EFFECTIVENESS OF PSYCHO-EDUCATION ON COMMON MENTAL DISORDERS IN STUDENTS AT THE KENYA MEDICAL TRAINING COLLEGE, KENYA

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DECLARATION

I, Susan K. Muriungi, do declare that this study is my own original work. It has not been presented to any other University for purpose of obtaining a diploma or degree by the candidate.

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ACRONYMS AND ABBREVIATIONS

1.	ASSIST	Alcohol Smoking And Substance Inventory Screening Test
2.	BAI	Beck's Anxiety Inventory
3.	BDI	Beck's Depression Inventory
4.	BHS	Beck's Hopelessness Scale
5.	BSIS	Beck's Suicide Ideation Scale
6.	CCEI	Crown Crisp Experiential Index
7.	D.P.M.	Directorate Of Personnel Management
8.	K.M.T. C.	Kenya Medical Training College
9.	KAST	Karinoma Alcoholism Screening Test
10.	KNH	Kenyatta National Hospital
11.	NIDA	National Institute of Drug Abuse
12.	U.O.N	University Of Nairobi
13.	W.H.O	World Health Organization

ABSTRACT

Introduction and Background

Psychiatric and neurological disorders are important contributors to the global burden of disease in both developed and developing countries, accounting for 12% of all deaths globally.

Depression and anxiety disorders, either alone or co morbid are found among the general population. They contribute significantly to the aggregate point prevalence of about 10% of neuropsychiatric disorders among adults and they greatly affect one's general functioning if left unmanaged.

Substance abuse behaviour patterns are some of the most pervasive and intransigent mental health problems globally and Kenya is no exception. It has been found that a significant intake of different substances of abuse exist among different categories of people including college students. Alcohol and drug abuse among college and university students remains an important area of research due to the implications of early substance dependence on the development of the youth.

Hopelessness is associated with suicidality in that hopelessness is a negative expectation concerning one's self and one's future life and may lead to suicidal ideations, suicidal plans and even suicidal attempts. Hopelessness and suicidality are symptoms that can be experienced in a number of mental disorders such as depression, schizophrenia, anxiety or substance abuse. Suicide is now one of the third leading causes of death among those aged between 15-34 years worldwide and cannot therefore be ignored.

The average age of onset for many mental health conditions is the typical college age of 18-24 years and is believed to be generally due to the many first encounters in life style, friendships, roommates, new cultures and alternative ways of thinking.

There is substantial evidence to support the use of psychological therapies particularly cognitive behavioural therapy (CBT) through various methods including psycho-education in the prevention or management of mild to moderate depression, anxiety, moderate substance abuse and consequently, hopelessness and suicidality. Various methods of psycho-education to deal with these mental disorders

have been employed and found to be effective in the management of these conditions. Psycho-education puts emphasis on teaching of symptom recognition, understanding the general causes which precipitate and/or predispose one to develop them and stress coping strategies.

The ability of an individual to understand the effects of psycho stressors as precipitators of depression, anxiety, substance/drug abuse and consequently hopelessness and suicidality is of significant importance. Ability to employ appropriate stress coping strategies to deal with any of the psycho stressors can go a long way to minimize occurrence of these conditions. Ability to recognize the specific symptoms related to any of the said conditions before they become severe may encourage self referral and in this way go a long way to prevent/reduce the prevalence of these conditions among patients or the general population. If these disorders are not diagnosed and managed early, they may lead to undesirable consequences in the life of the affected and others. There is need to explore cost effective and appropriate methods to enhance awareness of the causes of these conditions, their presentation as well as stress coping strategies/skills through psycho-education.

Objectives

The general objective of this study was to determine the effectiveness of psycho-education as an intervention on depression, hopelessness, suicidality, anxiety, alcohol and other drug abuse.

The specific objectives were to determine the following among the 2 study groups across the 3 assessments: -

1. Prevalence of depression, hopelessness, suicidality, anxiety and risk of alcohol and other psychoactive drug abuse.
2. Co-morbidity of depression, hopelessness, suicidality, anxiety, alcohol and drug abuse
3. Views of the respondent's ability to cope with psycho stressors.
4. Trends of self referral to a mental health facility/professional.
5. Trends in changes of the symptoms of depression, hopelessness, suicidality, anxiety, risk of alcohol and drug abuse across the 3 assessments.

Study Design, Subjects and Setting

This was a clinical trial design study with psycho-education as the intervention. It recruited the total population of the 1st and 2nd year basic diploma students in the seven largest KMTCs in Kenya. Nairobi campus respondents constituted the experimental group and the number of respondents who were willing to be involved as well as the questionnaires which were well completed in the 3 assessments at 3 monthly intervals were (n=1181, n=1156, n=959) respectively. The control group consisted of the next six largest KMTCs namely; Mombasa, Port Reizt, Nakuru, Kisumu, Muranga and Meru MTCs (n=1926, n=1741 and n=1493) in the 3 assessments respectively.

Instruments

Self administered questionnaires were used which included; (i) Social Demographic Questionnaires (SDQ) (ii) Beck's Depression Inventory (BDI) (iii) Beck's Hopelessness Scale (BHS) (iv) Beck's suicide ideation scale (BSIS) (v) Beck's Anxiety Inventory (BAI) and (vi) WHO ASSIST version 6 instrument adopted by the National Institute of Drug Abuse (NIDA). The SDQ was developed by the researcher, while the other questionnaires which have good psychometric properties and which have been used worldwide, were adopted for this study.

Methodology

Ethics approval for this study was obtained from the University of Nairobi/ KNH Research and Ethics Committee. The potential respondents were explained the nature of the study, anonymity, confidentiality and voluntary participation with the right to withdraw any time in the cause of the study without loss of benefits. They were also explained personal benefits i.e. those who felt they indentified with any of the symptoms could come consult with the researcher/data collectors in confident for help and that generally the results were to be used to inform policy at the KMTC on the mental health of the students. Apart from possible emotional pain of relating self to some of the questions, there were no other risks. In particular there were no physically invasive procedures.

Three assessments were carried out using similar instruments at an interval of 3 months among the 2 study groups. The experimental group was given 2 direct contact psycho-education interventions immediately after the baseline and midpoint assessments. Each psycho-education intervention totalled 8 hours where the baseline psycho-education was split into 4 sessions each session lasting 2 hours while the midpoint psycho-education was split into 3 sessions the 1st session lasting 2 hours and the other 2

sessions lasted 3 hours each. The psycho-education method included; lecture method, simulations, role plays and small group discussions. It covered; symptom recognition of the conditions under study, factors which may precipitate and/or predispose their development, 11 appropriate stress coping strategies/skills to enhance/facilitate prevention of development of these conditions and facilitate symptom reduction for these disorders in case of their occurrence.

Data Analysis

The collected data was double entered by two separate groups of data entry clerks, cleaned and analyzed using SPSS version 16, utilizing descriptive and inferential statistics in form of tables, graphs, bar charts, and narratives.

Results

The prevalence rates of all the conditions of the current study did not differ in the 2 study groups in the 1st baseline assessment. Prevalence of all the conditions and risk of alcohol and drug abuse reduced in both study groups across the 3 assessments with a higher progressive reduction in the experimental group where the highest reduction was in the 3rd assessment i.e. 6 months after inception of the 1st intervention. There was a statistically significance difference in prevalence between the 2 study groups in; depression in the 3rd assessment ($p<0001$), hopelessness in the 2nd and 3rd assessments ($p<0001$ and $p=001$ respectively), suicidal ideas in assessment 3 p= (059), suicidal plans ($p=005$) and attempts in assessment 3 ($p<0001$) and anxiety in the 3rd assessment ($p<0001$). There was a statistically significant association between the 2 study groups and risk of; cannabis abuse in the 3rd assessment ($p=026$) and cocaine abuse in the 3rd assessment ($p=034$).

There was prevalence of co morbidity between various conditions which reduced in both study groups across the 3 assessments with a higher and more consistent reduction in the experimental group. There was a statistically significant association between co morbidity of several of the conditions and the experimental group in the 2nd or 3rd assessment. These were; depression and anxiety; depression and risk of abuse of alcohol, tobacco, cocaine and amphetamines; hopelessness and risk of abuse of cocaine, amphetamines and inhalants in either experimental or control group; Suicidal ideas and risk of abuse of alcohol, tobacco, cannabis, cocaine, amphetamines, inhalants, sedatives, opioids and hallucinogens in both the 2 study groups in the 2nd or 3rd assessment; suicidal plans and risk of abuse of alcohol, tobacco, inhalants and hallucinogens in the 1st assessment in both or one study groups; tobacco, cannabis,

inhalants and hallucinogens in either assessment 2 or 3 among the experimental group; suicidal attempts and risk of abuse of alcohol, cannabis and inhalants in the 2nd or 3rd assessment in either of the 2 study groups; anxiety and risk of abuse of alcohol, tobacco and cannabis in the 1st assessment among either of the study groups as well as sedatives in the 3rd assessment among the experimental group.

The means of the experimental respondent's views on their ability to deal/cope with environmental stressors were higher than those of control group in the last 2 assessments (=μ0.73, μ=0.92) for experimental group and (μ=09, μ=0.63) for control group respectively. ANOVA analysis showed a statistically significant association between the means of the 2 study groups in the 2nd and 3rd assessments only (p=001 and p<0001 respectively).

The means of experimental respondents who self referred to a mental health facility/professional were higher in the 2nd and 3rd assessments compared to those of control group (μ= 0.1787, μ=0.2495) and (μ=0835, μ=0919) respectively. ANOVA analysis showed a statistically significant association between the means of the 2 study groups in the 3rd assessment only (p<0001).

Trends of individual symptom change across the 3 assessments among the 2 study groups indicated a progressive reduction in severity and prevalence with a higher reduction among the experimental group particularly in the 3rd assessment.

ANOVA analysis of the means of the symptom reduction of the individual conditions of this study showed progressive decrease of means across the assessments among the 2 study groups with higher reduction among the experimental group in the 3rd assessment where several had a statistically significant association between the means. In assessment 2, those whose means had a statistically significant association was only suicidal ideas (p<0001) while in assessment 3 those which had a statistically significant association were; depression (p<0001), hopelessness (p<0001), suicidal ideas (p<0001), suicidal attempts (p=050) cannabis (p=036) and cocaine (p=033).

Co-relation coefficient test of the means of all the conditions of this study in the 2 groups on the effectiveness of formulated psycho-education between assessment 1 and 2 showed almost similar statistically significant difference between some of the means of some conditions in both groups while

between assessment 1 and 3, means of 11 conditions in the experimental group had a statistically significant difference while in the control group, only means of 4 conditions had a statistically significance difference, which meant there was more effectiveness within the experimental group.

Conclusion

Comparing the experimental and control groups, psycho-education intervention model employed was effective in significant symptoms reduction at 6 months except for only one symptom- suicidal ideas which was significantly reduced at 3 months and maintained at 6 months. The symptoms which showed significant differences between the 2 groups at 6 months were, depression, hopelessness, suicidal plans and suicidal attempts, abuse of alcohol, tobacco, cannabis, cocaine, amphetamines and sedatives. Those that did not at 6 months were suicidal ideas, abuse of inhalants, opioids and hallucinogens all of which are drugs with propensity for causing addiction. It can therefore be concluded that psycho-education is effective in reducing most common mental disorder symptoms.

10. CHAPTER ONE

1.1. INTRODUCTION

Psychiatric and neurological disorders are important contributors to the global burden of disease in both developing and developed countries, accounting for 12% of all deaths globally (1, 2, 3, 4, 5). Currently, 23% of all psychiatric disorders are found in high income countries and 11% in middle and low income nations (6). It is postulated that the numbers among the middle and low income countries may increase to 15% in 2020 if urgent action is not taken (5, 6). These disorders are present either alone or co morbid with another mental disorder(s). The most common mental health disorders diagnosed in primary care settings are depression, anxiety and substance related disorders (6).

WHO (7) has observed that psychiatric and neurological disorders are among the most important contributors to the global burden of disease and that these disorders are estimated to account for 12% of all deaths due to disease and injury globally.

By raising awareness about the importance of mental health problems particularly the common ones such as depression, anxiety, alcohol and substance abuse, WHO hopes to heighten the profile of mental health on the health, political and development agenda among its member states (8). Promotion of wider use of cost effective interventions to help deal with and consequently control these psychiatric disorders should be encouraged.

Carsons, Butcher and Mineka (9), Golderberg and Huxley (10) and Middleedrop et al (11) state that alcohol and drug abuse may induce one to develop depression and may be a trigger for one to attempt suicide. They further argue that depression increases the risk of suicide substantially and so suicidal behaviour should be a matter of serious concern. They concluded that this calls for special attention to an individual who is diagnosed with mood disorders like depression, as well as any other factors that may precipitate one to suicide.

Anxiety often goes unrecognized and therefore untreated as it presents with more somatic symptoms than psychological ones and it is characterized by overwhelming stress which can produce psychological and psychosomatic problems (8, 12, 13). Anxiety within an individual may be transient or chronic and

presents as an exaggerated worry and tension even though nothing seems to provoke it. When an individual has anxiety, they anticipate disaster; often worry excessively about life issues like health, money, performance, relationships and other general or specific life challenges. At times, the source of worry is difficult to pinpoint and the thought of getting through the day may provokes anxiety (11).

Depression and anxiety disorders, either alone or co morbid are found among the general population (9, 13, 14). Both conditions contribute significantly to the aggregate point prevalence of about 10% of neuropsychiatric disorders among adults (15, 16). Among other causes of depression or anxiety is a psychosocial component which is closely related to negative social relationships, environmental challenges or individual inadequacies to cope effectively with stress (12, 17, 18).

Depression and anxiety are debilitating, affecting one's general functioning if left unmanaged making it hard for the affected to do everyday tasks completely, competently and efficiently (18, 19, 20). This will affect their general well being, productivity and quality of life in relation to themselves and others (6).

Hopelessness is associated with suicidality in that it is a negative expectation concerning one's self and the future life and may lead to suicidal ideations, suicidal plans and even suicidal attempts (21, 22). Hopelessness can be exhibited in the intensity of one's negative verbalization and observable behaviour and it is one of the core characteristic symptoms of depression and is also found in some physical illness (18, 22, 23, 24, 25). Hopelessness and suicidality are symptoms that can be experienced in a number of mental disorders such as depression, schizophrenia, anxiety or substance abuse (9, 13, 23,). Suicide is now one of the third leading causes of death among those aged between 15-34 years worldwide and cannot be ignored (22, 26, 27). Suicidality has been found prevalent among college students (28)

An individual with depression, anxiety or experiencing hopelessness may have a tendency to seek out measures to reduce their negative psychological feelings or emotions through abuse of substances/drugs of addiction accessible to them. Substance/drug abuse behaviour patterns are some of the most pervasive and intransigent mental health problems facing societies today and it has been found that a significant correlation between intake of different substances exist among different categories of people including college students (29, 30, 31).

Uretsky (32) states that substance/drug misuse among health care professionals particularly those likely to be abused is common knowledge among all health care professionals and that 10-15% of health professionals use drugs of addiction at some time in their careers. He further states that they seem to abuse drugs at about the same rate as the general population with a difference in their choice of drugs. People who have developed substance related disorders have their normal general daily functioning affected negatively. Indicators of drug abuse for instance are absenteeism or decline in job performance, alienation of friends, debilitating finances, drop out of recreations, and drop in academic performance as well as decline in self care (29, 32). Substance/drug related disorders are characterised by maladaptive usage of substances of addiction which significantly impairs one's functioning as well as cause distress. The disorders include substance abuse, dependence and substance withdrawal (29).

Substance abuse during adolescence and young adulthood remains a prominent public health problem in majority of countries and their abuse is associated with a broad array of risk behaviours including abuse of other substances of addiction which may precipitate them to develop other mental disorders like depression, suicidality or psychosis (31, 33, 34**).** Substance abuse among college and university students remains an important area of research due to the implications of early substance dependence on the future of the youth. This problem has also been heightened in the local and international media and through numerous published studies (34, 35).

The average age of manifestation for many mental health conditions in the typical college age is 18-24 years and is believed to be generally due to the many first encounters in; life style, friendships, roommates, new cultures and alternative ways of thinking (36, 37). The medical professionals may become reluctant to be treated for these mental disorders due to fear of being revealed that they have the condition(s) and become stigmatized (37). Existence of depression, anxiety or substance abuse disorders among students undertaking health professions not only affects the individual's life negatively but may also have repercussions for patient care in the long run (37, 38). Every effort should be undertaken to try and prevent their occurrence, control them when they occur and manage them appropriately through the affordable and effective methods.

Various interventions have been employed to deal with these common mental disorders as well as reducing risk of alcohol and drug abuse. Psycho-education, which is one form of cost effective interventional approaches does not focus on the abnormality, diagnosis, prescription, therapy or cure. It

emphasises on stress coping strategies like goal setting, skill teaching, satisfactory goal achievement and communication skill among others which play a key role in dealing with psycho stressors thus reduce precipitators of these condition's occurrence (39). There is substantial evidence to support the use of psychological therapies particularly cognitive behavioural therapy (CBT) through various methods of psycho-education in the prevention or treatment of mild to moderate depression, anxiety, moderate substance abuse and consequently, hopelessness and suicidality (40).

Various researchers have come up with different components of psycho-education geared towards symptom recognition and stress coping skills among others which if employed effectively, have been found to be effective to prevent and reduce symptoms of depression, hopelessness, suicidality, anxiety or substance abuse at whatever level. Psycho-education has also been found to promote symptom recognition and consequently self referral to a health facility/professional due to enhanced symptom recognition and reduction of stigma (39, 41, 42, 43, 44). The ability of an individual to understand psycho stressors as predisposing causes of these conditions, be able to employ appropriate stress copping strategies to deal with the possible psycho stressors before they becomes chronic, be able to recognize the specific symptoms related to any of them before they become severe and the ability for self referral- all of these can go a long way to prevent/reduce the prevalence of these conditions among patients or the general population (41).

1.2. BACKGROUND

An individual who has some unresolved psychological/psychodynamic challenges may develop an anxiety disorder, depression or get into alcohol and drug abuse. Excessive alcohol consumption may result to violence, vandalism, accidents, absence from lectures and health related problems (44, 45). Anxiety disorders may be present with somatic symptoms such as headaches, body aches, insomnia or other undefined symptoms which the general practitioner may misdiagnose (1). If recognition of their symptoms and how to minimize their intensity of the symptoms is not recognised by the affected persons, then the symptoms will continue to get worse which may then adversely affect their general well being, productivity and quality of life (1).

Common mental health disorders have been recognised as a serious problem throughout the world. Givens and Tjia (45) state that there is an increased risk of depression and anxiety among medical students due to poor coping strategies and the high stress levels inherent in a student's life. He related this as due to inadequate sleep hours, reduced social life, fatigue and academic challenges involved. As these students encounter serious illness and deaths within their practical learning sessions, their emotional balance may be put to task and unmask their vulnerability to anxiety, depression or both. This may precipitate their urge to abuse substances to reduce their anxiety and/or depressive symptoms. Prior studies from various settings indicate relatively high rates of alcohol and other substance use among high school students and those in higher educational institutions (44, 46, 47). This has relatively been attributed to neurobiological and psychosocial factors, which have been found to reinforce the use of substances of addiction in psychiatric population as well as in the general population (29,42, 43, 46, 47, 48).

If the general population can be enlightened on how to recognize these ailments through psycho-education on symptoms recognition and how to deal with any psycho stressors that may provoke their development/worsening, then their prevention and control can be achieved (39, 41, 48, 49, 50).

Psycho-education is employed in many countries throughout the world, although it has yet not been researched in some regions, Kenya included. Psycho-education has been researched on in UK, Denmark, USA, France, Poland, Australia, South Africa and Norway, focusing on early identification of prodromal signs and possible predisposing and precipitating causes of common mental disorders (52). Colom and Lam (51) and Dawrick et al (52) observe that understanding the implication of lifestyle helps the individual to facilitate compliance and enhancement of seeking appropriate management of their conditions. These further promote exploration of individual's health beliefs and illness awareness as well as enable the individual to understand the complex relationship between symptoms, personality, interpersonal and environment which may predispose to development of these conditions. Gray et al (53) emphasize on the value of interventions which facilitate the acquisition of problem solving skills, being able to reframe negative memories, utilize wisdom, flexibility and -resourcefulness to face life challenges and attain goals.

In a study of National survey of practice nurse involvement in mental health interventions, Gray et al (53) found that all health professions have a role to play in the management of mentally ill at all settings and concluded that both paramedics and medics should endeavour to acquire the relevant skills, knowledge and attitudes to be able to play their roles appropriately. Other similar studies have found similar results.

1.3. STATEMENT OF THE PROBLEM

As at the time of this study, the Kenya Medical Training College had a total of 29 satellite campuses distributed all over the country with a total population of approximately 14000 students. Twenty six of these KMTCs offered basic diploma courses alone or and higher diplomas, while the remaining ones offered certificate courses only. The population of students varied from one KMTC to the other, as well as the number of courses offered at diploma, higher diploma or certificate level. KMTC Nairobi campus is the largest and there were 14 academic departments which offered basic diplomas as well as higher diplomas in various professional fields. These students were drawn from Kenya and also other sub Saharan African countries. They were therefore from diverse cultures, backgrounds and socializations, having been exposed to different environments.

The students are expected to conform to certain college rules and regulations as they get exposed to their specific fields of expertise for the appropriate knowledge, skills and attitudes. This ensures that they are moulded to exhibit the appropriate moral, academic and professional expertise in their fields on completion of their training in a holistic manner.

On average, the age of students who were undertaking basic diplomas generally ranged from between 18 to 25 years. This means they are admitted having completed their secondary schooling at form 4, i.e. having sat for final high school national examination or its equivalent and acquired qualifications according to the specified subject clusters of the various professional training Programmes offered. Others are considered after completing the certificate course and worked for at least 3 years before they apply for an upgrading course. This meant that they were in their late adolescence/early adulthood and may have been faced with the various late adolescence and early adulthood challenges. These challenges may include peer pressure, adjustment, financial, relationship, academic and others which may predispose or precipitate them to some psychological problems. A few of the basic diploma students were upgrading their courses from certificate to a basic diploma therefore were above 25 years old.

Some of these over 25 year olds had their own families which meant they may also have been experiencing challenges as they tried to balance family responsibilities and their studies.

The Kenya Medical Training College Nairobi Campus had an average population of approximately 1300 in 1st and 2nd year distributed within the existing 14 academic departments offering basic Diploma courses. They were served by a student/staff clinic located within the college. The clinic had two clinical officers and one general practitioner as well as 4 nurses. None of these professionals had any specialized training in mental health. This meant specialized diagnosis and management of patients with mental disorders within the clinic were not optimal.

The office of the dean of students had a double role of offering counselling to any needy student or staff among the approximate population of 3500 students and 600 staff, in addition to deanship related responsibilities within the college. This left the dean/counsellor quite overwhelmed and inadequate to effectively and efficiently deal with clients within the counselling unit and often had to rely on referring these in need to the nearby National hospital for appropriate attention.

All the other KMTC satellite colleges did not have a counselling unit or a staff and student clinic. This left the students who had issues in need of counselling to seek help from the lectures who may not be professional counsellors, nearby hospitals, private health professionals or remain unattended.

Although the majority of the academic departments within KMTC offered a unit in psychology in their curricula, there was no unified content in its coverage within the individual academic departments. Only a few departments offered a general unit on mental health. These included Clinical Medicine, Nursing, Physiotherapy and Occupational Therapy. This meant that despite the fact that KMTC graduates constituted approximately 90% of health care providers in Kenyan health facilities, they were not adequately prepared to recognize or diagnose mental disorders among the patients they were bound to see/encounter. They could as well not able to recognize the same symptoms in themselves and so may not have sought medical attention early in case they were unwell. This might have led to aggravation of the condition(s) and consequently loss of learning time and deterioration of health and conduct. They may also have had inadequate skills/techniques and knowledge on how to cope with psycho stressors which could precipitate these conditions to develop or worsen in case they developed them.

Kenya Medical Training College staff and student clinic had no recorded data on students who had specifically been treated or referred to relevant clinics with mental disorders. The existence of these conditions could only be inferred through the reported cases of suicide and crimes committed by students in an intoxicated state from the security office, students who had sought counselling from the dean's office and those who presented with psychosomatic symptoms and unspecified diagnosis in the student/staff clinic as indicated in the Ministry of Health card within the clinic. In other words, mental health was not included in the overall health information system within the ministry of health.

Records within the security department, student/staff clinic and the dean's office at the KMTC Nairobi campus revealed that there was existence of depression, suicidality, anxiety, substance/drug abuse among KMTC students. For instance between 2006 and 2007 alone, 118 students were diagnosed and treated with mental health related disorders in KMTC Nairobi Campus student/staff clinic. A total of 72 students were seen at the dean's office for counselling at KMTC Nairobi Campus with various psychological disorders. These included 2 rape survivors, 2 cases of domestic violence, 15 cases of psychosomatic complaints, 4 discipline problem associated with psychosocial problems, 5 depression cases with non drug compliance due to psychosocial problems, 16 cases of poor academic performance due to psychosocial problems, 9 cases of clear depression, 7 cases of anxiety neurosis, 6 substance induced depression, 2 cases of Para suicide and 2 schizophrenic cases. In the security office, 62 students were recorded to have committed various offences within the college. These included; 2 cases of successful suicide and 9 alcohol related cases. Other offences, for example theft, fights between colleague students who were drunk and disorderly were 51 as recorded by the security unit office. The total of 252 cases which were reported in various units in KMTC Nairobi campus alone could be said to be associated to poor mental health or categorised in the common mental disorder category. There were generally similar reports in the other KMTCs although there was no data available.

Kenya Medical Training College students need to be fully incorporated in the ventures/ strategies to help prevent/control and cope with mental disorders. This can be achieved through increase of awareness to enhance symptoms recognition of depression, suicidality, anxiety and substance abuse related disorders. The students should be taught strategies/skills to help them cope and deal with environmental challenges and stressors effectively, which if not would otherwise aggravate an existing mental disorder or facilitate its development. This would reduce the worsening of the condition(s) through symptom reduction.

The above strategies can be achieved through psycho-education aimed at; increasing the ability of the students to self diagnose through symptoms recognition and seeking professional help before the condition worsens; understanding possible precipitations and predispositions of these common mental disorders; how to employ simple stress coping strategies/skills in order to prevent/control and cope with wound be psycho stressors which could precipitate or predispose them to develop or worsen these common mental health disorders.

1.4. JUSTIFICATION AND SIGNIFICANCE OF THE STUDY

From the literature review and the background information above, this study is justified for several reasons; 1. From the anecdotal reports in the security unit and the staff/student clinic, it is evident that the students at KMTC have mental health related issues. There is therefore need to determine the actual extent i.e. prevalence particularly of the more common mental health disorders in order to inform policy including any necessary inputs into their training curricula. 2. The determination of the related psychosocial factors associated with the mental disorders would facilitate informed psychosocial interventions to minimize their impacts hence better preventive and management skills.

The significance of this study is related to the proposed intervention that is psycho-education. If it can be shown to be effective in the local context as has been shown to be the case in some countries as described in the literature review, it can then be rolled out as a standard practice within KMTC and also in other similar contexts both within and without Kenya. In this context, the proposed intervention will impact many people at the same time i.e. will use little human resource to reach many people as opposed to one on one intervention which is very limited in time and target recipients. This makes the proposed intervention least costly with most impact. Further, the sensitization during the psycho-education would reduce stigma not only in the students in relation to their own seeking for help but also even more importantly their own patients given that KMTC grandaunts constitute at least 90% of all health care providers in Kenya.

1.5. OBJECTIVES

General objective

To determine the effectiveness of psycho-education as an intervention on depression, hopelessness, suicidality, anxiety, alcohol and other drug abuse.

Specific objectives

To determine the following among the 2 groups (experimental and control) across the 3 assessments;

1. Prevalence of depression, hopelessness, suicidality, anxiety and risk of alcohol and other psychoactive drug abuse.
2. Any co-morbidity of depression, hopelessness, suicidality, anxiety, alcohol and drug abuse.
3. Views of the respondent's ability to cope with psycho stressors.
4. Trends of self referral to a mental health facility/professional.
5. Trends in changes of the symptoms of depression, hopelessness, suicidality, anxiety, risk of alcohol and drug abuse.

1.6. HYPOTHESIS

1.6.1. Null

Psycho-education is not an effective intervention for symptom reduction of depression, hopelessness, suicidality, anxiety, risk of alcohol and drug abuse.

1.6.2. Alternative

Psycho-education is an effective intervention for symptom reduction of depression, hopelessness, suicidality, anxiety, risk of alcohol and drug abuse.

20. CHAPTER TWO

2.1. LITERATURE REVIEW

Several studies cited below have investigated the prevalence of depression, hopelessness, suicidality, anxiety and substance/drug related disorders among various disciplines and organizations by use of various instruments. Various interventional studies for these disorders have been undertaken, one of which is psycho-education.

Five of the ten leading causes of disability worldwide in both developed and developing countries are mental disorders (1, 6, 15, 54, 55, 56) and among these mental disorders are depression, alcohol dependency and obsessive compulsive disorder (which is an anxiety disorder). WHO (7) has postulated that depression may take second place prevalence among other conditions by the year 2020 if the present trend continues. Thornicroft, and Maingay (4), Paykel and Priest (58) state that depression in the middle and low income countries may increase to 15% in 2020 if urgent action is not taken and this has been argued by other researchers (5, 6).

2.1.1. Prevalence of depression, hopelessness, suicidality, anxiety, and risk of substance/drug abuse

Existence of depression, anxiety, hopelessness, suicidality and substance/drug abuse disorders among students undertaking health professions not only affects the individual's life negatively but may also have repercussions for patient care in the long run (29, 30). Rosenthal et al (57) noted that medical students are more prone to depression than their non medical peers and argued that medical students constantly encounter very sick patients or even constant deaths among their patients. Rosenthal et al (57) further alluded that this may gradually evoke memories of prior traumatic experiences/encounters which may precipitate them to develop depressive /anxiety symptoms or develop into a full blown disorder. He also suggested that psycho-education by way of symptom recognition, understanding the causes of these conditions and equipping them with stress coping skills may directly or indirectly facilitate prevention and possibly control of the occurrence of these conditions.

2.1.2. Depression

Depressive disorders are a major source of personal distress and social disability. Cases of depression are highly prevalent in primary care setting, yet many depressed people do not receive health intervention because of the disorder being misdiagnosed for other ailments (9, 12, 58).

Among the adolescents who are diagnosed with depression in childhood, 70% of them will relapse in adulthood as a result of early childhood psychological scars (58). A depressed individual may exhibit hopelessness tendencies as a result of unrealistic negative traits such as feeling that they will never get well, they will not solve their problems, their future looks brick, they have nothing to look forward to and they will not achieve their goals (20). This makes them become more pessimists and de-motivated which makes their productivity inefficient and inadequate and may develop suicidal tendencies (20, 21, 22, 23, 28).

In a study involving 1st and 2nd year medical students in a Californian University, to investigate the use of mental health services and its barriers, Givens et al. (45) found that about one fourth of the respondents were depressed. He associated the increased prevalence compared to the non medical peers in part as due to the fact that the medical students are taught that they are healers and not the ones with problems. He noted that there was a negative attitude towards mental illness among the respondents and therefore their unwillingness to openly seek help. He further noted that medical students encounter patients who are severely sick and many who die. This challenges them emotionally which may evoke unresolved episodes of loss or trauma from their past and cause them anxiety or depression.

Ndetei et al (1) carried out a study to determine prevalence of mental disorders and the attitudes of staff in General Medical facilities in Kenya with 279 patients. An average of 19.1% of the professionals who were all graduates of KMTC was found to have negative attitudes towards mental illness. In the same study, it was found that the following had stigma towards mental health. Qualified nurses 2.6%, student nurses 9.1% and physiotherapists 2.6%. Generally, 13.6% of all the professionals were not aware that psychological factors influenced the cause and outcome of physical disorders. It was inferred that these professionals particularly the students were unable to psycho-educate their patients. It was concluded that there was lack of adequate psychiatric component in the training of basic nurses and other basic

diploma graduates from KMTC. He recommended that there should be a policy to incorporate mental health in training of all medical and all paramedical staff in order to empower them to recognize and manage mental health. He further recommended the training of psychiatric clinical officers in Kenya as a priority over and above training of psychiatrists and that mental health services should be fully integrated within the general health care at all levels to reduce the stigma and improve mental health service provision.

2.1.3. Anxiety

Anxiety disorders are among the three most common mental disorders diagnoses in primary care settings world over and the disorder may present singly or in addition to one or more mental disorders (8, 11).

When faced with overwhelming chronic stress, one may develop an anxiety disorder which may present with a general feeling of apprehension about possible danger or compulsion to do something and evoke irrational fear and anxiety which may become pathological and maladaptive. People with anxiety disorders feel extremely fearful and unsure of themselves or their situation(s) most of the time and worries and fears makes it hard for them to do everyday tasks competently and efficiently (59, 60).

Melinda et al (61) and Creamer et al (62) have summarized the various types of anxiety and their symptoms, which generally include autonomic hyper-arousal which leads to increased heartbeat, breathing, sweating, high blood pressure and arousal of autonomic symptoms, upon exposure to feared objects/places. There are several types of anxiety disorders whose physiological symptoms are similar but with different causes and presentations. These include generalized anxiety disorder (GAD), which is the most common type. GAD is characterized by chronic free floating anxiety with symptoms of sweating, tension, trembling, light headache or irritability. Another type includes phobic symptoms characterised by fear of specific objects or places. This results to heightened physiological symptoms consequently leading to hyper vigilance. A person with an obsessive compulsive disorder, which is also a type of specific anxiety disorder, may have obsessions to check, count, wash or shout followed by compulsion to perform the action. The above become pathological if they interfere with normal functioning of the individual and cause psychological distress. Obsessive compulsive disorder shows itself most often by irrational beliefs that a person cannot stop thinking about, followed by compulsive activities aimed at relieving the obsessive thoughts aimed at easing the anxiety. Post traumatic stress

disorder is also a form of specific type of anxiety. When an individual is involved/witnesses a life threatening situation or a grossly embarrassing situation, they may develop PTSD.

Some forms of anxiety disorders set in mainly in childhood or adolescence, though they also occur after 20 years of age. The course is chronic but fluctuates and often worsens during times of stress and the cause is said to be familial as well as psychodynamic (62).

People with anxiety disorders feel extremely fearful and unsure of the environment. Ordinarily, most people are anxious about something for a short time now and again, whereas people with an anxiety disorder feel anxious most of the time. Their fear and worry make it hard for them to perform everyday task completely, efficiently and effectively (62, 63).

Anxiety disorder may also co-occur with another mental disorder, for instance a mood disorder (major depressive disorder or dysthymia) or a substance related disorder (61, 64).

Depression and anxiety are debilitating, affecting one's general functioning if left unmanaged making it hard for the affected to do everyday tasks completely, competently and efficiently (16, 59). This affects their general well being, productivity and quality of life in relation to themselves and others (6).

In a cross sectional study to assess prevalence of depression and anxiety among paramedical 1st, 2nd and 3rd year students of medicine in a Saudi Arabia Medical school, 66.6% of the females and 44.4% of the males were found to have depression and anxiety (p=01) while other similar studies found existence of depression and anxiety among college students but with no statistically significant differences between males and females (65).

Ndetei et al 2008 (15) in a study to determine the prevalence of anxiety and depression symptoms and syndromes in Kenyan children and adolescents using MASC found that 43.7% of the respondents had clinical diagnosis of depression, 12.9% had anxiety, and 69.1% had OCD. In the same study they also found that 49.3% of the respondents had moderate to severe anxiety with or without depression and they concluded that unless effective management of these conditions are employed, the affected respondents wound enter early adulthood with the unmanaged condition.

Ndetei et al (66) in a study to determine the association and implications of anxiety and depression in university medical and paramedical students in Kenya found 43% of the student nurses felt they needed to seek help for their symptoms, 14.3% had sought help and there was a statistically significant co relation between individual symptoms of anxiety and depression in over 50% of all the pairs of individual symptoms (p=005). Out of 364 respondents, 48.9% required medical attention for their depression and anxiety symptoms

2.1.4. Hopelessness and Suicidality

Hopelessness, one of the core characteristic symptoms of depression and substance/drug abuse disorders is also found in some physical and other mental illnesses (18, 23, 24, 25). It is exhibited in the intensity of one's negative verbalization and observable behaviour (3, 4). The few studies that have examined suicide risk in Afro-American adolescents suggest that depression, delinquent behaviour, poor family support and substance abuse are risk factors for suicidality even among young adults (48). A suicidal person becomes impulsive, intense and exhibits extreme reactions (67).

In a study to investigate prevalence of suicide ideations among college students in a Texas university among 737 respondents, 43% where found to have active suicidal ideations among whom 14.9% had suicidal plans while 5.5% had made suicidal attempts (68).

In a similar study involving 191 college students below 21 years in a United States university to investigate factors involved in aetiology of suicide ideations, 61% of the respondents had active suicidal ideations of whom 21% had either moderate or high levels while they reported some level of helplessness about their future which suggested that hopelessness is nearly lethal as it may result in suicide (69).

In a study to look at suicide risk scales and whether those risk scales help to predict suicide among subjects who had attempted suicide, Burk et al. (70) used two groups of respondents; patients who had attempted suicide and the other group of consistently non suicide patients as controls. Results identified eight general classes of variables which influenced suicidality among the respondents. These included demographic variables, evidence of mental illness, previous suicidal behaviour, and antisocial behaviour, presence of psychopathological symptoms, poor physical health, and social isolation and

recent losses. He concluded that risk scales may be helpful in diagnosis and clinical management of suicidality.

In a study on lifetime rates of suicide attempts among subjects with bipolar and unipolar disorders relative with other axis disorders, Goodwin and Jamison (14) found that the age specific rate of suicide for 15 to 19 year olds was 1.6 per 100,000 and boys were found to be four times more likely to commit suicide than girls in the same age category. In the same report, the age between 20 to 24 years had suicide rate of 13.6 per 100,000, where girls were 2 times more likely to commit suicide than the boys.

In a study to determine suicide ideations and psychosocial distress in sub-Sahara African youth among a cross-national sample of 25,568 respondents using global school based student health survey, students who reported 3-4 psychological distress indicators were 4-5 times more susceptible to suicide ideation or suicide plan (71).

Medical students who are constantly exposed to patients suffering chronic pain as well as encountering constant deaths in their line of duty yet have not coped effectively with their own early childhood /adulthood challenges may ignite pessimism in life (30, 34, 35, 42). This may progress into hopelessness and consequently suicidality or other related disorders like anxiety, depression or substance abuse tendencies. This may then predispose them to develop hopelessness or suicidality (42, 43, 44, 72).

No studies have been found to have been carried out on hopelessness and suicidality among college students in Kenya.

2.1.5. Risk of Substance/drug abuse

Pathological need for alcohol/drugs of abuse involves addictive intake of substances such as alcohol or drugs which are psycho active and may advance to substance/drug related disorder (11, 29). Addictive behaviour is one of the most pervasive and intransigent mental health problems facing society today (58).

Bergamaschi et al. (73) state that the most common substances of abuse are alcohol and tobacco due to in part, the ease with which they can be accessed. People who are anxious or depressed may seek to reduce or relieve their symptoms by intake of certain substance/drugs of intoxication.

Kato and Tominaga (74) and Baldwin et al (75), in two separate epidemiological studies, reported that the lifetime prevalence for alcoholism in the United States is 13.8% and that one in seven people meet the criteria for alcohol abuse also abuse tobacco.

Studies from various settings indicate relatively high rates of alcohol and other substance use among high school students and those in higher educational institutions (54, 75). This has relatively been associated to neurobiological and psychosocial factors, which have been found to reinforce/precipitate the use of substances of addiction in psychiatric population as well as in the general population (48, 49).

According to the 2006 data from the National Survey among American people on Drug use and Health (NSDUH), young adults between 18 and 25 years of age report the highest rates of lifetime illicit drug use with 60.5% prevalence in the former year, 34.6% past month and 20.3% current use. Most notably, the prevalence of past year illicit drug use, cigarette smoking and alcohol abuse by college students between ages 18 to 22 years was comparable to their same-age peers not attending college (76).

Medical students who are exposed to patients who have constant pain and suffering, death and their own unresolved early childhood/young adulthood challenges may develop psychological symptoms which may provoke them to seek relieve of their symptoms by intake of a certain substance of intoxication which are addictive where the choice depends on availability, accessibility and affordability (77).

A study on alcohol consumption patterns of medical students measured by the Kurihoma Alcoholism Screening Test (KAST) among 239 1^{st}, 2^{nd}, 3^{rd} and 4^{th} year medical students in a Japanese University found that 8.4% of the subjects had severe drinking problems while 5.9% were problem drinkers (78). It was found that male respondents had higher KAST scores than female respondents. Smokers had higher scores than non smokers among 1^{st} and 2^{nd} year students. Heavy drinkers had higher scores than light drinkers among the 1^{st} and 2^{nd} year students whose scores were significantly higher than those of 4^{th} year students. Eight point four percent (8.4%) of the subjects had severe drinking problems while 5.9% were problem drinkers. The same study identified physical and social problems that resulted among the respondents with excessive alcohol consumption. These problems were violence, vandalism, car accidents, absence from lecturers and health related problems. He recommended that the subjects wound

benefit from counselling after psycho-education within the University peer group. Similar studies found similar results among medical students (46, 47)

Several other investigations have found a significant correlation between intake of alcohol and cigarette smoking among college students (73, 74). A study to investigate characteristics of lifestyle of smokers and drinkers state that when one is depressed or anxious they may seek to smoke tobacco to ease their stress level (74). Similar studies found prevalence of substance use among medical students as well as among children and adolescents (75, 77, 78, 79, 80).

A study to examine the prevalence rates and correlates of non-medical use of prescription stimulants (Ritalin, Dexedrine or Adderall) among US college students in terms of student and college characteristics found the life-time prevalence of non-medical prescription stimulant use was 6.9%, past year prevalence was 4.1% and past month prevalence was 2.1%. Past year rates of non-medical use ranged from zero to 25% at individual colleges (81).

In a South African study to investigate the prevalence of substance use among high school adolescents, alcohol use prevalence rate was 39.1% and cigarette use prevalence was 10.6% (79). Other drugs that were commonly used in these settings included cannabis, inhalants, tranquillizers, heroin and cocaine, among others (82).

Among the few studies from universities and colleges in Kenya on prevalence of risk substance abuse, Odiek et al (81) reported high rates of substance use among students at a Kenyan private university, with rates as high as 84% for alcohol use and 54.7% for tobacco use.

In a study to investigate the prevalence of substance abuse among University students in Eldoret- Kenya, it was found that alcohol use was 51.9%, and 97.6% of alcohol users had consumed alcohol in the week prior to the study. The prevalence rate of cigarette use was 42.8%, with males having statistically significantly higher rates than females ($p < 05$). Other substances used were cannabis (2%) and cocaine (35).

Ndetei et al (50) in a study to determine the psychosocial and health aspects of drug use by students in public secondary schools in Nairobi Kenya using ASSIST found that alcohol consumption is prevalent among students in Kenyan secondary schools. Results of this study found that the most abused substance was alcohol 25.5%, tobacco 16%, cannabis 3.9%, cocaine 1.2%, amphetamines/khat 3.6% and sedatives 2.3%.

2.1.6. Psycho-education as an Intervention in symptom reduction of depression, hopelessness, suicidality, anxiety and risk of alcohol /drug abuse

There are diverse but complimentary interventions that have been researched on and found to be effective in the prevention and symptom reduction of depression, hopelessness, suicidality, anxiety and reduction of risk to substance/drug abuse.

In a report from National Mental Health Information centre it is stated that psychological intervention through psycho-education has been found to help reduce precipitation of the above disorders (82). There is substantial evidence to support the use of psychological therapies particularly cognitive behavioural therapy (CBT) through various methods of psycho-education in the prevention or treatment of mild to moderate depression, anxiety, moderate substance abuse and consequently, hopelessness and suicidality (83, 84). Wood et al (85) state that cognitive psychotherapy by way of teaching coping strategies is crucial in that it involves challenging maladaptive thinking process and suggests alternative adoptive thinking. He further describes the theoretical perspective of psycho-education as integrated, holistic, multicultural, multi-modal, functional, systematic and comprehensive and that participatory social interaction during psycho-education is crucial in its delivery. Psycho-education is viewed by Wood et al (85) as an idea whose time has come since if it is employed appropriately, professionally and inclusively, it can go a long way in symptom reduction and improved wellness of individuals.

Psycho-education has been used in health care community settings as well as among the general public and seems effective in prevention, symptom reduction and quality of life improvement programs (86). Group psycho-education emphasizes instruction which puts emphasis on techniques categorised as stress coping strategies and include; relaxation, positive thinking and how to make choices of pleasant activities/hobbies. It also trains skills in communication, assertiveness, decision making cognitive restructuring and anger management (13, 41). In addition, other stress coping strategies which have been

found to enrich the ability to cope and thus prevent the affected from developing or worsening depression, anxiety and risk of substance/drug abuse include; skills on sleep management, problem solving, cognitive coping, and self esteem enhancement (85, 86, 87). Patients who are diagnosed with these mental disorders are taught symptom recognition of the specific mental disorder, their possible causes and appropriate stress coping strategies which puts emphasis on control of emotions, cognitive employment of appropriate coping strategies to deal with challenges thus improve general health care outcomes and self care (87,88, 89, 90).

Givens et al. (45) also found that students had poor coping strategies in the face of high stress levels inherent in a student's life due to inadequate sleep hours, reduced social life, fatigue and academic challenges involved. As these students encounter serious illness and deaths within their practical learning sessions, their emotional balance may be put to task and unmask their vulnerability to anxiety, depression and substance abuse.

Christensen et al (88) in a study to determine the effects on serum lithium levels of a psycho-educational program among in-patients with bipolar disorder found that lithium levels were significantly higher and more stable for the psycho-educated group than the control group. They concluded that since serum lithium levels are a powerful predictor of relapse in bipolar patients, the addition of psycho-education to a standard pharmacological treatment may be beneficial to optimize serum lithium levels and thereby improve the outcome.

Andrew et al (89) in a study to offer psychotherapy through computerized or telephone cognitive behavior therapy over a 9 month period among 301 clients diagnosed with depression and anxiety who were getting pharmacotherapy found there was a significant beneficial effect over 24 months period among those who got the psycho-education.

Howton et al (90) in a study of comparative randomized trial of online CBT comprising of 5 interactive modules on cognitive restructuring, pleasant activities and assertiveness training, problem solving and relaxation sessions through information website for depression in the United States found that there was satisfactorily significant benefits in symptom reduction among the experimental group whose initial mean was 21.8, after 6 months 15.6, and after 12 months 14.1, compared to the control group whose respective means were 21.6, 19.5 and 16.5 at post test.

In a study to investigate effectiveness of cognitive behaviour therapy for psychiatric problems through psycho-education, Howton (90) found that there was a 17% difference in proportions of cases between participants assigned to group problem solving and the controls. There was fourteen percent (14%) improvement on participants assigned to prevention of depression through psycho-education. In this study, re assessment using BDI found that there was reduction in symptoms of depression and there were better subjective functions over a one year period among those who had been given psycho-education. He concluded that respondents assigned to group problem solving were less likely to report depressive symptoms compared to those who had not. They recommended psycho-education which emphasised on problem solving skills as an effective intervention for people with depressive conditions since they reduce severity and duration of depressive disorder. This intervention will improve subjective mental and social functioning of the individual.

