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 8ᵗʰ May 2014 to 7ᵗʰ May 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
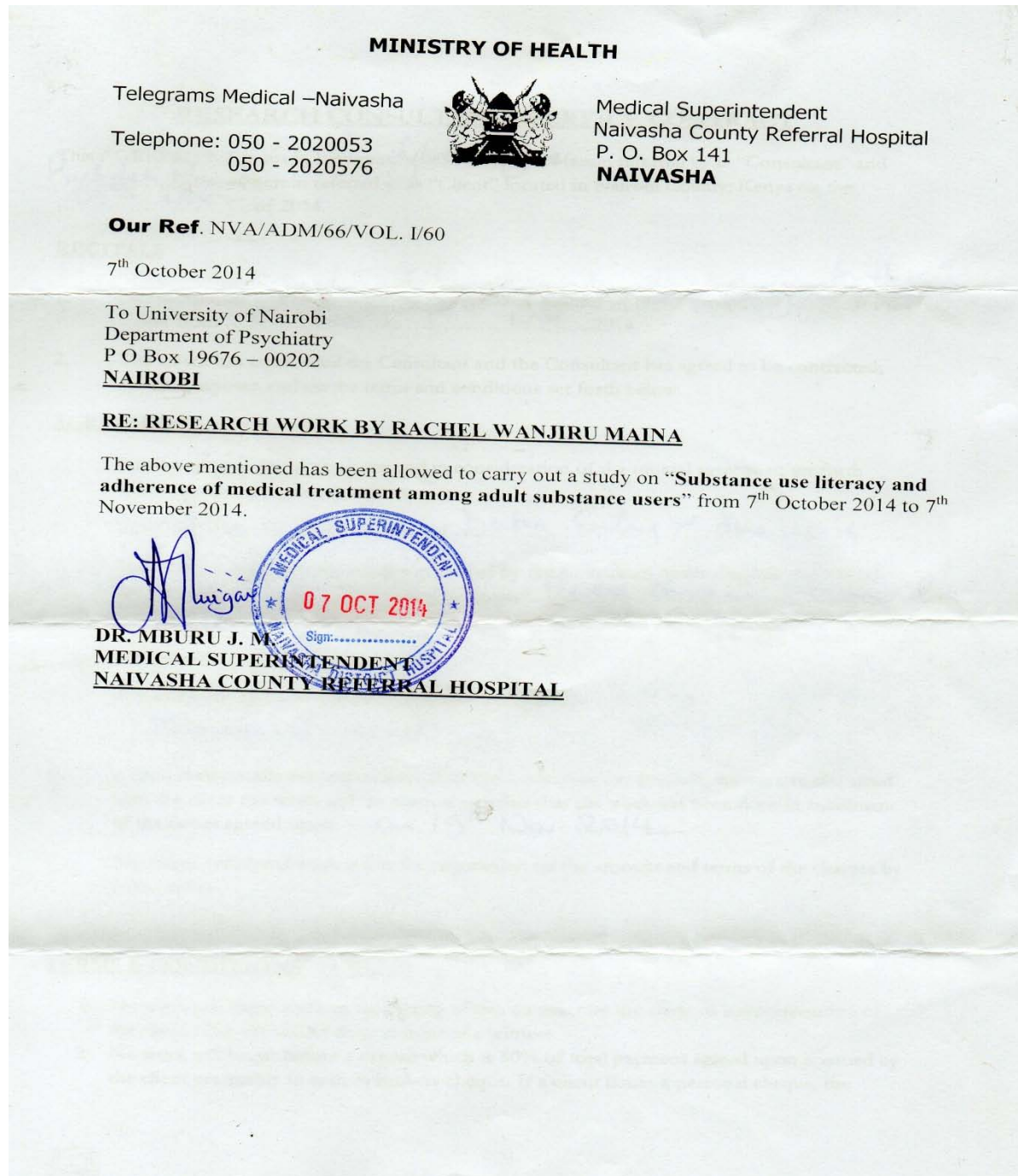
Yours sincerely

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 Medicine, UoN
          The Chairman, Dept.of Psychiatry, UoN
          Supervisors: Dr. Obondo Anne A, Dr.Kuria Mary Wangari

Appendix IV: Letter for Permission to Conduct Research in Naivasha District Hospital

MINISTRY OF HEALTH

Telegrams Medical –Naivasha

Telephone: 050 - 2020053
            050 - 2020576

Medical Superintendent
Naivasha County Referral Hospital
P. O. Box 141
NAIVASHA

Our Ref. NVA/ADM/66/VOL. I/60

7th October 2014

To University of Nairobi
Department of Psychiatry
P O Box 19676 – 00202
NAIROBI

RE: RESEARCH WORK BY RACHEL WANJIRU MAINA

The above mentioned has been allowed to carry out a study on "**Substance use literacy and adherence of medical treatment among adult substance users**" from 7th October 2014 to 7th November 2014.

DR. MBURU J. M
MEDICAL SUPERINTENDENT
NAIVASHA COUNTY REFERRAL HOSPITAL

Appendix V: Letter for Permission to Conduct a Pilot Test at Kenyatta National Hospital

KNH/R&P/FORM/01

KENYATTA NATIONAL HOSPITAL
P.O. Box 20723-00202 Nairobi

Tel.: 2726300/2726450/2726565
Research & Programs: Ext. 44705
Fax: 2725272
Email: knhresearch@gmail.com

Study Registration Certificate

1. Name of the Principle Investigator/Researcher
   RACHEL WANJIRU MAINA

2. Email address: maina.rachel@gmail.com   Tel No. 0726439624

3. Contact person (if different from PI)..................................   Tel No. ....

4. Email address: ....

5. Study Title
   SUBSTANCE USE LITERACY AND ADHERENCE TO
   MEDICAL TREATMENT AMONG ADULT SUBSTANCE USERS
   (P170/03/2014)

6. Department where the study will be conducted   KNH - CCC

7. Endorsed by Head of Department where study will be conducted.
   Name: DR MWENM P.N   Signature.................... Date 28/5/14

8. KNH UoN Ethics Research Committee approval number   P170/03/2014
   (Please attach copy of ERC approval)

9. I   RACHEL WANJIRU MAINA   commit to submit a report of my study
   findings to the Department where the study will be conducted and to the Department of Research
   and Programs.
   Signature.................... Date 23/5/2014

10. Endorsed by Chair of Department (only for student).
    Name Dr Kuria   Signature Maina   Date 23/5/14

11. Study Registration number (Dept/Number/Year) CCC /014/2014
    (To be completed by Research and Programs Department)

12. Research and Program Stamp_____

All studies conducted at Kenyatta National Hospital **must** be registered with the Department of
Research and Programs and investigators **must commit** to share results with the hospital.
Version 1: Nov. 2013