Mckendree et al (91) in a study on effectiveness of non pharmacological self administered treatments for depression proved that self help booklets for depression which have been used in clinical trials have fared well with an average effective size obtained in psychotherapy studies. They concluded that computer based treatments being developed appear promising for those interested in self administered treatments and that if the same information can be taught in a group before the booklets are given, the effectiveness would be more. They further concluded that patients diagnosed with a mood disorder can benefit from psycho-education, while Schottee et al (92) argued that a biopsychosocial model of psycho-education was most effective in the management of depression.

Schottee et al (92) in a study on a Bio-Psycho-Social model as a guide for psycho-education and treatment of depression concluded that a bio-psychosocial diathesis – stress model of depression should aim at psycho-education. This provides therapists, patients and their environment a constructive conceptual framework to understand depressive complaints, vulnerability and stress. They concluded that the core of the model should consist of the concept of psychobiological vulnerability which is determined by risk factors of biogenetic, psychological, somatic and societal nature. These not only act as triggers to vulnerability and development of depression but triggers for relapse as well. The model they employed stressed on the self evident integration of biological and psychological therapeutic interventions focused on symptom reduction and relapse prevention. This, they concluded, can effectively be achieved through psycho-education.

Dannon et al (93) in a study to determine effectiveness of psycho-education in anxiety and panic disorder patients sought to investigate the effects of self information booklet in a randomised masked – ratter study. Eighty four (84) randomly selected respondents with panic disorder received medication with or without designed psycho-education brochure. Follow up was done by a masked ratter after 12 weeks to evaluate whether the co administration of anxiolytics and psycho-education brochure had a beneficial effect over the administration of anxiolytics alone. After 3 weeks, those who had received both medication and psycho-education had significantly greater improvement ($p = 036$) and lower scores on the Hamilton anxiety scale, panic self administered questionnaire and the visual analogue scale compared to the group that had medication alone.

Dowrick et al (94) carried out a problem solving treatment and group psycho-education for depression to determine the acceptability of two psychological interventions for depressed adults in the community and their effects on caseness, symptom reduction and subjective function. The interventions given were problem solving and a course on prevention of depression. Seventeen (17%) of the respondents assigned to problem solving had reduced symptoms compared to the control group. The mean difference in BDI scores was 2.63(95%) confidence interval was 4.95 – 0.32 with significant improvements of 36 scores ($p = 006$). They concluded that when offered to adults with depressive disorders in the community; both problem solving and a course on depression prevention reduced caseness and improved subjective functioning.

Beck (42) carried out a study to determine effects of psycho-education for depression on 299 college student using Becks Depression Inventory (BDI). The respondents were randomly assigned to biological education which involved causes of depression, symptom recognition and destigmatization among combined and controlled groups. The measures included the biological attribution scale, psychological Blame Scale and self seeking willingness scale. Results showed that biological education had significant main effects to elevate help seeking willingness, but destigmatization education did not. There was no interaction effect between the two independent variables. He concluded that biological education makes people legitimize depression as a disease entity. Thus biological education on depression is a practical approach to increase people's motivation to solve their emotional afflictions, especially in societies that emphasize emotional constraints and also increase willingness to seek help.

Aileen et al (95) in a study to determine the effects of drama based education to motivate participation in substance abuse prevention among South African community respondents. A script was developed by mental health professionals who aimed at increasing awareness of drug abuse and effects of communication. Sixty five per cent (65%) of the respondents who had not been interested in drug abuse issues reported increased interest and 84% confirmed they would use the information they had learnt to educate their kids. After 3 months after seeing the play, 81% reported having talked to their family or friends about alcohol and other substance abuse. It was concluded that drama had stimulated respondents to want to utilize knowledge regarding substance abuse and commit to substance abuse treatment and prevention missions. Similar studies found psycho- education effective reduction of symptom severity among patients with schizophrenia (96).

Ndetei et al (97) in a study to determine medical student's attitudes toward psychiatry at the faculty of medicine, UON found that 77.8% of the respondents felt that there was overall merit of the field of psychiatry. Sixty four percent (64%) felt that psychiatry was a powerful method of understanding human behaviour, which is a key to diagnosing mental health disorders for treatment or appropriate referral. There were 61.1% of the respondents who had negative attitude towards students who undertook psychiatry. In contrast, 96% of the total respondents saw psychiatric teaching as relevant and essential for a doctor in whatever field. They concluded that these respondents had come to appreciate the magnitude of psychiatric disorders having been in general practice for some time. It was recommended that all medical students should be exposed to very high quality psychiatric clerkship and that medical discipline should be impacted with the skills needed at primary health care level (1). This is most ideal for KMTC students who are deployed in every health care facility in Kenya on completion of their studies.

No studies have been found to have been carried out on effectiveness of psycho-education among KMTC students or any other equivalent category of respondents in Kenya. This study aims to fill this gap in the Kenyan situation in particular and contribute to the global data base in general, specifically on scientifically based evidence on the effectiveness of psycho-education on depression, hopelessness, suicidality, anxiety and substance abuse among KMTC students and in the process inform policy in search areas as service and curricula for the students,

30. CHAPTER THREE

3.1. METHODOLOGY

3.1.1. Study Sites

Kenya Medical Training College (KMTC), currently the only one of its kind in Kenya, is a middle level medical college which offers diverse paramedical courses whose graduates constitute approximately 90% of health work force in the country. Kenya Medical Training College is about 80 years old to date as stated in the KMTC strategic plan 2005 – 2010 (98). It has grown steadily from a training depot to the current student capacity of approximately fourteen thousand distributed in the 29 satellite KMTC campuses all over Kenya. Nairobi KMTC, located at the capital city of Kenya, is the oldest, largest and also the administrative headquarters for all the other campuses. The other satellite campuses which are smaller in capacity though gradually expanding are located within the peripheral towns across the country. The Nairobi campus offers 14 different basic diploma courses which take 3 years to complete. Among the other twenty 28 satellite campuses, 25 of them offer a total of 5 different three year basic diploma courses similar to some of those offered at the Nairobi campus and a two or two and half year certificate courses. The certificate holders may join any of the KMTC campuses to upgrade into a basic diploma after working for at least 3 years. The remaining three KMTCs only offer two and half or two year certificate courses.

The staff and students at KMTC Nairobi campus are served by a student/staff clinic located within the college which is manned by two clinical officers, one counsellor and a general practitioner as well as 4 nurses. This means that specialized diagnosis and management of students with mental disorders within the clinic is not optimal. Nairobi campus staff and student clinic had no recorded data on students who had specifically been treated or referred to relevant clinics with mental disorders. The existence of these conditions could only be inferred through the reported cases of suicide and crimes committed by students in an intoxicated state from the security office, students who had sought counselling from the dean's office and those who presented with psychosomatic symptoms and unspecified diagnosis in the student/staff clinic as indicated in the Ministry of Health card within the clinic. All the other satellite KMTCs had no staff/student clinic but sought treatment from the neighbouring hospitals next to the specific campus.

The seven KMTCs which were involved in the current study had the largest capacity of students and Nairobi campus constituted group the experimental group while the other 6 MTCs constituted group the control group. These were; Nakuru, Port Reitz, Mombasa, Kisumu, Muranga and Meru (appendix111).

3.1.2. Study Population

KMTC has a total population of approximately 14,000 students distributed in the existing 29 satellite campuses country wide. According to a Policy within the college, students enrolled in all the campuses are selected from a pool of applicants for the various professional training Programmes according to their preference and qualifications. This is done in a quota representation (from every province or district), which is in line with the Kenya government policy for public and autonomous institutions. Other students are admitted as per their specific requests in line with the appropriate qualifications from the African region South of Sahara. All these students should have completed their secondary studies at form 4 i.e. 4 years of post primary school education (primary school education takes 8 years of basic education, usually from age 6 to 13 years) and sat for the final national high school examination or its equivalent and acquired qualifications according to the specified subject clusters of the various professional training Programmes offered. Those who may have completed the KMTC certificate course and worked for at least 3 years may also apply for an upgrading course in the relevant field of study to get a basic diploma. Students who are selected have basic entry points for university education but due to the high cost of university education and limited capacity of the local universities in terms of numbers they can absorb or programmes they offer, they opt to join KMTC which is more affordable and offers some programmes that are not available in the local Universities. These students are either partly government sponsored or self sponsored and they can reside in the college hostels or elsewhere as they study depending on availability of the hostels and their ability to pay.

The respondents involved in the study were basic diploma students from the seven largest KMTCs in terms of student capacity who met the inclusion criteria.

3.1.3. Target Population

The total population of approximately 3450 students from the 7 largest KMTCs in 1st and 2nd year undertaking basic diploma courses, who met the inclusion criteria, were involved in the study. The

KMTC Nairobi campus constituted the experimental group and targeted all the approximately 1300 1st and 2nd year basic diploma students who were enrolled in the 14 academic departments. Respondents from the other 6 largest satellite campuses who were 1950 in 1st and 2nd year undertaking basic diploma courses constituted the control group and were included in the study.

Due to the nature of the intervention employed to the experimental group respondents, which was direct contact psycho-education, it was necessary to have the control group respondents in other distantly located KMTCs (from KMTC Nairobi and from each other) which ensured the two study group respondents did not interact and influence each other.

Generally, 1st and 2nd year students in all the selected KMTCs remain within their respective campuses as they cover their theory units or/and attending practical attachments in the hospitals/clinics near their campuses. The involvement of 1st and 2nd year basic students in the study therefore allowed the researcher to be in contact with them for the 6 months of data collection and intervention period respectively.

The specific population studied was not only representative of KMTCs but to some extent colleges of higher learning in Kenya as students had representation from all parts of the country because of the selection through quota system and the intake age bracket, the majority being below 25 years.

3.1.4. Study Design

This was an intervention study modelled on clinical trial study design.

3.1.5. Inclusion Criteria

The 1st and 2nd year basic diploma students in all the academic departments in the selected KMTCs who gave informed consent.

3.1.6. Exclusion Criteria

Any 1st or 2nd year student in all the academic departments who was undertaking a post basic course as well as any 1st or 2nd year student who did not give consent.

3.2. Data Collection Instruments

The research instruments consisted of 6 self administered questionnaires at the respondents pace and breaks- totalling an average of one and a half running hours to complete.

3.2.1. Social Demographic data (SQD)

This was a researcher designed social demographic questionnaire (SDQ) which sought information related to general particulars of the respondents. This included; gender, age, year of study, marital status, their place of residence while they pursued their studies, religion, their view on how well they felt they could cope with environmental stressors, and their satellite KMTC campus. The SDQ in the 2nd and 3rd assessments was modified slightly to inquire information about self referral to a mental health facility/professional.

3.2.2. Beck's Depression Inventory (BDI)

Beck's Depression Inventory (BDI) which is a 21 item self report inventory measures the severity of depression in various settings including general population (18). It is a widely used instrument, discriminates subtypes of depression and differentiates depression from non depressed persons. It has good psychometric properties such as a high coefficient alpha of 0.93 (p=001) for college students as well as exhibiting validity and reliability of 90% while in the general population where a score of 21 or above indicates depression (19, 99). It has been adapted in the Kenyan social cultural situation by a panel consisting of Clinical Psychologists, Psychiatric residents under the supervision of DMN, the lead supervisor for this study. It has been extensively used in the Kenyan situation (100)

3.2.3. Beck's Hopelessness Scale (BHS)

The Beck's Hopelessness Scale (BHS) is designed to reflect the respondent's negative expectancies in various psychopathological conditions. This scale has been administered in several diverse samples of

patients and among the general population to assess its psychometric properties and has been found to have a high degree of internal consistency (65). It also shows a relatively high correlation with the clinical ratings and other self administered measures of hopelessness as indicated in the specifications in the instrument (65, 99). Less than 3 scores indicate minimal level of hopelessness, 4-8 scores indicate mild level, 9-14 scores indicate moderate and over 14 scores reflect severe level of hopelessness (18, 99).

3.2.4. Beck's Suicidality (BSSI)

Beck's suicidality scale (BSIS) measures the severity for risk of suicidality and consists of 21 items which a respondent may respond to through self report (23). The instrument identifies those respondents with passive or active suicidal ideas, those with low, moderate or severe suicidal plans and those who have attempted suicide. This instrument is best used to detect and measure severity of suicidality, which is considered to be an indication for suicide risk (23, 97, 99).

3.2.5. Beck's Anxiety Inventory (BAI)

Beck's Anxiety Inventory (BAI) is a widely used instrument which consists of 21 question instrument designed to measures the severity of anxiety in a general population (65). This instrument has proved to show high interval consistency and test retest reliability over 1 week (65). The BAI have been validated against DSM-IV respective diagnostic criteria and has been used extensively for similar and other relevant surveys as was the case in this study. In the general population, a person with less than 7 scores is regarded to have minimal Anxiety, 8-21 scores mild, 22-35 scores moderate and greater than 36 scores had severe Anxiety (100, 101).

3.2. 6. Alcohol, Smoking and Substance involvement screening test (ASSIST)

The National Institute of Drug Abuse (NIDA) has adopted the WHO ASSIST version 6 used among the general population and has been found to be a valid screening test to investigate the risk of psychoactive substance use/abuse in individuals who use a number of substances (102). The scores of all the substances which include; alcohol, tobacco, cannabis, cocaine, amphetamines, inhalants, sedatives, hallucinogens, opioids and others are given in the instrument (103, 104).

The extent to which the consumption of each substance can be categorised at various risk levels are; low, moderate or high depending on the scores. Alcohol scores are given as; 0-10 is low, 11-26 is moderate and over 27 scores is categorised as high. The scores of all the other substances which include; tobacco, cannabis, cocaine, amphetamines, inhalants, sedatives, hallucinogens, opioids and others are given as; 0-3 is low, 4-26 is moderate and over 27 is high (102).

3.3. Ethical Considerations

The process began with obtaining clearance from the Department of Psychiatry, University Of Nairobi and then approval from Kenyatta National Hospital/Nairobi University ethical and research committee. With the ethics and research approval, the authority to conduct the research in KMTC was obtained from the Director, Kenya Medical Training College. The research protocol, the ethics and research approval and the authorization from the Director KMTC were then presented to and discussed with KMTC Academic Board which is constituted by the senior management at the KMTC headquarters, principals of all the 29 KMTC satellite campuses and all Heads of Departments at the Nairobi campus in order to sensitize them about the intended research and solicit for their logistical support.

The researcher consultatively with the respective principals of the indentified campuses (on the basis of criteria discussed above) and the respective heads of departments indentified lecturers/counsellors to be involved in the study as research assistants in the various campuses. These were trained at their various campuses on the mode and method of data collection, which was by self administered questionnaires. They were taken through all the questionnaires in order for them to familiarize themselves with the research tools to be used, how to react to possible questions from the respondents and how to handle the completed questionnaires to ensure confidentiality (as explained below). It was specified to them that they were to be assigned to collect data in different departments other than the ones they teach in order to maintain anonymity and confidentiality.

The researcher identified 2 Clinical Psychologists who were trained on the researcher developed psycho-education model (appendix IX) to be employed among the experimental group, the methodology of psycho-education intervention to be employed and their specific facilitative role during role plays and small group discussions (as detailed below).

Schedules of specific dates and time for data collection in the various KMTCs and psycho-education intervention for the experimental group was agreed upon with the respective heads of departments which

was to be during normal working hours between 8am to 5pm and these schedules were communicated to the respective research assistants.

At the time of data collection, all the details of the ethical considerations consent explanation, confidentiality, personal as well as general benefits were explained to the respondents. All these were stipulated in detail in the explanations given to the experimental and the control group respondents. The following was verbally explained to the research assistants during their training; general and self benefits, risks detailed in the consent explanation, mainly emotional distress and how to handle such a situation, the right of respondents not to participate and free choice to withdraw any time in the course of data collection without any loss of benefit; signing of the consent forms and for experimental group only, the psycho-education to be employed. These explanations were also put in the consent form and were carried out in the preparation stage. They were also included in the consent form as part of the questionnaire to the subjects in all the 3 respective assessments.

3.4. General Explanations to both the experimental and control group Respondents

The potential respondents in the 2 study groups were informed on the nature of the study, which included; ethical considerations where they were informed that there would be no invasive procedures to be carried out on them but some information that was sought in the questionnaire could be confidential and emotionally involving to them; that participation was purely voluntary and there were no penalties for not willing to be involved. They were informed that the data collection would involve 3 assessments at intervals of 3 months.

They were assured of confidentiality in that all the questionnaires had been given anonymous numbers and the information was for research purpose only. They were informed that the study would give scientific data which would be disseminated to the Kenya Medical Training College management to provide baseline data for policy making aimed at knowledge promotion, prevention and management of depression, hopelessness, suicidality, anxiety and risk of substance/drug abuse disorders within the colleges and by extension other places/regions. This would help to put in place strategies aimed at promotion and awareness of these conditions among students and revamp mechanisms to deal with those affected early enough through professional interventions. All the respondents were requested to read the information about the study in the consent form given and feel free to ask any questions.

Those willing to participate were requested to sign the subject statement form attached to the questionnaires. Those who were not willing to participate in the study were requested to sit in with the others though not completing the questionnaires to further ensure anonymity.

The respondents were asked to fold the questionnaires whether filled or not, staple and put it in the box placed on a table in front of the room. The box (s) were sealed and marked with a code number the key of which was only known to the researcher.

3.5. Explanations to the Experimental Group

The experimental group was informed about; ethical issues, confidentiality and the importance of the study as explained above.

All the respondents in this study group were to benefit from a total of 16 hours of direct psycho-education intervention in 2 blocks, each 8 hours where the 1st block was split into 4 units each 2 hours while the 2nd block was split into 3 units of 2 hours and 2 sessions on 3 hours each. The 1st block was given immediately after the baseline assessment and the 2nd block was given immedietely after the midpoint assessment. The endpoint assessment was done after another 3 months (see the flow chart).

The psycho-education included; definition of terms, predispositions and precipitations of depression, hopelessness, suicidality, anxiety, alcohol and drug abuse, their specific symptoms and diverse stress coping strategies/skills (appendix IX). The psycho-education was to be given in form of lectures, simulations, role plays and small group discussions.

The respondents were advised that if in the process of completing the questionnaire or after the psycho-education intervention they felt that they had a psychological problem or they related with the symptoms of depression, hopelessness, suicidality, anxiety or substance/drug abuse featured in the questionnaires, they could get back to the researcher or to the research assistant (s) later for advice after the session. They were informed that the researcher had made prior arrangements with the counsellors/ clinicians at the staff and student clinic at KMTC Nairobi, the psychiatrists/counsellors at the High Risk Adolescent Clinic at KNH in case of the possibility of the respondents seeking attention there or they could self refer to any mental health facility/professional of their choice. They were also informed that both KMTC Counselling clinic and the Adolescent clinic would not charge them for the services. Those respondents who felt that they had suicidal tendencies, ideas or feelings could contact the Samaritans (based at

African Mental Health Foundation) on Telephone number **0721972757** at any time of day or night at no charge.

3.6. Explanations to the Control Group

The control group was informed about; ethical issues, confidentiality and the importance of the study as explained above.

The researcher informed the respondents that if in the process of completing the questionnaire they felt they had a severe psychological problem or related with the symptoms in the questionnaires and that they needed attention of a mental health professional/counsellor, they could self refer themselves to the college student clinic (if there was any), to the college counsellor (if there was any), the hospital nearest to them or any other place they felt they could get help. Those respondents who felt they had suicidal tendency, ideas or feelings could contact the Samaritans (based at the African Mental Health Foundation) on Telephone number **0721972757** at any time of day or night at no cost.

The respondents were informed that a retest assessment would be carried out three (3) months after the initial assessment and a final retest assessment after another three (3) months.

3.7. Procedure of Data Collection

The preliminaries of engagement with KMTC structures down to the college level have already been described above. Two clinical psychologists in private practice were selected and trained to be research assistants during psycho-education.

The identified research assistants who were willing to be involved and participate in the data collection were taken through the data collection process training. The training was undertaken in the various institutions and took 3 hours in each KMTC. This helped the research assistants to familiarise themselves with the ethical issues, research tools, how to handle any possible questions from the respondents, make any clarifications, how to handle the questionnaires to ensure confidentiality and how to deal with any necessary self referrals or any anticipated eventualities after the data collection exercise.

The Clinical Psychologists were exposed to the psycho-education module to be used and they were trained on the, method to be used, that is lecture, simulations, small group discussions and role play. The training took 2 hours. The Clinical Psychologists training was more of familiarisation and

standardisation of the process rather than new learning. They were informed of their specific roles as facilitators during role plays and small group discussion.

In consultation with the principals and Heads of Department in all the KMTCs to be involved in the study, a schedule of day(s) and time of visit to each KMTC and department was agreed upon, which was to be during normal working time from 8am to 5pm. This was in order to schedule the dates and time for data collection as well as the psycho-education for the experimental groups. This was in order to allow the head of each department to organize his/her students to meet the researcher. To avoid feelings of intimidation among the respondents, ensure confidentiality and anonymity, the research assistants were allocated to collect data from different departments other than their own and the researcher was actively involved in the exercise in all the campuses. The schedules were given to the research assistants and the respondents accordingly. The researcher was actively involved in the data collection in all the KMTCs throughout the data collection exercise and managed to deal with any eventualities.

The researcher adhered to the specified day and time in all the KMTCs for each department. She introduced herself and the team of research assistants to the assembled students and briefed them about the study.

The respondents were assured of the confidentiality on how the completed questionnaires would be handled. This was achieved by ensuring that the questionnaires of the respondents were given anonymous serial numbers. The respondents were requested to fold the questionnaire whether completed or not, staple it and place the sealed questionnaires a ballot carton that was placed on a table in front of the room.

After all the questionnaires were put in the ballot like box (s), they were sealed and marked with a code number whose key was known only to the researcher. This ensured that the researcher had data from all the departments and that the experimental group questionnaires were not mixed with the control ones.

The researcher personally gave all the psycho-education lectures and simulations among all the respondents in the various academic departments among the experimental group. She also led the team of the 2 clinical psychologists who participated in the psycho-education during the role plays and small group discussions in the 1st and 2nd psycho-education which ensured the respondents were explicitly supervised and facilitated.

3.8. Data Collection and Usage

After these explanations, the questionnaires were distributed to the respondents and they were requested to read the consent form which was on the first page, they were requested to voluntarily sign the subject statement if they were willing to participate in the study. In the event that any respondent was not willing to participate, the researcher requested them to sit in for purposes of anonymity. If they still felt that they did not want to sit in, they were free to leave the room without any intimidation.

The respondents who had completed the questionnaires were requested to confirm it was completed correctly. All the respondents who had filled or not filled the questionnaires were requested to fold their questionnaire, staple it and drop it in the ballot carton. The box (s) were sealed and identified with a specific code number (whose key was known only to the researcher) for each campus and department and were transported to the data entry point and put under lock and key until all the data had been collected from all the campuses.

The psycho-education in the experimental group always commenced immediately after the particular baseline assessments (1 and 2) and continued for the specified time in the set days.

All data from the experimental and control group was double entered in the computer by two separate groups under the supervision of a medical bio-statistician and cleaned. Data from both groups was correlated accordingly and analysed. All the questionnaires were stapled again, stored in the ballot box and put under key and lock to be disposed off after 5 years.

3.9. Psycho-education Intervention and Re Assessments

After the 1st baseline assessment, 4 sessions of 2 hour each of psycho-education was given to the experimental group respondents. This was by direct contact with the respondents through lectures, simulations, role play and small group discussions after which each respondent was given a handout on the same information as given in appendix VII. The content of the lectures included 2 hour session on definitions of terms, causes, signs and symptom of depression, hopelessness, suicidality, anxiety, alcohol and drug abuse. Another 2 sessions of 2 hour each involved theoretical lectures and simulation on stress coping strategies/skills which included; Scheduling/time management, communication skills, decision making techniques, problem solving skills, assertiveness training, improving self esteem, sleep hygiene, breathing techniques, controlled breathing/de-arousal, anger management techniques, relaxation exercises, progressive muscle relaxation, general exercise activities and adherence training. The

researcher and the clinical psychologist research assistants supervised the role plays and the small group discussions on content taught which took another 2 hours.

After 3 months, a 2nd midline assessment was carried out immediately followed by a repeat of the same psycho-education. Two hours were used to do a revision of the causes and symptom recognition of the conditions under study while 2 sessions of 3 hour each were utilized in small group discussions under supervision using simulations and role plays on stress coping strategies/skills as well as discussing what challenges the respondents had experienced after the 1st psycho-education and how they could overcome them.

The final 3rd assessment was undertaken after another 3 months after the 2nd assessment and the researcher terminated the study.

Each psycho-education program in all the departments in the experimental group lasted a period of between one and half months to two months.

3.10. Data management

The collected data was double entered by two separate groups of data entry clerks, cleaned and analyzed using SPSS version 16, utilizing descriptive and inferential statistics. Results were presented in form of tables, graphs and narratives. The curriculum employed is attached (see appendix IX).

3.11. Variables

3.11.1. Dependent: Depression, hopelessness, suicidality, anxiety, risk of alcohol and drug abuse.

3.11.2. Independent: The psycho-education intervention and the social demographic characteristics.

3.12. Summary of Materials, Equipment, Supplies and Personnel

1. Self administered questionnaires to assess for Social demography, depression, hopelessness, suicidality, anxiety as well as risk of alcohol and drug abuse were used for initial first (1st) assessment of the experimental and control group respondents.
2. The second (2nd) Subsequent reassessments using a modified SDQ and the same initial screening instruments as the first assessment was carried out among the same respondents after a 3 month

interval as well as the third (3rd) and final reassessment after another 3 months interval. The SDQ in the 2nd and 3rd assessments was modified slightly to inquire information about self referral.

3. Direct contact Psycho-education for experimental group was carried out after the first (1st) assessment and three months later after the 2nd assessment using the pre prepared psycho-education manual as per the stipulated schedule in the psycho-education time table.

4. College lectures with research experience and /or who were counsellors with a medical background were trained on the use of the research instruments for data collection and briefed on the referral system of the respondents who may later contact them.
5. Clinical Psychologists were trained on the use of formulated psycho-education model and their role specifies.
6. The respondents in the experimental group who felt they associated with the symptoms of the conditions being screened which were subsequently taught during the psycho-education and were in need for further management were advised to self refer to the high risk clinic in Kenyatta National Hospital, at KMTC students and staff counselling unit, the Samaritans or any other place of their choice accordingly.
7. The respondents in the control group who felt they associated with the symptoms of the conditions being screened and were in need for further management were advised to seek help from the student's clinic in their campus if any, the nearest hospital to them, the Samaritans or from a place of their choice.

40. CHAPTER FOUR

4.1. RESULTS

4.1.1. Study population - background characteristics for the 2 study groups

Among the experimental group, all the 1300 1st and 2nd year enrolled students were approached for participation. The questionnaires which were well completed in the 3 assessments were 1181, 1156 and 959 respectively while 19, 44 and 341 respondents did not appear for data collection or they returned uncompleted questionnaires. Therefore the response rates for the 3 consecutive assessments were 91%, 88% and 74% respectively. Similarly for the control group, 1950 students were approached but the questionnaires which were fully completed and valid in the 3 assessments were 1926, 1741 and 1493 respectively while 24, 109 and 457 respondents did not appear for data collection or they returned uncompleted questionnaires which were response rates of 98%, 89% and 76% respectively.

Table 1 gives the summary of social demographic characteristics of the experimental and control groups across the 3 assessments. The 2 groups statistically differed ($p<05$) in all the social demographic characteristics across the 3 assessments except in gender in the 3rd assessment.

Table 2: Social Demographic Characteristics of the Study Population across the 3 assessments (%)

Categories	Assessment 1		Assessment 2		Assessment 3	
	Experimental n=1181	Control n=1926	Experimental n=1156	Control n=1741	Experimental n=959	Control n=1493
Gender						
Male	59.3	47.4	56.9	49.9	55.9	49
Female	40.7	52.6	43.1	50.1	44.1	51
	X^2=4.703; df=1; p=0.030		X^2=8.520; df=1; p=0.004		X^2=2.838; df=1 ; p=0.052	
Age groups						
<25 years	90.3	91.6	92.4	92.7	88.8	88.6
> 25 years	9.7	8.4	7.6	7.3	11.3	11.4
	X^2=.657; df=2; p< 0001		X^2=2809.730; df=2; p<0001		X^2=2722.342; df=2 ; p<0001	
Year of study						
1st year	50.6	63.3	53.4	59.4	630	59.5
2nd year	49.4	36.7	46.6	40.6	370	40.5
	X^2= 87.867; df=1;p<0001		X^2=56.840; df=1; p<0001		X^2=104.82; df=1; p<0001	
Place of Residence						
Within college hostels	81.1	82.4	80.9	71.5	80.7	74.4
Outside college hostels	18.9	17.6	19.1	28.5	19.3	25.6
	X^2=1277.548; df=1; p<0001		X^2=742.356, df=1; p<0001		X^2=726019; df=1; p<0001	
Marital Status						
Single	94.5	94.4	94.1	95.6	94.7	94.2
Married	4.6	5.2	5.7	40	4.8	4.9
Separated, divorced, widowed and others	0.5	0.5	0.3	0.4	0.5	0.9
	X^2=5209.375; df=2; p<0001		X^2=4956.269; df=2; p<0001		X^2=4198065; df=2; <>0001	
Religion						
Protestant	65.4	60.7	66.4	60.6	66.7	62.6
Catholic	27.8	28.6	27.7	30.2	26.9	29.9
Muslim	2.9	5.7	2.7	4.6	2.5	40
Others	3.8	50	3.2	4.6	3.9	3.5
	X^2=2783.114; df=3p<>0001		X^2=2694.528, df=3, p<0001		X^2=2450.714; df=3; p<0001	

4.1.2. Prevalence Depression, Hopelessness, Suicidality, Anxiety, Risk of alcohol and Drug abuse across the 3 assessments

Table 2 summarizes the prevalence of depression, hopelessness, suicidality, anxiety and risk of alcohol and drug abuse in the experimental and control groups across the 3 assessments. In the 1st assessment, the severity of the conditions were all similar (p>05), except for suicidal plans and suicidal attempts which were more in the experimental group and risk of alcohol abuse which was more in the control (p<05). While on average there was a reduction in the severity of most of the conditions across all the assessments, this reduction was more among the experimental group compared to the control group. However this reduction trend achieved significant level of reduction (p<05) for; depression,

hopelessness, suicidal ideas, anxiety and risk of cannabis abuse in the 3rd assessment while suicidal plans, suicidal attempts and risk of alcohol abuse showed significant reduction in the 2nd assessment. There were no significant differences (p>05) between the 2 groups in the 3rd assessment except for risk of cocaine and cannabis abuse. Although there was no difference (p<05) between the 2 groups in the 3rd assessment for alcohol, neither of the respondents in both groups had risk of alcohol abuse.

Table 2: Prevalence of Depression, Hopelessness, Suicidality, Anxiety, Risk of alcohol and Substance abuse (%)

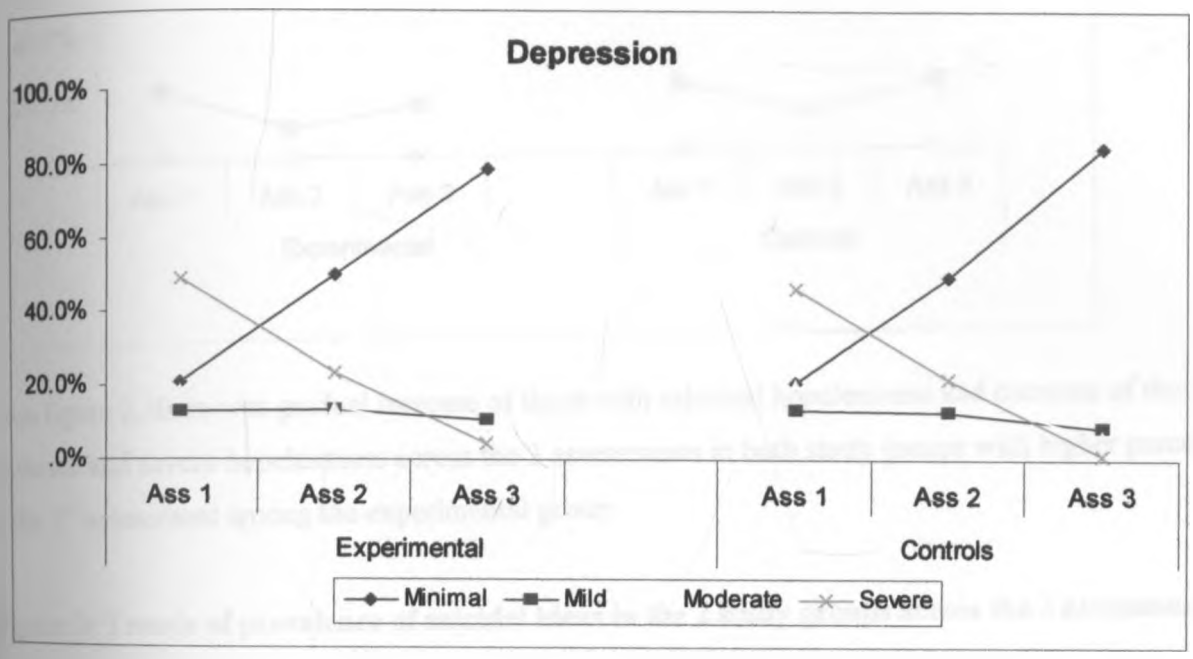
Categories	Assessment 1		Assessment 2		Assessment 3	
	Experimental n=1181	Control n=1926	Experimental n=1156	Control n=1741	Experimental n=959	Control n=1193
Depression						
Minimal	20.6	20.8	49.7	490	83.1	78.3
Mild	12.6	13.1	14.1	12.6	8.2	10.3
Moderate	18.4	20.2	14.9	17.8	5.2	10.4
Severe	48.5	45.8	21.4	22.5	3.4	50
	x2=2.337 df=3 p=0.505		**x2=5007 df=3 p =0.171**		**x2=34.591 df=3 p<0001**	
Hopelessness						
Minimal	73.3	74.3	87.5	77.8	810	74.3
Mild	21.8	21.4	9.3	13.6	15.9	20.9
Moderate	4.1	3.9	3.2	8.6	30	4.4
Severe	0.8	0.4	0.	0.	0.	0.4
	x2=2.474 df=3 p =0.480		**x2=61.694 df=2p <0001**		**x2=17.583 df=3 p =0.001**	
Suicidality						
Ideas						
Passive	98.3	99	99.7	99.8	99.2	98.4
Active	1.7	10	0.3	0.2	0.8	1.6
	x2=2.436 df=1 p=0.830		**x2=.870 df=1 p =0.288**		**x2=2.711 df=1 p =0.059**	
Plans						
Mild	98.5	99.4	100	100	99.8	99.2
Moderate	1.5	0.5	0	0	0.2	0.7
Severe	0	0.1	0	0	0	0.1
	x2=10.703 df=2 p =0.005				**x2=3.844 df=2 p =0.146**	
attempts						
No Attempts	95.4	98.3	99.5	99.6	99.7	99.7
Attempted	4.6	1.7	0.5	0.4	0.3	0.3
	x2=23049 df=1 p<0001		**x2=.213 df=1 p=0.423**		**x2=009 df=1 p=0.615**	
Anxiety						
Minimal	21.4	23.5	51.4	51.8	57.9	67.4
Mild	22.1	21.4	22.9	21.2	20.1	16.6
Moderate	24.4	23.5	14.6	15.5	14.1	10.5
Severe	32.1	31.5	11.1	13.5	5.4	7.8
	x2=1.753 df=3 p=0.625		**x2=1.877 df=3 p=0.598**		**x2=23.904 df=3 p<0001**	
Categories	**Assessment 1**		**Assessment 2**		**Assessment 3**	

	Experimental n=1181	Control n=1926	Experimental n=1156	Control n=1741	Experimental n=959	Control n=1493
Alcohol						
Low	98.8	97.3	98.4	97.7	100	100
Moderate	10	2.4	1.6	20	0	0
High	0.2	0.3	0.1	0.3	0	0
	x2=8.256 df=2 p=0.016		**x2=2.552 df=2 p=0.279**			
Tobacco						
Low	92.9	94.4	94.7	94.8	97.5	96.3
Moderate	7.1	5.5	5.3	50	2.5	3.5
High	0	0.1	0	0.2	0	0.1
	x2=4.735 df=2 p=0.094		**x2=2099 df=2 =0.350**		**x2=3.408 df=2 p=0.182**	
Cannabis						
Low	98.2	98.2	990	98.4	99.5	98.6
Moderate	1.8	1.8	10	1.6	0.5	1.4
	x2=006 df=1 p=0.528		**x2=1.927 df=1 p=0.110**		**x2=4.361 df=1 p=026**	
Cocaine						
Low	99.4	99.4	99.6	99.4	100	99.5
Moderate	0.6	0.5	0.4	0.6	0	0.5
High	0	0.1	0	0	0	0
	x2=.686 df=2 p =0.710		**x2=.271 df=1 p=0.602**		**x2=4.509 df=1 p=0.034**	
Amphetamine						
Low	96.5	97.4	97.6	97.5	990	98.4
Moderate	3.5	2.6	2.4	2.5	10	1.6
	x2=1.728 df=1 p =0.189		**x2=032 df=1 p =0.859**		**x2=1.362 df=1 p =0.243**	
Inhalants						
Low	99.5	99.6	99.7	99.7	99.9	99.5
Moderate	0.5	0.4	0.3	0.3	0.1	0.5
	x2=.140 df=1 p=0.708		**x2=00 df=1 p=0.995**		**x2=2.974 df=1 p=0.085**	
Sedatives						
Low	98.1	96.8	99.3	99.1	99.8	99.4
Moderate	1.9	3.1	0.7	0.9	0.2	0.6
High	0	0.1	0	0	0	0
	x2=4.462 df=2 p =0.107		**x2=.254 df=1 p= 0.615**		**x2=2032 df=1 p=0.154**	
Opioids						
Low	99.6	99.5	99.8	99.7	99.9	99.6
Moderate	0.4	0.5	0.2	0.3	0.1	0.4
High	0	.1				
	x2=.645 df=2 p=0.724		**x2=.376 df=1 p=0.540**		**x2=1.817 df=1 p=0.178**	
Hallucinogens						
Low	99.6	99.5	99.8	99.7	99.9	99.6
Moderate	0.4	0.5	0.2	0.3	0.1	0.4
High	0	.1	0	0		
x2=.645 df=2 p=0.724			**x2=.376 df=1 p=0.540**		**x2=1.817 df=1 p=0.178**	

Figures 1 to 15 graphically summarize the trends in Table 2

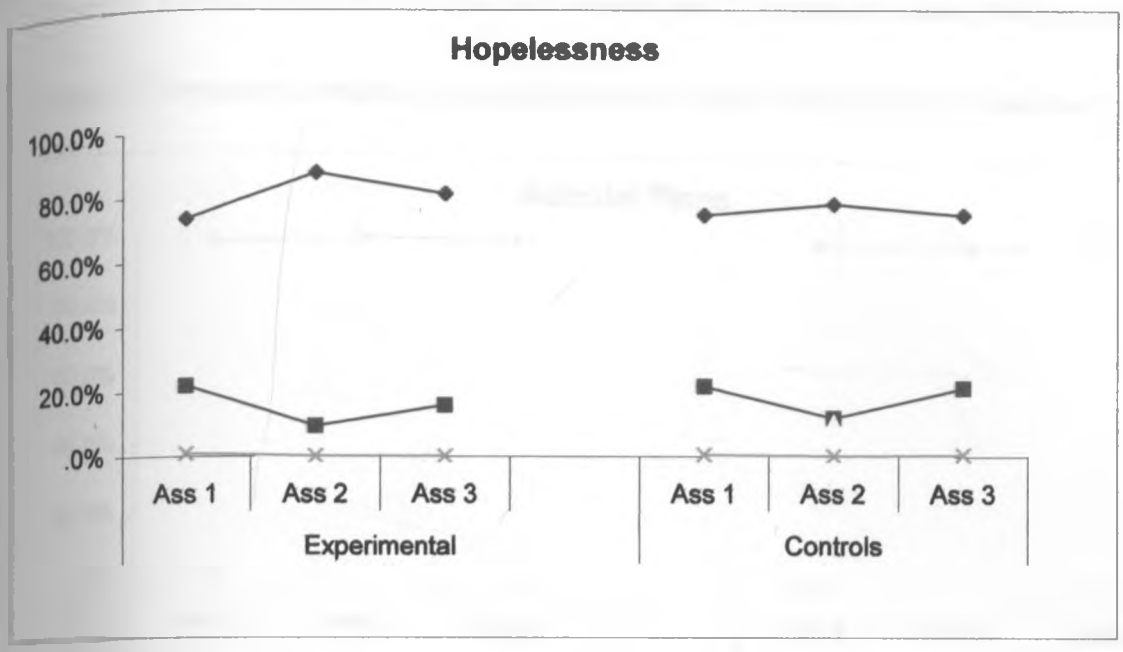
Note: Figure 1 to 15 should be interpreted in close reference to Table 2 above in order to appreciate the actual percentages in respect to the consecutive assessments, especially where the graphs have a low to very low gradient.

Figure 1: Trends of prevalence of depression in 2 study groups across the 3 assessments Assessment



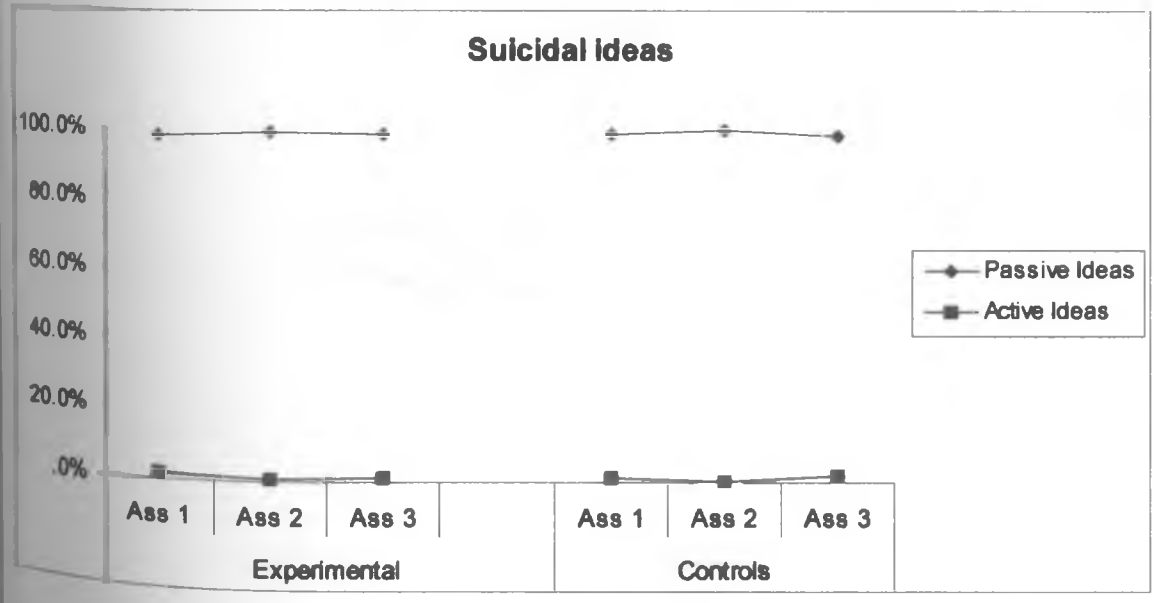
From figure 1, there was gradual increase of those with minimal depression and decrease of those with moderate and severe depression across the 3 assessments in both study groups.

Figure 2: Trends of prevalence of Hopelessness in the 2 study groups across the 3 assessments



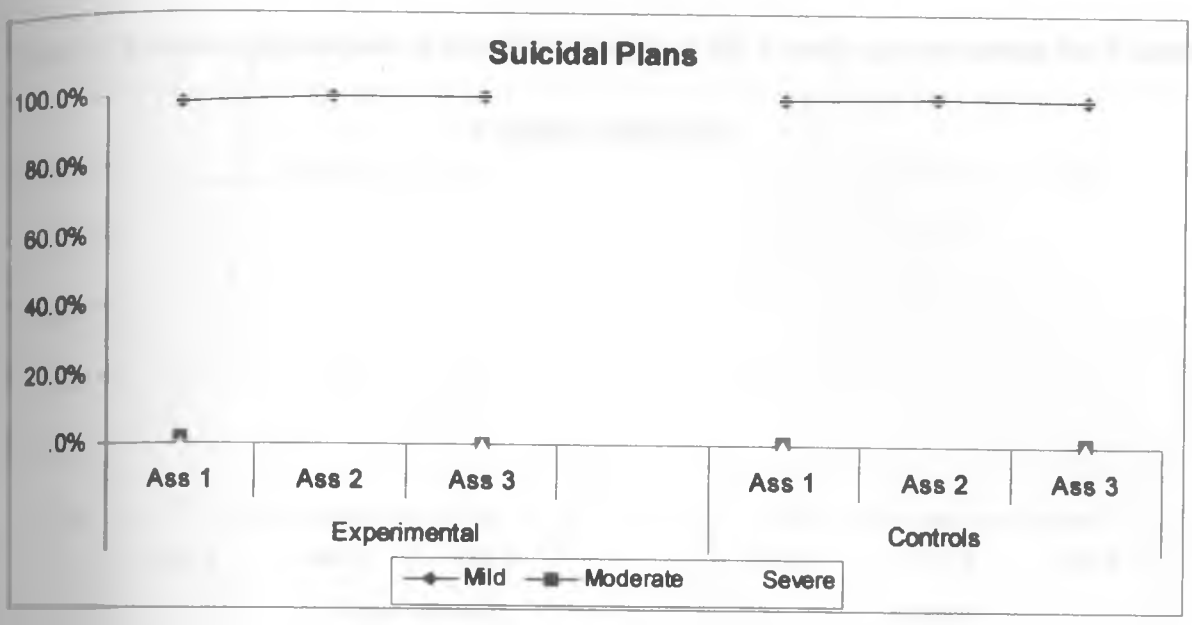
From figure 2, there was gradual increase of those with minimal hopelessness and decrease of those with moderate and severe hopelessness across the 3 assessments in both study groups with higher percentages in the 3rd assessment among the experimental group.

Figure 3: Trends of prevalence of suicidal ideas in the 2 study groups across the 3 assessments



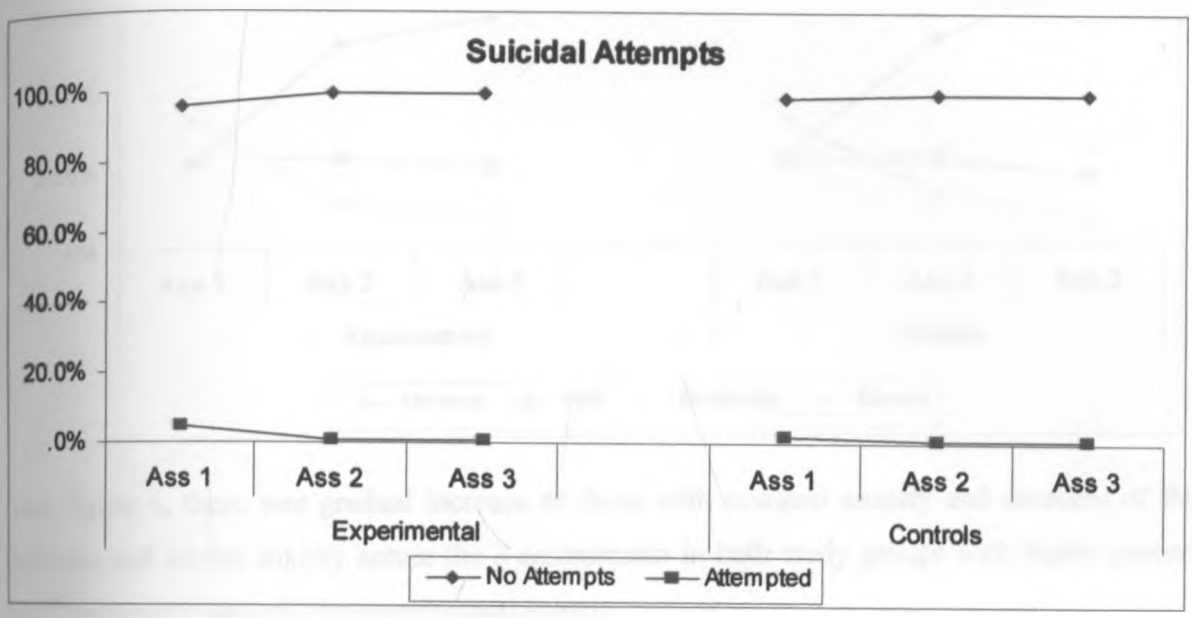
From figure 3, there was gradual reduction of those with passive suicidal ideas in both study groups across the 3 assessments with a higher reduction in the 3rd assessment among the experimental group.

Figure 4: Trends of prevalence of suicidal plans in the 2 study groups across the 3 Assessments



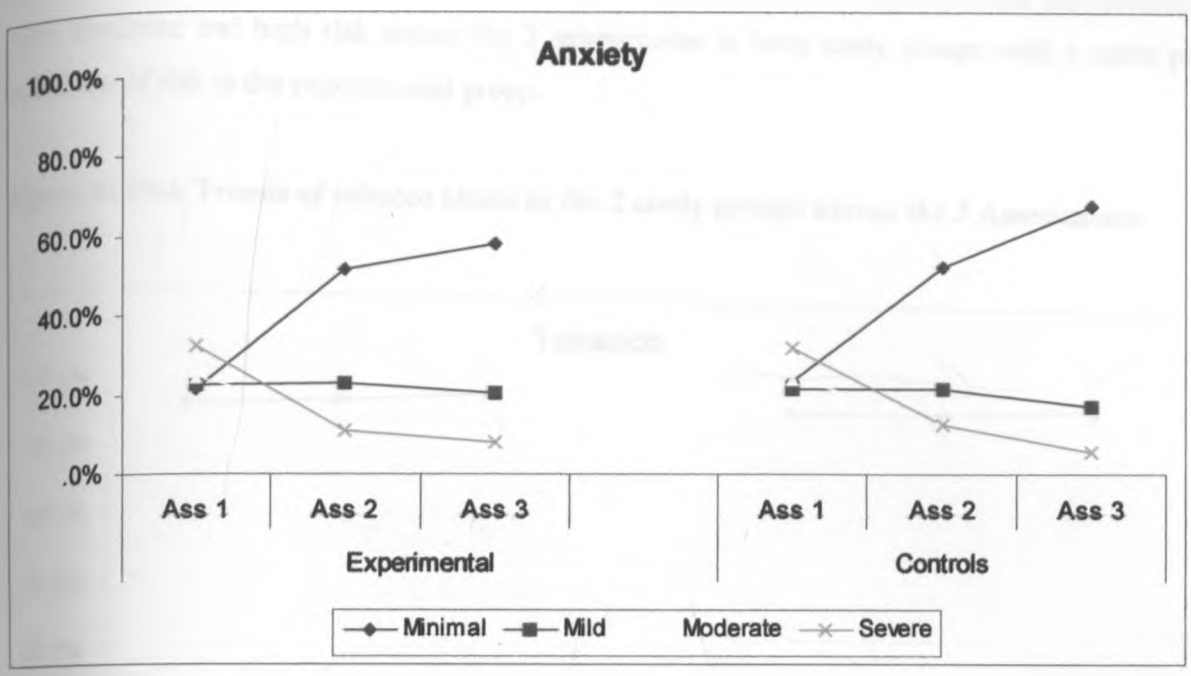
From figure 4, there was gradual reduction of those with moderate and severe suicidal plans in both study groups across the 3 assessments with a higher reduction in the 3rd assessment among the experimental group.

Figure 5: Trends of prevalence of suicidal attempts in the 2 study groups across the 3 assessments



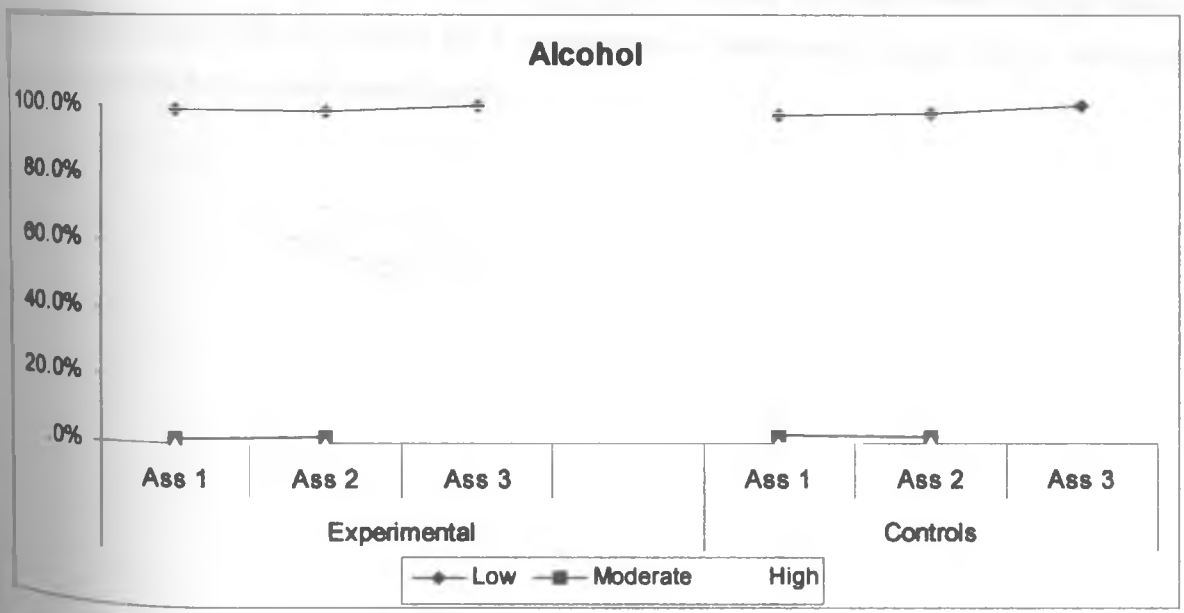
From figure 5, there was gradual reduction of those with suicidal attempts in both study groups across the 3 assessments with a higher reduction in the 3rd assessment among the experimental group.

Figure 6: Trends of prevalence of Anxiety in the 2 study groups across the 3 Assessments



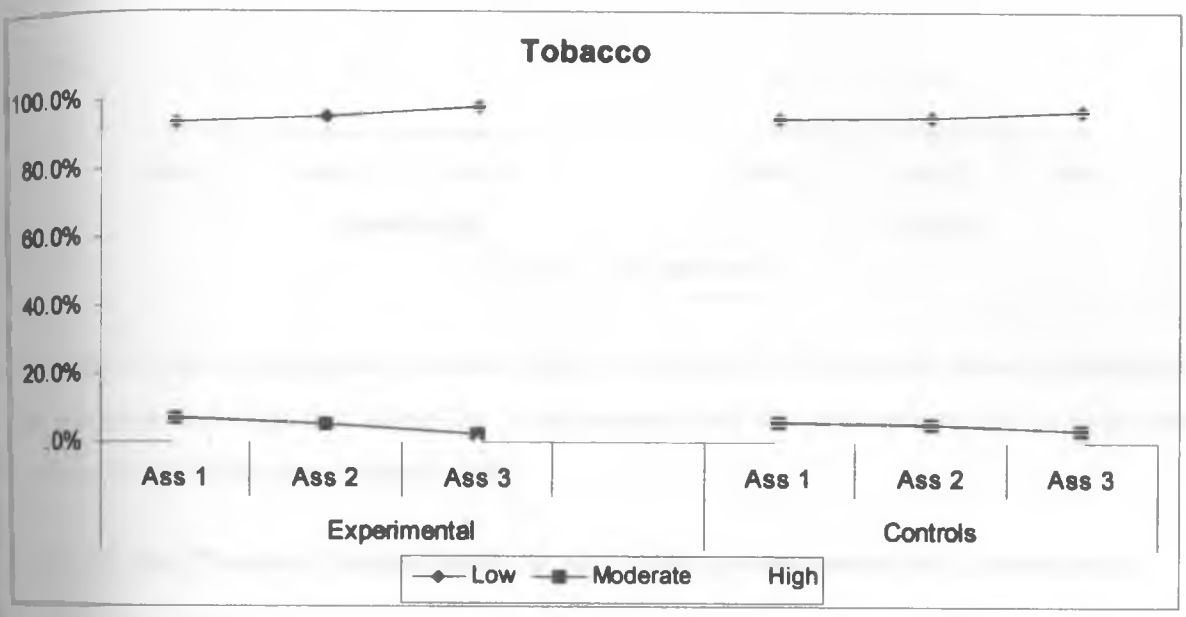
From figure 6, there was gradual increase of those with minimal anxiety and decrease of those with moderate and severe anxiety across the 3 assessments in both study groups with higher percentages in the 3rd assessment among the experimental group.

Figure 7: Risk Trends of alcohol abuse in the 2 study groups across the 3 Assessments



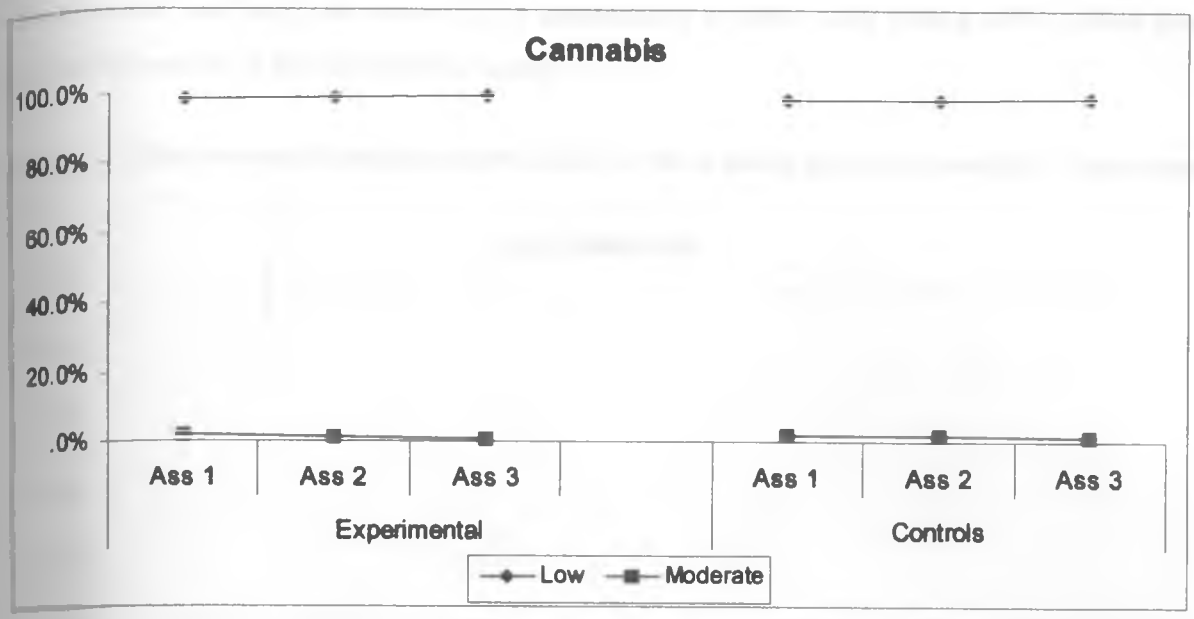
From figure 7, there was gradual increase of those with low risk of alcohol abuse and decrease of those with moderate and high risk across the 3 assessments in both study groups with a more progressive reduction of risk in the experimental group.

Figure 8: Risk Trends of tobacco abuse in the 2 study groups across the 3 Assessments



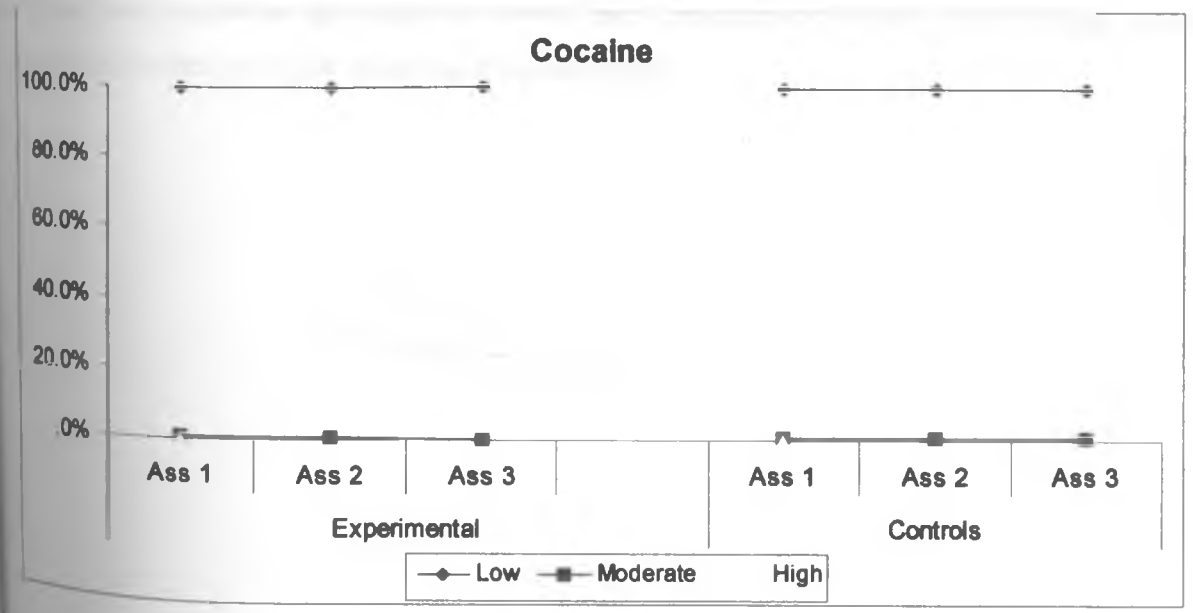
From figure 8, there was gradual increase of those with low risk of tobacco abuse and decrease of those with moderate and high risk across the 3 assessments in both study groups with a more progressive reduction of risk in the experimental group.

Figure 9: Risk Trends of cannabis abuse in the 2 study groups across the 3 assessments



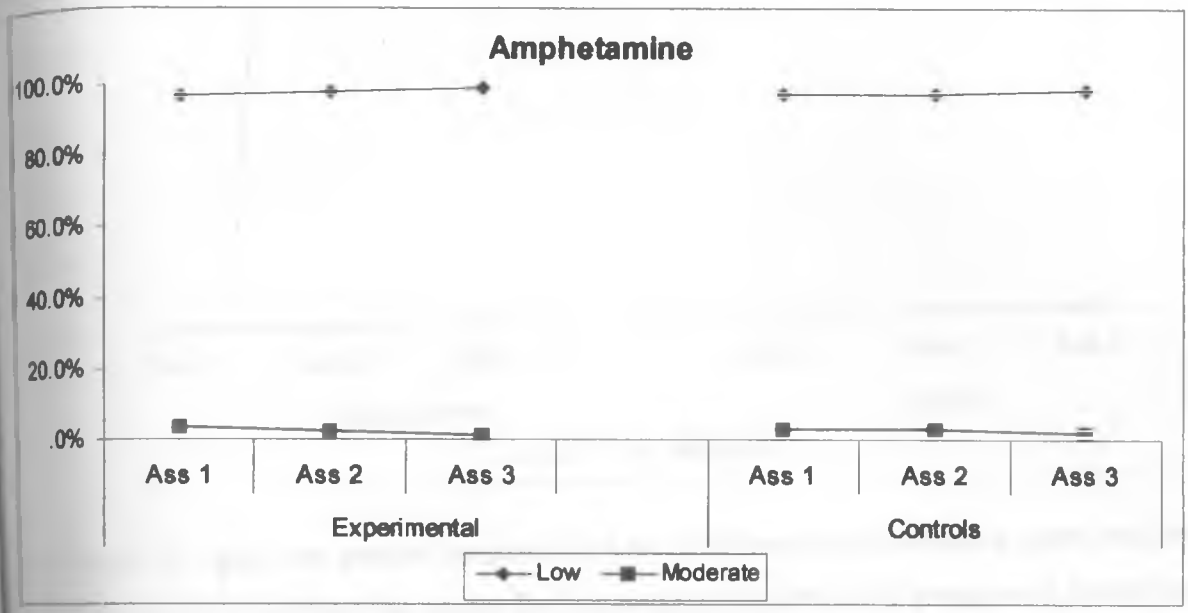
From figure 9, there was gradual increase of those with low risk of cannabis abuse and decrease of those with moderate and high risk across the 3 assessments in both study groups with a more progressive reduction of risk in the experimental group.

Figure 10: Risk Trends of cocaine abuse in the 2 study groups across the 3 Assessments



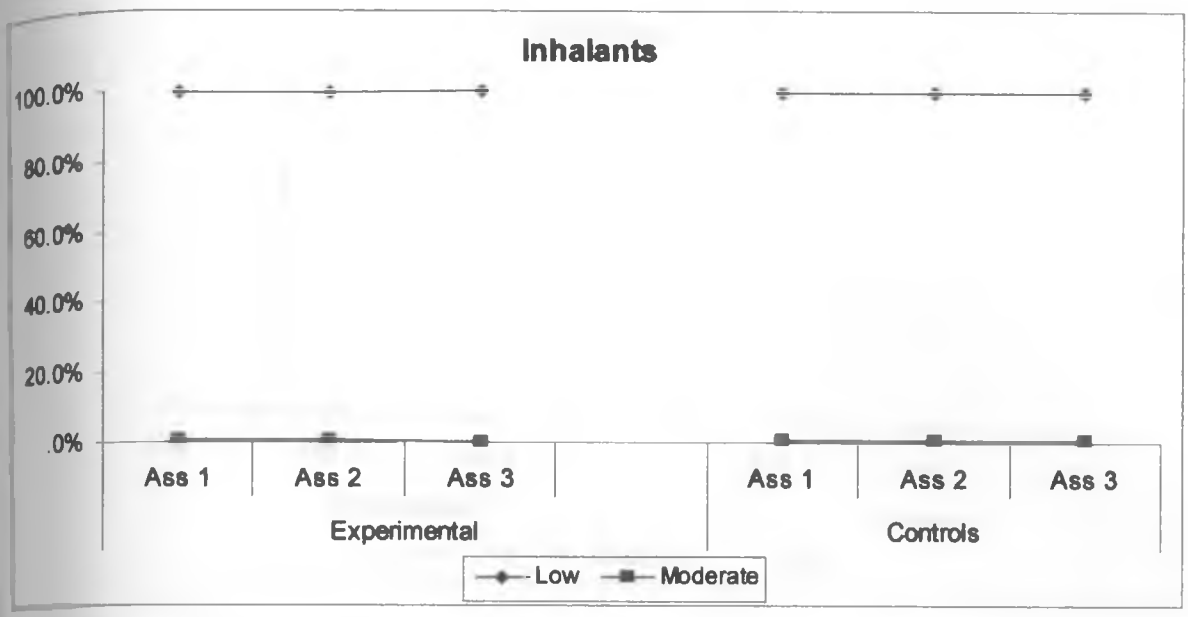
From figure 10, there was gradual increase of those with low risk of cocaine abuse and decrease of those with moderate and high risk across the 3 assessments in both study groups with a more progressive increase of low risk in the experimental group.

Figure 11: Risk trends of amphetamines abuse in the 2 study groups across the 3 Assessments



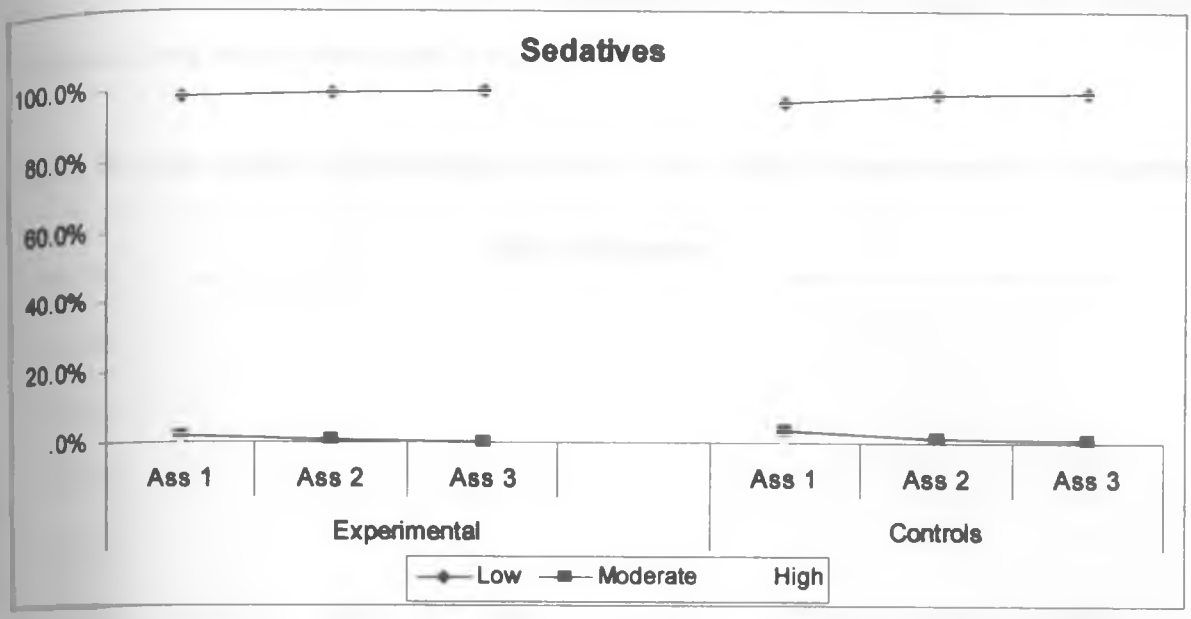
From figure 11, there was gradual increase of those with low risk of amphetamines abuse and decrease of those with moderate and high risk across the 3 assessments in both study groups with a more progressive reduction of risk in the experimental group.

Figure 12: Risk Trends of inhalants abuse among experimental and controls in the 1st, 2nd and 3rd Assessment



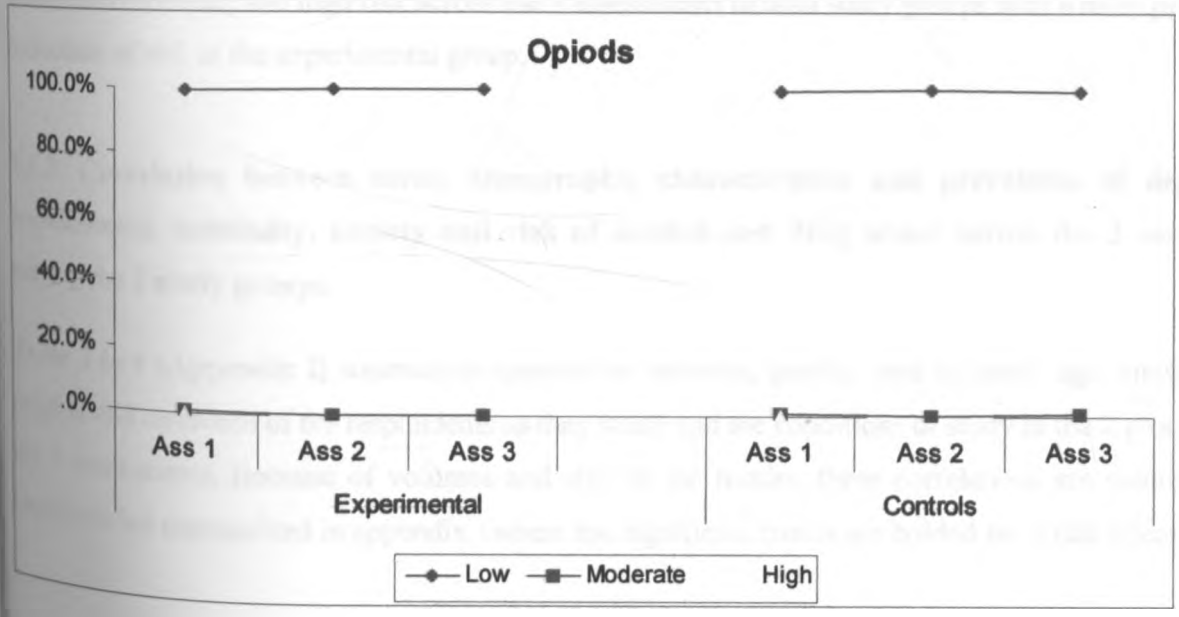
From figure 12, there was gradual increase of those with low risk of inhalants abuse and decrease of those with moderate and high risk across the 3 assessments in both study groups with a more progressive increase of low risk in the experimental group.

Figure 13: Risk trends of sedatives abuse in the 2 study groups across the 3 Assessments



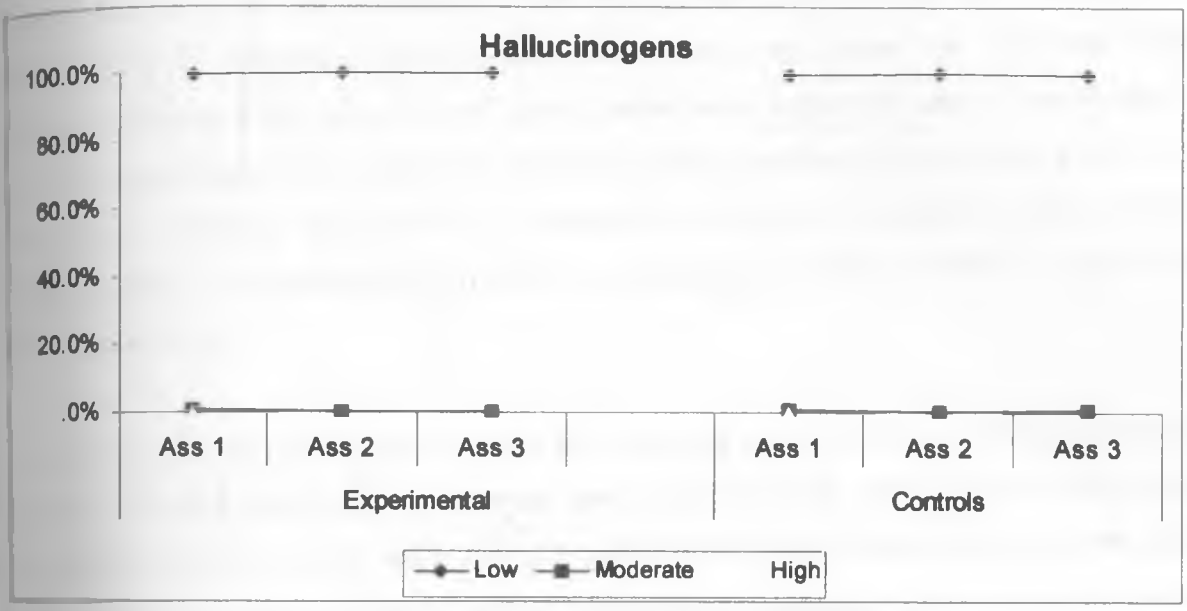
From figure 13, there was gradual increase of those with low risk of sedatives abuse and decrease of those with moderate and high risk across the 3 assessments in both study groups with a more progressive reduction of risk in the experimental group.

Figure 14: Risk trends of opioids abuse in the 2 study groups across the 3 Assessments



From figure 14, there was gradual increase of those with low risk of opiods abuse and decrease of those with moderate and high risk across the 3 assessments in both study groups with a more progressive reduction of risk in the experimental group.

Figure 15: Risk trends of hallucinogens abuse in the 2 study groups across the 3 Assessments



From figure 15, there was gradual increase of those with low risk of hallucinogens abuse and decrease of those with moderate and high risk across the 3 assessments in both study groups with a more progressive reduction of risk in the experimental group.

4.1.3. Correlation between social demographic characteristics and prevalence of depression, hopelessness, suicidality, anxiety and risk of alcohol and drug abuse across the 3 assessments among the 2 study groups.

Table 3 to 8 **(Appendix I)** summarizes correlation between; gender, year of study, age, marital status, religion and residence of the respondents as they study and the conditions of study in the 2 groups across the 3 assessments. Because of volumes and size of the results, these correlations are summarized in narratives but summarized in appendix 1where the significant trends are bolded for quick reference.

4.1.3.1. Correlation with gender

In Table 3, there was general reduction of prevalence of various categories of severity of depression, hopelessness, suicidality, anxiety, risk of alcohol and drug abuse across the 3 assessments in both gender in the 2 study groups with a higher reduction among the experimental group.

Generally, in the 1st and 2nd assessments, there was higher prevalence of severe depression, suicidal attempts and risk of all the substances in the study groups among males than females in both study groups. In the 3rd assessment, the prevalence was almost equal among the males and females in the experimental group while in the control group, males had a higher prevalence than females. However there were significantly more males than females in both experimental and control groups in the risk of abuse of the following drugs in the 1st assessment respectively: alcohol (p=036, p=001), tobacco (p<0001, p<0001), cannabis (p=002, p<0001), amphetamines (p<0001, p<0001) and inhalants (p=0.42, p=023 respectively).

In assessment 2, the prevalence of severe and moderate levels of the conditions of study as well as moderate and high risk of substance abuse had reduced in both study groups among the males and females with similar levels. However the male gender still had significantly more than the female gender in the various categories of severity for both groups respectively. For risk of abuse, the following had a statistically significant difference in the 2 groups: alcohol (p=051, p<0001), tobacco (p<0001, p<0001), cannabis (p<0001) and amphetamines (p=002, p<0001) but inhalants only in the experimental group (p=042).

In assessment 3, there was a generally higher reduction in severity of the different conditions among the females compared with the males in groups but there still remained a male predominance in both or either experimental and control groups for risk of substance abuse as follows: tobacco (p<0001 and p=001), cannabis (p=046, p=001), amphetamines among the control group only (p=010), opioids among the control group only (p=012) and hallucinogens among the control group only (p=012).

4.1.3.2. Correlation between respondent's years of study

In table 4, there was progressive reduction of prevalence of severity of depression, hopelessness, suicidality, anxiety, risk of alcohol and drug abuse across the 3 assessments among the experimental and control groups, with a higher reduction in the experimental group. Generally, there was a higher prevalence of those with moderate or severe depression, anxiety and risk of abuse of; tobacco, cannabis, and amphetamines among the 2nd years than the 1st years while the other conditions were almost similar among those in both years of study in both experimental and control groups.

In the 1st assessment, which is baseline assessment, the 2nd years had statistically higher prevalence than the 1st years in both or either experimental and control groups in the following conditions respectively: depression (p<0001, p<0001), suicidal ideas in the control group (p=002), anxiety (p<0001, p<0001), risk of abuse of alcohol in the control group (p=014), tobacco abuse (p=002, p=011) and inhalants abuse among the control group (p=024).

In the 2nd assessment, there was similar prevalence of depression, hopelessness, suicidality, anxiety, risk of alcohol and drug abuse among the 1st and 2nd year respondents in the experimental group. In the control group however, there was a higher prevalence of the same conditions among the 1st years than in the 2nd years. Only 2 conditions achieved a statistically significant difference between 1st and 2nd years (more in the 2nd years) but only in the experimental group: risk of alcohol abuse (p=059) and risk of cocaine abuse (p=036).

In the 3rd assessment, only 2 conditions- depression and anxiety were statistically more (p=002 and p=010 respectively) among the 2nd years compared with the 1st years but only in the experimental group. All the respondents in both groups had low risk of alcohol abuse.

4.1.3.3. Correlation with respondent's age bracket

In Table 5, there was a reduction of prevalence of the various categories of severity of depression, hopelessness, suicidality, anxiety as well as risk of alcohol and drug abuse across the 3 assessments among all the age brackets in the 2 study groups, with a more progressive reduction among the experimental group compared to the control group.

In the 1st assessment, there was higher prevalence of severe depression, hopelessness, anxiety, high risk of alcohol and tobacco abuse among those above 25 years in both study groups. Generally, there was a higher prevalence of the other conditions among those below 25 years in both the study groups.
Those that had a statistically significant association between age bracket and the above conditions in the experimental and control groups were; risk of alcohol abuse in the control group (p=024) and risk of tobacco abuse in both study groups (p=002, p=007 respectively).

In the 2nd assessment, there was generally similar prevalence of all the conditions and risk of alcohol and drug abuse among respondents in the experimental group in all the age brackets while there was a lower prevalence among those above 25 years among the control group respondents. The following conditions were significantly associated with age in the control group only: Suicidal ideas (p<0001), risk of alcohol abuse (p=029) risk of tobacco abuse (p<0001) risk of cannabis abuse (p=054) and risk of inhalant abuse (p=040) while suicidal attempts only in the experimental group (p=038).

In the 3rd assessment, there was generally similar prevalence of all the conditions among respondents in the experimental group in all the age brackets while in the control group, there was a lower prevalence among those above 25 years compared to other age bracket in the same group. Those that had a statistically significant association between age bracket were found only in the control group and included suicidal ideas (p=003) and risk of tobacco abuse (p=020) while none had high risk in the experimental group.

4.1.3.4. Correlation with respondent's marital status

In Table 6, there was a reduction of prevalence across the 3 assessments among the respondent's marital status in the 2 study groups with a higher progressive reduction among the experimental group particularly in the 3rd assessment.

In the 1st assessment, there was generally similar prevalence of the different severity categories (moderate to severe) of all the conditions among the various marital statuses' in both experimental and control group except in suicidality and risk of substance abuse where there was a higher prevalence among the single and married respondents in the 2 study groups. Significant associations between

marital status and disorders under study were hopelessness in the experimental group (p=001) more in the separated status and risk of sedatives abuse in the control group (p=003) in the married status.

In the 2nd assessment, there was generally a higher reduction of severe or moderate prevalence as well as high and moderate risk of substance abuse among the single than the married in the experimental group and lower reduction in control group. For suicidality, the married respondents had a higher reduction than the other categories in both study groups. There were none with a statistically significant association.

In the 3rd assessment, those that had a statistically significant association between marital status and the above conditions in the 2 study groups were: suicidal ideas in the control group (p<0001) associated with separated, divorced or widowed status, suicidal plans in the control group (p=051) associated with separated, divorced or widowed status and risk of tobacco abuse among the control group (p=007) associated with married status.

4.1.3.5. Correlation with respondent's religion

In Table 7, there was a reduction of prevalence across the 3 assessments among the respondents' stated religion with a higher progressive reduction among the experimental group particularly in the 3rd assessment.

In the 1st assessment, Muslims had lower prevalence in all the conditions except suicidality where they had the highest prevalence together with Protestants compared to other religious affiliations. Catholics had much higher prevalence in risk of alcohol and tobacco abuse compared to Protestants. However, none reached statistically significant levels (p>05).

In the 2nd assessment, significant associations were achieved in the control group for depression (p=026) associated with Muslim and anxiety (p=027) associated with Muslim and for risk of tobacco abuse (p=003) in the experimental group associated with Catholic.

In the 3rd assessment, significant association were found in risk of tobacco abuse in the control group (p=025) associated with Catholics. Most of the condition in the various religious categories in the experimental group had none or below 1% prevalence and none with high risk of alcohol or drugs abuse.

4.1.3.6. Correlation with respondent's residence as they study

In Table 8, there was a reduction of prevalence of different categories of severity for depression, hopelessness, suicidality, anxiety, risk of alcohol and drug abuse across the 3 assessments among the respondents' place of residence as they study in both groups with a higher progressive reduction among the experimental group particularly in the 3rd assessment. Generally, the experimental group respondents who resided outside the college hostels had a higher prevalence of all the conditions across the assessments unlike in the control group where the higher prevalence were among those who resided in the college hostels.

In the 1st and 2nd assessment, there were no statistically significant association between residence and any of the study conditions in both groups.

In the 3rd assessment, those that had a statistically significant association between residence as they study and the above conditions in the experimental and control groups was risk of sedatives abuse among the control group (p=039) associated with those who live outside college.

4.1.4. Co-morbidity between Depression, Hopelessness, Suicidality, Anxiety, Risk of Alcohol and Drug Abuse across the 3 assessments in the 2 study groups

4.1.4.1. Co-morbidity between Hopelessness and Depression Across the 3 assessments

Table 9 below summarizes the co morbidity between hopelessness and depression, among the experimental and control groups across the three assessments.

Table 9: Co-morbidity between Hopelessness and Depression (%)

Experimental / Hopelessness	Assessment 1				Assessment 2				Assessment 3			
Depression ↓	**Minimal**	**Mild**	**Moderate**	**Severe**	**Minimal**	**Mild**	**Moderate**	**Severe**	**Minimal**	**Mild**	**Moderate**	**Severe**
Minimal	16.8	30	0.5	0.2	43.6	4.4	1.7		63.1	12.6	2.4	0
Mild	9.4	2.5	0.6	0	11.3	1.3	0.4		8.6	1.1	0.6	0
Moderate	12.9	3.9	1.3	0.4	11.5	1.9	0.5		60	0.9	0.2	0
Severe	34.2	12.2	1.8	0.2	21.2	1.6	0.6		3.3	0.9	0.1	0
N	837	267	57	20	985	103	33	5	777	150	32	0
	X2=23.405 df=9 p=005				X2=6.160 df=6 p=0.406				X2=5.3882 df=6 p=0.496			
Controls												
Minimal	17.2	3.1	0.5	0.1	38.1	5.6	5.4		62.2	180	3.8	0.3
Mild	9.8	30	0.3	0	9.9	1.5	1.2		6.4	1.6	0.3	1
Moderate	14.8	4.2	1.1	0.1	13.2	1.6	2.1		50	1.1	0.3	0
Severe	32.3	11.1	2.2	0.2	16.7	3.1	1.8		0.7	0.2	0.1	0
N	1339	387	73	37	1322	199	178		1109	312	66	6
	X2=23.380 df=9 p=005				X2=5.182 df=6 p=0.445				X2=3015 df=9 p=0.964			

In Table 9, there was marked reduction in co-morbidity across the assessments in all the levels with a higher reduction among the experimental group. Although both groups at assessment 1 had more depression (p=005 for both) there were no differences in severity in the subsequent assessments for both groups.

4.1.4.2. Co-morbidity between Suicidal ideation and depression across the 3 assessments (%)

Table 10 summarizes co morbidity between suicidal ideas and depression among the two study groups.

Table 10: Co-morbidity between Suicidal ideation and Depression

Experimental	Assessment 1		Assessment 2		Assessment 3	
Suicidal ideas →	Passive Ideas	Active Ideas	Passive Ideas	Active Ideas	Passive Ideas	Active Ideas
Depression ↓						
Minimal	20	0.6	49.5	0.2	77.5	0.6
Mild	12.4	0	130	0.1	10.1	0.2
Moderate	18.1	0.4	13.8	0.1	7.2	0
Severe	**47.9**	**0.6**	**23.4**	**0**	**4.4**	0
N	1124	57	1137	19	953	6
	x2=5.742 df=3 p =0.125		x2=1.735 df=3 p =0.629		x2=2.627 df=3 p =0.453	
Controls Minimal	20.6	0.3	490	0.1	83.2	1.1
Mild	130	0.1	12.5	0.1	80	0.3
Moderate	19.9	0.2	16.8	0	6.2	0.2
Severe	**45.4**	**0.6**	**21.5**	**0.1**	**10**	0
N	1842	84	1717	24	1469	24
	x2=.651 df=3 p =0.885		x2=1.877 df=3 p =0.598		x2=4.269 df=3 p =0.234	

There was a trend of reduction of symptoms in both groups from assessment 1 through assessment 3. However, there was no significant co morbidity or association between suicidal ideas and depression.

4.1.4.3. Co-morbidity between suicidal plans and depression

This is summarized in Table 11.

Table 11: Co-morbidity between Suicidal plans and Depression (%)

Experimental	Assessment 1			Assessment 2			Assessment 3		
Suicidal plans →	Mild	Moderate	Severe	Mild	Moderate	Severe	Mild	Moderate	Severe
Depression ↓									
Minimal	20.4	29.4		49.6	57		78.2	50	
Mild	12.6	11.8		13.1	38		10.2	50	
Moderate	18.4	17.6		13.9	5		7.2	0	
Severe	48.6	41.2		23.4	0		4.4	0	
N	1126	56		1149	10		957	2	
	X2=.861 df=3 p =0.835						X2=3.491 df=3 p =0.322		
Controls Minimal	20.7	44.4	0	49.1	86.9		84.4	80	50
Mild	13.1	11.1	0	12.6	7.2		8.2	10	50
Moderate	20.3	0	50	16.8	2.2		6.3	10	0
Severe	45.8	44.4	50	21.5	3.7		10	0	0
N	1825	39	32	1763	22		1481	10	2
	X2=5.841 df=6 p =0.441						X2=4.989 df=6 p =0.545		

In Table 11, there was a trend of reduction of symptoms in both groups from assessment 1 through assessment 3. There was however no significant co morbidity or association between suicidal plans and depression.

4.1.4.4. Co-morbidity between Suicidal Attempts and Depression in the 2 study groups across the 3 assessments

Table 12 summarizes co-morbidity between suicidal attempts and depression among the two study groups.

Table 12: Co-morbidity between Suicidal Attempts and Depression (%)

Experimental	Assessment 1		Assessment 2		Assessment 3	
Suicidal attempts →	No Attempts	Attempted	No Attempts	Attempted	No Attempts	Attempted
Depression ↓						
Minimal	19.9	0.6	49.3	0.4	79.9	0.2
Mild	120	0.6	13.1	0	14.3	0
Moderate	17.5	0.9	13.8	0.1	3.1	0.1
Severe	46.1	2.4	23.3	0.1	2.4	0
N	1116	65	1135	21	957	2
	x2=1.389 df=3 p =0.708		x2=1.288 df=3 p =0.732		x2=3.350 df=3 p =0.341	
Controls						
Minimal	20.5	0.3	48.9	0.1	80	0.3
Mild	130	0.2	12.6	0	8.3	0
Moderate	20	0.2	16.7	0.1	7.2	0
Severe	450	0.9	21.4	0.2	30	0.2
N	1867	59	1713	28	1488	5
	x2=1.333 df=3 p =0.721		x2=3.543 df=3 p =0.351		x2=.932 df=3 p =0.818	

In Table 12, there was a trend of reduction of symptoms in both groups from assessment 1 through assessment 3. However, there was no significant co morbidity or association between suicidal attempts and depression.

4.1.4.5. Co-morbidity between Depression and Anxiety in the 2 study groups across the 3 assessments

Table 13 summarizes the co morbidity between anxiety and depression among the experimental and control groups across the three assessments.

Table 13: Co-morbidity between Depression and Anxiety (%)

Experimental	Assessment 1				Assessment 2				Assessment 3			
Anxiety →	Minimal	Mild	Moderate	Severe	Minimal	Mild	Moderate	Severe	Minimal	Mild	Moderate	Severe
Depression ↓												
Minimal	9.6	4.9	3.5	2.5	35.9	10.6	2.9	1.9	57.5	18.4	3.5	1.7
Mild	4.2	40	2.5	2.2	6.5	3.8	3.1	0.7	2.4	3.9	3.8	1.3
Moderate	3.3	4.1	60	5.2	3.6	40	40	2.2	0.8	1.3	1.7	1.4
Severe	4.6	9.1	11.8	22.5	5.6	4.5	4.4	6.2	0.2	0.5	1.1	0.5
N	261	263	282	374	584	266	171	135	556	199	135	69
	X2=197057 df=9 p <0001				**X2=286.154 df=9 p =0.001**				**X2=395.155 df=9 p <0001**			
Controls												
Minimal	10.1	5.6	30	2.3	35.8	8.6	3.6	1.4	62.9	11.1	5.9	2.4
Mild	3.3	30	3.8	2.8	5.8	3.2	2.1	1.4	2.9	1.7	2.1	1.5
Moderate	4.1	50	4.9	6.3	5.1	4.8	4.2	2.7	1.3	1.7	1.2	4.1
Severe	5.7	7.9	11.6	20.4	5.2	4.7	4.4	6.9	0.3	0.1	0.3	1.3
N	453	424	453	497	889	374	256	222	1007	249	159	78
	X2=264.818 df=9 p <0001				**X2=399099 df=9 p<0001**				**X2=347.280 df=9 p =0.001**			

In Table 13, there was a systematic reduction in the co morbidity between moderate and severe levels of depression and anxiety with higher reduction among the experimental respondents. There was a high statistically significant association (P<0001 to p<001) between co-morbidity of anxiety and depression among the experimental and control groups in the three assessments.

4.1.4.6. Co-morbidity between depression and risk of alcohol and drug Abuse in the 2 study groups across the 3 assessments

Table 14 summarizes co morbidity between Depression and individual risk of alcohol and Drug abuse across the 3 assessments.

Table 14: Co-morbidity between depression and risk of Alcohol and drug Abuse (%)

Experimental	Assessment 1			Assessment 2			Assessment 3		
Risk of Alcohol Abuse →	Low	Moderate	High	Low	Moderate	High	Low	Moderate	High
Depression ↓									
Minimal	20.3	0.1	0.2	49.1	0.6	0	78.1	0	0
Mild	12.4	0.2	0	13.1	0	0	13.3	0	0
Moderate	18.1	0.3	0	13.2	0.5	.01	7.2	0	0
Severe	480	0.5	0	22.9	0.4	0	1.4	0	0
N	1131	50	41	1117	28	11	959	0	0
	X^2=9.203 df=6 p =0.162			X^2=14.233 df=6 **p =0.027**					
Controls									
Minimal	20.5	0.3	0	47.9	10	0.1	79.3	2	0
Mild	12.5	0.6	0.1	12.2	0.2	0.1	8.3		0
Moderate	19.7	0.5	0.1	16.5	0.2	0.1	7.4	2	0
Severe	44.6	1.1	0.1	210	0.5	0.1	10	0	0
N	**1796**	**85**	**45**	**1674**	**47**	**20**	**1483**	**10**	**0**
	X^2=8084 df=6 p =0.232			X^2=3026 df=6 p =0.606					
Tobacco Experimental									
Minimal	19.5	1.1		47.9	1.8		76.2	1.9	
Mild	11.8	08		12.2	0.9		10.1	0.2	
Moderate	16.7	1.7		13.1	0.8		7.2	0	
Severe	44.7	3.7		21.9	1.5		40	0.4	
N	1068	113		1085	71		935	24	
	X^2=2.861 df=3 p =0.413			X^2=4.786 df=3 p =0.188			X^2=10.382 df=3 **p =0.016**		
Controls									
Minimal	19.9	0.9	0	46.3	2.8	0	81.3	2.9	0.1
Mild	12.4	0.7	0	11.9	0.6	0.1	80	0.3	0
Moderate	18.8	1.4	0	160	0.8	0.1	60	0.3	0
Severe	43.3	2.4	0.1	20.6	0.9	0.1	.09	0.1	0
N	1744	140	42	1625	99	43	1438	53	2
	X^2=4.933 df=6 p =0.552			X^2=4.666 df=6 p =0.587			X^2=1.711 df=6 p =0.944		
Cannabis Experimental									
Minimal	20.1	0.5		49.2	0.5		77.6	0.5	
Mild	12.2	0.4		12.9	0.2		10.3	0	
Moderate	18.3	0.1		13.9	0		7.2	0	
Severe	47.5	10		23.2	.2		4.4	0	
N	1131	50		1136	20		954	5	
	X^2=3048 df=3 p =0.384			X^2=2035 df=3 p =0.565			X^2=1.409 df=3 p =0.703		

cannabis	Assessment 1			Assessment 2			Assessment 3		
Risk of abuse →	**Low**	**Moderate**	**High**	**Low**	**Moderate**	**High**	**Low**	**Moderate**	**High**
Controls Depression ↓									
Minimal	20.6	0.1	0.1	48.2	0.8	0	83.2	10	0.1
Mild	12.9	0.2	0	12.4	0.2	0	8.2	0.1	0
Moderate	19.7	0.5	0	16.5	0.3	0	6.2	0.1	0
Severe	450	0.8	0.1	21.2	0.2	0.1	0.9	0.1	0
N	1839	87		1686	70	0	1472	21	0
	X^2=2.128 df=3 p =0.546			X^2=.255 df=3 p =0.968			X^2=3.678 df=3 p =0.298		
Cocaine Experimental									
Minimal	20.4	0.2		49.5	0.2		78.1		
Mild	12.5	0.1		12.8	0.3		10.3		
Moderate	18.3	0.1		13.9	0		7.2		
Severe	48.2	0.3		23.4	0		4.4		
N	1143	38		1141	15		959		
	X^2=.346 df=3 p =0.951			X^2=10.432 df=3 **p =015**					
Controls									
Minimal	20.8	0.1	0	48.7	0.4		83.9	0.5	
Mild	13.1	0.1	0	12.5	0.1		8.3	0	
Moderate	20.1	0.1	0	16.8	0		6.4	0	
Severe	45.5	0.3	0.1	21.4	0.1		10	0	
N	1862	70	22	1711	30		1486	7	
	X^2=1.825 df=6 p =0.935			$X^2$2.389 df=3 p =0.496			X^2=1.307 df=3 p =0.727		
Amphetamine Experimental									
Minimal	20.1	0.5		48.7	10		77.6	0.5	
Mild	11.9	0.7		12.8	0.3		12.1	0.2	
Moderate	17.9	0.5		13.5	0.4		7.2	0	
Severe	46.7	1.7		22.7	0.7		2.1	0.3	
N	1106	75		1123	33		949	10	
	X^2=3.965 df=3 p =0.265			X^2=1006 df=3 p =0.800			X^2=17.811 df=3 **p<0001**		
Controls									
Minimal	20.5	0.3		47.6	1.4		79.9	2.3	
Mild	12.8	0.3		12.4	0.2		8.2	10	
Moderate	19.7	0.6		16.6	0.2		5.4	0	
Severe	44.6	1.3		20.8	0.7		2.9	0.4	
N	1821	105		1676	65		1469	24	
	X^2=1.615 df=3 p =0.656			X^2=3018 df=3 p =0.389			X^2=4.638 df=3 p =0.200		
Inhalants Experimental									
Minimal	20.6	0		49.5	0.2		780	0.1	
Mild	12.4	0.2		12.9	0.2		10.6	0	
Moderate	18.4	0		13.9	0		7.4	0	
Severe	48.1	0.4		23.4	0		3.9	0	
N	1137	44		1137	19		958	1	
	X^2=4.824 df=3 p =0.185			X^2=5.686 df=3 p =0.128			X^2=.281 df=3 p =0.964		

	Assessment 1			Assessment 2			Assessment 3		
Risk of abuse →	**Low**	**Moderate**	**High**	**Low**	**Moderate**	**High**	**Low**	**Moderate**	**High**
Controls ↓ Minimal	20.8	0.1		48.9	0.1		83.9	0.4	
Mild	12.9	0	0.2	12.4	0.2		6.2	0.1	
Moderate	20.2	0.1		16.8	0		5.3	0.1	
Severe	45.6	0.3		21.5	0.1		40	0	
N	1859	67		1714	27		1485	8	
	X^2=2.191 df=3 p =0.534			X^2=8071 df=3 **p =0.045**			X^2=.810 df=3 p =0.847		
Sedatives Experimental Minimal	20.1	0.5		49.5	0.2		80	0.1	
Mild	12.2	0.4		12.9	0.2		12.3	0	
Moderate	18.2	0.2		13.8	0.1		8.1	0.1	
Severe	47.5	10		23.2	0.2		3.4	0	
N	1121	60		1134	22		957	2	
	X^2=1.675 df=3 p =0.643			X^2=2010 df=3 p =0.570			X^2=5.601 df=3 p =0.133		
Controls Minimal	20.3	0.6	0	48.7	0.3		79.7	0.6	
Mild	12.6	0.5	0	12.3	.3		8.3	0	
Moderate	19.9	0.3	0	16.8	.1		7.4	0	
Severe	44.1	1.7	.1	21.3	.2		30	0	
N	1800	55	31	1706	35		1484	9	
	X^2=5.202 df=6 p =0.518			X^2=7041 df=3 p =0.071			X^2=1.683 df=3 p =0.641		
Opioids Experimental Minimal	20.5	0.1		49.6	0.1		810	0.1	
Mild	12.6	0		130	0.1		13.3	0	
Moderate	18.4	0		13.9	0		9.2	0	
Severe	48.1	.4		23.4	0		2.4	0	
N	1138	43		1139	17		958	1	
	X^2=2.588 df=3 p =0.460			X^2=2.838 df=3 p =0.417			X^2=.281 df=3 p =0.964		
Controls Minimal	20.8	0.1	0	48.9	0.1		80	.3	
Mild	13.1	0	0	12.5	0.1		10.2	.1	
Moderate	20.2	0.1	0	16.8	0		6.4	0	
Severe	45.5	.3	.1	21.5	0.1		30	0	
N	1857	48	21	1715	26		1487	6	
	X^2=4.235 df=6 p =0.645			X^2=3.923 df=3 p =0.270			X^2=.952 df=3 p =0.813		

Experimental →	Assessment 1			Assessment 2			Assessment 3		
Risk of Abuse	Low	Moderate	High	Low	Moderate	High	Low	Moderate	High
Hallucinogens ↓ Experimental ▼									
Minimal	20.5	0.1		49.6	.01		80	0.1	
Mild	12.6	0		130	.01		11.3	0	
Moderate	18.4	0		13.9	0		9.2	0	
Severe	48.1	0.4		23.4	0		3.4	0	
N	1138	43		1139	17		958	1	
	X^2=2.588 df=3 p =0..460			X^2=2.838 df=3 p =0..417			X^2=.281 df=3 p =0..964		
Controls									
Minimal	20.8	0.1	0	48.9	0.1		790	0.3	
Mild	13.1	0	0	12.5	0.1		10.2	0.1	
Moderate	20.2	0.1	0	16.8	0		6.3	0	
Severe	45.5	.3	0.1	21.5	0.1		3.1	0	
N	1857	48	21	1716	25		1487	6	
	X^2=4.235 df=6 p =0.645			X^2=3.923 df=3 p =0.270			X^2=.952 df=3 p =0.813		

In Table 14, there was a systematic reduction of those with moderate and severe depression levels co-morbid with high or moderate risk of substance abuse across the 3 assessments with a higher reduction among the experimental respondents.

In the 1st assessment, there was no statistically significant association (p>05) between co-morbidity of depression and risk of any substance of abuse in both the 2 study groups.

In the 2nd assessment, there was a statistically significant association between co-morbidity of depression and risk of abuse of alcohol (p =027) and cocaine (p =015) in the experimental group as well as inhalants (p =045) in the control group.

In the 3rd assessment, there was a statistically significant association between co-morbidity of depression and risk of abuse of tobacco (p =016) and amphetamine (p<0001) both in the experimental group.

4.1.4.7. Co-morbidity between Hopelessness and Risk of Alcohol and Drug Abuse in the 2 study groups across the 3 assessments

Table 15 summarizes co-morbidity between Hopelessness and risk of alcohol and drug abuse across the 3 assessments.

Table 15: Co-morbidity between Hopelessness and Risk of Alcohol and Drug Abuse (%)

Experimental → Risk of Alcohol Abuse	Assessment 1			Assessment 2			Assessment 3		
	Low	Moderate	High	Low	Moderate	High	Low	Moderate	High
Hopelessness ↓ Minimal	72.5	0.7	0.2	86.2	1.2	0.1	810	0	
Mild	21.4	0.3	0	90	0.3	0	15.6	0	0
Moderate	4.1	0	0	3.1	0.1	0	3.3	0	0
Severe	0.8	0	0	0	0	0	0	0	0
N	**1167**	**12**	**2**	**1137**	**18**	**1**	**959**	0	0
	X^2=2.140 df=6 p =0.906			X^2=1.740 df=4 p =0.783					
Control Minimal	72.8	1.3	0.2	76.2	1.4	0.2	74.3	0	0
Mild	20.3	10	0.1	11.4	0.1	0.1	20.9	0	0
Moderate	3.9	0.1	0	10.2	0.4	0.1	4.4	0	0
Severe	0.3	0.1	0	0	0		0.4	0	0
N	**1874**	**47**	**5**	**1701**	**34**	**6**	**1493**	0	0
	X^2=16.242 df=6 **p =0.013**			X^2=7.543 df=46 p =0.110					
Tobacco Experimental Minimal	68.4	4.9		83.3	4.2	0	78.9	2.1	0
Mild	20	1.8		8.5	0.8	0	15.3	0.3	
Moderate	3.7	0.4		2.9	0.3	0	3.2	0.1	0
Severe	.8	0		0	0	0	0	0	0
N	**1097**	**84**		**1095**	**61**	**0**	**935**	**24**	0
	X^2=2060 df=3 p =0.560			X^2=3079 df=2 p =0.214			X^2=.222 df=2 p =0.895		
Control Minimal	70.4	3.8	0.1	74.2	3.4	0.1	71.5	2.7	0.1
Mild	20.1	1.2	0	10.7	0.8	0.1	20.2	0.7	0
Moderate	3.5	0.4	0	9.9	0.7	0	4.3	0.1	0
Severe	.4	0	0			0	.3	0.1	0
N	**1819**	**105**	**2**	**1651**	**87**	**3**	**1438**	**53**	**2**
	X^2=5.331 df=6 p =0.502			X^2=5.717 df=4 p =0.221			X^2=3.882 df=6 p =0.693		
Cannabis Experimental Minimal	720	1.4		86.8	0.8	0	80.7	0.3	0
Mild	21.4	0.3		9.2	0.1	0	15.4	0.2	0
Moderate	4.1	0.1		3.1	0.1	0	3.3	0	0
Severe	.8	0							0
N	**1160**	**21**		**1145**	**11**		**954**	**5**	0
	X^2=.279 df=3 p =0.964			X^2=1.246 df=2 p =0.536			X^2=2.349 df=2 p =0.309		

Control Risk of Alcohol Abuse	Assessment 1			Assessment 2			Assessment 3		
	Low	Moderate	High	Low	Moderate	High	Low	Moderate	High
hopelessness Minimal	73.2	1.1		76.7	10	0	20.6	.3	0
Mild	20.8	0.6		11.3	0.3	0	4.4	0	0
Moderate	3.8	0.1		10.4	0.2	0	0.4	0	0
Severe	0.4	0		1714	27	0	1472	21	0
N	**1891**	**35**							
	X^2=2.719 df=3 p =0.437			X^2=2018 df=2 p =0.365			X^2=1.190 df=3 p =0.755		
Cocaine Experimental Minimal	72.8	0.5		87.2	0.3	0	810	0	0
Mild	21.7	0.1		9.3	0	0	15.6	0	0
Moderate	4.1	0		3.1	0.1	0	3.3	0	0
Severe	.8	0				0	0	0	0
N	**1174**	**7**		**1151**	**5**	**0**	**959**	0	0
	X^2=.674 df=3 p =0.879			X^2=4.925 df=2 p =0.085					
Control Minimal	740	0.3	.1	77.5	0.2	0	740	0.3	0
Mild	21.1	0.3	0	11.5	0.1	0	20.7	0.2	0
Moderate	3.9	0	0	10.4	0.2	0	4.4	0	0
Severe	0.4	0	0	0	0	0	0.4	0	0
N	**1915**	**10**	**1**	**1731**	**10**		**1486**	**7**	0
	X^2=5.421 df=6 p =0.491			X^2=10.623 df=2 **p =0.005**			X^2=2.240 df=3 p =0.514		
Experimental **Amphetamine** Minimal	70.6	2.7		85.8	1.7	0	80.2	.8	0
Mild	21.2	0.6		8.7	0.5	0	15.4	0.2	0
Moderate	40	0.2		30	0.2	0	3.3	0	0
Severe	.8	0				0	0	0	0
N	**1140**	**41**		**1128**	**28**		**949**	**10**	0
	X^2=.936 df=3 p =0.817			X^2=6.838 df=2 **p =0.033**			X^2=.461 df=2 p =0.794		
Control Minimal	72.1	2.2		76	1.7	0	73.1	1.1	0
Mild	210	0.4		11.2	.4	0	20.6	0.3	0
Moderate	3.9	0.1		10.2	0.4	0	4.3	0.1	0
Severe	.4	0		0	0	0	0.4	0	0
N	**1875**	**51**		**1697**	**44**	**0**	**1469**	**24**	**0**
	X^2=1.968 df=3 p =0.579			X^2=2.441 df=2 p =0.295			X^2=.982 df=3 p =0.806		

Experimental	Assessment 1			Assessment 2			Assessment 3		
Risk of Abuse →	**Low**	**Moderate**	**High**	**Low**	**Moderate**	**High**	**Low**	**Moderate**	**High**
Inhalants ↓ Minimal	72.9	0.4	0	87.3	.3	0	80.9	0.1	0
Mild	21.7	0.1	0	9.3	0	0	15.6	0	0
Moderate	4.1	0	0	3.1	0.1	0	3.3	0	0
Severe	.8	0	0	0	0	0	0	0	0
N	**1175**	**6**	**0**	**1152**	**4**	**0**	**958**	**1**	**0**
	X^2=.450 df=3 p =0.930			X^2=6.403 df=2 **p =0.041**			X^2=.234 df=2 p =0.889		
Control Minimal	740	0.3	0	77.5	0.2	0	73.9	0.4	0
Mild	21.3	0.1	0	11.6	0	0	20.8	0.1	0
Moderate	3.9	0.1	0	10.5	0.1	0	4.4	0	0
Severe	.4	0	0		0	0	.4	0	0
N	**1918**	**8**		**1735**	**6**	**0**	**1485**	**8**	**0**
	X^2=1.718 df=3 p =0.633			X^2=3.716 df=2 p =0.156			X^2=.453 df=3 p =0.929		
Experimental Sedatives Minimal	71.9	1.4	0	870	0.5	0	80.8	0.2	0
Mild	21.3	0.4	0	9.2	0.1	0	15.6	0	0
Moderate	4.1	0.1	0	3.1	0.1	0	3.3	0	0
Severe	.8	0	0	0	0	0	0	0	0
N	**1158**	**23**	**0**	**1148**	**8**	**0**	**957**	**2**	**0**
	X^2=.182 df=3 p =0.980			X^2=2.413 df=2 p =0.299			X^2=.469 df=2 p =0.791		
Control Minimal	720	2.3	0.1	77.2	0.6	0	73.9	0.3	0
Mild	20.6	0.8	0	11.5	0.1	0	20.6	0.3	0
Moderate	3.9	0.1	0	10.4	0.2	0	4.4	0	0
Severe	0.4	0	0	0	0	0	0.4	0	0
N	**1865**	**60**	**1**	**1726**	**15**		**1484**	**9**	**0**
	X^2=1.770 df=6 p =0.940			X^2=4.221 df=2 p =0.121			X^2=3.266 df=3 p =0.352		
Experimental Opioids Minimal	73.1	0.3	0	87.4	.2	0	80.9	0.1	0
Mild	21.6	0.2	0	9.3	0	0	15.6	0	0
Moderate	4.1	0	0	3.2	0	0	3.3	0	0
Severe	.8	0	0	0	0	0	0	0	0
N	**1176**	**5**	**0**	**1154**	**2**	**0**	**958**	**1**	**0**
	X^2=1. 133 df=3 p =0.768			X^2=.285 df=2 p =0.867			X^2=.234 df=2 p =0.889		
Control Minimal	73.9	0.4	0.1	77.6	0.2	0	740	0.3	0
Mild	21.3	0.1	0	11.6	0	0	20.8	0.1	0
Moderate	3.9	0	0	10.5	0.1	0	4.4	0	0
Severe	0.4	0	0	0	0	0	0.4	0	0
N	**1916**	**9**	**1**	**1736**	**5**	**0**	**1487**	**6**	**0**
	X^2=.754 df=6 p =0.993			X^2=4.857 df=2 p =0.088			X^2=.783 df=3 p =0.853		

Experimental	Assessment 1			Assessment 2			Assessment 3		
Risk of Abuse →	Low	Moderate	High	Low	Moderate	High	Low	Moderate	High
Hallucinogens ↓ Minimal	73.1	0.3	0	87.4	0.2	0	80.9	0.1	0
Mild	21.6	0.2	0	9.3	0	0	15.6	0	0
Moderate	4.1	0	0	3.2	0	0	3.3	0	0
Severe	.8	0	0	0	0	0	0	0	0
N	**1176**	**5**	**0**	**1154**	**2**	**0**	**958**	**1**	**0**
	X^2=1.136 df=3 p =0.768			X^2=.285 df=2 p =0.867			X^2=.234 df=2 p =0.889		
Control Minimal	73.9	0.4	0.1	77.6	0.2		740	0.3	0
Mild	21.3	0.1	0	11.6	0		20.8	0.1	0
Moderate	3.9	0	0	10.5	0.1		4.4	0	0
Severe	.4	0	0	0	0		0.4	0	0
N	**1916**	**9**	**1**	**1736**	**5**		**1487**	**6**	**0**
	X^2=.754 df=6 p =0.993			X^2=4.857 df=2 p =0.088			X^2=.783 df=3 p =0.853		

In Table 15, co-morbidity of hopelessness and risks of abuse of several substances reduced across the 3 assessments in both groups, with a higher reduction among the experimental group.

In the 1st assessment, there was a statistically significant association between co-morbidity of hopelessness and risk of alcohol abuse (p=013) in the control group only.

In the 2nd assessment, there was a statistically significant association between co-morbidity of hopelessness and risk of abuse of amphetamines (p=033), cocaine (p=003) and inhalants (p=041) in the experimental group.

In the 3rd assessment there was no significant association (p>05) found.

4.1.4.8. Co-morbidity between Suicidal Ideas and Risk of Alcohol and Drug abuse across the 3 assessments

Table 16 summarizes co-morbidity between suicidal ideas and risk of alcohol and drug abuse across the 3 assessments.

Table 16: Co-morbidity between Suicidal Ideas and Risk of Alcohol and Drug abuse (%)

Experimental Risk of abuse →	Assessment 1			Assessment 2			Assessment 3		
	Low	Moderate	High	Low	Moderate	High	Low	Moderate	High
Alcohol Suicidality a) Suicidal ideas ↓ Passive Ideas	97.1	10	2	98.1	1.5	0.1	99.2	0	0
Active Ideas	1.7	0	0	0.3	0.1	0	0.8	0	0
N	**1165**	**14**	**2**	**1137**	**18**	**1**	**959**	**0**	**0**
	X^2=.244 df=2 p=0.885			X^2=14.393 df=2 **p <0001**					
Control Passive Ideas	96.3	2.3	0.3	97.6	1.9	0.3	98.4	0	0
Active Ideas	0.9	0.1	0	0.1	0.1	0.1	1.6	0	0
N	**1870**	**46**	**10**	**1701**	**34**	**6**	**1493**	**0**	**0**
	X^2=4.856 df=2 p=0.088			X^2=111.324 df=2 **p=0.001**					
Experimental Tobacco → Passive Ideas	91.3	70		94.7	4.9		96.8	2.4	0
Active Ideas	1.6	0.1		0	0.3		0.7	0.1	0
N	**1095**	**85**		**1095**	**61**		**935**	**24**	**0**
	X^2=.139 df=1 p=0.709			X^2=72053 df=1 **p <0001**			X^2=3.305 df=1 p=069		
Control Passive Ideas	93.4	5.4	0.1	94.8	4.8	0.2	94.9	3.3	0.1
Active Ideas	10	0	0	0	0.2	0	1.4	0.2	0
N	**1810**	**108**	**8**	**1651**	**87**	**3**	**1438**	**53**	**2**
	X^2=1.184 df=2 p=0.553			X^2=57.133 df=2 **p=0.001**			X^2=5.734 df=2 p=0.057		
Experimental Cannabis Passive Ideas	96.7	1.6	0	990	0.7	0	98.7	0.4	0
Active Ideas	1.5	0.2	0	.1	0.3	0	.7	0.1	0
N	**1158**	**23**	**0**	**1145**	**11**	**0**	**954**	**5**	0
	X^2=7.856 df=1 p=0.005			**X^2=233.515 df=1 p<0001**			**X^2=22.318 df=1 p<0001**		
Control Passive Ideas	97.1	1.8	0	98.4	1.4	0	97.1	1.3	0
Active Ideas	10	0	0	0	0.2	0	1.5	0.1	0
N	**1886**	**40**	**0**	**1714**	**27**	**0**	**1472**	**21**	**0**
	X^2=.376 df=1 p=0.540			**X^2=190.773 df=1 p=0.001**			**X^2=8.439 df=1 p=0.004**		
Experimental Cocaine Passive Ideas	97.8	0.5		99.4	0.3	0	99.2	0	0
Active Ideas	1.6	0.1		0.2	0.2	0	0.8	0	0
N	**1172**	**9**		**1151**	**5**	0	**959**	0	0
	X^2=6.693 df=1 p=0.010			**X^2=228.997 df=1 p<0001**					

Control	Assessment 1			Assessment 2			Assessment 3		
Risk of abuse →	Low	Moderate	High	Low	Moderate	High	Low	Moderate	High
Passive Ideas ↓	98.4	5	0.1	99.4	0.5	0	980	0.4	0
Active Ideas	10	0	0	0.1	.1	0	1.5	0.1	0
N	**1908**	**13**	**5**	**1731**	**10**	**0**	**1486**	**7**	0
	X^2=.117 df=2 p =0.943			**X^2=229.865 df=1 p=0.001**			**X^2=7.147 df=1 p =0.008**		
Experimental Amphetamine Passive Ideas	94.9	3.4	0	97.6	2.1	0	98.1	10	0
Active Ideas	1.6	0.1	0	0	0.3	0	0.8	0	0
N	**1138**	**43**	**0**	**1128**	**28**	**0**	**949**	**10**	0
	X^2=.140 df=1 p =0.708			**X^2=161.702 df=1 p<0001**			X^2=085 df=1 p =0.771		
Control Passive Ideas	96.3	2.7	0	97.4	2.4	0	96.9	1.5	0
Active Ideas	10	0	0	0.1	1	0	1.5	0.1	0
N	**1870**	**56**		**1697**	**44**	**0**	**1469**	**24**	0
	X^2=.553 df=1 p =0.457			**X^2=50.186 df=1 p=0.001**			X^2=1010 df=1 p =0.315		
Experimental Inhalants Passive Ideas	97.9	0.4	0	99.5	0.2	0	99.1	0.1	0
Active Ideas	1.6	.01	0	.2	0.2	0	0.8	0	0
N	**1173**	**8**	**0**	**1152**	**4**	**0**	**958**	**1**	0
	X^2=8.105 df=1 p =0.004			**X^2=286.997 df=1 p<0001**			X^2=008 df=1 p =0.927		
Control Passive Ideas	98.5	0.4	0	99.6	0.2	0	97.9	0.5	0
Active Ideas	10	0	0	.1	0.1	0	1.5	0.1	0
N	**1916**	**10**	**0**	**1735**	**6**	**0**	**1485**	**8**	0
	X^2=085 df=1 p =0.771			X^2=384.887 df=1 p<0001			X^2=6033 df=1 p =0.014		
Experimental Sedatives Passive Ideas	96.4	20	0	99.2	0.4	0	990	.2	0
Active Ideas	1.7	0	0	0.1	0.3	0	0.8	0	
N	**1156**	**25**	**0**	**1148**	**8**	**0**	**957**	**2**	0
	X^2=.405 df=1 p =0.525			**X^2=322.493 df=1 p<0001**			X^2=017 df=1 p =0.897		
Control Passive Ideas	95.8	3.1	0.1	99.1	0.7	0	97.8	0.6	0
Active Ideas	10	0.1	0	0.1	.1	0	1.6	0	0
N	**1860**	**62**	**4**	**1726**	**15**	**0**	**1484**	**9**	**0**
	X^2=.243 df=2 p =0886			X^2=152.354 df=1 **p=0.001**			X^2=.148 df=1 p =0.701		
Experimental Opioids Passive Ideas	97.9	0.4	0	99.7	0	0	99.1	0.1	0
Active Ideas	1.7	0	0	.2	.02	0	0.8	0	0
N	**1174**	**7**	**0**	**1154**	**2**	**0**	**958**	**1**	**0**
	X^2=087 df=1 p =0.768			**X^2=576.998 df=1 p<0001**			X^2=008 df=1 p =0.927		

control opioids	Assessment 1			Assessment 2			Assessment 3		
	Low	Moderate	High	Low	Moderate	High	Low	Moderate	High
Passive Ideas	98.4	0.5	0.1	99.7	0.2	0	98.1	0.3	0
Active Ideas	10	0	0	0.1	0.1	0	1.5	0.1	0
N	**1912**	**11**	**3**	**1736**	**5**	**0**	**1487**	**6**	**0**
	X^2=.106 df=2 p =0.948			**X^2=462.398 df=1 p=001**			**X^2=8.638 df=1 p =003**		
Experimental Hallucinogens Passive Ideas	97.9	0.4	0	99.7	0	0	99.1	0.1	0
Active Ideas	1.7	0	0	.2	0.2	0	.8	0	0
N	**1174**	**7**	**0**	**1154**	**2**	**0**	**958**	**1**	0
	X^2=087 df=1 p =0.768			**X^2=576.998 df=1 p<0001**			X^2=008 df=1 p =0.927		
Control Passive Ideas	98.4	5	0.1	99.7	0.2	0	98.1	0.3	0
Active Ideas	10	0	0	0.1	0.1	0	1.5	0.1	0
N	**1910**	**12**	**4**	**1736**	**5**	**0**	**1487**	**6**	0
	X^2=.106 df=2 p =0.948			**X^2=462.398 df=1 p<0001**			**X^2=8.638 df=1 p =0.003**		

In Table 16, there was generally a marked reduction in co-morbidity of suicidal ideas and risk of substances of abuse in the 2 study groups across the 3 assessments with higher reduction among the experimental group respondents more so in the 3rd assessment.

The significant trends in all the 3 assessments are highlighted in table 10. In the 1st assessment these include co-morbidity of suicidal ideas and risk of abuse of cannabis, cocaine and inhalants in the experimental group.

In the 2nd assessment, they include co-morbidity of suicidal ideas and risk of abuse of alcohol, tobacco, cannabis, cocaine, amphetamines, inhalants, sedatives, opioids, hallucinogens in both the experimental and control groups.

In the 3rd assessment, they include co morbidity of suicidal ideas and risk of abuse of cannabis in groups and inhalants, opioids and hallucinogen in the control group.

4.1.4.9. Co-morbidities between suicidal plans and risk of alcohol and drug abuse across the 3 assessments

Table 17 summarizes of co morbidity between Suicidal plans and risk of alcohol and drug abuse.

Table 17: Co-morbidities between suicidal plans and risk of alcohol and drug abuse (%)

Experimental Risk of Alcohol ~~Abuse~~	Assessment 1			Assessment 2			Assessment 3		
	Low	**Moderate**	**High**	**Low**	**Moderate**	**High**	**Low**	**Moderate**	**High**
b) Suicidal plans Mild	97.4	10	0.1	98.4	1.6	0.1	99.8	0	0
Moderate	1.4	0	0.1	0	0	0	.2	0	0
N	**1167**	**12**	**2**	**1130**	**25**	**1**	**959**	**0**	**0**
	X^2=31.534 df=2 p<0001			**X^2=80.273 df=4 p<0001**					
Control Mild	96.8	2.3	.3	97.7	20	.3	99.2	0	0
Moderate	0.5	0	0	0	0	0	0.7	0	0
Severe	0	0.1	0	0	0	0	0.1	0	0
N	**1875**	**47**	**5**	**1701**	**34**	**6**	**1493**	**0**	**0**
	X^2=80.273 df=4 p=0.001								
Experimental Tobacco Mild	91.7	6.8	0	94.7	5.3	0	97.4	2.4	0
Moderate	1.2	.3	0	0	0	0	.1	.1	0
Severe	0	0	0	0	0	0	0	0	0
N	**1097**	**84**		**1093**	**63**	**0**	**935**	**24**	**0**
	X^2=6.3 16 df=1 p =0.012						**X^2=18.531 df=1 p<0001**		
Control Mild	93.9	5.4	0.1	94.8	50	0.2	95.6	3.4	0.1
Moderate	0.4	0.1	0	0	0	0	0.5	0.1	0
Severe	0.1	0	0	0	0	0	.1	0	0
N	**1819**	**105**	**2**	**1649**	**88**	**4**	**1438**	**53**	**2**
	X^2=.687 df=4 p =0.953						X^2=8038 df=4 p =00.90		
Experimental Cannabis Mild	96.8	1.7	0	990	10	0	99.4	.4	0
Moderate	1.4	.1	0	0	0	0	.1	.1	0
Severe	0	0	0	0	0	0	0	0	0
N	**1160**	**21**	**0**	**1144**	**11**	**0**	**954**	**5**	**0**
	X^2=1.493 df=1 p =0.222						**X^2=94.600 df=1 p>0001**		
Control Mild	97.6	1.8	0	98.4	1.6	0	97.9	1.3	0
Moderate	.5	0	0	0	0	0	.6	.1	0
Severe	.1	0	0	0	0	0	.1	0	0
N	**1891**	**35**	**0**	**1714**	**27**	**0**	**1472**	**21**	**0**
	X^2=.205 df=2 p =0.903						X^2=5.387 df=2 p =0.068		
Experimental Cocaine Mild	97.9	0.6	0	99.6	0.4	0	99.8	0	0
Moderate	1.5	0	0	0	0	0	0.2	0	0
N	**1174**	**7**	**0**	**1149**	**7**	**0**	**959**	**0**	**0**
	X^2=.109 df=1 p =0.741								

control	Assessment 1			Assessment 2			Assessment 3		
Risk of A Abuse →	**Low**	**Moderate**	**High**	**Low**	**Moderate**	**High**	**Low**	**Moderate**	**High**
Suicidal plans ↓ **Amphetamine** Mild	95.1	3.4	0	97.6	2.4	0	98.7	10	0
Moderate	1.4	.1	0	0	0	0	.2	0	0
Severe	0	0	0	0	0	0	0	0	0
N	**1140**	**41**	**0**	**1128**	**28**	**0**	**949**	**10**	**0**
	X^2=.237 df=1 p =0.626						X^2=021 df=1 p =0.884		
Control Mild	96.8	2.6	0	97.5	2.5	0	97.6	1.6	0
Moderate	0.5	0	0	0	0	0	0.7	0	0
Severe	0.1	0	0	0	0	0	0.1	0	0
N	**1875**	**51**	**0**	**1697**	**44**	**0**	**1469**	**24**	**0**
	X^2=.301 df=2 p =0.860						X^2=.198 df=2 p =0.906		
Experimental Inhalants Mild	98	0.5	0	99.7	0.3	0	99.7	0.1	0
Moderate	1.4	0.1	0	0	0	0	0.2	0	0
Severe	0	0	0	0	0	0	0	0	0
N	**1150**	**6**	**0**	**1096**	**60**	**0**	**952**	**7**	**0**
	X^2=9.213 df=1 p =002						**X^2=002 df=1 p>0001**		
Control Mild	99	0.4	0	99.7	0.3	0	98.7	0.5	0
Moderate	.5	0	0	0	0	0	0.6	0.1	0
Severe	.1	0	0	0	0	0	0.1	0	0
N	**1913**	**13**	**0**	**1738**	**3**	**0**	**1476**	**17**	**0**
	X^2=046 df=2 p =0.977						X^2=16.928 df=2 p =0.964		
Experimental Sedatives Mild	96.9	1.6	0	99.3	0.7	0	99.6	0.2	0
Moderate	1.2	0.3	0	0	0	0	.2	0	0
N	**1158**	**23**	**0**	**1144**	**12**	**0**	**957**	**2**	**0**
	X^2=39.347 df=1 p>0001						X^2=004 df=1 p =0.948		
Control Mild	96.3	3.1	0.1	99.1	0.9	0	98.6	0.6	0
Moderate	.4	0.1	0	0	0	0	0.7	0	0
Severe	.1	0	0	0	0	0	0.1	0	0
N	1865	60	1	1724	15	0	1484	11	0
	X^2=1.983 df=4 p =0.739						X^2=073 df=2 p =0.964		
Experimental Opiods Mild	98.2	0.3		99.8	0.2	0	99.7	0.1	0
Moderate	1.4	.2	0	0	0	0	.2	0	0
N	1176	5	0	1152	4	0	958	1	0
	X^2=49.526 df=1 p <0001						X^2=002 df=1 p =0.964		

Control	Assessment 1			Assessment 2			Assessment 3		
Risk of Abuse →	**Low**	**Moderate**	**High**	**Low**	**Moderate**	**High**	**Low**	**Moderate**	**High**
Suicidal plans ↓ Mild	98.9	0.5	0.1	99.7	0.3	0	98.9	0.3	
Moderate	0.5	0	0	0	0	0	0.6	0.1	0
Severe	0.1	0	0	0	0	0	0.1	0	0
N	1916	9	1	1734	7	0	1487	6	0
	X^2=058 df=4 p =0.1000						**X^2=23.177 df=2 p<0001**		
Experimental Hallucinogens Mild	98.2	.3	0	99.8	0.2	0	99.7	0.1	0
Moderate	1.4	0.2	0	0	0	0	.2	0	0
Severe	0	0	0	0	0	0	0	0	0
N	**1176**	**5**	**0**	**1152**	**4**	**0**	**958**	**1**	**0**
	X^2=49.526 df=1 p<0.0001						X^2=002 df=1 p =0.964		
Control Mild	98.9	0.5	0.1	99.7	0.3	0	98.9	0.3	0
Moderate	.5	0	0	0	0	0	.6	0.1	0
Severe	.1	0	0	0	0	0	.1	0	0
N	1916	9	1	1734	7	0	1487	6	0
	X^2=058 df=4 p =1000					0	**X^2=23.177 df=2 p<0001**		

In Table 17 there was generally a marked reduction in the severity of symptoms across the three assessments with a higher reduction among the experimental group respondents.

The statistically significant associations ($p<05$) are highlighted in table 11. In the 1st assessment, these included co morbidity of suicidal plans and risk of abuse of alcohol and opioids in both groups; tobacco, inhalants, sedatives and hallucinogens in the experimental group.

In the 2nd assessment, this included suicidal plans and risk of abuse of alcohol in the experimental group only.

In the 3rd assessment, most of the co morbidities had reduced to 0% in the experimental group. The co morbidities that had a statistically significant association were between suicidal plans and risk of abuse of tobacco and inhalants in the experimental group and in the control group cannabis, opioids and hallucinogens.

4.1.4.10. Co-morbidity between suicidal attempts and Risk of Alcohol and Drug abuse across the 3 assessments

Table 18 summarizes co morbidity between Suicidal attempts and risk of alcohol and drug abuse among the two study groups across the three assessments.

Table 18: Co-morbidity between suicidal attempts and Risk of Alcohol and Drug abuse (%)

Experimental	Assessment 1			Assessment 2			Assessment 3		
Risk of Alcohol Abuse →	Low	Moderate	High	Low	Moderate	High	Low	Moderate	High
c) Suicidal attempts ↓ No Attempts	94.3	0.9	0.2	97.9	1.5	0.1	99.7	0	0
Attempted	4.5	0.1	0	0.4	0.1	0	.3	0	0
N	**1167**	**12**	**2**	**1137**	**18**	**1**	**959**	**0**	**0**
	X^2=.487 df=2 p =0.784			**X^2=8.987 df=2** p =0.011					
Control No Attempts	95.7	2.4	0.3	97.3	20	.3	99.7	0	0
Attempted	1.6	0.1	0	0.4	0	0	0.3	0	0
N	**1874**	**47**	**5**	**1701**	**34**	**6**	**1493**	**0**	**0**
	X^2=.148 df=2 p =0.929			X^2=.165 df=2 p =0.921					
Experimental Tobacco No Attempts	88.8	6.6	0	94.2	5.3	0	97.2	2.5	0
Attempted	4.1	.5		.5	0	0	.3	0	0
N	**1097**	**84**		**1095**	**61**	**0**	**935**	**24**	**0**
	X^2=1.369 df=1 p =0.242			X^2=.336 df=1 p =0.562			X^2=077 df=1 p =0.781		
Control No Attempts	92.9	5.3	0.1	94.5	4.9	0..2	960	3.5	0.1
Attempted	1.6	0.1	0	0.3	0.1	0	0.3	0	0
N	1819	105	2	1651	87	3	1438	53	2
	X^2=073 df=2 p =0.964			X^2=1.287 df=2 p =0.525			X^2=.192 df=2 p =0.909		
Experimental Cannabis No Attempts	93.7	1.7	0	98.5	10	0	99.2	0.5	0
Attempted	4.5	0.1	0	0.5	0	0	0.3	0	0
N	**1160**	**21**	**0**	**1145**	**11**	**0**	**954**	**5**	**0**
	X^2=002 df=1 p =0.967			X^2=058 df=1 p =0.810			X^2=016 df=1 p =0.900		

controls	Assessment 1			Assessment 2			Assessment 3		
Risk of Abuse →	Low	Moderate	High	Low	Moderate	High	Low	Moderate	High
Control No Attempts ↓	96.5	1.8		980	1.6	0	98.3	1.4	0
Attempted	1.7	0		0.4	0	0	0.3	0	0
N	**1891**	**35**	**0**	**1714**	**27**	**0**	**1472**	**21**	**0**
	X^2=.602 df=1 p =0.438			X^2=.111 df=1 p =0.739			X^2=072 df=1 p =0.789		
Experimental Cocaine No Attempts	94.8	0.6		990	0.4	0	99.7	0	0
Attempted	4.6	0		0.5	0	0	0.3	0	0
N	**1174**	**7**		**1151**	**5**	**0**	**959**	**0**	**0**
	X^2=.337 df=1 p =0.561			X^2=026 df=1 p =0.871					
Control No Attempts	97.8	0.5	0.1	990	0.6	0	99.6	0.1	0
Attempted	1.7	0	0	0.4	0	0	0.3	0	0
N	**1915**	**10**	**1**	**1731**	**10**	**0**	**1486**	**7**	**0**
	X^2=.187 df=2 p =0.911			X^2=041 df=1 p =0.840			X^2=059 df=1 p =0.808		
Experimental Amphetamine No Attempts	92.3	3.1	0	97.1	2.4	0	98.6	10	0
Attempted	4.2	0.3	0	0.5	0	0	0.3	0	0
N	**1140**	**41**	0	**1128**	**28**	**0**	**949**	**10**	**0**
	X^2=2.616 df=1 p =0.106			X^2=.150 df=1 p =0.699			X^2=046 df=1 p =0.771		
Control No Attempts	95.7	2.6		97.1	2.5	0	98.1	1.6	0
Attempted	1.6	0.1		0.4	0	0	0.3	0	0
N	**1875**	**51**		**1697**	**44**		**1469**	**24**	
	X^2=029 df=1 p =0.865			X^2=.182 df=1 p =0.669			X^2=082 df=1 p =0.775		
Experimental Inhalant No Attempts	94.9	0.5	0	99.1	0.3	0	99.6	0.1	0
Attempted	4.6	0	0	0.5	0	0	0.3	0	0
N	**1175**	**6**	**0**	**1152**	**4**	**0**	**958**	**1**	**0**
	X^2=.289 df=1 p =0.591			X^2=021 df=1 p =0.885			X^2=003 df=1 p =0.955		
Control No Attempts	97.9	0.4	0	99.3	0.3	0	99.2	0.5	0
Attempted	1.7	0	0	0.4	0	0	0.3	0.1	0
N	**1918**	**8**		**1735**	**6**	**0**	**1485**	**8**	**0**
	X^2=.136 df=1 p =0.713			X^2=021 df=1 p =0.885			**X^2=35.662 df=1 p<0001**		

Experimental	Assessment 1			Assessment 2			Assessment 3		
Risk of Abuse →	Low	Moderate	High	Low	Moderate	High	Low	Moderate	High
Sedatives No Attempts ↓	93.6	1.9	0	98.8	0.7	0	99.5	0.2	0
Attempted	4.5	0.1	0	0.5	0	0	0.3	0	0
N	**1158**	**23**	**0**	**1148**	**8**	**0**	**957**	**2**	**0**
	X^2=003 df=1 p =0.958			X^2=042 df=1 p =0.838			X^2=006 df=1 p =0.937		
Control No Attempts	95.2	3.1	0.1	98.7	0.9	0	99.1	0.6	0
Attempted	1.6	0.1	0	0.4	0	0	0.3	0	0
N	**1865**	**60**	**1**	**1726**	**15**	**0**	**1484**	**9**	**0**
	X^2=017 df=2 p =0.992			X^2=061 df=1 p =0.805			X^2=030 df=1 p =0.862		
Experimental Opioids No Attempts	950	0.4	0	99.3	0.2	0	99.6	0.1	0
Attempted	4.6	0	0	0.5	0	0	.3	0	0
N	**1176**	**5**	**0**	**1154**	**2**	**0**	**958**	**1**	**0**
	X^2=.241 df=1 p =0.624			X^2=010 df=1 p =0713			X^2=003 df=1 p =0.955		
Control No Attempts	97.8	0.5	0.1	99.3	0.3		99.3	0.4	
Attempted	1.7	0	0	0.4	0		0.3	0	
N	**1916**	**9**	**1**	**1736**	**5**		**1487**	**6**	
	X^2=.170 df=21 p =0.919			X^2=020 df=1 p =0.919			X^2=020 df=1 p =0.887		
Experimental Hallucinogens No Attempts	950	0.4	0	99.3	0.2	0	99.6	0.1	0
Attempted	4.6	0	0	0.5	0	0	0.3	0	0
N	**1176**	**5**	**0**	**1154**	**2**	**0**	**958**	**1**	**0**
	X^2=.241 df=1 p =0.624			X^2=010 df=1 p =0.713			X^2=003 df=1 p =0.955		
Control No Attempts	97.8	0.5	0.1	99.3	0.3	0	99.3	0.4	0
Attempted	1.7	0	0	0.4	0	0	.3	0	0
N	**1916**	**9**	**1**	**1736**	**5**	**0**	**1487**	**6**	**0**
	X^2=.170 df=21 p =0.919			X^2=020 df=1 p =0919			X^2=020 df=1 p =0.887		

In Table 18, there was generally a marked reduction of symptom severity of suicidal attempts and risk of alcohol and drugs abuse in all the groups across the three assessments with a higher reduction among the experimental group.

The only significant associations were in suicidal attempts and alcohol in the 2nd assessment (p =011) and suicidal attempts inhalants in the 3rd assessment (p<0001).

4.1.4.11. Co-morbidity between Anxiety and risk of alcohol and drug abuse across the 3 assessments

Table 19 summarizes co-morbidity between anxiety and risk of alcohol and drug abuse among the two study groups across the three assessments.

Table 19: Co-morbidity between Anxiety and risk of alcohol and drug abuse (%)

Experimental	Assessment 1			Assessment 2			Assessment 3		
Risk of Abuse Alcohol → / Anxiety ↓	Low	Moderate	High	Low	Moderate	High	Low	Moderate	High
Minimal	21.1	0.1	0.2	50.6	0.8	0	57.9	0	0
Mild	220	0.1	0	22.3	0.4	0.1	20.1	0	0
Moderate	23.9	0.5	0	14.5	0.2	0	14.1	0	0
Severe	31.8	0.3	0	110	0.2	0	7.8	0	0
N	**1137**	**29**	**15**	**1130**	**18**	**8**	**959**	**0**	**0**
	X2=13.180 df=6 p =040			X2=3.736 df=6 p =0.712					
Control Minimal	23.1	0.3	0	50.7	10	0.1	67.4	0	0
Mild	20.6	0.8	0.1	20.5	0.6	0.1	16.6	0	0
Moderate	22.9	0.6	0.1	14.1	0.3	0.1	10.5	0	0
Severe	30.9	.5	0.1	12.3	0.1	0.1	5.4	0	0
N	**1808**	**79**	**39**	**1684**	**40**	**17**	**1493**	**0**	**0**
	X2=6.839 df=6 p =036			X2=4.631 df=6 p =0.592					
Experimental Tobacco Minimal	19.9	1.5	0	49.3	2.1	0	56.9	10	0
Mild	20.8	1.3	0	21.6	1.2	0	19.5	0.6	0
Moderate	22.2	2.2	0	13.6	1.1	0	13.5	0.6	0
Severe	29.7	2.4	0	10.2	10	0	7.6	0.2	0
N	**1074**	**107**	0	**1095**	**61**	**0**	**935**	**24**	**0**
	X2=1.861 df=3 p =0.602			X2=5.686 df=3 p =0.128			X^2=3.499 df=3 p =0.321		
Control Minimal	22.6	0.9	0	490	2.8	0	64.8	2.5	0.1
Mild	20.5	10	0	20.1	1.1	0.1	16.1	0.5	0
Moderate	21.6	20	0	13.9	0.6	0.1	10.2	0.3	0
Severe	29.8	1.6	0.1	11.8	0.6	0.1	5.2	0.3	0
N	**1777**	**134**	**15**	**1638**	**96**	**7**	**1438**	**53**	**4**
	X^2=14.729 df=6 p =0.022			X^2=4.377 df=6 p =0.626			X^2=1.918 df=6 p =0.800		

Experimental	Assessment 1			Assessment 2			Assessment 3		
Risk of Abuse →	Low	Moderate	High	Low	Moderate	High	Low	Moderate	High
Cannabis ↓									
Minima	210	4	0	50.7	0.6	0	57.5	0.4	0
Mild	21.8	0.4	0	22.7	0.2	0	20	0.1	0
Moderate	23.9	0.5	0	14.5	0.1	0	14.1	0	0
Severe	31.5	0.5	0	110	0.1	0	7.8	0	0
N	**1134**	**47**	**0**	**1140**	**16**	**0**	**954**	**5**	**0**
	X^2=.346 df=3 p=0.851			X^2=.708 df=3 p=0.771			X^2=1.524 df=3 p=0.321		
Control									
Minimal	23.2	0.3	0	50.9	0.9	0	66.3	1.1	0
Mild	210	0.5	100	20.7	0.6	0	16.5	0.1	0
Moderate	22.8	0.8	0	14.4	0.1	0	10.4	0.1	0
Severe	31.3	0.3	0	12.5	0	0	5.4	0.1	0
N	**1838**	**84**	**2**	**1700**	**41**	**0**	**1472**	**21**	**0**
	X^2=9.483 df=3 p=0.024			X^2=7.661 df=3 p=0.054			X^2=1.908 df=3 p=0.592		
Experimental Cocaine									
Minimal	21.3	0.1	0	51.1	0.3	0	57.9	0	0
Mild	220	0.1	0	22.9	0	0	20.1	0	0
Moderate	24.2	0.2	0	14.5	0.2	0	14.1	0	0
Severe	31.8	0.3	0	11.1	0	0	7.8	0	0
N	**1149**	**13**	**0**	**1151**	**5**	**0**	**959**	**0**	**0**
	X^2=.668 df=3 p 0=.881			X^2=3.988 df=3 p=0.263					
Control									
Minimal	23.4	0.1	0	51.5	0.3	0	670	0.5	0
Mild	21.3	0.1	0	21.1	0.2	0	16.6	0	0
Moderate	23.1	0.3	0.1	14.4	0.1	0	10.5	0	0
Severe	31.5	0.1	0	12.5	0	0	5.4	0	0
N	**1868**	**50**	**8**	**1723**	**18**	**0**	**1486**	**7**	0
	X^2=11.218 df=6 p=0.082			X^2=1.886 df=3 p=0.596			X^2=3.394 df=3 p=0.335		
Experimental Amphetamine									
Minimal	20.4	10	0	50.2	1.1	0	57.8	0.1	0
Mild	21.6	0.5	0	22.5	0.4	0	19.7	0.4	0
Moderate	23.7	.7	0	14.3	0.4	0	13.9	0.2	0
Severe	30.9	1.2	0	10.6	0.5	0	7.5	0.3	0
N	**1123**	**58**	0	**1126**	**30**	0	**949**	**10**	0
	X^2=1.997 df=3 p=0.573			X^2=3.898 df=3 p=0.273			**X^2=12.580 df=3 p=0.006**		

control	Assessment 1			Assessment 2			Assessment 3		
Risk of Abuse →	Low	Moderate	High	Low	Moderate	High	Low	Moderate	High
Minimal	230	0.5	0	50.4	1.4	0	66.2	1.2	0
Mild	21.1	0.3	0	20.7	0.5	0	16.5	0.1	0
Moderate	22.7	0.8	0	14.2	0.3	0	10.2	0.3	0
Severe	30.6	0.9	0	12.1	0.3	0	5.4	0	0
N	1839	87	0	1694	47	0	1469	24	0
	X^2=3.849 df=3 p =0.278			X^2=.434 df=3 p =0.933			X^2=3.413 df=3 p =0.332		
Experimental Inhalants Minimal	21.3	0.1	0	51.1	0.3	0	57.9	0	0
Mild	21.8	0.3	0	22.9	0	0	20	0.1	0
Moderate	24.3	0.1	0	14.5	0.1	0	14.1	0	0
Severe	320	.01	0	11.1	0	0	7.8	0	0
N	**1170**	**11**	**0**	**1152**	**4**	**0**	**958**	**1**	**0**
	X^2=2.779 df=3 p =0.427			X^2=2096 df=3 p =0.553			X^2=3.968 df=3 p =0.265		
Control Minimal	23.4	0.1	0	51.6	0.2	0	670	0.4	0
Mild	21.4	0.1	0	21.2	0.1	0	16.5	0.1	0
Moderate	23.4	0.2	0	14.4	0.1	0	10.4	0.1	0
Severe	31.4	0.1	0	12.5	0	0	5.4	0	0
N	1908	18	0	1732	9	0	1485	8	0
	X^2=1083 df=3 p =0.781			X^2=1086 df=3 p =0.781			X^2=.616 df=3 p =0.893		
Experimental Sedatives Minimal	210	0.4	0	50.9	0.4	0	57.9	0	0
Mild	21.6	0.5	0	22.8	0.1	0	19.9	0.2	0
Moderate	23.7	0.7	0	14.5	0.1	0	14.1	0	0
Severe	31.8	0.3	0	110	0.1	0	7.8	0	0
N	**1124**	**27**	**0**	**1146**	**10**	**0**	**957**	**2**	**0**
	X^2=3.974 df=3 p =0.264			X^2=.613 df=3 p =0.894			**X^2=7.944 df=3 p =047**		
Control Minimal	22.9	0.6	0	51.5	0.3	0	670	0.4	0
Mild	210	0.5	0	20.9	0.3	0	16.4	.02	0
Moderate	22.7	0.8	0.1	14.4	0.1	0	10.5	0	0
Severe	30.2	1.3	0	12.4	0.1	0	5.4	0	0
N	**1862**	**59**	**5**	**1721**	**20**	**0**	**1484**	**9**	**0**
	X^2=6.661 df=6 p =0.353			X^2=3.333 df=3 p =0.343			X^2=2.969 df=3 p =0.397		
Experimental Opioids Minimal	21.4	0	0	51.3	0.1	0	57.9	0	0
Mild	220	0.1	0	22.9	0	0	20.1	0	0
Moderate	24.4	0	0	14.5	0.1	0	140	0.1	0
Severe	31.8	0.3	0	11.1	0	0	7.8	0	0
N	**1172**	**9**	**0**	**1153**	**3**	**0**	**958**	**1**	**0**
	X^2=4.163 df=3 p =0.244			X^2=2.394 df=3 p =0.495			X^2=6.103 df=3 p =0.107		

control	Assessment 1			Assessment 2			Assessment 3		
Risk of Abuse →	Low	Moderate	High	Low	Moderate	High	Low	Moderate	High
opioids ↓ Minimal	21.4	0	0	51.3	0.1	0	57.9	0	0
Mild	220	0.1	0	22.9	0	0	20.1	0	0
Moderate	24.4	0	0	14.5	0.1	0	140	0.1	0
Severe	31.8	0.3	0	11.1	0	0	7.8	0	0
N	**1172**	**9**	**0**	**1154**	**2**	**0**	**958**	**1**	**0**
	X^2=4.163 df=3 p =0.244			X^2=2.394 df=3 p =0.495			X^2=6.103 df=3 p =0.107		
Experimental Minimal	23.3	0.2	0	51.7	0.1	0	67.2	0.3	0
Mild	21.3	0.1	0	21.1	0.1	0	16.6	0	0
Moderate	23.3	0.2	0.1	14.4	0.1	0	10.4	0.1	0
Severe	31.5	0.1	0	12.5	0	0	5.4	0.1	0
N	**1899**	**22**	**5**	**1731**	**10**	**0**	**1487**	**6**	**0**
	X^2=5.198 df=6 p =0.519			X^2=1.695 df=3 p =0.638			X^2=2.621 df=3 p =0.454		

In Table 19, there was generally a marked reduction of symptom severity of anxiety and risk of alcohol and drug abuse in all the groups across the 3 assessments with a higher reduction among the experimental group respondents.

The statistically significant associations ($p<05$) are highlighted in table 13. In the 1st assessment, these included co morbidity of anxiety and risk of abuse of alcohol among the experimental and, alcohol, tobacco and cannabis among the control group.

In the 2nd assessment, this included co-morbidity of anxiety and risk of abuse of alcohol in the experimental group only.

In the 3rd assessment, the co morbidities that had a statistically significant association were between anxiety and risk of abuse of amphetamines and sedatives in the experimental group only.

4.1.5. Views of the respondent's ability to cope with psycho stressors across the 3 assessments among the 2 study groups

Table 20 summarizes the means of the respondent's personal view on their ability to deal/cope with psycho stressors.

Table 20: ANOVA test for the views of respondent's ability to cope with psycho stressors

	Assessment 1				Assessment 2				Assessment 3			
	Exp. mean	Cont. mean	F	P value	Exp. mean	Cont. mean	F	P value	Exp. mean	Cont. Mean	F	P value
bility cope ith sycho resso	.79	.74	2.588	P=.108	.73	09	2214.496	P<0001	.92	.63	229.240	P<0001

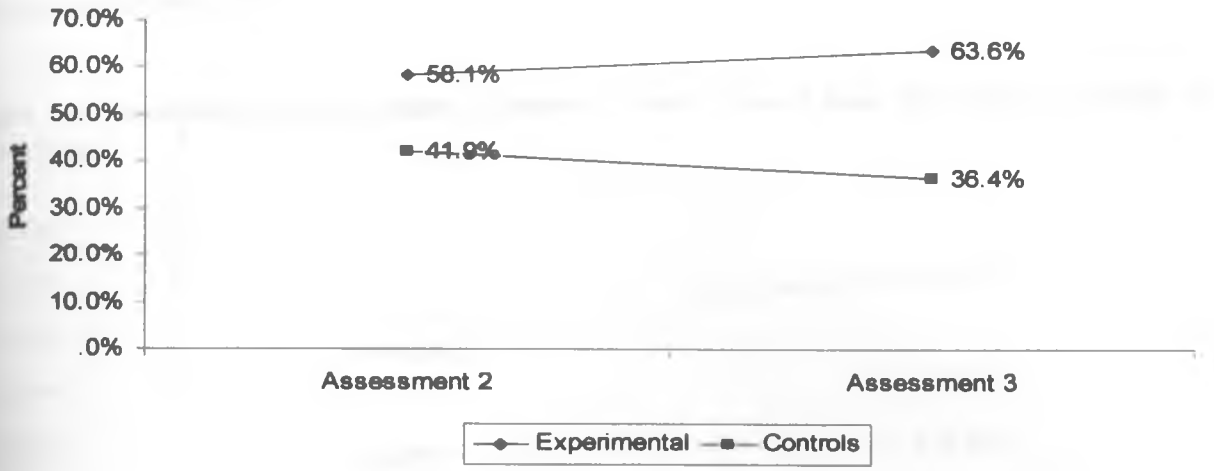
NB: Exp=Experimental Cont=Control

From table 20, both the experimental and control groups were the same (p>05) in their ability to cope with their psychosocial stressors in assessment 1 but in both assessments 2 and 3 the experimental group was doing better than the control group (p<0001).

4.1.6 Trends of respondent's self referral to a mental health facility/professional among both groups across the 3 assessments

Figure 16 shows the graphical summary of the trends of self referral of respondents in the 2nd and 3rd assessments among experimental (n= 200 and 239 respectively) and control (n=144 and 137 respectively) groups, only for those who responded to the question on self referral.

Figure16: Percentage representation of trends of self referral from the total number of experimental and control self referred Respondents



From figure 16, between 2nd and 3rd assessment there was an increase in self referrals while in the control group there was a reduction, the significance levels of which are summarized in Table 15.

4.1.7. Trends of change of means of self referred respondents among both groups in the 2nd and 3rd assessments

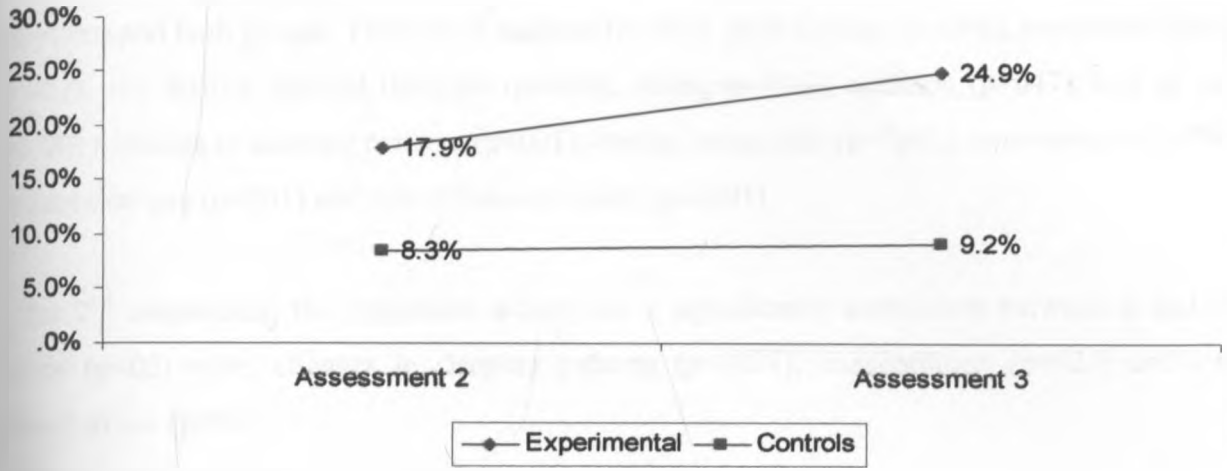
Table 21 summarizes changes of the means of respondents who self referred to a mental health facility/professional after the 1st assessment among both groups and figure17 gives a graphical presentation of the same.

Table 21: Trends of means of self referred respondents within both groups in the 2nd and 3rd assessments

	Experimental	Means	Controls	Means	F	P value
Assessment 2	17.9%	0.1787	8.3%	0.0835	58.869	p= 0.001
N	**1156**		**1493**			
Assessment 3	24.9%	0.2495	9.2%	0.0919	120.202	P<0.0001
N	**959**		**1493**			

From table 21, ANOVA test for the means showed a significant association ($p<0.05$) between the means of both groups in the 2nd assessment ($p=0.001$) and 3rd assessment with a higher significance in assessment 3 ($P<0.0001$).

Figure 17: Percentage representation of trends of self referral from the total population in both groups



From figure17, there was a higher self referral percentage from the experimental group than the control group.

4.1.8. Trends of individual symptom change for depression, suicidality, anxiety, alcohol and risk of drug abuse in the experimental and control groups across the 3 assessments

For convenience of space, **Tables 22 to 33 (Appendix II)** summarizes trends of individual symptom severity change for depression, hopelessness, suicidality, anxiety, risk of alcohol and drug abuse in this study across the 3 assessments among both groups. The significant trends ($p<0.05$) are bolded in the text and they are summarized in narratives below.

4.1.6.1. Trends of individual symptom severity change for depression

Table 22 summarizes trends of individual symptom severity change in both groups for depression across the 3 assessments.

There was a general reduction of severity of symptoms across the 3 assessments in both groups with a higher reduction among the experimental group particularly in the 3rd assessment.

All through assessment 1 to 3, the control group was the only one with significant association ($p<05$) with the symptoms of depression in a number of symptoms.

In the 1st assessment, there were similar severity levels of the individual symptoms in both groups. Out of the individual 21 symptoms, 13 of them had significant association ($p<05$) between the symptoms and both groups. These were sadness ($p=002$), guilt feelings ($p=001$), punishment feelings ($p=017$), self dislike, suicidal thoughts ($p=048$), crying ($p=016$), agitation ($p=047$), loss of energy ($p<0001$), change in sleeping patterns ($p<001$), change in appetite ($p<0001$), concentration ($p<0001$), tiredness/fatigue ($p=001$) and loss of interest in sex ($p<0001$).

In the 2nd assessment, the symptoms which had a significance association between it and the 2 groups ($p<05$) were, changes in sleeping patterns ($p<0001$), concentration ($p=021$) and loss of interest in sex ($p=001$).

In the 3rd assessment, the symptoms which had significance association ($p<05$) were sadness ($p=014$), loss of pleasure ($p=0.43$), guilt feelings ($p=005$), punishment feelings ($p=016$), suicidal thoughts ($p=001$), agitation ($p=001$), indecisiveness ($p=002$), loss of energy ($p=002$), changes in sleeping patterns ($p<0001$), irritability ($p<0001$), changes in appetite ($p=002$), concentration ($p=001$) tiredness and fatigue ($p<0001$) and loss of interest in sex ($p=018$).

4.1.6.2. Trends of individual symptom change for suicidality

Table 23 summarizes trends of individual symptom severity change for suicidality in both groups across the 3 assessments.

There was a general reduction of severity of symptoms across the 3 assessments in both groups with a higher reduction among the experimental group particularly in the 3rd assessment.

All through assessment 1 to 3, the control group was the only one with significant association ($p<05$) with the symptoms of suicidality in a number of symptoms.

In the 1st assessment, there were similar severity levels of the individual symptoms in both groups. Out of the individual 21 symptoms, 10 of them had significant association ($p<05$) between both groups. These were wish to die ($p=011$), whether or not they would save their life if they found themselves in a life threatening situation ($p=048$), thoughts about killing oneself ($p=015$), acceptance of idea to kill oneself ($p=025$), keep oneself from committing suicide ($p=002$), kill self because of family, friends or religion ($p=036$), Courage or ability to commit suicide ($p=024$), whether or not they had hidden desire to kill self from people ($p=001$), whether or not one had attempted suicide ($p<0001$) and how high their wish to die was during the last suicide attempt ($p<0001$).

In the 2nd assessment, the majority of the symptoms had no one with severe symptoms and those with a significant association ($p<05$) were, whether or not they would try to save self if they found themselves in a life threatening situation ($p=002$) and whether or not they have not hidden the desire to kill self from people ($p=049$).

In the 3rd assessment, the only symptom with significance association ($p<05$) was whether they would try to save their life if they found self in a life threatening situation ($p=021$).

4.1.6.3. Trends in individual symptom change for anxiety

Table 24 summarizes trends of symptom severity change for anxiety in both groups across the 3 assessments.

There was a general reduction of severity of symptoms across the 3 assessments in both groups with a higher reduction among the experimental group particularly in the 3rd assessment.

In assessment 1 and 2, both the experimental and control group had significant association ($p<05$) with the symptoms of anxiety while in assessment 3, only the control group had significant association in all the symptoms.

In the 1st assessment, out of the 21 symptoms, 8 symptoms had significant association ($p<05$) between both groups. These were numbness or tingling ($p=022$), feeling hot ($p<0001$), unsteady ($p=050$), terrified ($p=041$), nervousness ($p=002$), fear of dying ($p=041$), scared ($p=041$) and indigestion or discomfort in the abdomen ($p<0001$).

In the 2nd assessment, 6 symptoms had significant association ($p<05$) and these were feeling hot ($p<0001$), terrified ($p<0001$), nervousness ($p<0001$), fear of dying ($p=037$), scared ($p=002$) and indigestion or discomfort in the abdomen ($p=033$).

In the 3rd assessment, 11 symptoms had significant association ($p<05$) and these were- feeling hot ($p=001$), fear of worst happening ($p=001$), heart pounding ($p<0001$), unsteady ($p=027$), terrified ($p=006$), nervousness ($p=034$), feeling like chocking ($p=010$), shaky ($p=028$), difficulty in breathing ($p=025$), fear of dying ($p=004$) and feeling scared ($p=002$).

4.1.6.4. Trends in usage of alcohol and drugs in the last 3 months preceding the assessments among the both groups across the 3 assessments

Table 25 to summarizes trends of pattern of usage of alcohol and individual drugs of abuse in both groups across the 3 assessments in the past 3 months.

Generally, there was a progressive decrease in frequency of intake of alcohol and drugs of abuse within the past 3 months across the three assessments in both groups with a higher and consistent reduction among the experimental group respondents particularly in the 3rd assessment.

In assessment 1 and 2, both the experimental and control group had significant association ($p<05$) with the symptoms of alcohol and drug abuse while in assessment 3, only the control group had significant association in all the symptoms.

In the 3rd assessment, only usage of alcohol ($p=004$) had significant association in the control group. In the 2nd assessment, there was a significant association in consumption of alcohol ($p=011$) in the control group as well as consumption of amphetamines ($p=020$) and sedatives ($p=008$) in the

experimental group. In the 3rd assessment, only intake of alcohol (p=003) had significant association in the control group.

4.1.6.5. Trends in how often one had a strong desire or urge to use alcohol or drugs of abuse in the last 3 months

Table 26 summarizes trends of how often one had a strong desire or urge to use alcohol or drugs of abuse in the last 3 months.

Although few substances had significant association with the symptom (p>05), there was generally a progressive decrease in desire or urge to use alcohol and drugs of abuse within the past 3 months across the three assessments in both groups with a higher and consistent reduction among the experimental group respondents particularly in the 3rd assessment.

In the 1st assessment, there was no significant association between the urge to take any of the substances within the past 3 months preceding the study (P>05) and the 2 groups.

In the 2nd assessment, only the urge to take alcohol had a significant association (p=038) in the experimental group while in the 3rd assessment, alcohol (p<0001) and amphetamines (p=019) both in the control group.

4.1.6.6. Trends on how often the desire or urge to use alcohol or drugs of abuse in the last 3 months had led to health problems

Table 21 summarizes trends of how often the desire or urge to use the individual substance within the past 3 months across the 3 assessments had led to a health problem in both groups.

Although few substances had a significant association with the symptom (p>05), there was generally a progressive decrease in desire or urge to use alcohol and drugs of abuse within the past 3 months across the three assessments in both groups with a higher and consistent reduction among the experimental group respondents particularly in the 3rd assessment.

In the 1st assessment, only desire to use alcohol had a significant association (p=049) with the symptom in the control group.

In assessment 2, there was no significant association (P>05) between groups and the symptom while in assessment 3, desire to use alcohol had a significant association (p=050) with the symptom in the control group.

4.1.6.6: Trends of how often the use of drugs mentioned had led to a Social problem in the last 3 months

Table 27 summarizes how often the use of the drugs mentioned had led to any social problem in the past three months among the respondents in the two study groups across the three assessments.

There was a general reduction in severity of symptom across the 3 assessments with higher reductions among the experimental group respondents particularly in the 3rd assessment. There was however none with a significant association (p>05) within both groups in the 3 assessments.

4.1.6.7. Trends of how often the use of drugs mentioned had led to legal problem in the last 3 months

Table 28 summarizes how often the use of the drugs mentioned had led to any legal problem in the past three months among the respondents in both groups across the three assessments.

Although there was a general reduction in severity of how often the use of the drugs mentioned had led to any legal problem in the past three months, there was a higher reduction among the experimental group respondents particularly in the 3rd assessment. There was none with a significant association (p>05) for all the substances in both groups.

4.1.6.8: Trends of how often the use of drugs mentioned had led to financial problems in the last 3 months

Table 29 summarizes how often the use of the drugs mentioned had led to any financial problem in the past three months among both groups across the three assessments.

Although few of the substances had a significant association with the symptom (p>05), there was generally a progressive decrease in the severity of this symptom in both groups with a more consistent reduction among the experimental group respondents particularly in the 3rd assessment.

In the 1st and 2nd assessment there was a significant association between this symptom and alcohol (p=001 and p=031 respectively) in the control group while in the 3rd assessment, only tobacco (p=047) had a statistical association in the control group.

4.1.6.8. Trends on how often the use of drugs mentioned had led to failure to do what was normally expected in the last 3 months

Table 30 summarizes how often the use of the drugs mentioned had led to any failure to do what was expected in the past three months among the respondents in both groups across the three assessments.

Although few substances had a significant association with the symptom (p>05), there was generally a progressive decrease in the severity of this symptom in both groups with a more consistent reduction among the experimental group respondents particularly in the 3rd assessment.

In assessment 1, there was significant association between failure to do what is expected after intake of cocaine (p=050) and amphetamines (p=050) in the control group and inhalants (p=040) in the experimental group.

In assessment 2, there was none with a statistical association (p>05) while in assessment 3, only cannabis had a statistical association (p=012) in the control group.

4.1.6.9. Trends on how often the use of drugs mentioned had led to a friend, relative or anyone else expressing concern about your use of the substance

Table 31 summarizes how often the use of the drugs mentioned had led to a friend, relative or anyone else expressing concern about the respondent's intake of the substance in the past three months among both groups across the three assessments.

Although few substances had a significant association with the symptom (p>05) there was generally a progressive decrease in the severity of this symptom in both groups with a more consistent reduction among the experimental group respondents particularly in the 3rd assessment.

In assessment 1 and 2, there was no substance use which had a significant association with the symptom and both groups (p>05). In the 3rd assessment, there was significant association between intake of sedatives (p=049) opioids (p=047) in the control group.

4.1.6.10. Trends on how often you ever tried to control, cut down or stop using the substance

Table 32 summarizes how often the respondent had tried to control, cut down or stop the intake of the substance in the past three months in both groups across the three assessments.

There was a progressive reduction in severity of those who had tried to control, cut down or stop the intake of the substances of abuse in both groups in the last 3 months with higher reduction among the experimental group respondents particularly in the 3rd assessment.

In assessment 1 and assessment 2, there was no substance with a significant association wpth the symptom in both groups (p>05) while in the 3rd assessment, there was significant association between the respondents attempt to control, cut or stop the use of alcohol (p=045) and tobacco (p=010) only in the control.

4.1.6.11. Trends on whether the respondents had ever used any drug by injection

Table 33 summarizes whether the respondents had ever used any drug by injection in the past three months among both groups across the three assessments.

Although there were a few respondents who had used drugs by injection in both groups across the 3 assessments, there was none with a statistical association (p>05). By the 3rd assessment, there were none in the experimental group who had taken any drug by injection.

4.1.7. Testing of Hypothesis

H_1 =Psycho-education intervention is effective in reducing severity of symptoms in depression, hopelessness, suicidality, anxiety, risk of alcohol and drug abuse disorders.

H_0 =Psycho-education intervention is not effective in reducing severity of symptoms in depression, hopelessness, suicidality, anxiety, alcohol and drug abuse disorders.

Table 34 gives ANOVA test for the effectiveness of the formulated psycho-education intervention in symptom reduction in the means of depression, hopelessness, suicidality, anxiety, alcohol and drug abuse in experimental and control groups across the 3 assessments. Table 30 and Table 31 summarize the individual significance different of the means in between the assessments indicative of the effectiveness of the formulated psycho-education intervention. Those with a significance difference have been high lightened.

Table 34: ANOVA test for Differences in means for Depression, Hopelessness, suicidality, Anxiety, risk of alcohol and drug abuse

	Assessment 1				Assessment 2				Assessment 3			
	Experimental	Control	F	P value	Experimental	Control	F	P value	Experimental	Control	F	P value
Depression	2.9475	2.9109	.540	.463	2.1083	2.1099	000	1000	1.2405	1.3085	22.606	<0001***
Hopelessness	1.3235	1.3037	.738	.390	1.1566	1.3285	.201	.654	1.2231	1.3094	21.374	<0001***
Suicidal ideas	10170	10104	.912	.340	10035	10017	60.837	**0001*** **	10083	10161	15.903	.<0001***
Suicidal Plans	10152	10067	2.435	.119	10000	10000	.866	.352	10021	10094	2.751	097*
Suicidal attempts	10457	10166	4.737	070*	10052	10040	Nil	Nil	10031	10033	3.857	050**
Anxiety	2.6714	2.6314	23.224	070*	1.8554	1.8760	.211	.646	10182	10392	010	062*
Risk of abuse												
Alcohol	101	103	2.904	088*	102	103	007	.935	100	100	3076	050**
Tobacco	107	106	6.871	091*	105	105	2.145	.143	103	104	Nil	Nil
Cannabis	102	102	006	.938	101	102	1.937	.164	101	102	4.409	036**
Cocaine	101	101	010	.921	100	101	.273	.601	100	100	4.535	033**
Amphetamine	103	103	1.506	.220	102	103	033	.855	101	102	1.391	.238
Inhalants	101	100	.141	.708	100	100	000	.996	100	101	2.995	004**
Sedatives	102	103	4.340	067*	101	101	.256	.613	100	101	2052	.152
Opiods	100	101	.276	.599	100	100	.377	.539	100	100	1.831	.176
Hallucinogens	100	101	.276	.599	100	100	.377	.539	100	100	1.831	.176

Sig = 001* 05** 01* Nil= No variance in means (hence statistical test not computed)**

Table 34 can be summarized as follows- psycho-education was effective in the experimental group as opposed to the control group at 6 months except for amphetamines, sedatives, opioids and hallucinogens. The highest effectiveness was found in depression, hopelessness and suicidal ideas.

4.1.7. Co-efficient test on Mean Differences of effectiveness of psycho-education between assessments in both groups

Table 35 and Table 36 summarizes the ANOVA test results of severity of means in depression, hopelessness, suicidality, anxiety, risk of alcohol and drug abuse in both groups between assessments. Those with a significance difference have been bolded.

Table 35: Correlation co-efficient test of Mean Differences of effectiveness of psycho-education between assessment 1 and 2 within each study group

a) Symptoms	Experimental		F	P value	Control		F	P value
	Assessment 1	Assessment 2			Assessment 1	Assessment 2		
Depression	2.9475	2.1093	261.568	**001****	2.9109	2.1089	385.404	**001****
Hopelessness	1.3235	1.1566	59.626	**0001*****	1.3037	1.3285	1.522	0.217
Suicidal ideas	10170	10035	10.500	**001****	10104	10017	11.113	**001****
S. Plans	10152	10000	17.814	**0001*****	10067	10000	9018	**003****
S. attempts	10457	10052	38.976	**000*****	10166	10040	13.828	**001****
Anxiety	2.6714	1.8554	317.800	**0001*****	2.6314	1.8760	406002	**001****
Alcohol	101	102	0.464	0.496	103	103	0.276	0.599
Tobacco	107	105	3.385	056	106	105	0.168	0.682
Cannabis	102	101	2.957	086	102	102	0.390	0.532
Cocaine	101	100	0.293	0.588	101	101	033	0.855
Amphetamines	103	102	2.246	0.134	103	103	053	0.818
Inhalants	101	100	0.360	0.549	100	100	0.120	0.729
Sedatives	102	101	7050	008**	103	101	24.230	087
Opioids	100	100	1.226	0.268	101	100	1.508	0.220
Hallucinogens	100	100	1.226	0.268	2.9109	2.1089	1.508	0.220

p = 0001*, 0 001**, 05***

Table 35 can be summarized as follows- at 3 months, there was improvement in 6 disorders in the experimental group as opposed to 4 in the control group

From Table 35 the variance of the means of depression, hopelessness, suicidality, anxiety, alcohol and drug abuse in both groups between assessment 1 and 2. ANOVA test was used to test for differences in the means of the three populations to show the effectiveness of psycho-

education intervention on the outcomes. There was a continuous reduction in the means indicative of reduction in symptom severity across the 3 assessments with the highest reduction among the experimental group in the 3rd assessment.

In assessment 1, the means which had a significance difference (p<05) were suicidal attempts, risk of abuse of alcohol, tobacco and sedatives.

In assessment 2, the means which had a statistical difference (p<05) were suicidal ideas only while in assessment 3 those which had significance (05) were depression, hopelessness, suicidal attempts, risk of abuse of alcohol, cannabis, cocaine and inhalants

Table 36: Correlation co-efficient test on Mean Difference of effectiveness of psycho-education between assessments 1 and 3 within each study group

	Experimental				Control			
1 and 3			F	P value			F	P value
Depression	2.9475	1.3785	1186.413	**0001*** **	2.9109	1.2405	2419.732	**001** **
Hopelessness	1.3235	1.2231	17.769	**0001*** **	1.3037	1.3094	086	0.769
Suicidality Ideas	10170	10083	3043	081	10104	10161	2093	0.148
Plans	10152	10021	9.930	**002** **	10067	10094	0.570	0.450
Attempts	10457	10031	37.655	**0001*** **	10166	10033	13.874	**0001*** **
Anxiety	2.6714	1.7182	413.826	**0001*** **	2.6314	1.5392	901014	**001** **
Alcohol	101	100	10.498	**0001** **	103	100	38.539	**001** **
Tobacco	107	103	23.709	**0001*** **	106	104	5.884	013
Cannabis	102	101	6.981	**008** **	102	101	0.880	0.348
Cocaine	101	100	5.713	**017** **	101	100	0.327	0.567
Amphetamine	103	101	13.493	**0001*** **	103	102	4.247	059
Inhalants	101	100	2.647	0.104	100	101	0.262	0.609
Sedatives	102	100	13.939	**0001*** **	103	101	27.726	071
Opioids	100	100	1.927	0.165	101	100	0.435	0.509
Hallucinogens	100	100	1.927	0.165	101	100	0.435	0.509

p < 0001*, p<0 001**, p<05***

Table 36 can be summarized as follows- most of the improvement at 6 months occurred in the experimental group in 11 disorders as opposed to only 4 disorders in the control group. However there was no disorder that showed significant improvement in the control group that did not show improvement in the experimental group and in all the improvements, the experimental group showed higher significances of improvement. This table can also be summarized in relation to summary for table 30 that improvement at 3 months was not only sustained but

included more symptoms at 6 months for the experimental group whereas for the control group, the extra time over the 3 months did not make a difference.

The alternative hypothesis that psycho-education intervention reduces the prevalence of depression, hopelessness, suicidality, anxiety, risk of alcohol and drug abuse was accepted and the null hypothesis that psycho-education intervention does not reduce the prevalence of depression, hopelessness, suicidality, anxiety, and risk of alcohol and drug abuse was rejected.

50. CHAPTER FIVE

5.1. DISCUSSION

5.1.1. Population studies

There was a high return rate in this study which can be attributed to the fact that the author had done sensitization before the data collection period to both the respondents and the administrators of the campuses where the study was to be conducted. This facilitated the data collection from both study groups and psycho-education to the experimental group, which was scheduled during the normal working hours (8am to 5pm). This is not an unusual finding in studies carried in Kenyan learning institutions. Ndetei et al (15, 50) found 100% return rate in two studies carried out in institutions of learning in Kenya. The specific population studied in the current study was not only representative of KMTC but to some extent, colleges of higher learning in Kenya explained in the methodology. The student population studied here is representative of student population across the country because of the government's student selection policy in all its colleges through quota system which ensures representation from all parts of the country with the intake age bracket falling between 17 to 24 years in all the colleges.

The social demographic characteristics between the experimental and control groups statistically differed in a number of variables. The gender distribution in which there were more males than females in the experimental group can be attributed to the fact that the courses offered at the Nairobi campus compared to those in the other KMTCs were preferred more by males who applied for them and the few courses offered in the other KMTCs were preferred by females. The just nearly significant variation in the 3rd assessment is most likely an artefact of the changing number of students across the assessments.

For age group and marital status, as explained in the methodology, majority of the respondents were in the ages below 24 years and were single since they are admitted after their form 4 examinations or its equivalent. Majority of those above 24 years and were married, separated, divorced or widowed were those who had come for upgrading.

The higher number of students in 1st year in the control group compared with the experimental group was due to the fact that KMTC Nairobi campus capacity expansion was minimal due to availability of space. Comparatively, there is yearly capacity expansion in the satellite campuses where there is ample space and are targeted for structural development and consequently capacity enlargement in the existing KMTC policy (98).

The over representation of the protestant religion is a reflection of the national trend.

The discussion that follows on the prevalence, severity of symptoms and risks of alcohol and other drugs abuse will put emphasis on the un-adulterated/unaffected baseline data as it is this data that reflect the real situations on the ground before any interventions were put in place. The 2nd and 3rd assessments will only be referred to as they reflect the effectiveness of the interventions put in place.

5.1.2. Correlation between conditions of this study and social demographic characteristics

The similar prevalence in both experimental and control group at base line with the exception of suicidal plans and attempts as well as alcohol provided an even starting ground to determine the effectiveness of the interventions. This similarity could be explained in several ways: the factors precipitating the respondents to develop these conditions may have been similar among the 2 study groups; there were certain general risk factors other than specific or peculiar campus factors; there were certain risk factors other than those included in the social demographic characteristics which predisposed the respondents to psychological morbidity of the conditions of study. It is not clear why suicidal plans and attempts were associated with the experimental group and alcohol with the control group.

The prevalence of depression and anxiety found in the cohorts in this study were way above the 10% to 12% prevalence of mental health disorders in the general community (1, 4, 5), suggesting a higher risk for these cohorts compared with the general community. Among these possible higher risk factors include new roles and life events related to being in the college such as new lifestyles and cultures, new friends and exposure to alternative ways of thinking. These life events require them to develop new strategies to cope with the new circumstances/situations as they progressed in their professional training and adjust to the new lifestyles different from their former socializations. Those who could not cope effectively were more susceptible to develop anxiety or depression symptoms which may have progressed to full blown conditions and consequently increase hopelessness and suicidality or lead them to circum to increased risks of alcohol and drug abuse tendencies as they aim at reducing these symptoms.

The findings in this study are similar to findings in similar situations in and outside Kenya. In a similar study to investigate prevalence of depression, anxiety and their associated factors among medical students in Karachi, Pakistan, a high prevalence of anxiety and depression was found among the respondents (70%). In the Karachi study, the precipitating causes were not exclusively academic but included psycho stressors like loss, relationship problems, residence,

substance abuse and others (60). In a similar study among Kenyan children and adolescents using the MASC, 12.9% were found to have clinical anxiety with 80% with social anxiety (66).

In a USA study to investigate mood indigo-depression among medical students, it was concluded that the emotional and academic challenges involved in becoming a medical professional wear off students while their initial encounters with illness and death may unmask psychological vulnerability of the past encounters and that the 2nd and 3rd years were more vulnerable as they rotated in their clinical areas (57). These USA results were similar to those of the current study where depression was found to be more prevalent among 2nd year students than the 1st years and also similar to studies in Italy (29) and Saudi Arabia (36).

Given the high prevalence of depression at baseline as described above with symptom such as guilty feelings, punishment feelings, and self dislike, then the high prevalence of hopelessness is not surprising and consequently suicidal ideas, plans and attempts. What however is not easily explained are the statistically significant higher levels of suicidal plans and attempts in the experimental group compared to the control group at the baseline, given that the prevalence of depression in both groups were similar at baseline. It is conceivable that these symptoms although often associated with depression, depression alone is not adequate and that there could be precipitating factors which varied between experimental and control groups. Regardless of which group, the finding in this study of an overall reversal of the expected order of frequency from suicidal ideas to suicidal plans to suicidal attempts is unexpected. Many studies have recorded the opposite of what was found in this study. For example Rudd (22) in a study of suicidal ideations among college students as was the case in this study found that 43% had experienced some level of suicidal ideations, 14.9% had suicidal plans and 5.5% had suicidal attempts. A possible explanation is that there is no necessary sequential progression from suicidal ideas to plans to attempts and that the later can be precipitated acutely by appropriate triggering environmental and behavioural factors such as alcohol or drug consumption or other mental disorders. If indeed this is the case as seems feasible, then one must be on the lookout for these precipitating factors in people who are depressed. However further studies are required to specifically provide the appropriate answers.

The finding that all drugs had similar prevalence in both groups at baseline ($p>05$) with exception of alcohol which was more in the control group than experimental group ($p=016$). This means that both experimental and control groups were on even grounds before the intervention. There are three speculative but plausible explanations for this. It has been shown that alcohol intake is related to disposable income among students Hauli et al (105). The control group

students lived outside the capital city and in environments where the cost of living is not as high as in the capital city. Secondly, these same environments they lived in are much less resourced in availability of appropriate interventions such as counselling. Thirdly, accessibility of cheap illicit brews such as illicit brew like cha'nga is much easier in the peripheral towns outside the capital city for the reason that in the capital city where there is more presence of policing, the brew is relatively available only in the "closed" slum areas with high crime rates and therefore not attractive for students to frequent them.

Although this study did not seek to investigate why the students were at risk of abusing alcohol and other drugs, there is no reason to suggest causes other than those that have consistently been documented in college students. In an Italian study it was found that the reasons included: to relax 62.2%, to relieve stress 60.8%, desire to experiment (41.9%), peer pressure 38.9%, and to cope with problems 38.9% (29). In a Kenyan study of university students, the reasons included introduced by a friend (75.1%), introduction by a relative (23.5%) other than a member of the nuclear family, to relax 62.2% or relieve stress 60.8% (106).

In addition to all the above possible reasons they may have started taking the respective substances way before they enrolled in college and therefore their presence in the college was not exclusively the reason for taking drugs. At the time of the study, there was no stringent enforcement of the 18 year rule for consumption of alcohol and also alcohol and tobacco were readily available for sale in supermarkets and retail outlets in addition to the illicit brews (106, 107, 108).

All the above explanations are importantly related to any planned intervention.

5.1.3. Correlation between conditions of this study with social demographic characteristics

The higher prevalence of depression among males compared to females and similar anxiety among both gender in the 1st assessment among the 2 study groups is likely to be reflective of the fact that young females are more expressive of their challenges/problems than the young males and therefore more likely to get social support, thus reduce the probability of their anxiety to advance to depression, an explanation supported by several other studies (10, 62, 72, 106, 107. 109, 110, 111, 112). Also the fact that there were more males with a higher risk of substance abuse than the females as found in the current study may have precipitated the males to be at a higher risk to develop substance induced depression as found in other studies (1, 29, 111, 106), although the reverse could also have been the explanation i.e. depression leading to substance abuse (107).

Other studies however have found more prevalence of depression and anxiety among female than the male students. Bazmi (36), in a similar study found 66.6% of the female with depression and anxiety as opposed to 44.4% in males (p=001) and concluded that possibly, females are more complaining about the volume and complexity of the academic material they had to cover, are more likely to report stress and tend to over report medical and psychological symptoms. However, Basmi's (36) study was based on open group discussion and therefore the possibility of gender bias, unlike in this study which employed self-administered and anonymous questionnaires and therefore more objective with more valid results.

The significantly higher association of alcohol and drug abuse with the male than with the female gender is similar to other studies (106,113) and couched in cultural and social tolerance of males taking alcohol and drugs as compared to females and biological differences in reactions to alcohol and other substances. Similar studies found similar results and made similar arguments (73, 103, 110, 113).

The higher prevalence of depression among the 2nd year than 1st year students in the 1st assessment can be explained in that 2nd year students in both study groups had unique issues that were not experienced by their counterparts in their first year. The 2nd year students were undertaking both practical attachments in hospitals in addition to classroom work and therefore an over load of academic work which in turn have may triggered development of depression. Additionally, exposure to very sick people and death in the hospitals may have precipitated them to develop anxiety or depression. Working overtime may have deprived them of time to rest or get social support from their peers. Inam et al (65) found similar results where 66% of the 1st years had depression and anxiety while 73% of the 2nd years had the same. Other similar studies found similar results (112, 114, 115).

However, other studies have found different results in that the prevalence of depression was higher in the 1st year students than the 2nd or 3rd years and which was attributed to the ability of the seniors to cope better with emerging social issues than the 1st years as well as by the introduction of taking more responsibility for their learning and a shift from "the traditional spoon feeding" teaching methodology (57, 116). While this may have been the case in the above studies, it is also a fact that in this current study there was identifiable extra load in 2nd year.

The higher severity of depression and anxiety among those above 25 years as compared to those less than 25 years is related to several factors: those above 25 years were in their 2nd year which

had greater academic demands and also had financial challenges or social/family related challenges and responsibilities since they were more likely to have started a family, divorced, widowed or separated. Different studies have turned conflicting results with several agreeing with the findings of this study that depression and anxiety increased with age of students (57, 114) while others found depression was higher in the younger students (60). Therefore generalization can not apply and every situation would have to be considered in its total and peculiar context. In the case of this study, the general context is that the higher prevalence in the older students was found in experimental group respondents who were all from Nairobi campus and may have had additional challenges of the city life, in particular cost of living and having to take care of their families. In addition, they may have come for upgrading courses hence getting uprooted from their usual jobs and environments.

The same contextualized explanation generally can apply to single and married status having a higher prevalence of anxiety and depression than the other marital status. For instance the single that were in their early adulthood may have been overwhelmed by their age specific developmental challenges while the married may have had challenges to balance their married life with academic demands.

The same contextualized explanation could explain the higher prevalence of depression among experimental group respondents who resided outside the college hostels compared to those who resided in college hostels. The potential challenges include: higher financial burden in Nairobi city than outside Nairobi, logistics of transportation between their residences in Nairobi and KMTC in the overcrowded and traffic congestion in Nairobi compared to other KMTCs located in less hectic and expensive towns. However this study did not seek to investigate specific possible psycho stressors which may have precipitated the respondents to develop these conditions.

Similarly, residing outside the college and the associated challenges could be the explanation for the high risk of alcohol abuse in the experimental group notwithstanding the fact that they were not under any scrutiny by the administration when away from college. Similar studies on college students found similar results (80)

That depression and anxiety were lower among Muslims and Catholics can be speculated on. Catholics have a specific religious way of dealing with their stresses through making open non judgemental confessions to their priests unlike the conservative Protestants, while the Muslims

way of association and socialization among themselves is more open and therefore may share their challenges and ease their stress.

The more severe levels of suicidality among Muslims and Protestants can be explained. In the case of Muslims, it may be a reflection of the Muslim's doctrine that allows for religious suicide in "justified" situations where this justification may be collared by self and subjective interpretation of situations in the context of depression. In the case of Protestants, it is likely to be related to depressions since it has already been argued above that depression was more associated with being Protestants than Catholics (80, 106, 107, 117).

5.1.3. Co-morbidities of conditions of the study

The high co morbidity of depressive and anxiety symptoms, risk of abuse of alcohol and other drugs, hopelessness and suicidality are similar to findings in numerous studies (11, 14, 66, 100, 114, 116-126). All of these other studies have argued that symptoms of depression or anxiety may lead one to take substances of abuse to try and relieve their symptoms or they may take the substances and develop the anxiety and/or depression symptoms accordingly and in the process lead to hopelessness and suicidality. The author of this current study adopts the same explanations.

5.1.4. Symptom severity reduction of all conditions of study

The similar reduction in symptom severity at 3 months for both experimental and control groups and the increased range of symptoms that achieved symptom reduction and the enhanced symptom reduction at 6 months only in the experimental group and how they compare with results of other studies are discussed under the effectiveness of psycho-education below.

5.1.5. Effectiveness of the psycho-education interventions employed

The comprehensive psycho-education module in the experimental group which included symptom recognition of the conditions under study, their precipitations and predispositions as well as stress coping strategies/skills taught to the experimental group respondents was effective in reducing their severity. There are several explanations for this improvement. Firstly, improved knowledge of the predisposing and precipitating causes of these conditions and their symptoms may have reduced the stigma they perceived about these conditions, increased their perception of them as any other medical condition, thus improved willingness to seek professional help as indicated by the increased self referrals as summarized in table 21. Secondly, it improved their

resilience to cope with their psycho stressors, thus reducing the possibility of the precipitation of the occurrence of the conditions of this study as well as reducing severity if they occurred as summarized in table 20. Thirdly, The easy and near proximity access of cost free mental health facility/professionals by those who needed to self refer among the experimental group respondents may have greatly influenced the positive outcomes observed. Thus the findings of this study agree with the findings of other similar studies that psycho-education is effective in symptom reduction of mental disorders (12, 126-132).

However, there is a time frame. At 3 months, there was similar improvements between the experimental and control groups (Table 35) suggesting input was not as a result of the intervention per se. Either this was a spontaneous improvement, an unlikely possibility in distantly situated study sites or was as a result of an activity similar in both groups. The only similar activity was exposure and increased awareness of mental health symptoms through the administration of the questionnaires with its listed symptoms of the conditions under study. This effect of increased awareness was temporally in that it was not sustained in the control group in the 3rd assessment. In the assessment comparing 1st and 3rd assessment (Table 36), there was not only sustained improvement in the experimental group but also increased improvement while infect in the control group, the gains at 2nd assessment had actually reduced in the 3rd assessment. Therefore it can be concluded that psycho-education produces significant and sustainable improvement at 6 months mainly in depression, anxiety, suicidality, hopelessness and nearly all the drugs. However, in the case of this particular study, it was not just the psycho-education per se, but also the cumulative effect of increased health seeking behaviour consequent to the psycho-education. Other similar studies revealed similar results after Cognitive Behaviour Therapy (CBT) employed in various forms that enhanced proactive factors related to mental illness as improvement become more among those who had received CBT through psycho-education (133-152). For example Christopher et al (146) in a similar study involving patients diagnosed with depression where 200 patients were in the experimental and 200 in the control groups, 63% were assigned 8 sessions of psycho-education on problem solving and 44% were assigned prevention of depression. The depression among respondents in the experimental group reduced to 17% less than those in controls at 6 months. There was a statistically significant difference between the 2 study groups p=006. The researchers concluded that if offered to adults, problem solving skill was effective in reducing caseness in improving subjective function.

5.2. Objectives and hypotheses

The objectives of this study were achieved. The null hypothesis is rejected and the alternative hypothesis is accepted.

5.3. Limitation of the study

The researcher did not investigate past psychiatric history of the respondents nor indentify specific psycho stressor which may have precipitated occurrence of any of the disorders in this study.

5.4. CONCLUSIONS

1. Kenya Medical Training College 1st and 2nd year basic diploma students suffer from various levels of depression, hopelessness, suicidality, anxiety, risk of alcohol and drug abuse.
2. There is co-morbidity of the various conditions of the study among the respondents in the two study groups.
3. Psycho-education was effective at 6 months in reducing severity of the symptoms and conditions listed in 1 above either in the coping skills and or positive health seeking behaviour.

5.4. RECOMMEDATIONS

1. KMTC should adopt a policy of mental health orientation to all their students at least once a year.
2. KMTC should increase and upgrade current mental health services in all its campuses and create clear pathways for referrals within and outside.
3. Peer counselling seminars should be organized for students to equip those interested in being peer counsellors who in turn can work with students with minor issues.
4. KMTC should include mental health units in all its curricula.
5. More specifically, all KMTC campuses should have a counselling unit as a matter or priority with designated trained professionals who will deal with students and staff who may have mental health issues as well as organizing workshops and seminars related to the same to promote mental health awareness. **There is no health without mental health.**

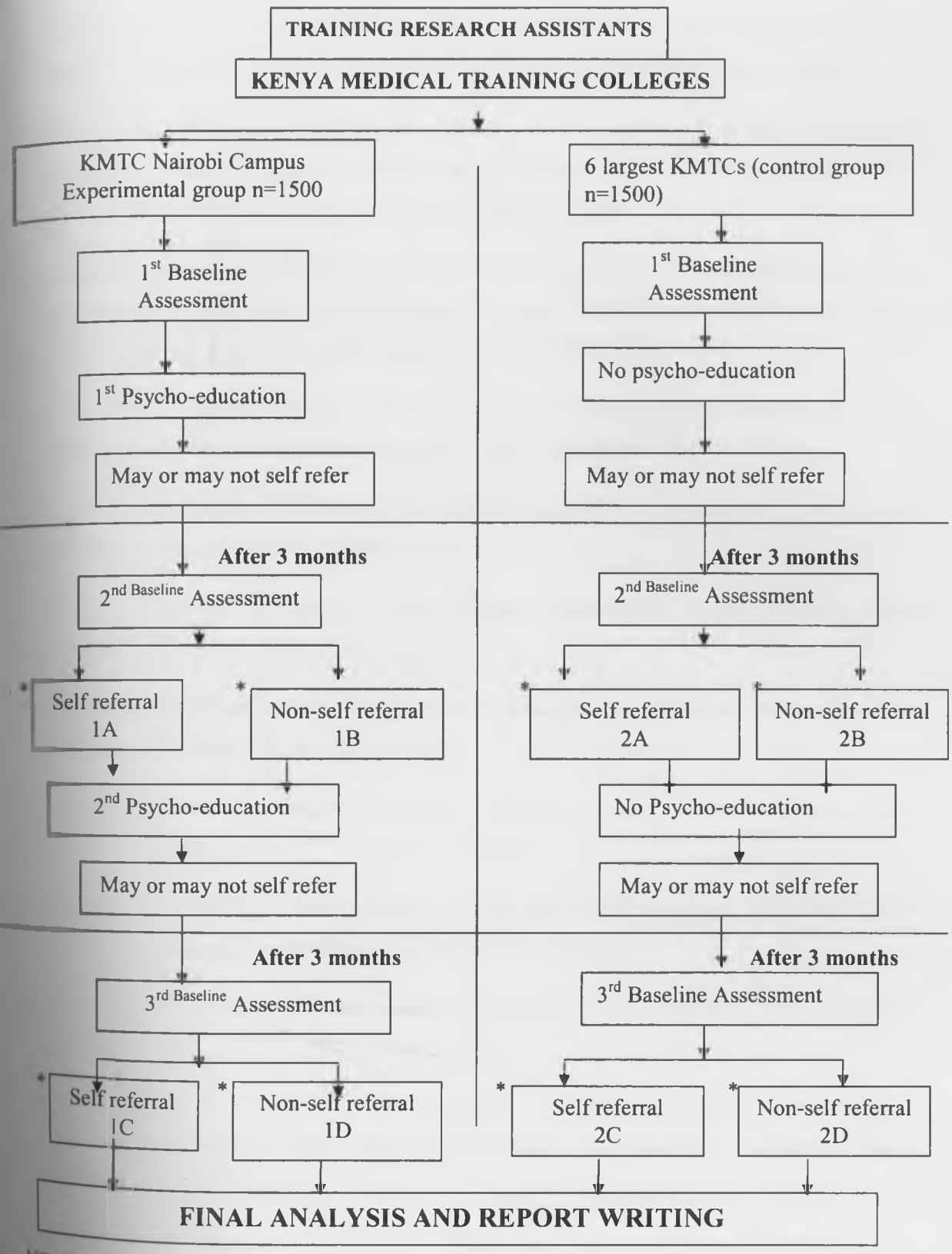
6. KMTC should adopt a culture of continued and sustainable operational research in mental health to identify and research the gaps in this study and any emerging issues.

7. KMTC needs to conduct a similar study among its staff.

60: BUDGET

A.	**PROPOSAL PREPARATION**		**KSH.**
	1. Literature searches		10,0000
	2. Proposal typing and printing		20,0000
	3. Photocopying		10,0000
	4. KNH ethical committee		1,5000
	5. 512 MB Flash disk		3,0000
			44,5000
B.	**MATERIALS AND EQUIPMENT**	**QUANTITY**	**KSH.**
	1. Pens	300pcs	3,0000
	2. Folders	50pcs	5,0000
	3. Stapler	1	6000
	4. Staple pins	3 pkts	8000
	5. Books		50,0000
			59,4000
C.	**QUESTIONNAIRES**		**KSH.**
	1. Typing and Printing		5,0000
	2. Photocopying		270,0000
			275,0000
D.	**SUPPORT STAFF**	**R9ATES**	**KSH.**
	1. 2 Researchers (for 42 days)	2000	168,0000
	2. Medical Biostatician		150,0000
	3. 5 Data Collectors (42 days)	500	105,0000
	4. 2 Data Entry Clerks	50000	100,0000
			523,0000
F.	**COMMUNICATION**		
	1. Proposal Preparation		10,0000
	2. Telephone		20,0000
	3. Transport and accommodation		100,0000
	4. Report writing		10,0000
	5. Photocopying and binding		30,0000
			170,0000
G.	**UNIVERSITY CHARGES**		**KSH.**
	1. Registration		3,0000
	2. Tuition Fees		450,0000
			453,0000
	Miscellaneous		152,4900
	TOTAL		**1,677,3900**

70: FLOW CHART



NB: Self referrals continue after termination of the study

*The research will enquire about 1st level (1A, 1B, 2A & 2B) referrals during the 2nd assessment and 2nd level (1C, 2D, 2C & 2D) during the 3rd assessment

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APPENDIX

3: CORRELATION BY GENDER (%)		Assessment 1				Assessment 2				Assessment 3			
		Experimental		Controls		Experimental		Controls		Experimental		Controls	
	Categories	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
	Minimal	20.4	20.8	20.5	21.1	47.9	52.1	47.9	50.1	79.6	76.3	82.7	85.9
	Mild	12.4	12.8	12.5	13.6	12.8	13.2	12.4	12.7	9.2	11.6	8.6	8
	Moderate	16.6	21	21.7	18.9	14.2	13.6	17	16.7	6.7	7.8	7.3	5.4
	Severe	50.6	45.4	45.3	46.4	25.1	21.2	22.6	20.5	4.5	4.3	1.4	0.7
	N	691	490	913	1013	652	504	875	866	535	424	732	761
		x2=4.459 df=3 sig=0.216		x2=2.356 df=3 sig=0.502		x2=2.817 df=3 sig=0.421		x2=1.341 df=3 sig=0.719		x2=2.097 df=3 sig=0.552		x2=4.576 df=3 sig=0.206	
	Minimal	72.6	74.4	73.7	74.9	87.8	87.3	77.4	78.2	80.7	81.5	75.1	73.6
	Mild	22	21.4	21.5	21.3	8.9	9.7	12.5	10.7	16.1	15.2	20.5	21.2
	Moderate	4.6	3.5	4.6	3.4	3.4	3	10.1	11.1	3.2	3.3	4	4.9
	Severe	0.9	0.6	0.2	0.5	655	496	867	872	0	0	0.4	0.4
	N	691	490	913	1013	652	504	875	866	535	424	732	761
		x2=1.122 df=3 sig=0.772		x2=2.995 df=3 sig=0.392		x2=0.313 df=2 sig=0.855		x2=1.632 df=2 sig=0.442		x2=0.164df=2 sig=0.921		x2=0.845 df=3 sig=0.839	
	Passive Ideas	98.7	97.7	99.7	98.3	99.5	99.8	99.8	99.9	99.4	98.8	98.6	98.2
	Active Ideas	1.3	2.3	0.3	1.7	0.5	0.2	0.2	0.1	0.6	1.2	1.4	1.8
	N	691	490	913	1013	652	504	875	866	535	424	732	761
		x2=1.742 df=1 sig=0.187		x2=8.452 df=1 **sig0.004**		x2=.536 df=1 sig=0.464		x2=.340 df=1 sig=0.560		x2=1.103 df=1 sig=0.294		x2=.519 df=1sig=0.471	
	Mild	98.3	98.8	99.6	99.3	100	100	100	100	99.8	99.8	99.2	99.2
	Moderate	1.7	1.2	0.4	0.5	0	0	0	0	0.2	0.2	0.8	0.5
	Severe		0	0	0.2	0	0	0	0	0	0	0	0.3
	N	700	481	912	1014	651	496	865	872	534	422	730	761
		x2=.414 df=1 sig=.520		x2=1.832 df=2 sig=0.400						x2=.028 df=1 sig=0..867		x2=.2.406 df=2 sig=0.30	
	No Attempts	95.3	95.6	98.7	98	99.5	99.4	99.7	99.5	99.4	100	99.7	99.6
	Attempted	4.7	4.4	1.3	2	0.5	0.6	0.3	0.5	0.6	0	0.3	0.4
	N	700	481	912	1014	655	496	867	872	534	422	730	761
		x2=.079 df=1 sig=0.778		x2=1.267 df=1 sig=0.260		x2=.117 df=1 sig=0.732		x2=.138 df=1 sig=0.711		x2=2.378 df=1 sig=0.123		x2=.161 df=1 sig=0.688	
	Minimal	20.4	22.8	24	23	50.2	53.1	52.9	50.8	56.8	59.2	67.5	67.4
	Mild	21.5	23.1	21.2	21.7	22.8	22.9	21.6	20.8	21.8	18	15.2	18
	Moderate	25.4	23.1	24.4	22.7	15.9	13.1	12.6	16.4	15	13	11.6	9.5
	Severe	32.8	31	30.4	32.5	11.1	11	13	12	6.4	9.7	5.6	5.1
	N	691	490	913	1013	652	504	875	866	535	424	732	761
		x2=1.945 df=3 sig=0.584		x2=1.399 df=3 sig=0.706		x2=2.039 df=2 sig=0.564		x2=5.094 df=3 sig0=.165		x2=5.874df=3 sig=0.118		x2=3.607 df=3 sig=0.307	
	Low	98.1	99.8	95.9	98.5	97.6	99.4	96.2	99.2	100	100	100	100
	Moderate	1.6	0.2	3.5	1.5	2.3	0.6	3.1	0.8	0	0	0	0
	High	0.3	0	0.5	0	0.2	0	0.7	0	0	0	0	0
	N	691	490	913	1013	652	504	875	866	535	424	732	761
		x2=6.669 df=2 sig=.036		x2=13.991 df=2 sig=.00		x2=5.980 df=2 sig=0.05		x2=18.316 df=2**sig=<.000**					
	Low	88.9	98.8	90.1	98.3	92.1	98.4	91.3	98.3	95.9	99.5	93.3	99.2
	Moderate	11.1	1.2	9.6	1.7	7.9	1.6	8.3	1.7	4.1	0.5	6.4	0.8
	High			0.2	0			0.3	0			0.3	0
	N	691	490	913	1013	652	504	875	866	535	424	732	761
		x2=42.255 df=1 sig=.000		x2=61.617 df=2 sig=.000		x2=22.860 df=1 **sig=0.000**		x2=42.860 df=1 **sig=0.000**		x2=12.803 df=1 sig=.000		**2=36.902 df=2 sig=.00**	
	Low	97.1	99.8	96.7	99.5	98.6	99.6	97.2	99.7	99.1	100	97.5	99.6
	Moderate	2.9	0.2	3.3	0.5	1.4	0.4	2.8	0.3	0.9	0	2.5	0.4
	N	700	481	912	1014	655	496	867	872	534	422	730	761
		x2=11.457 df=1 sig=.001		x2=21.044 df=1 sig=.000		x2=2.810 df=1 sig=.094		x2=16.714 df=1 sig=.000		x2=3.972 df=1 sig=.046		**x2=11.514 df=1 sig=.001**	
	Low	99.4	99.4	99.3	99.5	99.5	99.6	99.2	99.7	100	100	99.3	99.7
	Moderate	0.6	0.6	0.5	0.5	0.5	0.4	0.8	0.3			0.7	0.3
	High			0.1	0								
	N	691	490	913	1013	652	504	875	866	535	424	732	761
		x2=.013 df=1 sig=.908		x2=1.141 df=2 sig=.565		20 df=1 sig=.889		x2=1.632 df=1 sig=.201				x2=1.421 df=1 sig=.233	
	Low	94.7	99.2	95.4	99.1	96.3	99.2	96	99	98.5	99.5	97.5	99.2
	Moderate	5.3	0.8	4.6	0.9	3.7	0.8	4	1	1.5	0.5	2.5	0.8
	N	691	490	913	1013	652	504	875	866	535	424	732	761
		x2=16.878 df=1 sig=.000		x2=25.743 df=1 sig=.000		x2=9.711 df=1 **sig=0.002**		x2=15.916 df=1 **sig=0.000**		x2=2.389 df=1 sig=.122		**x2=6.619 df=1 sig=.010**	
	Low	99.1	100	99.2	99.9	99.4	100	99.4	99.9	99.8	100	99	99.9
	Moderate	0.9	0	0.8	0.1	0.6	0	0.6	0.1	0.2	0	1	0.1
	N	691	490	913	1013	652	504	875	866	535	424	732	761
		x2=4.144 df=1 sig=.042		x2=5.194 df=1 sig=.023		x2=4.144 df=1 **sig=0.042**		x2=3.040 df=1 sig=0.081		x2=2.699 df=1 sig=1.000		x2=.791 df=1 sig=0.374	
	Low	97.7	98.5	97.5	96.3	99.1	99.6	99.3	99	99.8	99.8	99.2	99.6
	Moderate	2.3	1.5	2.4	3.7	0.9	0.4	0.7	1	0.2	0.2	0.8	0.4
	High			0.1	0	0	0	0	0	0	0	0	0
	N	691	490	913	1013	652	504	875	866	535	424	732	761
		x2=1.030 df=1 sig=.310		x2=3.934 df=2 sig=.140		x2=1.075 df=1 sig=0.300		x2=.588 df=1 sig=0.443		x2=.028 df=1 sig=0.867		x2=1.136 df=1 sig=0.287	
	Low	99.4	99.8	99.3	99.6	99.7	100	99.7	99.8	100	99.8	99.2	100
	Moderate	0.6	0.2	0.5	0.4	0.3	0	0.3	0.2	0	0.2	0.8	0
	High			0.1	0	0	0	0	0	0	0	0	0
	N	691	490	913	1013	652	504	875	866	535	424	732	761
		x2=.894 df=1 sig=.344		x2=1.358 df=2 sig=.507		x2=1.517 df=1 sig=0.218		x2=.206 df=1 sig=0.650		x2=1.267df=1 sig=.260		**x2=6.280 df=1 sig=.012**	
	Low	99.4	99.8	99.3	99.6	99.7	100	99.7	99.8	100	99.8	99.2	100
	Moderate	0.6	0.2	0.5	0.4	0.3	0	0.3	0.2	0	0.2	0.8	0
	High			0.1	0	655	496		0	0	0	0	0
	N	691	490	913	1013	652	504	875	866	535	424	732	761
		x2=.894 df=1 sig=.344		x2=1.358 df=2 sig=.507		x2=1.517 df=1 sig=0.218		x2=.206 df=1 sig=0.650		x2=1.267 df=1 sig=0.260		**x2=6.280 df=1 sig=.012**	

TABLE 4: CORRELATION BY YEAR OF STUDY (%)

		Assessment I				Assessment 2				Assessment 3			
		Experimental		Controls		Experimental		Controls		Experimental		Controls	
	Categories	1st year	2nd year	1st year	2nd year	1st year	2nd year	1st year	2nd year	1st year	2nd year	1st year	2nd year
Aggressive Depression	Minimal	25.6	15.3	25	13.8	49.7	49.7	48.1	50.4	79.1	76.3	84.3	84.4
	Mild	15.3	9.8	14.5	10.9	13.2	13	12.2	13.2	10.4	10.1	8.5	7.9
	Moderate	17.1	19.8	19.2	21.9	13 8	13.9	17.6	15.7	7.9	5.9	5.7	7.3
	severe	42.1	55.1	41.4	53.4	23.3	23.4	22.1	20.7	2.5	7.6	1.5	0.3
	N	602	579	1194	732	616	540	1030	711	604	355	889	604
		x2=31.352 df=3 sig=0.00		x2=44.074 df=3 **sig=0.000**		x2=.012 df=2 sig=0.100		x2=2 116 df=3 sig=..549		**x2=14.920 df=3 sig=.00**		x2=6.093 df=3 sig=0.107	
Impulsiveness	Minimal	73.9	72.8	74.4	74.1	88.5	86.5	77.1	78.8	82	79.4	73.9	74.8
	Mild	20.8	22.8	21.5	21.2	8.9	9.6	11.6	11.6	15.1	16.6	20.8	21
	Moderate	4.9	3.4	3.7	4.4	2.6	3.9	11.3	9.6	3	3.9	5.1	3.5
	Severe	0.5	1	0.4	0.3	0	0	0	0	0	0	0.2	0.7
	N	602	579	1194	732	616	540	1030	711	604	355	889	604
		x2=3.121 df=3 sig=.373		x2=0.765 df=3 sig=.858		x2=1.829 df=2 sig=.401		x2=1.295 df=2 sig=.523		x2=1.142 df=2 sig=.565		x2=3.805 df=3 sig=0.283	
Suicidal Ideation	Passive	98.2	98.5	99.5	98	99.7	99.6	99.8	99.9	99.2	99.2	98.1	98.8
	Active Ideas	1.8	1.5	0.5	2	0.3	0.4	0.2	0.1	0.8	0.8	1.9	1.2
	N	602	579	1194	732	616	540	1030	711	604	355	889	604
		x2=.161 df=1 sig=0.688		x2=9.618 df=1 **sig=0.002**		x2=.018 df=1 sig=0.892		x2=.066 df=1 sig=0.797		x2=.001 df=1 sig=0.977		x2=1.290 df=1 sig=0.256	
Suicidal Plan	Mild	98.2	98.8	99.6	99.2	100	100	100	100	99.7	100	99.2	99.2
	Moderate	1.8	1.2	0.4	0.6	0	0	0	0	0.3	0	0.6	0.8
	N	602	579	1194	732	616	540	1030	711	604	355	889	604
	x2=.816 df=1 sig=.366			x2=3 689 df=2 sig=.158						x2=1.178 df=1 sig=.278		x2=1.737 df=2 sig=.420	
Suicidal Attempt	No	94.6	96.2	98.7	97.7	99.2	99.8	99.6	99.6	99.7	99.7	99.6	99.8
	Attempted	5.4	3.8	1.3	2.3	0.8	0.2	0.4	0.4	0.3	0.3	0.4	0.2
	N	602	579	1194	732	616	540	1030	711	604	355	889	604
		x2=1.717 df=1 sig= .190		x2=2.474 df=1 sig= .116		x2=2.175 df=1 sig=.140		x2=.015 df=1 sig= .903		x2=.018 df=1 sig= .895		x2= 871 df=1 sig= .351	
Anxiety	Minimal	27.5	15.2	27.2	17.1	50	52.9	50.8	53.2	62	51	67.6	67.2
	Mild	23.6	20.6	24	17	23.8	21.8	21.3	21.2	18.4	23.1	17.2	15.7
	Moderate	21.1	27.8	23.2	24.1	14	15.4	14 8	14.1	12.6	16.6	9.4	12.1
	severe	27.8	36.4	25.6	41.7	12.2	9.9	13.1	11.5	7	9.3	5.7	5
	N	602	579	1194	732	616	540	1030	711	604	355	889	604
		x2=32.345 df=3 sig=.000		**x2=3.1226 df=3 sig<.000**		x2=2.656 df=3 sig= 0.448		x2=1.513 df=3 sig=0.679		**2=11.247 df=3 sig=0.01**		x2=3.255 df=3 sig=0 354	
Alcohol	Low	99.2	98.5	97.8	96.5	99	97.6	98.4	96.7	100	100	100	100
	Moderate	0.7	1.4	1.8	3.5	0.8	2.4	1.4	2.8	0	0	0	0
	High	0.2	0.2	0.4	0	0.2	0	0.3	0.4	0	0	0	0
	N	602	579	1194	732	616	540	1030	711	604	355	889	604
		x2=1.438 df=2 sig=.487		**x2=8.477 df=2 sig=.01**		**2=5.673 df=2 sig=.05**		**x2=5.008 df=** sig=0.08					
Tobacco	Low	95.1	90.6	95.5	92.6	95.1	94.2	94.7	95	97 8	96.9	96.7	95.7
	Moderate	4.9	9.4	4.3	7.4	4.9	5.8	5.1	4.8	2.2	3.1	3	4.3
				0.2	0	0	0	0.2	0.1	0	0	0.2	0
	N	602	579	1194	732	616	540	1030	711	604	355	889	604
		x2=9.292 df=1 sig=0.002		**x2=8.966 df=1 sig=0.011**		x2.455 df=1 sig=0.500		x2=.156 df=2 sig=0..925		x2= 821 df=1 sig=0.365		x2=3.027 df=2 sig=0.220	
Cocaine	Low	98.7	97.8	98.4	97.7	99	99.1	98.8	97.9	99.7	99.2	98.8	98.3
	Moderate	1.3	2.2	1.6	2.3	1	0.9	1.2	2.1	0.3	0 8	1.2	1.7
	N	602	579	1194	732	616	540	1030	711	604	355	889	604
	x2=1.327 df=1 sigg=0.249			x2=1.244 df=1 sigg=0.265		x2=.006 df=1 sig=0.938		x2=2.540 df=1 sig=0.111		x2=1.139 df=1 sig=0.286		x2= 454 df=1 sig=0..501	
Opiates	Low	99.5	99.3	99.5	99.3	99.2	100	99.5	99.3	100	100	99.7	99.3
	Moderate	0.5	0.7	0.5	0.6	0.8	0	0.5	0.7	0	0	0.3	0.7
	High	0	0	0	0.1	0	0	0	0		0	0	0
	N	602	579	1194	732	616	540	1030	711	604	355	889	604
	x2=.167 df=1 sig = 0.683			x2=1.773 df=2 sig =0 412		**2=4.387 df=1 sig = .03**		x2=.388 df=1 sig =0 .544				x2= 813 df=1 sig = 0.367	
Amphetamines	Low	97.2	95.9	97.9	96.5	97.4	97.8	97.7	97.2	99.3	98.3	98.3	98 5
	Moderate	2.8	4.1	2.1	3.5	2.6	2.2	2.3	2.8	0.7	1.7	1.7	1.5
	N	602	579	1194	732	616	540	1030	711	604	355	889	604
	x2=1.403 df=1 sig=.236			x2=3.418 df=1 sig=.065		x2=.164 df=1 sig=.686		x2=.439 df=1 sig=.507		x2=2.289 df=1 sig=.130		x2=.088 df=1 sig=.766	
Sedatives	Low	99.3	99.7	99.8	99.2	99.5	99.8	99.7	99.6	99.8	100	99.6	99.3
	Moderate	0.7	0.3	0.2	0.8	0.5	0.2	0.3	0.4	0.2	0	0.4	0.7
	N	602	579	1194	732	616	540	1030	711	604	355	889	604
	x2=.627 df=1 sig=0.429			x2=.507 df=1 sig=0.024		x2=.754 df=1 sig=0.385		x2=.220 df=1 sig=0.639		x2=.588 df=1 sig=0.443		x2=.304 df=1 sig=0.581	
Hallucinogens	Low	97.8	98.3	97.2	96.2	99.4	99.3	99.2	99	99.8	99.7	99.7	99
	Moderate	2.2	1.7	2.8	3.7	0.6	0.7	0.8	1	0.2	0.3	0.3	1
	High	0	0	0	0.1	0	0	0	0	0	0	0	0
	N	602	579	1194	732	616	540	1030	711	604	355	889	604
	x2=.335 df=1 sig=0.563			x2=2.907 df=2 sig=0.234		x2=.037 df=1 sig=0.848		x2=.230 df=1 sig=0.631		x2=.145 df=1 sig=0.703		x2=2.582 df=1 sig=0.108	
Inhalants	Low	99.3	99.8	99.8	99	99.7	100	99.7	99.7	99.8	100	99.7	99.5
	Moderate	0.7	0.2	0.2	0.8	0.3	0	0.3	0.3	0.2	0	0.3	0.5
	High		0	0	0.1	0	0	0	0	0	0	0	0
	N	602	579	1194	732	616	540	1030	711	604	355	889	604
	x2=1.742 df=1 sig=0.187			x2=5.226 df=2 sig=0.073		x2=1.750 df=1 sig=0.186		x2=.001 df=1 sig=0.978		x2=.588 df=1 sig=0.443		x2=.228 df=1 sig=0.633	
Ecstasy	Low	99.3	99.8	99.8	99	99.7	100	99.7	99.7	99.8	100	99.7	99.5
	Moderate	0.7	0.2	0.2	0.8	0.3	0	0.3	0.3	0.2	0	0.3	0.5
	High		0	0	0.1	0	0	0	0	0	0	0	0
	N	602	579	1194	732	616	540	1030	711	604	355	889	604
	x2=1.742 df=1 sig=0.187			x2=5.226 df=2 sig=0.073		x2=1.750 df=1 sig=0.186		x2=.001 df=1 sig=0.978		x2=.588 df=1 sig=0.443		'28 df=1 sig=.633	

(%)

Assessment 1						Assessment 2						Assessment 3					
Experimental			Controls			Experimental			Controls			Experimental			Controls		
Below 19 years	20 - 24 years	25 years	Below 19 years	20 - 24 years	25 years	Below 19 years	20 - 24 years	25 years	Below 19 years	20 - 24 years	25 years	Below 19 years	20 - 24 years	25 years	Below 19 years	20 - 24 years	25 years
26.3	19.4	17.8	20.8	21.2	17.3	48.3	50.5	44.6	49.7	48.6	53.2	85	77.2	77.8	84.7	83.7	88.8
12.4	12.9	10.3	13.3	13.3	11.3	15.2	12.5	14.5	10.6	12.9	12.1	8.4	10.1	13.9	8.1	8.3	8.2
20.1	18.3	15.9	18.1	20.8	20	15.2	13.3	16.9	18	16.7	16.1	5.6	7.7	5.6	7.2	6.8	2.9
41.1	49.4	56.1	47.7	44.8	51.3	21.3	23.7	24.1	21.7	21.8	18.5	0.9	5.1	2.8	0	1.2	0
236	812	133	371	1365	190	188	875	93	230	1361	150	107	744	108	111	1212	170
X2=9.233 df=6 sig=0.161			X2=3.866 df=6 sig=0.69			X2=2.872 df=6 sig=0.82			X2=2.024 df=6 sig=.917			X2=7.935 df=6 sig=.243			2=7.519 df=6 sig=0.273		
75.4	73.4	68.4	73.2	74.5	75.3	87.5	87.8	85.2	78.1	77.8	76.4	77.6	81.3	82.4	77.5	74.6	70
19.4	21.7	27.2	21.8	21.6	18.5	8.2	9.3	11.4	14.6	11	14.2	19.6	15.2	14.8	18.9	20.5	25.3
4.3	4.4	1.8	4.8	3.5	6.2	4.3	2.9	3.4	7.3	11.2	9.4	2.8	3.5	2.8	3.6	4.5	4.1
0.9	0.5	2.6	0.3	0.4	0	0	0	0	0	0	0	0	0	0	0	0.4	0.6
236	812	133	371	1365	190	188	875	93	230	1361	150	107	744	108	111	1212	170
X2=10.546 df=6 sig=.103			X2=5.061 df=6 sig=.536			2=1.679 df=4 sig=0.79			X2=5.307 df=4 sig=0.25			X2=3.315 df=6 sig=0.76			X2=3.315 df=6 sig=0.76		
97.8	98.4	98.2	99.2	98.8	100	100	99.5	100	100	99.9	98.4	99.1	99.2	99.1	99.1	98.8	95.3
2.2	1.6	1.8	0.8	1.2	0	0	0.5	0	0	0.1	1.6	0.9	0.8	0.9	0.9	1.2	4.7
236	812	133	371	1365	190	188	875	93	230	1361	150	107	744	108	111	1212	170
X2=.391 df=2 sig=.822			X2=2.221 df=2 sig=.329			X2=1.235 df=2 sig=.539			**X2=15.713 df=2 sig=.00**			X2=.031 df=2 sig=.985			**2=11.717 df=2 sig=.00**		
97.4	98.8	98.2	99.2	99.5	99.4	100	100	100	100	100	100	100	99.7	100	99.1	99.4	97.6
2.6	1.2	1.8	0.8	0.4	0.6	0	0	0	0	0	(	0	0.3	0	0.9	0.5	1.8
			0	0.1	0	0	0	0	0	0	0	0			0	0.1	0.6
236	812	133	371	1365	190	188	875	93	230	1361	150	107	744	108	111	1212	170
X2=2.377 df=2 sig=.305			X2=2.291 df=4 sig=.682									X2=.579 df=2 sig= 0.749			X2=6.738 df=4 sig=0.15		
94.8	95.7	94.7	99.4	98.2	96.9	98.4	99.8	98.9	99.5	99.6	100	99.1	99.7	100	99.1	99.8	99.4
5.2	4.3	5.3	0.6	1.8	3.1	1.6	0.2	1.1	0.5	0.4	0	0.9	0.3	0	0.9	0.2	0.6
236	812	133	371	1365	190	188	875	93	230	1361	150	107	744	108	111	1212	170
X2=.446 df=2 sig=.800			X2=4.726 df=2 sig=.094			X2=6.519 df=2 sig=0.03			X2=.594 df=2 sig=0.743			X2=1.712 df=2 sig=0.425			X2=1.669 df=2 sig=0.43		
28.8	20.2	14.8	26.9	23	19.9	48.4	52	51.1	47.9	52.3	52	61.7	56.4	64.8	67.6	67	70.6
21.2	22.4	22.2	21	21.4	23.1	23.1	23	21.6	25.5	20.4	24	17.8	20.7	18.5	16.2	16.4	18.2
21.6	25.1	25	22.5	23.3	28.2	15.4	14.5	14.8	13.8	14.9	10.4	15	14.4	11.1	11.7	10.5	10
28.4	32.3	38	29.6	32.3	28.8	13.2	10.6	12.5	12.8	12.3	13.6	5.6	8.5	5.6	4.5	6.1	1.2
236	812	133	371	1365	190	188	875	93	230	1361	150	107	744	108	111	1212	170
X2=11.551 df=6 sig=.073			X2=5.584 df=6sig=.471			X2=1.643 df=6 sig=0.94			X2=5.018 df=6 sig=0.54			X2=4.593 df=6 sig=.597			X2=7.652 df=6 sig=0.26		
100	98.7	97.4	99.7	96.6	98.1	98.4	98.3	98.9	100	97.5	96.1	100	100	100	100	100	100
0	1.2	1.8	0.3	3	1.9	1.6	1.6	1.1	0	2.2	2.4	0	0	0	0	0	0
0	0.1	0.9	0	0.4	0	0	0.1	0	0	0.3	1.6	0	0	0	0	0	0
236	812	133	371	1365	190	188	875	93	230	1361	150	107	744	108	111	1212	170
X2=7.185 df=4 sig=.126			X2=11.256 df=4 sig=.02			X2=.421 df=4 sig=.981			2=10.781 df=4 sig=0.02								
96.6	92.8	86	97.5	94.1	90.7	96.2	94.6	93.2	96.4	95.2	88.2	100	97.3	96.3	97.3	96.5	94.1
3.4	7.2	14	2.5	5.8	8.6	3.8	5.4	6.8	3.6	4.7	10.2	0	2.7	3.7	1.8	3.5	5.3
			0	0.1	0.6	0	0	0	0	0.1	1.6	0	0	0	0.9	0	0.6
236	812	133	371	1365	190	188	875	93	230	1361	150	107	744	108	111	1212	170
X2=12.991 df=2 sig=.002			X2=14.082 df=4 sig=.00			X2=1.258 df=2 sig=.533			X2=24.256 df=4 sig=.00			X2=3.490 df=2 sig=.175			2=11.656 df=4 sig=**0.02**		
98.7	98.1	98.2	98.9	98	98.1	99.5	98.9	100	97.9	98.7	96.1	100	99.3	100	100	98.5	98.2
1.3	1.9	1.8	1.1	2	1.9	0.5	1.1	0	2.1	1.3	3.9	0	0.7	0	0	1.5	1.8
232	835	114	354	1410	162	184	884	88	192	1422	127	107	744	108	111	1212	170
X2=.404 df=2 sig=.817			X2=1.163 df=2 sig=.559			X2=1.473 df=2 sig=.479			X2=5.849 df=2 sig=0.05			X2=1.452 df=2 sig=0.48			X2=1.795 df=2 sig=0.40		
99.1	99.4	100	99.4	99.4	99.4	98.9	99.7	100	99.5	99.5	98.4	100	100	100	100	99.6	98.8
0.9	0.6	0	0.6	0.5	0.6	1.1	0.3	0	0.5	0.5	1.6	0	0	0	0	0.4	1.2
236	812	133	371	1365	190	188	875	93	230	1361	150	107	744	108	111	1212	170
X2=.966 df=2 sig=.617			X2=.424 df=4 sig=.980			2=2.390 df=2 sig=0.30			X2=2.403 df=2 sig=0.30						2=2.429 df=2 sig=0.29		
98.3	96	96.5	97.7	97.2	98.1	99.5	97.3	96.6	99	97.3	96.9	100	98.8	99.1	100	98.3	98.2
1.7	4	3.5	2.3	2.8	1.9	0.5	2.7	3.4	1	2.7	3.1	0	1.2	0.9	0	1.7	1.8
236	812	133	371	1365	190	188	875	93	230	1361	150	107	744	108	111	1212	170
X2=2.690 df=2 sig=.261			X2=.800 df=2 sig=.670			X2=3.431 df=2 sig=0.18			X2=2.041 df=2 sig=.360			X2=1.343 df=2 sig=0.51			X2=1.960 df=2 sig=0.37		
99.1	99.5	100	100	99.5	99.4	100	99.7	98.9	100	99.7	98.4	100	99.9	100	100	99.5	98.8
0.9	0.5	0	0	0.5	0.6	0	0.3	1.1	0	0.3	1.6	0	0.1	0	0	0.5	1.2
236	812	133	371	1365	190	188	875	93	230	1361	150	107	744	108	111	1212	170
X2=1.171 df=2 sig=.557			2=1.860 df=2 sig=0.39			X2=2.234 df=2 sig=0.32			X2=6.426 df=2 sig=0.04			X2=.289 df=2 sig=0.865			X2=1.945 df=2 sig=0.37		
98.3	98	98.2	96.6	96.6	99.4	100	99.1	100	99.5	99.2	98.4	100	99.7	100	100	99.3	99.4
1.7	2	1.8	3.4	3.3	0.6	0	0.9	0	0.5	0.8	1.6	0	0.3	0	0	0.7	0.6
			0	0.1	0	0	0	0	0	0	0	0	0	0	0	0	0
236	812	133	371	1365	190	188	875	93	230	1361	150	107	744	108	111	1212	170
X2=.117 df=2 sig=0.943			X2=4.031 df=4 sig=.402			X2=2.479 df=2 sig=0.29			X2=1.023 df=2 sig=.600			X2=.579 df=2 sig=0.749			X2=.740 df=2 sig=0.691		
99.1	99.6	100	100	99.4	98.8	100	99.8	100	100	99.7	99.2	100	99.9	100	100	99.5	100
0.9	0.4	0	0	0.5	1.2	0	0.2	0	0	0.3	0.8	0	0.1	0	0	0.5	0
0	0	0	0	0.1	0	0	0	0	0	0		0	0	0	0		0
236	812	133	371	1365	190	188	875	93	230	1361	150	107	744	108	111	1212	170
X2=1.625 df=2 sig=0.444			2=4.105 df=4 sig=0.39			X2=.616 df=2 sig=0.735			X2=1.664 df=2 sig=.435			X2=.289 df=2 sig=0.865			X2=1.397 df=2 sig=0.49		
99.1	99.6	100	100	99.4	98.8	100	99.8	100	100	99.7	99.2	100	99.9	100	100	99.5	100
0.9	0.4	0	0	0.5	1.2	0	0.2	0	0	0.3	0.8	0	0.1	0	0	0.5	0
			0	0.1	0	0	0	0	0	0	0	0	0	0	0	0	0
236	812	133	371	1365	190	188	875	93	230	1361	150	107	744	108	111	1212	170
X2=1.625 df=2 sig=0.444			2=4.105 df=4 sig=0.39			X2=.616 df=2 sig=0.735			X2=1.664 df=2 sig=0.43			X2=.289 df=2 sig=0.865			X2=1.397 df=2 sig=0.49		

TABLE 6: CORRELATION BY MARITAL STATUS (%)

		Assessment 1										Assessment 2							Assessment 3					
		Experimental						Controls				Experimental				Controls			Experimental			Controls		
Outcomes	Categories	Single	Married	Separated	Divorced	Widowed	Others	Single	Married	Separated	Divorced	Single	Married	Separated	Divorced	Single	Married	Separated	Single	Married	Separated	Single	Married	Separate
Depression	Minimal	20.8	17.3	50	0	0	0	20.8	22.3	20	33.3	49.5	52.5	100	0	49.1	46.3	57.1	77.8	82.6	100	84.2	86.3	84.6
	Mild	12.1	17.3	0	0	0	20	13.4	9.6	20	0	13.4	8.2	0	0	12.3	13.4	42.9	10.4	10.9	0	8.3	8.2	7.7
	Moderate	18.9	13.5	0	0	0	0	19.9	26.6	20	33.3	13.8	18	0	0	16.7	22.4	0	7.4	4.3	0	6.4	5.5	7.7
	Severe	48.2	51.9	50	100	100	80	46	41.5	40	33.3	23.3	21.3	0	100	21.8	17.9	0	4.5	2.2	0	1.1	0	0
	N	1083	72	4	4	3	5	1784	124	10	8	1074	71	7	4	1642	82	17	908	46	5	1407	73	13
				$x2=10.582$	df=15	sig=0.783				$x2=4.641$	df=9	sig=0.864				$x2=7.467$	df=9	sig=0.589			$x2=9.8206$	df=6	sig=0.132	
																						$x2=2.660$	df=6	sig=.850
																						$x2=1.0889$	df=6	sig=.982
Hopelessness	Minimal	77.9	81.5	75	100	100	60	74	79.8	80.3	66.7	87.8	84.6	100	100	77.9	75.4	71.4	80.9	82.6	80	74.3	72.6	84.6
	Mild	7.7	13.5	0	0	0	40	21.7	16.2	0	33.3	9	12.3	0	0	11.6	11.6	14.3	15.6	15.2	20	20.8	23.3	15.4
	Moderate	4.4	0	0	0	0	0	3.9	4	16.7	0	3.2	3.1	0	0	10.5	13	14.3	3.4	2.2	0	4.6	2.7	0
	Severe	0.7	0	25	0	0	0	0.4	0	0	0	0		0	0	1662	69	7				0.4	1.4	0
	N	1083	72	4	4	3	5	1784	124	10	8	1074	71	7	4	1642	82	17	908	46	5	1407	73	13
				$x2=37.3105$	df=15	sig=0.001				$x2=5.316$	df=9	sig=0.803				$x2=1.246$	df=6	sig=0.975			$x2=.818$	df=4	sig=0.969	
																						$x2=.451$	df=4	sig=.978
																						$x2=3.5.278$	df=6	sig=.740
Suicidal ideas	Passive Ideas	38.2	100	100	100	100	100	98.9	99	100	100	99.6	100	100	100	99.8	100	100	99.2	97.8	100	98.6	95.9	84.6
	Active Ideas	1.9	0	0	0	0	0	1.1	1	0	0	0.4	0	0	0	0.2	0	0	0.8	2.2	0	1.4	4.1	15.4
	N	1083	72	4	4	3	5	1784	124	10	8	1074	71	7	4	1642	82	17	908	46	5	1407	73	13
				$x2=1.980$	df=5	sig=.946				$x2=.1096$	df=3	sig=0.992				$x2=.752$	df=3	sig=0.969			$x2=.637$	df=7	sig=0.934	
																						$x2=1.1084$	df=2	sig=0.582
																						$x2=13.061$	df=2	sig=.001
Suicidal Plan	Mild	38.6	96.3	100	100	100	100	39.4	100	100	100	100	100	100	100	100	100	100	99.8	100	100	99.3	97.3	100
	Moderate	1.4	3.7	0	0	0	0	0.5	0	0	0	0	0	0	0		0	0	0.2	0	0	0.6	1.4	0
	N	1083	72	4	4	3	5	1784	124	10	8	1074	71	7	4	1642	82	17	908	46	5	1407	73	13
				$x2=1.930$	df=5	sig=.359				$x2=$	df=	sig=										$x2=.103$	df=2	sig=0.945
																						$x2=9.419$	df=4	sig=.051
Suicidal Attempts	No Attempts	95.2	98.1	100	100	66.9	100	98.4	97	100	100	99.5	98.5	100	100	99.6	100	100	99.7	100	100	99.6	100	100
	Attempted	4.8	1.9	0	0	0	0	1.6	3	0	0	0.5	1.5	0	0	0.4	0	0	0.3	0	0	0.4	0	0
	N	1083	72	4	4	3	5	1784	124	10	8	1074	71	7	4	1642	82	17	908	46	5	1407	73	13
				$X2=1.533$	df=5	sig=.910				$x2=4.375$	df=3	sig=0.723				$x2=1.382$	df=3	sig=0.710			$x2=.321$	df=2	sig=0.852	
																						$x2=.169$	df=2	sig=0.919
																						$x2=.3017$	df=2	sig=.858
Anxiety	Minimal	21	29.4	50	0	0	0	23.1	30.2	0	66.7	31.3	54.7	50	0	52	44.9	71.4	57.3	67.4	80	67.5	65.8	76.9
	Mild	22.1	21.6	0	100	0	25	21.8	16.6	0	33.3	22.9	21.9	50	0	21.1	25.1	0	21.7	8.7	20	16.5	13.2	7.7
	Moderate	25	19.6	0	0	0	0	23.2	29.2	33.3	0	14.8	14.1	0	0	14.5	13	14.3	14	17.4	0	10.5	9.6	15.4
	Severe	31.9	29.4	50	0	100	75	31.8	23	66.7	0	10.1	9.4	0	100	12.3	15.9	14.3	7.9	6.5	0	5.5	5.5	0
	N	1083	72	4	4	3	5	1784	124	10	8	1074	71	7	4	1642	82	17	908	46	5	1407	73	13
				$x2=15.923$	df=15	sig=.387				$x2=5.806$	df=9	sig=0.071				$x2=9.581$	df=9	sig=0.385			$x2=4.245$	df=6	sig=0.644	
																						$x2=5.904$	df=6	sig=0.434
																						$x2=2.191$	df=6	sig=.901
Alcohol	Low	98.8	98.1	100	100	100	100	97.3	97	100	100	98.3	100	50	100	97.7	97.1	100	100	100	100	100	100	100
	Moderate	1	1.9	0	0	0	0	2.4	3	0	0	1.6	0	50	0	1.9	2.9	0	0	0	0	0	0	0
	High	0.2	0	0	0	0	0	0.3	0	0	0	0.1	0	0	0	0.4	0	0						
	N	1083	72	4	4	3	5	1784	124	10	8	1074	71	7	4	1642	82	17	908	46	5	1407	73	13
				$X2=.619$	df=10	sig=1.000				$x2=.1157$	df=6	sig=.995				$x2=31.529$	df=6	sig<.0001			$x2=.739$	df=4	sig=0.946	
Tobacco	Low	92.8	96.3	100	100	100	60	94.5	94.9	66.7	100	94.6	98.5	100	100	94.9	92.8	100	97.6	95.7	100	96.6	90.4	100
	Moderate	7.2	3.7	0	0	0	40	5.4	5.1	33.3	0	5.4	1.5	0	0	4.9	7.2	0	2.4	4.3	0	3.3	8.2	0
	High							0.1	0	0	0					0.2	0	0	0	0	0	0.1	1.4	0
	N	1083	72	4	4	3	5	1784	124	10	8	1074	71	7	4	1642	82	17	908	46	5	1407	73	13
				$x2=9.581$	df=5	sig=.088				$x2=9.296$	df=6	sig=.158				$x2=2.006$	df=3	sig=0.571			$x2=1.248$	df=4	sig=0.870	
																						$x2=.794$	df=2	sig=0.672
																						$x2=14.154$	df=4	sig=0.007
Cannabis	Low	98.2	98.1	100	100	100	100	98.3	98	33.3	100	99.1	98.5	100	100	98.4	98.6	100	99.6	97.8	100	98.9	91.8	100
	Moderate	1.8	1.9	0	0	0	0	1.7	2	16.7	0	0.9	1.5	0	0	1.6	1.4	0	0.4	2.2	0	1.1	8.2	0
	N	1083	72	4	4	3	5	1784	124	10	8	1074	71	7	4	1642	82	17	908	46	5	1407	73	13
				$x2=9.581$	df=5	sig=.088				$x2=9.296$	df=6	sig=.158				$x2=2.006$	df=3	sig=.571			$x2=1.248$	df=4	sig=.870	
		202*	5	0.999				1786*	3	0.059		2725	3	0.985		107	2	0.943	2.563*	2	0.278	25.770	2	0
																						$x2=.794$	df=2	sig=.672
																						$x2=14.154$	df=4	sig=0.007
Cocaine	Low	99.4	100	100	100	100	100	99.5	99	100	100	99.5	100	100	100	99.4	100	100	100	100	100	99.7	95.9	100
	Moderate	0.6	0	0	0	0	0	0.5	1	0	0	0.5	0	0	0	0.6	0	0				0.3	4.1	0
	High							0	1	0	0	0.1	1.5	2	1	1662	69	7	908	46	5	1406	73	13
	N	1083	72	4	4	3	5	1784	124	10	8	1074	71	7	4	1642	82	17	908	46	5	1407	73	13
				$x2=9.581$	df=5	sig=.088				$x2=9.296$	df=6	sig=.158				$x2=2.006$	df=3	sig=0.571			$x2=1.248$	df=4	sig=0.870	
		418*	5	0.995				18.943*	6	0.004														
																						$x2=.794$	df=2	sig=.672
																						$x2=14.154$	df=4	sig=.007
Amphetamines	Low	96.5	96.3	100	100	100	100	97.4	98	100	100	97.5	98.5	100	100	97.5	98.6	85.7	98.9	100	100	98.5	95.9	100
	Moderate	3.5	3.7	0	0	0	0	2.6	2	0	0	2.5	1.5	0	0	2.5	1.4	14.3	1.1	0	0	1.5	4.1	0
	N	1083	72	4	4	3	5	1784	124	10	8	1074	71	7	4	1642	82	17	908	46	5	1407	73	13
				$x2=.407$	df=5	sig=.995				$x2=.387$	df=3	sig=.943				$x2=.372$	df=3	sig=.958			$x2=4.247$	df=2	sig=.120	
																						$x2=.568$	df=2	sig=.753
																						$x2=14.154$	df=4	sig=.007
Solvents	Low	99.5	100	100	100	100	100	99.7	99	100	100	99.6	100	100	100	99.6	100	100	99.9	100	100	99.6	97.3	100
	Moderate	0.5	0	0	0	0	0	0.3	1	0	0	0.4	0	0	0	0.4	0	0	0.1	0	0	0.4	2.7	0
	N	1083	72	4	4	3	5	1784	124	10	8	1074	71	7	4	1642	82	17	908	46	5	1407	73	13
				$x2=.352$	df=5	sig=.997				$x2=1.276$	df=3	sig=.747				$x2=.252$	df=3	sig=.969			$x2=.275$	df=2	sig=.871	
																						$x2=.056$	df=2	sig=.972
																						$x2=7.032$	df=2	sig=.030
Tranquilizers	Low	98.1	96.3	100	100	100	100	96.8	98	100	100	99.3	100	100	100	99.1	100	100	99.8	100	100	99.5	97.3	100
	Moderate	1.9	3.7	0	0	0	0	3.2	2	0	0	0.7	0	0	0	0.9	0	0	0.2	0	0	0.5	2.7	0
	High							0	1	0	0													
	N	1083	72	4	4	3	5	1784	124	10	8	1074	71	7	4	1642	82	17	908	46	5	1407	73	13
				$x2=1.619$	df=5	sig=.953				$x2=20.159$	df=6	sig=.003				$x2=.587$	df=3	sig=0=.917			$x2=.692$	df=2	sig=.708	
																						$x2=.113$	df=2	sig=.945
																						$x2=5.837$	df=2	sig=.052
Opioids	Low	99.6	100	100	100	100	100	99.6	98	100	100	99.8	100	100	100	99.7	100	100	99.9	100	100	99.7	97.3	100
	Moderate	0.4	0	0	0	0	0	0.4	1	0	0	0.2	0	0	0	0.3	0	0	0.1	0	0	0.3	2.7	0
	N	1083	72	4	4	3	5	1784	124	10	8	1074	71	7	4	1642	82	17	908	46	5	1407	73	13
				$x2=9.581$	df=5	sig=.088				$x2=19.119$	df=6	sig=.004				$x2=.026$	df=3	sig=0.989			$x2=.229$	df=2	sig=0.892	
																						$x2=.056$	df=2	sig=0.972
																						$x2=10.438$	df=2	sig=.005
Hallucinogens	Low	99.6	100	100	100	100	100	99.6	98	100	100	99.8	100	100	100	99.7	100	100	99.9	100	100	99.7	97.3	100
	Moderate	0.4	0	0	0	0	0	0.4	1	0	0	0.2	0	0	0	0.3	0	0	0.1	0	0	0.3	2.7	0
	N	1083	72	4	4	3	5	1784	124	10	8	1074	71	7	4	1642	82	17	908	46	5	1407	73	13
				$x2=.233$	df=5	sig=.998				$x2=19.119$	df=6	sig=.004				$x2=.026$	df=3	sig=0.989			$x2=.229$	df=2	sig=0.892	
																						$x2=.056$	df=2	sig=0.972
																						$x2=10.438$	df=2	sig=0.005

TABLE 7: CORRELATION BY RELIGION (%)

		Assessment 1								Assessment 2								Assessment							
		Experimental				Control				Experimental				Control				Experimental				Control			
Outcomes	Categories	Protestant	Catholic	Muslim	Others	Protestant	Catholic	Muslim	Others	Protestant	Catholic	Muslim	Others	Protestant	Catholic	Muslim	Others	Protestant	Catholic	Muslim	Others	Protestant	Catholic	Muslim	Others
Depression	Minimal	20.7	20.5	7.5	14.6	21.1	19.5	17.2.1	27.7	49.9	49.3	58.1	36.1	48.9	49.3	48.1	48.1	78	77.1	83.3	83.8	85.1	83.4	78	84.6
	Mild	12.9	13	12.5	7.3	13.1	13.3	9.6	18.7	12.7	12.1	19.4	25	10.6	15.9	10.1	19.5	10.3	12	4.2	2.7	8.6	7.2	6.3	5.8
	Moderate	18.9	6.3	15.6	36.6	20.3	20.5	21.2	15.9	6.5	10.8	9.7	13.9	18.9	13.1	16.5	14.3	7.5	7	8.3	2.7	5.5	7.8	6.8	9.6
	severe	47.5	50.1	46.9	41.5	45.5	46.8	47.1	42.7	27	27.8	12.9	25	21.6	21.7	25.3	18.2	4.2	3.9	4.2	10.8	0.9	1.6	0	0
	N	749	327	52	61	1037	545	135	108	753	316	41	46	1034	531	89	87	640	258	24	37	934	446	61	52
		x2=17.893 df=9 sig=0.203				x2=4.585 df=9 sig=0.869				x2=15.498 df=9 sig=0.079				x2=18.853 df=9 sig=.026				x2=8.890 df=9 sig=.455				x2=11.478 df=12 sig=.488			
Hopelessness	Minimal	77.7	75.2	73.5	59.9	70.3	73.4	65.3	79.2	87.1	89.9	93.5	73	77.9	77.5	86.2	70	79.8	82.9	91.7	91.1	74.6	77.5	74.6	80.8
	Mild	22.6	19.6	23.5	22.2	21.7	21.9	12.8	17.7	9.3	8.2	3.2	21.6	14.3	12	6.3	16.3	16.9	13.6	4.2	16.2	21	21.3	20.3	17.3
	Moderate	3.8	4.6	7.9	8.9	4.2	4	1.8	3.1	3.5	1.9	3.2	5.4	10.8	10.5	7.5	13.8	3.3	3.5	4.2	2.7	4.1	5.4	5.1	1.9
	Severe	0.9	0.6	0	0	0.3	0.7	0	0	0	0	0	0									0.3	0.7	0	0
	N	749	327	52	61	1037	545	135	108	753	316	41	46	1034	531	89	87	640	258	24	37	934	446	61	52
		x2=5.030 df=9 sig=0.703				x2=11.729 df=9 sig=0.229				x2=11.540 df=6 sig=0.073				x2=6.681 df=6 sig=.372				x2=4.042 df=6 sig=.671				x2=4.555 df=12 sig=.971			
Suicidal ideas	Passive Ideas	98	98.5	100	100	98.8	99.1	100	98.9	99.7	99.4	100	100	99.8	99.8	100	100	99.1	99.2	100	100	98.3	98.7	98.3	98.1
	Active Ideas	2	1.5	0	0	1.2	0.9	0	1.1	0.3	0.6	0	0	0.2	0.2	0	0	0.9	0.8	0	0	1.7	1.3	1.7	1.9
	N	749	327	52	61	1037	545	135	108	753	316	41	46	1034	531	89	87	640	258	24	37	934	446	61	52
		x2=1.707 df=3 sig=0.633				x2=1.529 df=3 sig=0.672				x2=1.105 df=3 sig=0.771				x2=.305 df=3 sig=.959				x2=.607 df=3 sig=.895				x2=.395 df=4 sig=.999			
Suicidal Plans	Mild	98.7	98.2	100	95.6	98.4	99.5	100	100	100	100	100	100	100	100	100	100	99.7	100	100	100	99.2	99.3	98.3	98.1
	Moderate	1.3	1.8	0	4.4	1.4	0.5	0	0	0	0	0	0					0.3	0	0	0	0.5	0.7	1.7	1.9
	Severe		0	0	0	0.2	0	0	0		0	0	0					640	258	24	37	0.2	0	0	0
	N	749	327	52	61	1037	545	135	108	753	316	41	46	1034	531	89	87	640	258	24	37	934	446	61	52
		x2=3.514 df=3 sig=0.319				x2=2.382 df=6 sig=0.880												x2=.959 df=3 sig=.812				x2=3.604 df=8 sig=.891			
Suicidal Attempts	No Attempts	94.8	96.3	94.1	100	98.4	98.7	98.2	98.9	99.3	99.7	100	100	99.4	99.8	100	100	99.5	100	100	100	99.6	100	100	98.1
	Attempted	5.2	3.7	5.9	0	1.6	1.3	1.8	3.1	0.7	0.3	0	0	0.6	0.2	0	0	0.5	0	0	0	0.4	0	0	1.9
	N	749	327	52	61	1037	545	135	108	753	316	41	46	1034	531	89	87	640	258	24	37	934	446	61	52
		x2=3.591 df=3 sig=.309				x2=1.800 df=3 sig=.615				x2=.882 df=3 sig=.830				x2=1.974 df=3 sig=.578				x2=1.500 df=3 sig=.682				x2=5.1916 df=4 sig=.268			
Anxiety	Minimal	28.7	23	18.2	19	23.7	23	20.4	27.5	48.4	55.9	61.1	40.5	50.9	57.9	62.8	44.9	58.5	55.4	66.7	59.5	68	67	61	67.3
	Mild	23.1	19.8	24.2	19	20.6	23.6	17.5	24.2	23.6	21.5	13.3	27	21.3	19.8	23.1	28.2	19.9	22.1	12.5	16.2	16	17	20.3	19.2
	Moderate	23.9	25.6	24.2	28.6	23.8	28.7	29.1	27.5	14.9	13.2	23.3	18.9	14.3	10.5	1.3	16.7	14.4	13.2	20.8	10.8	10.2	11	14.9	11.5
	severe	32.3	31.6	33.3	33.3	31.9	32.6	33	20.9	12.1	9.3	3.3	13.5	13.5	11.8	12.8	10.3	7.2	9.3	0	13.5	5.8	4.9	6.8	1.9
	N	749	327	52	61	1037	545	135	108	753	316	41	46	1034	531	89	87	640	258	24	37	934	446	61	52
		x2=7.585 df=9 sig=0.576				x2=11.036 df=9 sig=0.273				x2=10.827 df=9 sig=0.287				x2=18.348 df=9 sig=.027				x2=7.826 df=9 sig=.551				x2=4.022 df=12 sig=.982			
Alcohol	Low	98.6	99.4	100	97.8	97.5	96.2	100	97.9	98.6	97.5	100	100	97.6	97.3	98.8	100	100	100	100	100	100	100	100	100
	Moderate	1.3	0.3	0	2.2	2.3	3.5	0	1	1.4	2.2	0	0	2.2	1.9	1.3	0								
	High	0.1	0.3	0	0	0.2	0.4	0	1	0	0.3	0	0	0.2	0.8	0	0								
	N	749	327	52	61	1037	545	135	108	753	316	41	46	1034	531	89	87	640	258	24	37	934	446	61	52
		x2=3.783 df=6 sig=0.705				x2=9.079 df=6 sig=0.169				x2=4.676 df=6 sig=0.583				x2=6.050 df=6 sig=.418											
Tobacco	Low	93.9	89.3	100	95.6	94.8	93.3	97.2	94.8	95.8	91.2	100	100	94.6	94.1	100	97.5	97.5	96.9	100	100	96.5	95.3	98.3	100
	Moderate	6.1	10.7	0	4.4	5.2	6.4	2.8	5.2	4.2	8.8	0	0	5.3	5.5	0	2.5	2.5	3.1	0	0	3.5	4.5	0	0
						0	0.4	0	0	0	0	0	0	0.1	0.4	0	0					0	0.2	1.7	0
	N	749	327	52	61	1037	545	135	108	753	316	41	46	1034	531	89	87	640	258	24	37	934	446	61	52
		x2=10.584 df=3 sig=.014				x2=7.595 df=6 sig=0.269				x2=13.654 df=3 sig=0.003				x2=7.791 df=6 sig=.253				x2=1.944 df=3 sig=.584				x2=17.510 df=8 sig=.025			
Cannabis	Low	98.4	97.9	100	95.6	98	98.5	99.1	96.9	98.9	99.1	100	100	98.2	98.5	100	100	99.5	99.2	100	100	98.5	98.7	98.3	100
	Moderate	1.6	2.1	0	4.4	2	1.5	0.9	3.1	1.1	0.9	0	0	1.8	1.5	0	0	0.5	0.8	0	0	1.5	1.3	1.7	0
	N	749	327	52	61	1037	545	135	108	753	316	41	46	1034	531	89	87	640	258	24	37	934	446	61	52
		x2=2.872 df=3 sig=.412				x2=1.972 df=3 sig=.578				x2=.726 df=3 sig=.867				x2=2.970 df=3 sig=.396				x2=.674 df=3 sig=.879				x2=.863 df=4 sig=.930			
Cocaine	Low	99.3	99.4	100	100	99.3	99.5	100	100	99.5	99.7	100	100	99.3	99.4	100	100	100	100	100	100	99.6	99.3	100	100
	Moderate	0.7	0.6	0	0	0.6	0.5	0	0	0.5	0.3	0	0	0.7	0.6	0	0					0.4	0.7	0	0
	High					0.1	0	0	0																
	N	749	327	52	61	1037	545	135	108	753	316	41	46	1034	531	89	87	640	258	24	37	934	446	61	52
		x2=.565 df=3 sig=0.905				x2=1.876 df=6 sig=0.931				x2=.544 df=3 sig=0.909				x2=1.076 df=3 sig=.783								x2=11.478 df=12 sig=.488			
Drug abuse	Low	96.3	97.2	94.1	95.6	97.4	97.1	97.2	97.9	97.6	97.2	96.8	89.1	97.5	97.3	97.5	97.5	99.2	98.4	95.8	100	98.5	98	98.3	100
	Moderate	3.7	2.8	5.9	4.4	2.6	2.9	2.8	2.1	2.4	2.8	3.2	0	2.5	2.7	2.5	2.5	0.8	1.6	4.2	0	1.5	2	1.7	0
	N	749	327	52	61	1037	545	135	108	753	316	41	46	1034	531	89	87	640	258	24	37	934	446	61	52
		x2=1.772 df=3 sig=0.736				x2=2.793 df=3 sig=0.961				x2=1.234 df=3 sig=0.745				x2=.855 df=3 sig=.937				x2=3.778 df=3 sig=.292				x2=1.4086 df=4 sig=.843			
Inhalants	Low	99.3	99.7	100	100	99.6	99.5	100	100	99.5	100	100	100	99.7	99.4	100	100	99.8	100	100	100	99.4	99.6	100	100
	Moderate	0.7	0.3	0	0	0.4	0.5	0	0	0.5	0	0	0	0.3	0.6	0	0	0.2	0	0	0	0.6	0.4	0	0
	N	749	327	52	61	1037	545	135	108	753	316	41	46	1034	531	89	87	640	258	24	37	934	446	61	52
		x2=.393 df=3 sig=0.808				x2=1.084 df=3 sig=0.781				x2=1.084 df=3 sig=0.781				x2=1.446 df=3 sig=.695				x2=.499 df=3 sig=.919				x2=.869 df=4 sig=.929			
Sedatives	Low	97.7	99.1	100	95.6	98.7	98.5	98.2	99	99	99.6	100	97.5	99.7	100	100	100	98.4	99.3	100	100	99.4	99.6	100	100
	Moderate	2.3	0.9	0	4.4	1.2	1.5	1.8	1	1	0.4	0	2.5	0.3	0	0	0	0.6	0.7	0	0	0.6	0.4	0	0
	High					0.1	0	0	0	0	0	0	0	0								0.2	0	0	0
	N	749	327	52	61	1037	545	135	108	753	316	41	46	1034	531	89	87	640	258	24	37	934	446	61	52
		x2=14.566 df=3 sig=0.707				x2=2.861 df=6 sig=0.826				x2=5.027 df=3 sig=0.170				x2=.999 df=3 sig=.802				x2=8.803 df=9 sig=.455				x2=.969 df=4 sig=.290179			
Opioids	Low	98.7	99.4	100	97.8	99.5	99.5	100	100	99.7	100	100	100	99.7	99.6	100	100	100	99.6	100	100	99.6	99.6	100	100
	Moderate	0.3	0.6	0	2.2	0.4	0.5	0	0	0.3	0	0	0	0.3	0.4	0	0	0	0.4	0	0	0.4	0.4	0	0
	High	0	0	0	0	0.1	0	0	0	0	0	0	0	0.050	52.4	100	100								
	N	749	327	52	61	1037	545	135	108	753	316	41	46	1034	531	89	87	640	258	24	37	934	446	61	52
		x2=4.398 df=3 sig=.0729				x2=1.733 df=6 sig=0.943				x2=1.104 df=3 sig=0.788				x2=.622 df=3 sig=0.891				x2=2.720 df=3 sig=.437				x2=.492 df=4 sig=.974			
Hallucinogens	Low	98.7	99.4	100	97.8	99.5	99.5	100	100	99.7	100	100	100	99.7	99.6	100	100	100	99.6	100	100	99.6	99.6	100	100
	Moderate	0.3	0.6	0	2.2	0.4	0.5	0	0	0.3	0	0	0	0.3	0.4	0	0	0	0.4	0	0	0.4	0.4	0	0
	High					0.1	0	0	0																
	N	749	327	52	61	1037	545	135	108	753	316	41	46	1034	531	89	87	640	258	24	37	934	446	61	52
		x2=4.398 df=3 sig=.7729				x2=1.733 df=6 sig=.9443				x2=1.104 df=3 sig=0.788				x2=.622 df=3 sig=0.891				x2=2.720 df=3 sig=.437				x2=.492 df=4 sig=.974			

TABLE 8: CORRELATION BY RESIDENCE (%)

		Assessment 1				Assessment 2				Assessment 3			
		Experimental		Control		Experimental		Control		Experimental		Control	
		Within college hostels	Outside college hostels	Within college hostels	Outside college hostels	Within college hostels	Outside college hostels	Within college hostels	Outside college hostels	Within college hostels	Outside college hostels	Within college hostels	Outside college hostels
	Minimal	21	18.7	19.8	25.7	50.5	46	48.6	50	79.8	70.8	84.4	84
	Mild	13.3	9.8	13.4	11.7	13.2	12.3	12.6	12.6	9.7	13	8.8	6.8
	Moderate	18.1	19.6	20.5	19	13.6	15.2	17.7	14.7	6.5	10.3	5.9	7.6
	Severe	47.6	51.9	46.3	43.5	22.6	26.5	21.1	22.7	4	5.9	0.8	1.6
		929	252	1442	484	930	226	1261	480	774	185	1111	382
		x2=2.936 df=3 sig=0.402		x2=5.659 df=3 sig=0.129		x2=2.260 df=3 sig=0.520		x2=2.454 df=3 sig=.484		x2=7.416 df=3 sig=0.060		x2=4.249 df=3 sig=0.236	
	Minimal	73.2	74	74.2	74.9	86.7	91	78	77.2	81.4	79.5	74.6	73.3
	Mild	21.6	22.4	21.5	20.9	9.9	6.3	11.4	12.1	14.7	19.5	20.5	22
	Moderate	4.4	3.1	4	3.8	3.3	2.7	10.6	10.7	3.9	1.1	4.4	4.5
	Severe	0.8	0.4	0.4	0.3	935	221	1245	496	774	185	0.5	0.3
		929	252	1442	484	930	226	1261	480	774	185	1111	382
		x2=1.102 df=3 sig=.777		x2=.126 df=3 sig=0.989		x2=3.083 df=2 sig=0.214		x2=.176 df=2 sig=0.916		x2=5.701 df=2 sig=0.058		x2=.611 df=3 sig=0.894	
	Passive Ideas	98.1	99.1	98.8	99.7	99.6	100	99.8	99.8	99.4	98.4	98.5	98.2
	Active Ideas	1.9	0.9	1.2	0.3	0.4	0	0.2	0.2	0.6	1.6	1.5	1.8
		929	252	1442	484	930	226	1261	480	774	185	1111	382
		x2=1.054 df=1 sig=0.305		x2=2.210 df=1 sig=0.137		x2=.949 df=1 sig=0.330		x2=.035 df=1 sig=0.852		x2=1.718 df=1 sig=0.190		x2=.164 df=1 sig=0.685	
	Mild	98.4	98.7	99.3	100	100	100	100	100	99.9	99.5	99.2	99.2
	Moderate	1.6	1.3	0.6	0	0	0	0	0	0.1	0.5	0.7	0.5
				0.1	0	0	0	0	0	0	0	0.1	0.3
		929	252	1442	484	930	226	1261	480	774	185	1111	382
		x2=.059 df=1 sig=0.809		x2=2.363 df=2 sig=0.30						x2=1.214 df=1 sig=0.271		x2=.790 df=2 sig=0.674	
	No Attempts	95.7	94.2	98.4	98.2	99.6	99.1	99.6	99.6	99.6	100	99.6	99.7
	Attempted	4.3	5.8	1.6	1.8	0.4	0.9	0.4	0.4	0.4	0	0.4	0.3
		929	252	1442	484	930	226	1261	480	774	185	1111	382
		x2=.996 df=1 sig=0.318		x2=.030 df=1 sig=0.863		x2=.788 df=1 sig=0.375		x2=.000 df=1 sig=0.996		x2=.719 df=1 sig=0.396		x2=.082 df=1 sig=0.774	
	Minimal	20.7	24.5	23.3	24.4	52.5	46.3	52.2	50.9	59.1	53	66.8	69.4
	Mild	22.2	21.7	21.7	20.1	21.3	29.4	20.5	23.2	20.2	20	17	15.4
	Moderate	24.4	24.5	23.3	24.7	15	13.3	14.5	14.5	13.2	17.8	10.6	10.2
	Severe	32.7	29.2	31.7	30.9	11.2	11	12.9	11.4	7.5	9.2	5.6	5
		929	252	1442	484	930	226	1261	480	774	185	1111	382
		x2=1.859 df=3 sig=0.602		x2=.773 df=3 sig=.856		x2=6.609 df=3 sig=0.085		x2=1.974 df=3 sig=0.578		x2=3.801 df=3 sig=0.284		x2=.940 df=3 sig=0.816	
	Low	98.6	99.6	97.1	98.2	98.3	98.6	97.6	98	100	100	100	100
	Moderate	1.1	0.4	2.7	1.2	1.6	1.4	2.1	1.6	0	0	0	0
	High	0.2	0	0.2	0.6	0.1	0	0.3	0.4	0	0	0	0
		929	252	1442	484	930	226	1261	480	774	185	1111	382
		x2=1.352 df=2 sig=0.509		x2=4.444 df=2 sig=0.108		x2=3.309 df=2 sig=0.857		x2=.485 df=2 sig=0.785					
	Low	93	92.4	94.4	94.7	94.3	96.4	95.1	94.2	97.5	97.3	96.7	95.3
	Moderate	7	7.6	5.5	5	5.7	3.6	4.7	5.6	2.5	2.7	3.3	4.2
			0	0.1	0.3	0	0	0.2	0.2	0	0	0	0.5
		929	252	1442	484	930	226	1261	480	774	185	1111	382
		x2=.109 df=1 sig=0.742		x2=1.594 df=2 sig=0.451		x2=1.501 df=1 sig=0.221		x2=.651 df=2 sig=.722		x2=.038 df=1 sig=0.846		x2=6.463 df=2 sig=0.040	
	Low	98.4	97.3	98.1	98.5	98.9	99.5	98.5	98.4	99.6	98.9	98.7	98.2
	Moderate	1.6	2.7	1.9	1.5	1.1	0.5	1.5	1.6	0.4	1.1	1.3	1.8
		958	223	1587	339	930	226	1261	480	774	185	1111	382
		x2=1.310 df=1 sig=0.252		x2=.270 df=1 sig=0.603		x2=.722 df=1 sig=0.395		x2=.018 df=1 sig=0.895		x2=1.384 df=1 sig=0.239		x2=.671 df=1 sig=0.413	
	Low	99.3	100	99.3	100	99.5	100	99.4	99.4	100	100	99.6	99.2
	Moderate	0.7	0	0.6	0	0.5	0	0.6	0.6	0	0	0.4	0.8
	High			0.1	0	935	221	1245	496	774	185	1111	382
		929	252	1442	484	930	226	1261	480	774	185	1111	382
		x2=1.639 df=1 sig=0.200		x2=2.363 df=2 sig=0.307		x2=1.187 df=1 sig=0.276		x2=.011 df=1 sig=0.915				x2=1.102 df=1 sig=0.294	
	Low	96.6	96.4	97.2	98.2	97.5	97.7	97.8	96.8	99	98.9	98.4	98.4
	Moderate	3.4	3.6	2.8	1.8	2.5	2.3	2.2	3.2	1	1.1	1.6	1.6
		929	252	1442	484	930	226	1261	480	774	185	1111	382
		x2=.011 df=1 sig=0.916		x2=1.230df=1 sig=0.267		x2=.029 df=1 sig=0.864		x2=1.374 df=1 sig=0.241		x2=.003 df=1 sig=0.954		x2=.004 df=1 sig=0.947	
	Low	99.5	99.6	99.5	100	99.7	99.5	99.7	99.6	99.9	100	99.5	99.2
	Moderate	0.5	0.4	0.5	0	0.3	0.5	0.3	0.4	0.1	0	0.5	0.8
		929	252	1442	484	930	226	1261	480	774	185	1111	382
		x2=.019 df=1 sig=0.889		x2=1.716 df=1 sig=0.190		x2=.090 df=1 sig=0.764		x2=.069 df=1 sig=0.792		x2=.239 df=1 sig=0.625		x2=.600 df=1 sig=0.439	
	Low	97.8	99.1	96.5	98.5	99.1	100	99.4	98.6	99.7	100	99.6	98.7
	Moderate	2.2	0.9	3.5	1.5	0.9	0	0.6	1.4	0.3	0	0.4	1.3
				0.1	0	935	221	1245	496	774	185	1111	382
		929	252	1442	484	930	226	1261	480	774	185	1111	382
		x2=1.589 df=1 sig=0.207		x2=3.889 df=2 sig=.143		x2=1.904 df=1 sig=0.168		x2=2.454 df=1 sig=0.117		x2=.479 df=1 sig=0.489		x2=4.271 df=1 sig=0.039	
	Low	99.7	99.1	99.4	99.7	99.8	100	99.7	99.8	99.9	100	99.6	99.5
	Moderate	0.3	0.9	0.5	0.3	0.2	0	0.3	0.2	0.1	0	0.4	0.5
		929	252	1442	484	930	226	1261	480	774	185	1111	382
		x2=1.462 df=1 sig=0.227		x2=.477 df=2 sig=0.788		x2=.474 df=1 sig=0.491		x2=.177 df=1 sig=0.674		x2=.239 df=1 sig=0.625		x2=.190 df=1 sig=0.663	
	Low	99.7	99.1	99.4	99.7	99.8	100	99.7	99.8	99.9	100	99.6	99.5
	Moderate	0.3	0.9	0.5	0.3	0.2	0	0.3	0.2	0.1	0	0.4	0.5
				0.1	0	0	0	0	0	0	0	0	TABLEL
		929	252	1442	484	930	226	1261	480	774	185	1111	382
		x2=1.462 df=1 sig=0.227		x2=.477 df=2 sig=0.788		x2=.474 df=1 sig=0.491		x2=.177 df=1 sig=0.674		x2=.239 df=1 sig=0.625		x2=.190 df=1 sig=0.663	

APPENDIX II: Table 22 to Table 33: Trends of individual symptom change for depression, hopelessness, suicidality, anxiety, risk of alcohol and drug abuse

Table 22: Trends of individual symptom change for depression (%)

	Assessment 1		Assessment 2		Assessment 3	
	Experimental (n=1181)	**Control (n=1926)**	**Experimental (n=1156)**	**Control (n=1741)**	**Experimental (n=959)**	**Control (n=1493)**
1. Sadness I do not feel sad	610	53.5	71.3	690	79.4	750
I feel sad some time	34.2	41.3	26	27	18.5	20.1
I am sad all of the time	.9	10	1.2	1.3	.8	30
I am so sad or unhappy that I can't stand it	3.9	4.2	1.5	2.1	1.3	1.9
	x2=14.645 df=3 p =0.002		x2=2.116 df=3 p =0.549		**x2=10.688 df=3 p =0.014**	
2. Pessimism I am not discouraged about my future	82.5	83.5	87.6	85.2	92.8	91.1
I feel more discouraged about my future than I used to be	13.2	12.1	9.9	10.1	60	7.1
I do not expect things to work out for me	2.4	3.3	1.3	2.5	1.1	1.3
I feel my future is hopeless and will only get worse	1.9	1.1	1.3	2.2	0.1	0.5
	x2=5.772 df=3 p =0.123		x2=1.763 df=3 p =0.623		x2=1.917 df=3 p =0.590	
3. Past Failure I do not feel like a failure	73.4	760	820	80.7	860	840
I feel more discouraged about my future than I used to be	15.1	11.8	9.9	10.5	10.5	11.1
I do not expect things to work out for me	9.8	10.7	6.9	6.2	2.6	3.6
I feel I am a total failure as a person	1.7	1.4	10	1.8	.9	1.4
	x2=7.365 df=3 **p =0.061**		x2=.337 df=3 p =0.953		x2=3.485 df=3 p =0.323	

	Assessment 1		Assessment 2		Assessment 3	
	Experimental (n=1181)	**Control (n=1926)**	**Experiment al (n=1156)**	**Control (n=1741)**	**Experiment al (n=959)**	**Control (n=1493)**
4. Loss of Pleasure I get as much pleasure as I ever did from the things I enjoy	42.5	40	55.2	56.9	67.1	61.6
I do not enjoy things as much as I used to	36.8	34.8	29.4	27.7	240	26.8
I do not expect things to work out for me	17.1	21.2	13.1	12.4	7.3	9.3
I cannot get any pleasure from the things I used to enjoy	3.6	4.1	2.2	30	1.6	2.3
	x2=7.617 df=3 p =0.055		x2=2.737 df=3 p =.434		**x2=8.169 df=3 p =.043**	
5. Guilty Feelings I do not feel particularly guilty	48.3	41.2	59.8	55.4	70.1	65.2
I feel guilty over many things I have done or should have do	41.2	47.8	34.5	36.5	25.5	280
I do not expect things to work out for me	90	10	50	6.5	4.1	5.4
I feel guilty all of the time	1.5	10	.7	1.5	.3	1.4
	x2=17003 df=3 p =.001		x2=9.193 df=3 p =027		**x2=12.788 df=3 p =.005**	
6. Punishment Feelings I do not feel I am being punished	75.2	70	80.5	77.8	84.7	81.3
I feel I am being punished	14.2	18.4	13.1	15.7	11.8	10.7
I expect to be punished	50	5.3	30	40	1.3	4.5
I feel I am being punished	5.6	6.3	3.4	2.5	2.2	3.5
	x2=10.170 df=3 p =.017		x2=7.122 df=3 p =068		**x2=10.308 df=3 p =.016**	
7. Self –Dislike I feel the same about myself as ever	74.4	74.3	840	83.5	87.3	850
I have lost confidence in myself	11.9	13.3	10	9.4	7.4	8.5
I am disappointed in myself	12.6	9.9	4.9	60	4.5	5.3
I dislike myself	10	2.4	1.1	1.1	.8	1.3
	x2=11.900 df=3 p =.008		x2=1.641 df=3 p =.650		x2=4.195 df=3 p =.241	

	Assessment 1		Assessment 2		Assessment 3	
	Experimental (n=1181)	**Control (n=1926)**	**Experimental (n=1156)**	**Control (n=1741)**	**Experimental (n=959)**	**Control (n=1493)**
8. Self-Criticalness I do not criticize or blame myself more than usual	50.2	47.8	68.8	66.5	79.9	74.7
I am more critical of myself than I used to be	13.7	140	11.8	13.7	8.6	11.7
I criticize myself for all of my faults	18.1	19.5	11.7	110	7.8	90
I blame myself for everything bad that happens	180	18.7	7.6	8.8	3.7	4.7
	x2=1.781 df=3 p =.619		x2=2.386 df=3 p =.496		x2=6034 df=3 p =.110	
9. Suicidal Thoughts I do not have any thoughts of killing myself	87.5	86.1	92.8	920	96.8	92.8
I have thoughts of killing myself, but I would not carry the	9.4	10.3	5.4	60	2.7	4.8
I would like to kill myself	.5	1.6	.8	.6	.2	1.3
I would kill myself if I had the chance	2.6	2.1	10	1.4	.3	1.1
	x2=7.890 df=3 p =.048		x2=1.152 df=3 p =.764		**x2=15.430 df=3 p =.001**	
10. Crying I don't cry anymore than I used to	46.7	48.3	69.3	68.1	80.4	77.5
I cry more than I used to	5.7	7.2	5.1	5.5	4.4	5.4
I cry over every little thing	8.7	10.8	3.2	5.8	3.8	4.4
I feel like crying, but I cannot cry	38.9	33.8	22.4	20.7	11.5	12.8
	x2=10.300 df=3 p =.016		x2=5024 df=3 p =.170		x2=3033 df=3 p =.387	
11. Agitation I am not more restless or wound up than usual	650	60.5	790	76.2	85.3	79.6
I feel more restless or wound up than usual	19.5	22.7	15.7	15.5	11.8	15.3
I am so restless or agitated that it is hard to stay still	5.7	5.1	2.1	3.6	1.5	2.1
I am so restless or agitated that I have to keep moving or doing something	9.8	11.8	3.3	4.7	1.5	30
	x2=7.963 df=3 p =.047		x2=7.592 df=3 p =055		**x2=14.657 df=3 p =.002**	

	Assessment 1		Assessment 2		Assessment 3	
	Experimental (n=1181)	**Control (n=1926)**	**Experimental (n=1156)**	**Control (n=1741)**	**Experimental (n=959)**	**Control (n=1493)**
12. Loss of Interest I have not lost interest in other people or activities	540	530	680	660	72.2	69.4
I am less interested in other people or things than before	30.4	32.9	24.3	25.8	23.1	24.1
I have lost most of my interest in other people or things	120	10.8	6.2	6.3	40	50
It is hard to get interested in anything	3.6	3.4	1.6	1.9	.7	1.5
	x2=2.459 df=3 p =.483		x2=.788 df=3 p =.852		x2=5.429 df=3 p =.143	
13. Indecisiveness I make decisions about as well as ever	58.4	57.8	74.9	74.1	81.9	75.7
I find it more difficult to make decisions than usual	25.7	26.3	15.3	17.9	13.7	190
I have much greater difficulty in making decisions than I used to	8.3	8.8	5.1	5.2	2.6	2.6
I have trouble making any decisions	7.5	7.1	4.7	2.8	1.8	2.6
	x2=.539 df=3 p =..910		x2=7.243 df=3 p =.065		**x2=14.802 df=3 p =.002**	
14. Worthlessness I do not feel I am worthless	78.3	76.5	87.2	87.9	90.8	85.3
I do not consider myself as worthwhile and useful as I used	120	13.4	8.7	6.6	6.5	80
I feel more worthless as compared to other people	8.7	8.8	3.3	4.8	2.4	40
I feel utterly worthless	1.1	1.2	0.8	0.8	0.2	1.9
	x2=1.679 df=3 p =.642		x2=.510 df=3 p =.917		**x2=9.815 df=3 p =020**	
15. Loss of Energy I have as much energy as ever	55.3	48.9	69.1	67.1	80.7	70.4
I have less energy than I used to have	36.2	36.8	26.7	26.4	17.5	24.7
I do not have enough energy to do very much	6.2	12.9	3.6	5.9	1.1	3.2
I do not have enough energy to do anything	2.3	1.4	0.6	0.6	0.6	1.7
	x2=37.910 df=3 p <0001		x2=7.202 df=3 p =066		**x2=41077 df=3 p <0001**	

	Assessment 1		Assessment 2		Assessment 3	
	Experimental	**Control**	**Experimental**	**Control**	**Experimental**	**Control**
16. Changes in Sleeping Pattern I have not experienced any change in my sleeping pattern	58.3	47.7	65.5	61.1	67.2	59.6
I sleep somewhat more than usual	25.5	28.6	25.4	23.8	26.4	290
I sleep a lot more than usual	140	21.2	7.4	12.5	4.5	80
I sleep most of the day	2.3	2.4	1.6	2.5	1.9	3.4
	x2=24.295 df=3 p <0001		**x2=23.307 df=3 p <0001**		**x2=23.863 f=3 p<0001**	
17. Irritability I am no more irritable than usual	60.6	57.9	77.2	760	84.9	74.5
I am more irritable than usual	29.1	310	18.9	19.2	11.5	20
I am much more irritable than usual	6.4	7.6	2.9	3.3	30	3.2
I am irritable all the time	3.9	3.5	10	1.5	.6	2.3
	x2=3.178 df=3 p =.365		x2=3021 df=3 p =.388		**x2=28.304 df=3 p<0001**	
18. Changes in Appetite I have not experienced any change in my appetite	58.2	47.9	69.7	63.9	70.3	63.7
My appetite is somewhat less than usual	30.5	37.3	23.4	28.1	24.5	27.2
My appetite is much less than before	10	13.8	5.6	6.8	4.1	6.7
I have no appetite at all	1.2	1.1	1.3	1.2	1.2	2.4
	x2=27037 df=3 p<0001		**x2=9.729 df=3 p =.021**		**x2=14.453 df=3 p =.002**	
19. Concentration I can concentrate as well as ever	440	35.5	59.9	57.2	70.1	60.6
I cannot concentrate as well as usual	27.6	28.8	20.8	26.3	21.7	25.1
It is hard to keep my mind on anything for very long	27.9	34.9	18.8	16.3	7.4	11.4
I lose concentration all the time	.5	.8	.5	.2	.7	2.9
	x2=25037 df=3 p <0001		**x2=16.897 df=3 p =.001**		**x2=17.486 df=3 p=.001**	

	Assessment 1		Assessment 2		Assessment 3	
	Experimental (n=1181)	Control (n=1926)	Experimental (n=1156)	Control (n=1741)	Experimental (n=959)	Control (n=1493)
20. Tiredness or Fatigue I am no more tired or fatigued than usual	49.8	38.1	65.1	62.4	73.2	64.6
I get more tired or fatigued more easily than usual	38.8	46.7	29.1	30.9	22.8	30.5
I am too tired or fatigued to do a lot of the things I used to do	80	11.3	4.5	5.2	30	3.3
I am too tired or fatigued to do most of the things I used to do	3.4	3.9	1.3	1.5	10	1.6
	x2=39.848 df=3 p<0001		**x2=1.444 df=3 p =.695**		**x2=20.909 f=3 p<0001**	
21. Loss of Interest in Sex I have not noticed any recent change in my interest in sex	65.2	53.6	74.7	68.9	81.9	76.9
I am less interested in sex than I used to be	16.7	22.2	14.6	18.3	12.6	14.3
I am much less interested in sex now	12.4	16.9	6.8	8.2	4.3	5.6
I have lost interest in sex completely	5.7	7.4	40	4.7	1.2	3.2
	x2=34.732 df=3 p <0001		**x2=10.759 df=3 p =.013**		**x2=1041 df=3 p=.018**	

Table 23: Trends in individual symptom severity change for suicidality (%)

	Assessment 1		Assessment 2		Assessment 3	
	Experimental (n=1156)	Control (n=1926)	Experimental (n=1156)	Control (n=1741)	Experimental (n=959)	Control (n=1493)
1. I have a moderate to strong wish to live.	950	960	96.3	97.2	97.9	97.2
I have a weak wish to live.	4.7	3.7	3.6	2.4	1.5	1.9
I have no wish to live.	.3	.3	.2	.4	.5	.9
	x2=1.912 df=2 p =.385		x2=5.402 df=3 p =.145		x2=3.128 df=3 p =.372	
2. I have no wish to die.	90.2	87.2	93.3	93.7	95.1	95.2
I have a weak wish to die.	5.8	8.7	5.4	4.5	40	2.9
I have a moderate to strong wish to die.	4.1	4.1	1.2	1.8	.9	1.9
	x2=9065 df=2 p =.011		x2=2.805 df=2 p =.246		x2=4086 df=2 p =.130	
3. My reasons for living outweigh my reasons for dying	92.7	90.7	95.7	96.2	97.7	96.8
My reasons for living or dying are about equal.	5.7	70	3.4	2.7	1.4	1.9
My reasons for dying outweigh my reasons for living	1.6	2.3	10	1.1	.9	1.3
	x2=3.909 df=2 p =.142		x2=1.215 df=2 p =.545		x2=1.563 df=2 p =.458	

	Assessment 1		Assessment 2		Assessment 3	
	Experimental (n=1156)	**Control (n=1926)**	**Experimental (n=1156)**	**Control (n=1741)**	**Experimental (n=959)**	**Control (n=1493)**
I have no desire to kill yself.	95.2	95.3	96.5	970	98.1	97.2
have a weak desire to kill yself	3.6	4.2	30	2.4	1.6	1.7
have a moderate to strong esire to kill myself	1.3	.6	.4	.6	.3	1.1
	x2=4.937 df=2 p = 085		x2=1.276 df=2 p =.528		x2=4.947 df=2 p = 084	
I would try to save my life I found myself in a life-reatening situation	95.6	97.2	96.5	98.2	980	97.7
would take a chance on life death if I found myself in life threatening situation	3.6	2.2	3.1	1.3	1.9	1.3
would not take the steps ecessary to avoid death if I ound myself in a life hreatening situation	.8	.6	.3	.6	.1	.9
	x2=6094 df=2 p =.048		**x2=12.843 df=2 p =.002**		**x2=7.724 df=2 p =.021**	
	56	**52**	**11**	**16**	**8**	**22**
I have brief periods of hinking about killing myself which passes quickly	76.8	50	81.8	93.8	750	59.1
have periods of thinking bout killing myself which ast for moderate amount of ime	16.1	36.5	18.2	6.3	250	40.9
I have long periods of thinking about killing myself	7.1	13.5				
	x2=8.441 df=2 p =.015		x2=.940 df=1 p=.332		x2=.639 df=1 p =.424	
7. I rarely or only occasionally think about killing myself.	77.8	660	81.8	950	85.7	70.4
I have frequent thoughts about killing myself,	22.2	29.8	18.2	50	14.3	29.6
I continuously think about killing myself.	0	4.3				
	x2=3.342 df=2 p =.188		x2=1.411 df=1 p =.235		x2=.672 df=1 p =.412	
a I do not accept the idea of killing myself.	44.4	25.5	92.9	87.1	80	750
I neither accept nor reject the idea of killing myself.	56	52	11	16	8	22
I accept the idea of killing myself.	0	7.3				
	x2=7.354 df=2 p =.025		x2=.534 df=1 p =.465		x2=..142 df=1 p =.706	

	Assessment 1		Assessment 2		Assessment 3	
	Experimental (n=1156)	**Control (n=1926)**	**Experimental (n=1156)**	**Control (n=1741)**	**Experiment al (n=959)**	**Control (n=1493)**
9. I can keep myself from committing suicide.	58.5	32.1	90.9	82.1	92.3	73.1
I am unsure that I can keep myself from committing suicide.	41.5	52.8	9.1	17.9	7.7	26.9
I cannot keep myself from committing suicide.	0	15.1				
	x2=12.803 df=2 p =.002		x2=.786 df=1 p =.375		x2=1.966 df=1 p =.161	
10. I would not kill myself because of my family, friends, religion, possible injury from unsuccessful attempts etc	560	33.3	750	66.7	69.2	79.2
I am somewhat concerned about killing myself because of my family....etc	20	41.2	250	33.3	30.8	20.8
I am not or only a little concerned about killing myself because of family...etc	240	25.5				
	x2=6.623 df=2 p =.036		x2=.381 df=1 p =.537		x2=.452 df=1 p = 501	
11. My reasons for wanting to commit suicide are primarily aimed at influencing other people such as getting even with them, making them happier or pay attention etc	37.3	21.8	640	690	50	66.7
My reasons for wanting to commit suicide are not only aimed at influencing people but also represent a way of solving problems	25.5	38.2	360	310	50	33.3
My reasons for wanting to commit suicide are primarily based upon escaping from problems	37.3	40				
	x2=3.537 df=2 p =.171		x2=.149 df=1 p =.700		x2=.1076df=1 p =.300	
12. I have no specific plan about how to kill myself	69.2	47.6	92.9	94.1	81.8	72.2
I have considered ways of killing myself, but have not worked out the details	26.9	50	7.1	5.9	18.2	27.8
I have a specific plan for killing myself.	3.8	2.4				
	x2=5.301 df=2 p =.071		x2=020 df=1 p =.887		x2=..343 df=1 p =.558	

	Assessment 1		Assessment 2		Assessment 3	
	Experimental (n=1156)	**Control (n=1926)**	**Experimental (n=1156)**	**Control (n=1741)**	**Experimental (n=959)**	**Control (n=1493)**
13. I do not have access to a method or an opportunity to kill myself	78.4	60.5	41.7	66.7	66.7	66.7
The method that I would use for committing suicide takes time and I do not have a good opportunity to use the method	17.6	20.9	58.3	33.3	33.3	33.3
I have access or anticipate having access to the method that I would choose for killing myself and also have or shall have an opportunity to use it	3.9	18.6				
	x2=5.932 df=2 p =.052		x2=1.688 df=1 p =.194		x2=000 df=1 p =1000	
14. I do not have the courage or the ability to commit suicide.	66.7	47.8	64.3	72.2	70	50
I am unsure that I have the courage or the ability to commit suicide	33.3	41.3	35.7	27.8	30	50
I have the courage and the ability to commit suicide.	0	10.9				
	x2=7.445 df=2 p =.024		x2=.231 df=1 p =.631		x2=1086 df=1 p =.297	
15. I do not expect to make a suicide attempt.	64.7	52.1	80	850	80	680
I am unsure that I shall make a suicide attempt.	33.3	43.8	20	150	20	320
I.am sure that I shall make a suicide attempt.	20	4.2				
	x2=1.769 df=2 p =.413		x2=.151 df=1 p =.698		x2=.504 df=1 p =.478	
16. I have made no preparations for committing suicide.	920	79.5	80	85.7	50	88.9
I have made some preparations for committing suicide.	80	17.9	20	14.3	50	11.1
I have almost finished or completed my preparations for committing suicide	0	2.6				
	x2=3.433 df=2 p =.180		x2=069 df=1 p =.793		x2=.2.135 df=1 p =.144	
17. I have not written a suicide note.	80.8	86.5	50	77.8	750	60
I have thought about writing a suicide note or have started to write one but not completed it	19.2	13.5	50	22.2	250	40
I have completed a suicide note.	0	0	0	0	0	0
	x2=.504 df=1 p=.478		x2=1.250 df=1 p =.264		x2=.305 df=1 p =.581	

	Assessment 1		Assessment 2		Assessment 3	
	Experimental (n=1156)	**Control (n=1926)**	**Experimental (n=1156)**	**Control (n=1741)**	**Experimental (n=959)**	**Control (n=1493)**
18. I have made no arrangements for what will happen after I have an opportunity to kill my self	84.6	74.4	66.7	91.7	85.7	71.4
I have thought about making some arrangements for what will happen after I have committed suicide	13.5	23.1	33.3	8.3	14.3	28.6
I have made definite arrangements for what will happen after I have committed suicide	1.9	2.6				
	x2=1.506 df=2 p =.471		x2=1.800 df=1 p =.180		x2=.525 df=1 p =.469	
19. I have not hidden my desire to kill myself from people.	62.7	25.5	97.8	95.8	0	160
I have held back telling people about wanting to kill myself	27.5	490	1.7	3.5	64.3	560
I have attempted to hide, conceal, or lie about wanting to commit suicide	9.8	25.5	.4	.7	35.7	280
	x2=14.680 df=2 **p =001**		**x2=6037 df=2 p =.049**		x2=2.518 df=2 sp=.284	
N	**1181**	**1926**	**1156**	**1741**	**959**	**1493**
20. I have never attempted suicide.	94.1	97.8	98.5	97.3	0	18.2
I have attempted suicide once.	5.5	1.8	10	20	63.6	54.5
I have attempted suicide two or more times.	.4	.4	.4	.7	36.4	27.3
	x2=31.810 df=2 **p<0001**		x2=3.117 df=2 p =.210		x2=2.305 df=2 p =.316	
21 My wish to die during the last suicide attempt was low.	95.3	980	72.7	53.8	0	23.5
My wish to die during the last suicide attempt was moderate.	.4	.6	27.3	46.2	71.4	35.3
My wish to die during the last suicide attempt was high	4.3	1.5			28.6	41.2
	x2=24.389 df=2 p>0001		x2=.906 df=1 p =.341		x2=3.270 df=2 p =.195	

Table 24: Trends in individual symptom severity change for Anxiety (%)

	Assessment 1		Assessment 2		Assessment 3	
	Experimental (n=1181)	**Control (n=1926)**	**Experimental (n=1156)**	**Control (n=1741)**	**Experimental (n=959)**	**Control (n=1493)**
1. Numbness or tingling						
Not at all	45.3	490	74.1	730	81.2	78.5
Mildly	350	32.8	19.8	20.6	14.6	17.7
Moderately	15.9	13.1	5.2	4.8	3.2	2.7
Severely	3.8	5.1	.9	1.6	.9	1.1
	x2=9.654 df=3 p =022		x2=2.800 df=3 p =.423		x2=4.786 df=3 p =.188	
2. Feeling hot						
Not at all	39.9	34.5	58.5	50.1	66.1	58.6
Mildly	40	38.6	28.9	36.6	25.5	29.5
Moderately	15.9	18.9	10	10.3	6.9	9.3
Severely	4.2	80	2.6	30	1.5	2.6
	x2=25.223 df=3 p<0001		**x2=21.320 df=3 p<0001**		**x2=15.889 df=3 p =001**	
3.Wobbliness in legs						
Not at all	65.4	66.7	80.2	81.2	86.4	84.3
Mildly	20.6	19.3	13.2	13.6	9.2	11.9
Moderately	11.7	10.8	4.6	3.5	3.5	30
Severely	2.3	3.1	2.1	1.7	.9	.9
	x2=3002 df=3 p =.391		x2=2.674 df=3 p =.445		x2=4.590 df=3 p =.204	
4. Unable to relax Not at all	42.5	39.3	57.4	58.2	670	63.6
Mildly	28.5	30.4	28.6	27.1	23.1	23.5
Moderately	20	19.5	9.1	8.8	70	9.3
Severely	90	10.8	4.9	5.9	2.9	3.6
	x2=5.203 df=3 p =.158		x2=1.877 df=3 p =.598		x2=5.590 df=3 p =.133	
5. Fear of the worst happening						
Not at all	31.8	29.2	51.7	51.7	62.4	54.4
Mildly	22.5	24.6	25.3	24.4	21.1	24.5
Moderately	18.7	19.1	11.6	12.6	8.1	10.4
Severely	26.9	27.2	11.4	11.3	8.4	10.8
	x2=3016 df=3 p =.389		x2=.753 df=3 p =.861		**x2=16035 df=3 p =001**	
6. Dizzy or light headed						
Not at all	37.7	37.4	57.7	58.7	68.8	650
Mildly	35.9	33.5	28.8	27.6	22.4	24.3
Moderately	18.7	20.8	9.6	9.6	6.8	7.4
Severely	7.8	8.4	3.9	4.1	20	3.3
N	**1181**	**1926**	**1156**	**1741**	**959**	**1493**
	x2=3.235 df=3 p =.357		x2=.526 df=3 p =.913		x2=6066+168 df=3 p=.108	

	Assessment 1		Assessment 2		Assessment 3	
	Experimental (n=1181)	**Control (n=1926)**	**Experimental (n=1156)**	**Control (n=1741)**	**Experimental (n=959)**	**Control (n=1493)**
7. Heart pounding/racing						
Not at all	410	40.6	60.9	59.8	71.4	63.6
Mildly	30.8	31.6	24.8	260	19.6	24.1
Moderately	19.3	18.1	10	10.1	5.1	8.4
Severely	8.9	9.7	4.4	4.1	3.9	3.9
	x2=1.218 df=3 p =.749		x2=.711 df=3 p =.871		**x2=19.356 df=3 p<0001**	
8. Unsteady						
Not at all	51.1	52.1	70.9	680	77.6	73.4
Mildly	31.8	27.7	19.7	21.2	15.7	17.3
Moderately	12.2	14.7	7.3	80	4.1	6.6
Severely	4.9	5.5	2.2	2.7	2.6	2.7
	x2=7.801 df=3 p =050		**x2=2.902 df=3 p =.407**		**x2=9.153 df=3 p =.027**	
9. Terrified						
Not at all	47.2	43.5	71.5	63.5	75.5	690
Mildly	24.2	28.4	150	23.3	150	19.9
Moderately	18.6	17.2	8.7	9.2	5.8	70
Severely	10	10.9	4.8	4.1	3.7	4.1
	x2=8.260 df=3 p =.041		**x2=31.647df=3 p<0001**		**x2=12.499 df=3 p =.006**	
10. Nervous						
Not at all	32.9	34.5	51.2	59.3	630	60.5
Mildly	31.5	350	32.6	25.6	26.4	25.1
Moderately	22.9	17.2	10.6	9.3	7.4	9.3
Severely	12.7	13.3	5.5	5.7	3.1	5.1
	x2=15.297 df=3 p =.002		**x2=21063df=3 p<0001**		**x2=8.670 df=3 p =.034**	
11. Feeling of choking						
Not at all	66.1	690	84.6	83.7	89.9	85.3
Mildly	20.9	190	11.3	110	6.7	10.1
Moderately	9.5	8.4	30	3.8	2.1	30
Severely	3.6	3.6	1.1	1.5	1.4	1.6
	x2=3.158 df=3 p =.368		x2=1.967 df=3 p =.579		**x2=11.438 df=3 p =.010**	
12. Hands trembling						
Not at all	54.9	580	76.4	75.2	81.3	78.1
Mildly	27.8	26.1	16.2	170	13.3	14.9
Moderately	12.7	11.1	5.2	5.7	3.5	4.2
Severely	4.6	4.8	2.2	2.1	1.9	2.8
	x2=3.742 df=3 p =.291		x2=.644 df=3 p =.886		x2=4.602 df=3 p =.203	

	Assessment 1		Assessment 2		Assessment 3	
	Experimental (n=1181)	**Control (n=1926)**	**Experimental (n=1156)**	**Control (n=1741)**	**Experimental (n=959)**	**Control (n=1493)**
13. Shaky						
Not at all	60.7	59.6	81.4	81.7	87.4	830
Mildly	26.1	25.6	13.3	12.5	8.8	11.7
Moderately	8.7	10.3	3.9	3.9	2.6	3.2
Severely	4.5	4.5	1.4	1.9	1.3	2.1
	x2=2.137 df=3 p =.544		x2=1.310 df=3 p =.727		**x2=9.134 df=3 p =.028**	
14. Fear of losing control						
Not at all	55.3	540	75.2	75.5	79.3	75.7
Mildly	24.3	23.2	15.2	16.1	12.6	15.5
Moderately	12.8	130	5.1	5.5	5.4	5.1
Severely	7.5	9.9	4.5	2.9	2.6	3.7
	x2=4.980 df=3 p =.173		x2=5.936 df=3 p =.115		x2=6.512 df=3 p =.089	
15. Difficulty breathing						
Not at all	72.3	69.8	86.3	84.8	89.2	85.3
Mildly	14.8	15.6	8.6	9.5	7.3	10
Moderately	9.1	9.6	3.2	3.6	2.7	3.2
Severely	3.8	50	1.9	2.1	.7	1.5
	x2=3.429 df=3 p =.330		x2=1.272 df=3 p =.736		**x2=9.380 df=3 p =.025**	
16. Fear of dying						
Not at all	51.1	54.3	82.3	78.3	860	80.7
Mildly	21.1	17.9	10	11.4	8.1	10.6
Moderately	11.4	9.6	3.6	5.5	3.2	40
Severely	16.4	18.2	40	4.8	2.6	4.7
	x2=8.268 df=3 p =.041		**x2=8.469 df=3 p =.037**		**x2=13.112 df=3 p =.004**	
17. Scared						
Not at all	40.7	36.9	61.2	65.2	74.2	67.2
Mildly	29.6	31.7	26.6	21.3	170	20.9
Moderately	18.1	170	8.4	7.9	5.8	7.2
Severely	11.6	14.4	3.8	5.7	2.9	4.7
	x2=8.274 df=3 p =.041		**x2=15.151 df=3 p =.002**		**x2=14.983 df=3 p =.002**	
18. Indigestion or discomfort in abdomen						
Not at all	40.2	35.7	61.1	60.5	70.9	66.7
Mildly	24.5	30.1	24.3	21.2	18.3	21.3
Moderately	22.1	18.5	9.5	12.3	7.3	7.2
Severely	13.1	15.7	5.1	60	3.5	4.8
	x2=19.957 df=3 p<0001		**x2=8.745 df=3 p =.033**		x2=6.401df=3 p =.094	
19. Faint Not at all	84.8	84.1	910	90	93.5	92.4
Mildly	9.5	10.5	5.5	6.6	4.2	4.8
Moderately	3.7	3.5	2.5	2.5	1.1	1.7
Severely	20	1.9	10	.9	1.1	1.1
	x2=.868 df=3 p =.883		x2=1.533 df=3 p =.675		x2=1.889 df=3 p =.596	

	Assessment 1		Assessment 2		Assessment 3	
	Experimental (n=1181)	Control (n=1926)	Experimental (n=1156)	Control (n=1741)	Experimental (n=959)	Control (n=1493)
20. Face flushed Not at all	69.3	68.9	86.2	84.3	89.3	85.9
Mildly	210	20.4	9.2	10.6	7.4	9.5
Moderately	70	7.7	3.5	3.5	1.8	3.1
Severely	2.7	30	1.1	1.6	1.5	1.5
	x2=.938 df=3 p =.816		x2=2.773 df=3 p =.428		x2=7.602 df=3 p = 055	
21. Sweating (not due to heat) Not at all	51.9	49.9	73.9	70.7	790	74.9
Mildly	28.3	28.3	17.1	190	15.2	170
Moderately	13.4	140	5.9	60	3.8	50
Severely	6.4	7.9	3.1	4.3	20	3.2
	x2=.2.680 df=3 p =.444		x2=5.1222 df=3 p =.163		x2=7.155 df=3 p =.057	

Table 19: Trends in usage of alcohol and drug in the last 3 months preceding the survey (%)

	Assessment 1		Assessment 2		Assessment 3	
	Experimental	Controls	Experimental	Controls	Experimental	Controls
Alcohol once or twice	69.8	60.9	55.8	60.8	60.4	55.2
Monthly	11.9	18.4	23.3	16.1	180	17.8
Weekly	13.1	15.4	15.7	14.7	18.4	20.4
Daily or almost daily	5.2	5.3	5.2	8.3	3.2	7.7
N	504	792	407	577	283	404
	x2=13.267 df=3 p= .004		**x2=11.110 df=3 p=. 011**		**x2=13.940 df=3 p= .003**	
Tobacco once or twice	69.7	66.9	62.7	62.9	640	60.5
Monthly	11.8	10.6	9.5	15.1	17.4	15.8
Weekly	9.6	8.6	13.5	8.1	10.3	10.5
Daily or almost daily	90	13.9	14.3	140	8.2	13.2
N	178	245	126	186	73	114
	x2=2.437 df=3 p= .487		x2=3.955 df=3 p= .266		x2=1.152 df=3 p= .765	
Cannabis once or twice	57.1	64.6	63.6	68.6	65.4	64.3
Monthly	23.2	17.2	15.2	18.6	26.9	14.3
Weekly	16.1	13.1	15.2	8.6	7.7	7.1
Daily or almost daily	3.6	5.1	6.1	4.3	0	14.3
N	56	99	33	70	26	42
	x2=1.391 df=3 p= .708		x2=1.286 df=3 p= .732		x2=5065 df=3 p= .167	
Cocaine once or twice	63.3	62.5	66.7	82.8	66.7	63.2
Monthly	16.7	12.5	16.7	10.3	33.3	15.8
Weekly	20	10	8.3	3.4	0	5.3
Daily or almost daily	0	150	8.3	3.4	0	15.8
N	30	40	12	29	6	19
	x2=5.910 df=3 p= .116		x2=1.390 df=3 p= .708		x2=1.974 df=3 p= .578	

	Assessment 1		Assessment 2		Assessment 3	
	Experimental	**Control**	**Experimental**	**Control**	**Experimental**	**Control**
Amphetamine once or twice	70.1	66.9	71.2	74.5	64.3	60
Monthly	18.1	19.3	16.7	10.9	21.4	20
Weekly	7.9	10.5	10.6	3.6	9.5	8.9
Daily or almost daily	3.9	3.3	1.5	10.9	4.8	11.1
N	**127**	**181**	**66**	**137**	**42**	**90**
	x2=.800 df=3 p= .849		**x2=9.876 df=3 p= .020**		x2=1.397 df=3 p= .706	
Inhalants once or twice	89.7	78.3	87.5	76.9	66.7	47.1
Monthly	6.9	8.7	0	15.4	0	29.4
Weekly	3.4	8.7	12.5	0		
Daily or almost daily	0	4.3	0	7.7	33.3	23.5
N	**29**	**46**	**8**	**13**	**3**	**17**
	x2=2.347 df=3 p= .504		x2=3.540 df=3 p= .316		x2=1.176 df=2 p= .555	
Sedatives once or twice	90.5	86.4	64.7	88.9	82.4	77.1
Monthly	5.7	5.1	11.8	9.3	17.6	10.4
Weekly	10	3.3	14.7	0		
Daily or almost daily	2.9	5.1	8.8	1.9	0	12.5
N	**105**	**273**	**34**	**54**	**17**	**48**
	x2=2.635 df=3 p= .451		**x2=11.834 df=3 p= .008**		x2=2.703 df=2 p= .259	
Hallucinogens once or twice	83.3	82.6	50	100	100	47.4
Monthly	8.3	8.7	250	0	0	21.1
Weekly	8.3	4.3			0	10.5
Daily or almost daily	0	4.3	250	0	0	21.1
N	**24**	**23**	**4**	**10**	**3**	**19**
	x2=1.338 df=3 p= .720		x2=5.833 df=2 p= 054		x2=2.895 df=3 sp=.408	
Opioids once or twice	85.7	79.2	40	750	100	53.8
Monthly	9.5	8.3	20	8.3	0	7.7
Weekly	0	8.3			0	7.7
Daily or almost daily	4.8	4.2	40	16.7	0	30.8
N	**21**	**24**	**5**	**12**	**4**	**13**
	x2=1.835 df=3 sp=.607		x2=1.893 df=2 p= .388		x2=2.853 df=3 p= .415	

Table 25: Trends of how often one had a strong desire or urge to use alcohol of drugs of abuse in the last 3 months (%)

	Assessment 1		Assessment 2		Assessment 3	
	Experimental	**Controls**	**Experimental**	**Controls**	**Experimental**	**Controls**
Alcohol once or twice	66.8	63.4	51.7	60.7	68.1	58.4
Monthly	9.2	150	16.9	13.3	14.5	15.6
Weekly	14.3	12.7	21.4	14.8	10.6	8.1
Daily or almost daily	9.7	8.9	10	11.2	6.8	17.9
N	**504**	**792**	**407**	**577**	**283**	**404**
	x2=6.391 df=3 p= .094		**x2=8.432 df=3 p= 038**		**x2=31.243 df=3 p<0 0001**	
Tobacco once or twice	54.1	57.5	54.3	53.7	540	40.8
Monthly	8.2	13.3	6.2	130	13.5	12.7
Weekly	14.3	5.8	14.8	11.1	17.3	12.7
Daily or almost daily	23.5	23.3	24.7	22.2	15.2	33.8
N	**178**	**245**	**126**	**186**	**73**	**114**
	x2=5.424 df=3 p= .143		x2=2.747 df=3 p= .432		x2=3.323 df=3 p= .345	
Cannabis once or twice	51.9	50	36.8	50.5	570	45.7
Monthly	25.9	27.8	31.6	21.1	210	14.3
Weekly	7.4	13.9	10.5	13.2	10	160
Daily or almost daily	14.8	8.3	21.1	15.3	120	240
N	**56**	**99**	**33**	**70**	**26**	**42**
	x2=1.197 df=3 p= .754		x2=4.993 df=3 p= .172		x2=1.462 df=3 p= .691	
Cocaine once or twice	57.1	71.4	50	69.2		33.3
Monthly	9.5	10.7	0	7.7		250
Weekly	28.6	7.1	0	7.7		8.3
Daily or almost daily	4.8	10.7	50	15.4		33.3
N	30	40	12	29	6	19
	x2=4.288 df=3 p= .232		x2=3033 df=3 p= .387			
Amphetamine once or twice	54.2	66.3	45.9	57.4	49.1	38.5
Monthly	20.3	18.5	24.3	19.7	130	8.1
Weekly	13.6	9.8	13.5	13.1	29.1	28.1
Daily or almost daily	11.9	5.4	16.2	9.8	8.7	25.2
N	**127**	**181**	**66**	**137**	**42**	**90**
	x2=3.240 df=3 p= .356		x2=1.568 df=3 p= .667		**x2=9.998 df=3 p= .019**	
Inhalants once or twice	60	80	50	57.1		38.5
Monthly	20	150	0	14.3		23.1
Weekly	0	50	0	28.6		
Daily or almost daily	20	0	50	0		38.5
N	**29**	**46**	**8**	**13**	**3**	**17**
	x2=4.964 df=3 p= .174		x2=4.371 df=3 p= .224			

	Assessment 1		Assessment 2		Assessment 3	
	Experimental	**Controls**	**Experimental**	**Controls**	**Experimental**	**Controls**
Sedatives once or twice	830	77.4	47.4	690	66.7	61.9
Monthly	10.6	14.3	21.1	6.9	0	14.3
Weekly	2.1	2.3	5.3	6.9	16.7	0
Daily or almost daily	4.3	60	26.3	17.2	16.7	23.8
N	**105**	**273**	**34**	**54**	**17**	**48**
	x2=.678 df=3 p= .878		x2=3.229 df=3 p= .358		x2=4.481 df=3 p= .214	
Hallucinogens once or twice	64.7	76.9	250	50	50	35.7
Monthly	5.9	15.4	250	12.5	0	7.1
Weekly	17.6	7.7	250	250	50	7.1
Daily or almost daily	11.8	0	250	12.5	0	50
N	**24**	**23**	**4**	**10**	**3**	**19**
	x2=2.899 df=3 sp=.407		x2=.900 df=3 p= .825		x2=3.810 df=3 p= .283	
Opioids once or twice	54.5	68.2	250	40	50	42.9
Monthly	18.2	22.7	250	40	50	14.3
Weekly	0	4.5				
Daily or almost daily	27.3	4.5	50	20	0	42.9
N	**21**	**24**	**5**	**12**	**4**	**13**
	x2=3.911 df=3 p= .271		x2=.900 df=3 p= .638		x2=1.768 df=2 p= .413	

Table 26: Trends of how often the use of drugs mentioned had led to health problems in the last 3 months (%)

	Assessment 1		Assessment 2		Assessment 3	
	Experimental	**Controls**	**Experimental**	**Controls**	**Experimental**	**Controls**
Alcohol once or twice	70.6	61.2	58.7	63.9	65.3	60
Monthly	12.5	23.6	24.8	16.1	24.5	16.1
Weekly	7.5	7.6	9.2	12.2	8.2	8.6
Daily or almost daily	9.4	7.6	7.3	7.8	20	15.3
N	**504**	**792**	**407**	**577**	**283**	**404**
	x2=7.855 df=3 p =049		x2=3.712 df=3 p =.294		**x2=6.741 df=3 sig =050**	
Tobacco once or twice	64.6	67.7	61.5	65.5	61.7	55.5
Monthly	12.5	8.1	23.1	18.2	20.8	10
Weekly	8.3	9.7	3.8	5.5	9.1	70
Daily or almost daily	14.6	14.5	11.5	10.9	10.2	27.5
N	**178**	**245**	**126**	**186**	**73**	**114**
	x2=.627 df=3 p =.890		x2=.355 df=3 p =.949		x2=5090 df=3 p=.165	

	Assessment 1		Assessment 2		Assessment 3	
	Experimental	**Controls**	**Experimental**	**Controls**	**Experimental**	**Controls**
Cannabis once or twice	60.9	62.5	250	47.8	66.7	43.8
Monthly	21.7	29.2	50	26.1	33.3	12.5
Weekly	130	8.3	250	17.4	0	18.8
Daily or almost daily	4.3	0	0	8.7	0	250
N	**56**	**99**	**33**	**70**	**26**	**42**
	x2=1.547 df=3 p=.671		x2=1.511 df=3 p=.680		x2=2.287 df=3 p=.515	
Cocaine once or twice	57.1	28.6	40	71.4		63.6
Monthly	14.3	14.3	40	28.6		9.1
Weekly	14.3	42.9	20	0		18.2
Daily or almost daily	14.3	14.3				9.1
N	30	40	12	29	6	19
	x2=1.667 df=3 p=.644		x2=2008 df=2 p=.366			
Amphetamine once or twice	63.6	54.5	85.7	57.1	750	57.1
Monthly	18.2	30.3	14.3	250	250	190
Weekly	13.6	6.1	0	10.7	0	9.5
Daily or almost daily	4.5	9.1	0	7.1	0	14.3
N	**127**	**181**	**66**	**137**	**42**	**90**
	x2=2.158 df=3 p=.540		x2=2.259 df=3 p=.521		x2=1.190 df=3 p=.755	
Inhalants once or twice	70	50	66.7	750	0	37.5
Monthly	10	250	0	250	100	250
Weekly	10	0			0	12.5
Daily or almost daily	10	250	33.3	0	0	250
N	**29**	**46**	**8**	**13**	**3**	**17**
	x2=2.291 df=3 p=.514		x2=3.438 df=2 p=.179		x2=2.250 df=3 p=.522	
Sedatives once or twice	86.7	72.9	66.7	84.6	750	71.4
Monthly	0	18.8	33.3	7.7	250	7.1
Weekly	6.7	2.1			0	7.1
Daily or almost daily	6.7	6.3	0	7.7	0	14.3
N	**105**	**273**	**34**	**54**	**17**	**48**
	x2=3.855 df=3 p=.277		x2=1.609 df=2 p=.447		x2=1.755 df=3 p=.625	
Hallucinogens once or twice	80	50	100	50	100	28.6
Monthly	20	33.3	0	250	0	28.6
Weekly	0	16.7	0	250	0	14.3
Daily or almost daily	0	0	0	0	0	28.6
N	**24**	**23**	**4**	**10**	**3**	**19**
	x2=2.424 df=2 p=.298		x2=1.500 df=2 p=.472		x2=1.905 df=3 p=.592	
Opioids once or twice	80	46.2	250	60	100	250
Monthly	20	23.1	250	0	0	250
Weekly	0	15.4	50	40	0	250
Daily or almost daily	0	15.4	0	0	0	250
N	**21**	**24**	**5**	**12**	**4**	**13**
	x2=2.298 df=3 p=.513		x2=1.912 df=2 p=.384		x2=1.875 df=3 p=.599	

Table 27: Trends on how often the use of drugs mentioned had led to a Social problem in the last 3 months (%)

	Assessment 1		Assessment 2		Assessment 3	
	Experimental	**Control**	**Experimental**	**Control**	**Experimental**	**Control**
Alcohol once or twice	72.4	63.5	68.6	62.6	71.4	630
Monthly	11.2	19.3	24.3	21.9	12.8	19.6
Weekly	90	9.4	5.7	7.1	0	6.5
Daily or almost daily	7.5	7.8	1.4	8.4	5.8	10.9
N	**504**	**792**	**407**	**577**	**283**	**404**
	X2=4.175 df=3 p=.243		X2=4.277 df=3 p=.233		X2=3.394 df=3 p=.335	
Tobacco once or twice	72.5	57.1	70.8	57.4	65.8	57.7
Monthly	10	12.5	16.7	24.1	18.4	19.2
Weekly	50	12.5	4.2	3.7	7.7	3.8
Daily or almost daily	12.5	17.9	8.3	14.8	8.1	19.2
N	**178**	**245**	**126**	**186**	**73**	**114**
	X2=2.822 df=3 p=.420		X2=1.459 df=3 p=.692		X2=.407 df=3 p=.739	
Cannabis once or twice	55.6	40	40	33.3	33.3	35.7
Monthly	22.2	13.3	20	44.4	66.7	14.3
Weekly	11.1	33.3	40	16.7	0	28.6
Daily or almost daily	11.1	13.3	0	5.6	0	21.4
N	**56**	**99**	**33**	**70**	**26**	**42**
	X2=2.702 df=3 p=.440		X2=1.905 df=3 p=.592		X2=4.385 df=3 p=.223	
Cocaine once or twice	33.3	53.3	750	50	50	57.1
Monthly	66.7	20	250	37.5		
Weekly	0	13.3	0	12.5	0	14.3
Daily or almost daily	0	13.3			50	28.6
N	30	40	12	29	6	19
	X2=2.960 df=3 p=.398		X2=.911 df=2 p=.634		X2=.514 df=2 p=.773	
Amphetamine once or twice	60	66.7	80	58.8	100	52.9
Monthly	30	5.6	20	23.5	0	17.6
Weekly	0	5.6	0	11.8		
Daily or almost daily	10	22.2	0	5.9	0	29.4
N	**127**	**181**	**66**	**137**	**42**	**90**
	X2=3.827 df=3 p=.281		X2=1.176 df=3 p=.759		X2=.847 df=2 p=.655	
Inhalants once or twice	50	57.1	50	0	0	250
Monthly	250	14.3	0	50	0	250
Weekly	250	0	50	50	0	250
Daily or almost daily	0	28.6			100	250
N	**29**	**46**	**8**	**13**	**3**	**17**
	X2=3077 df=3 p=.380		X2=3000 df=2 p=.223		X2=1.875 df=3 p=.599	

	Assessment 1		Assessment 2		Assessment 3	
	Experimental	**Control**	**Experimental**	**Control**	**Experimental**	**Control**
Sedatives once or twice	80	70	750	66.7	100	50
Monthly	20	20	250	22.2	0	33.3
Weekly			0	11.1		
Daily or almost daily	0	10	0	11.1	0	16.7
N	**105**	**273**	**34**	**54**	**17**	**48**
	X2=1.103 df=2 p =.576		X2=.481 df=2 p =.786		X2=.875 df=2 p =.646	
Hallucinogens once or twice	750	57.1	100	50	100	750
Monthly	250	14.3	0	50		
Weekly	0	14.3				
Daily or almost daily	0	14.3			0	250
N	**24**	**23**	**4**	**10**	**3**	**19**
	X2=1.431 df=3 p =.698		X2=1.333 df=1 p =.248		X2=.313 df=1 p =.576	
Opioids once or twice	66.7	66.7	50	50	100	33.3
Monthly	33.3	0	50	0	0	33.3
Weekly	0	11.1	0	50		
Daily or almost daily	0	22.2			0	33.3
N	**21**	**24**	**5**	**12**	**4**	**13**
	X2=4000 df=3 p =.261		X2=2000 df=2 p =.368		X2=1.333 df=2 p =.513	

Table 28: Trends in how often the use of drugs mentioned had led to legal problem in the last 3 months (%)

	Assessment 1		Assessment 2		Assessment 3	
	Experimental	**Controls**	**Experimental**	**Controls**	**Experimental**	**Controls**
Alcohol once or twice	73.5	65.8	79.7	70.5	780	70
Monthly	10.3	20	11.9	18.9	11.3	10
Weekly	11.8	5.8	6.8	2.5	7.1	10
Daily or almost daily	4.4	8.4	1.7	8.2	3.6	10
N	**504**	**792**	**407**	**577**	**283**	**404**
	x2=6.269 df=3 p= 099		x2=6.313 df=3 p=097		x2=1.588 df=3 p= .662	
Tobacco once or twice	57.1	61.3	83.3	63.6	66.7	42.1
Monthly	21.4	9.7	16.7	15.2	11.1	15.8
Weekly	7.1	6.5	0	30	11.1	10.5
Daily or almost daily	14.3	22.6	0	18.2	11.1	31.6
N	**178**	**245**	**126**	**186**	**73**	**114**
	x2=1.365 df=3 p= .714		x2=3054 df=3 p=.383		x2=1.856 df=3 p= .603	
Cannabis once or twice	66.7	68.8	750	41.7		37.5
Monthly	16.7	6.3	0	50		12.5
Weekly	16.7	6.3	250	0		12.5
Daily or almost daily	0	18.8	0	8.3		37.5
N	**56**	**99**	**33**	**70**	**26**	**42**
	x2=2.169 df=3 p= .538		x2=6000 df=3 p= .112			

	Assessment 1		Assessment 2		Assessment 3	
	Experimental	**Controls**	**Experimental**	**Controls**	**Experimental**	**Controls**
Cocaine once or twice	100	66.7	100	20		100
Monthly	0	16.7	0	60		
Weekly			0	20		
Daily or almost daily	0	16.7				
N	30	40	12	29	6	19
	x2=.467 df=2 p= .792		x2=4.800 df=2 p= .091			
Amphetamine once or twice	50	61.5	80	72.7		750
Monthly	0	7.7	20	9.1		12.5
Weekly	50	7.7	0	18.2		
Daily or almost daily	0	23.1				12.5
N	**127**	**181**	**66**	**137**	**42**	**90**
	x2=2.981 df=3 p= .395		x2=1.261 df=2 p= .532			
Inhalants once or twice		42.9	50	0		66.7
Monthly		28.6	0	50		33.3
Weekly			0	50		
Daily or almost daily		28.6	50	0		
N	**29**	**46**	**8**	**13**	**3**	**17**
			x2=4000 df=3 p= .261			
Sedatives once or twice	66.7	67.9	750	87.5		750
Monthly	33.3	21.4				250
Weekly			250	12.5		
Daily or almost daily	0	10.7				
N	**105**	**273**	**34**	**54**	**17**	**48**
	x2=.492 df=2 p=.782		x2=.300 df=1 p=.584			
Hallucinogens once or twice	100	57.1	100	66.7	100	66.7
Monthly	0	14.3	0	33.3	0	33.3
Weekly	0	28.6				
N	**24**	**23**	**4**	**10**	**3**	**19**
	x2=.686 df=2 p= .710		x2=.444 df=1 p= .505		x2=.444 df=1 p= .505	
Opiods once or twice	50	62.5	66.7	50	100	50
Monthly			33.3	50		
Weekly	50	12.5				
Daily or almost daily	0	250			0	50
N	**21**	**24**	**5**	**12**	**4**	**13**
	x2=1.667 df=2 p= .435		x2=.139 df=1 p= .709		x2=.750 df=1 p=.386	

Table 29: Trends of how often the use of drugs mentioned had led to financial problems in the last 3 months (%)

	Assessment 1		Assessment 2		Assessment 3	
	Experimental	**Controls**	**Experimental**	**Controls**	**Experimental**	**Controls**
Alcohol once or twice	70.8	62.5	60.8	50.1	68.8	59.8
Monthly	9.9	22.2	20.9	27.1	12.7	13.4
Weekly	120	5.1	12.3	12.7	9.3	7.2
Daily or almost daily	7.3	10.2	60	6.2	9.3	19.6
N	192	176	116	195	54	97
	x2=15.603 df=3 p =.001		**x2=8.848 df=3 p =.031**		x2=2.906 df=3 p=.406	
Tobacco once or twice	550	60.9	36.8	50	42.1	42.4
Monthly	2.5	130	23.7	21.2	26.3	9.1
Weekly	17.5	6.5	10.5	9.6	15.8	30
Daily or almost daily	250	19.6	28.9	19.2	15.8	45.5
N	**178**	**245**	**126**	**186**	**73**	**114**
	x2=5.552 df=3 p =.136		x2=1.825 df=3 p =.609		**x2=7.943 df=3 p =.047**	
Cannabis once or twice	66.7	40	42.9	58.8	50	30
Monthly	11.1	20	42.9	23.5	0	20
Weekly	22.2	20	0	5.9	0	20
Daily or almost daily	0	20	14.3	11.8	50	30
N	**56**	**99**	**33**	**70**	**26**	**42**
	x2=2.880 df=3 p =.410		x2=1.305 df=3 p =.728		x2=1.200 df=3 p =.753	
Cocaine once or twice	66.7	71.4	40	0		60
Monthly			40	66.7		40
Weekly	33.3	0	0	33.3		
Daily or almost daily	0	28.6	20	0		
N	30	40	12	29	6	19
	x2=3.197 df=2 p =.202		x2=3.733 df=3 p =.292			
Amphetamine once or twice	68.4	57.1	46.2	57.1	62.5	50
Monthly	15.8	190	23.1	35.7	12.5	35.7
Weekly	10.5	4.8	7.7	7.1		
Daily or almost daily	5.3	190	23.1	0	250	14.3
N	**127**	**181**	**66**	**137**	**42**	**90**
	x2=2.222 df=3 p =.528		x2=3.754 df=3 p =.289		x2=1.473 df=2 p =.479	
Inhalants once or twice	66.7	50	50	50	0	250
Monthly			50	0	0	750
Weekly	33.3	250				
Daily or almost daily	0	250	0	50	100	0
N	**29**	**46**	**8**	**13**	**3**	**17**
	x2=1.925 df=2 p =.382		x2=2000 df=2 p =.368		x2=500 df=2 p =.082	

	Assessment 1		Assessment 2		Assessment 3	
	Experimental	**Controls**	**Experimental**	**Controls**	**Experimental**	**Controls**
Sedatives once or twice	90	68.8	57.1	71.4	0	60
Monthly	10	12.5	14.3	14.3	0	20
Weekly	0	9.4	0	14.3	0	20
Daily or almost daily	0	9.4	28.6	0	100	0
N	**105**	**273**	**34**	**54**	**17**	**48**
	x2=2.381 df=3 p =.497		x2=3 111 df=3 p =.375		x2=6000 df=3 p =.112	
Hallucinogens once or twice	100	37.5	50	50	100	250
Monthly	0	250	50	0	0	250
Weekly	0	12.5			0	250
Daily or almost daily	0	250	0	50	0	250
N	**24**	**23**	**4**	**10**	**3**	**19**
	x2=2.500 df=3 p =.475		x2=2000 df=2 p =.368		x2=1.875 df=3 p =.599	
Opioids once or twice	50	40	50	0	100	66.7
Monthly	0	10	250	0	0	33.3
Weekly	50	10	0	50		
Daily or almost daily	0	40	250	50		
N	**21**	**24**	**5**	**12**	**4**	**13**
	x2=4.200 df=3 p =.241		x2=3.750 df=3 p =.290		x2=.444 df=1 p =.505	

Table 30: Trends on how often the use of drugs mentioned had led to failure to do what was normally expected in the last 3 months (%)

	Assessment 1		Assessment 2		Assessment 3	
	Experimental	**Controls**	**Experimental**	**Controls**	**Experimental**	**Controls**
Alcohol once or twice	71.4	67.8	69.7	69.8	68.6	56.3
Monthly	16.8	20	13.1	18.2	13.7	18.4
Weekly	7.6	3.9	12.1	4.7	10.8	10.3
Daily or almost daily	3.4	8.3	5.1	7.3	5.9	13.8
N	**504**	**792**	**407**	**577**	**283**	**404**
	x2=7.385 df=4 p= .117		x2=6.534 df=3 p= .088		x2=3.717 df=4 p= .446	
Tobacco once or twice	58.8	70.2	50	60	60	33.3
Monthly	11.8	10.6	22.2	17.5	13.3	33.3
Weekly	17.6	2.1	11.1	7.5	6.7	4.8
Daily or almost daily	11.8	170	16.7	150	20	28.6
N	**178**	**245**	**126**	**186**	**73**	**114**
	x2=5.287 df=3 p= .152		x2=.574 df=3 p= .902		x2=3.114 df=3 p=.374	
Cannabis once or twice	58.3	36.4	33.3	41.2	100	0
Monthly	16.7	40.9	16.7	29.4	0	40
Weekly	16.7	4.5	16.7	11.8	0	10
Daily or almost daily	8.3	18.2	33.3	17.6	0	50
N	**56**	**99**	**33**	**70**	**26**	**42**
	x2=4065 df=3 p= .255		x2=.930 df=3 p= .818		**x2=11000 df=3 p= .012**	
Cocaine once or twice	250	55.6	33.3	71.4		33.3
Monthly			33.3	14.3		
Weekly	750	11.1				
Daily or almost daily	0	33.3	33.3	14.3		66.7
N	30	40	12	29	6	19
	x2=5.567 df=2 p= 050		x2=1.270 df=2 p= .530			
Amphetamine once or twice	60	70.9	55.6	68.4	80	55.6
Monthly	20	8.7	0	15.8	20	44.4
Weekly	20	30	22.2	5.3		
Daily or almost daily	0	17.4	11.1	10.5		
N	**127**	**181**	**66**	**137**	**42**	**90**
	x2=7.267 df=3 p= .050		x2=5.331 df=4 p=.255		x2=.837 df=1 p= .360	
Inhalants once or twice	42.9	70	33.3	50		
Monthly	14.3	0				100
Weekly	42.9	0	33.3	50		
Daily or almost daily	0	30	33.3	0		
N	**29**	**46**	**8**	**13**	**3**	**17**
	x2=8.330 df=3 p= .040		x2=1.556 df=2 p= .459			

	Assessment 1		Assessment 2		Assessment 3	
	Experimental	**Controls**	**Experimental**	**Controls**	**Experimental**	**Controls**
Sedatives once or twice	87.5	64.5	50	70		66.7
Monthly	12.5	19.4	16.7	10		33.3
Weekly	0	3.2	16.7	10		
Daily or almost daily	0	12.9	16.7	10		
N	**105**	**273**	**34**	**54**	**17**	**48**
	x2=1.942 df=3 p= .585		x2=.640 df=3 p= .887			
Hallucinogens once or twice	0	50	33.3	40	100	33.3
Monthly	100	12.5	0	20	0	33.3
Weekly	0	37.5	33.3	40		
Daily or almost daily			33.3	0	0	33.3
N	**24**	**23**	**4**	**10**	**3**	**19**
	x2=3.938 df=2 p= .140		x2=2.311 df=3 p= .510		x2=1.333 df=2 p= .513	
Opioids once or twice	750	45.5	40	50	100	0
Monthly					0	50
Weekly	250	9.1	40	250		
Daily or almost daily	0	45.5	20	250	0	50
N	**21**	**24**	**5**	**12**	**4**	**13**
	x2=2.855 df=2 p= .240		x2=.225 df=2 p= .894		x2=3000 df=2 p= .223	

Table 31: Trends on how often the use of drugs mentioned had led to a friend, relative or anyone else expressing concern about your use of the substance (%)

	Assessment 1		Assessment 2		Assessment 3	
	Experimental	**Controls**	**Experimental**	**Controls**	**Experimental**	**Controls**
Alcohol Yes, but not in the past 3 months	670	74.1	68.2	60.7	64.5	59.1
Yes in the past 3 months	330	25.9	31.8	39.3	35.5	40.9
N	**504**	**792**	**407**	**577**	**283**	**404**
	x2=1.316 df=1 p= .251		x2=.974 df=1 p= .324		x2=041 df=1 p= .840	
Tobacco Yes, but not in the past 3 months	71.5	68.4	63.9	640	62.5	\64.1
Yes in the past 3 months	28.5	30.9	36.1	360	37.5	35.9
N	**178**	**245**	**126**	**186**	**73**	**114**
	x2=1.976 df=2 p= .372		x2=000 df=1 p= .989		x2=042 df=1 p= .838	
Cannabis Yes, but not in the past 3 months	73.8	71.9	71.4	65.9	83.3	53.8
Yes in the past 3 months	26.2	28.1	28.6	34.1	16.7	46.2
N	**56**	**99**	**33**	**70**	**26**	**42**
	x2=043 df=1 p= .836		x2=.198 df=1 p=.656		x2=1.534 df=1 p= .216	

	Assessment 1		Assessment 2		Assessment 3	
	Experimental	**Controls**	**Experimental**	**Controls**	**Experimental**	**Controls**
Cocaine Yes, but not in the past 3 months	62.5	77.4	71.4	68.2	100	60
Yes in the past 3 months	37.5	22.6	28.6	31.8	0	40
N	**30**	**40**	**12**	**29**	**6**	**19**
	x2=1.460 df=1 p= .227		x2=026 df=1 p= .872		x2=1.600 df=1 p= .206	
Amphetamine Yes, but not in the past 3 months	660	72.9	66.7	77.8	55.6	42.9
Yes in the past 3 months	340	27.1	33.3	22.2	44.4	57.1
N	**127**	**181**	**66**	**137**	**42**	**90**
	x2=.542 df=1 p= .461		x2=.844 df=1 p= .358		x2=.354 df=1 p= .552	
Inhalants Yes, but not in the past 3 months	72.7	70.8	66.7	72.2	100	40
Yes in the past 3 months	27.3	29.2	33.3	27.8	0	60
N	**29**	**46**	**8**	**13**	**3**	**17**
	x2=020 df=1 p= .887		x2=067 df=1 p= .795		x2=2.880 df=1 p= 090	
Sedatives Yes, but not in the past 3 months	750	67.9	750	81.8	100	50
Yes in the past 3 months	250	32.1	250	18.2	0	50
N	20	53	12	32	4	15
	x2=.345 df=1 p= .557		x2=.221 df=1 p= .638		x2=3000 df=1 **p= .049**	
Hallucinogens Yes, but not in the past 3 months	71.4	68.8	71.4	73.3	100	50
Yes in the past 3 months	28.6	250	28.6	26.7	0	50
N	**24**	**23**	**4**	**10**	**3**	**19**
	x2=.918 df=2 p= .632		x2=009 df=1 p=.926		x2=2.857 df=1 p=091	
Opioids Yes, but not in the past 3 months	72.7	60	57.1	750	100	250
Yes in the past 3 months	27.3	350	42.9	250	0	750
N	**21**	**24**	**5**	**12**	**4**	**13**
	x2=.860 df=2 p= .651		x2=.733 df=1 p= .392		x2=3.938 df=1 **p= .047**	

Table 32: Trends on how often you ever tried to control, cut down or stop using the substance (%)

	Assessment 1		Assessment 2		Assessment 3	
	Experimental	**Controls**	**Experimental**	**Controls**	**Experimental**	**Controls**
Alcohol Yes, but not in the past 3 months	74.1	70.1	61.8	63.4	70	570
Yes in the past 3 months	25.9	29.9	38.2	36.6	30	430
N	**504**	**792**	**407**	**577**	**283**	**404**
	x2=1048 df=1 p= .306		x2=.110 df=1 p= .740		x2=4031 df=1 **p= .045**	
Tobacco Yes, but not in the past 3 months	63.5	71.2	60.4	64.2	38.5	68.3
Yes in the past 3 months	36.5	28.8	39.6	35.8	61.5	31.7
N	**178**	**245**	**126**	**186**	**73**	**114**
	x2=1.961 df=1 p= .161		x2=.351 df=1 p= .554		x2=6.707 df=1 **p= .010**	
Cannabis Yes, but not in the past 3 months	75.4	71.2	48.8	61.6	50	64.3
Yes in the past 3 months	24.6	28.8	51.2	38.4	50	35.7
N	**56**	**99**	**33**	**70**	**26**	**42**
	x2=.388 df=1 p= .533		x2=1.918 df=1 p= .166		x2=.791 df=1 p= .374	
Cocaine Yes, but not in the past 3 months	66.7	74.3	54.5	63.6	70	61.1
Yes in the past 3 months	33.3	25.7	45.5	36.4	30	38.9
N	30	40	12	29	6	19
	x2=.866 df=1 p= .352		x2=.762 df=1 p= .383		x2=.221 df=1 p= .638	
Amphetamine Yes, but not in the past 3 months	66.7	73.9	57.4	65.5	46.7	65.4
Yes in the past 3 months	33.3	26.1	42.6	34.5	53.3	34.6
N	**127**	**181**	**66**	**137**	**42**	**90**
	x2=1076 df=1 p= .300		x2=.830 df=1 p= .362		x2=1.373 df=1 p= .241	
Inhalants Yes, but not in the past 3 months	63.4	740	53.1	66.7	70	55.6
Yes in the past 3 months	34.1	260	46.9	33.3	30	44.4
N	**29**	**46**	**8**	**13**	**3**	**17**
	x2=3.455 df=2 p= .178		x2=1.624 df=1 p= .203		x2=.562 df=1 p= .453	
Sedatives Yes, but not in the [illegible] 3 months	65.2	73.6	56.3	69.2	63.6	60
Yes in the past 3 months	34.8	26.4	43.8	30.8	36.4	40
N	**105**	**273**	**34**	**54**	**17**	**48**
	x2=1.156 df=1 p= .282		x2=1.587 df=1 p= .208		x2=040 df=1 p= .842	

	Assessment 1		Assessment 2		Assessment 3	
	Experimental	**Controls**	**Experimental**	**Controls**	**Experimental**	**Controls**
Hallucinogens Yes, but not in the past 3 months	66.7	73.3	53.6	67.2	70	57.9
Yes in the past 3 months	33.3	26.7	46.4	32.8	30	42.1
N	**24**	**23**	**4**	**10**	**3**	**19**
	x2=.560 df=1 p=.454		x2=1.531 df=1 p= .261		x2=.408 df=1 p= .523	
Opioids Yes, but not in the past 3 months	63.6	71.4	50	66.7	70	58.8
Yes in the past 3 months	36.4	28.6	50	33.3	30	41.2
N	**21**	**24**	**5**	**12**	**4**	**13**
	x2=.692 df=1 p= .406		x2=2.275 df=1 p= .131		x2=.337 df=1 p= .561	

Table 33: Trends on whether the respondents had ever used any drug by injection (%)

	Assessment 1		Assessment 2		Assessment 3	
	Experimental	**Controls**	**Experimental**	**Controls**	**Experimental**	**Controls**
Amphetamine Yes, but not in the past 3 months	87.5	40	50	66.7		100
Yes in the past 3 months	12.5	60	50	33.3		
N	**8**	**5**	**2**	**3**		**3**
	x2=3.259 df=1 p = .071		x2=.139 df=1 p= =.709			
Sedatives Yes, but not in the past 3 months	50	50	0	100		33.3
Yes in the past 3 months	50	50	100	0		66.7
N	**2**	**8**	**1**	**1**		**4**
	x2=000 df=1 p =.1000		x2=2000 df=1 p= .157			
Hallucinogens Yes, but not in the past 3 months	0	250	0	100		50
Yes in the past 3 months	100	750	100	0		50
N	**2**	**4**	**1**	**1**		**2**
	x2=.313 df=1 p =.576		x2=2000 df=1 p=.157			
Opioids Yes, but not in the past 3 months	100	250				
Yes in the past 3 months	0	750	100			100
N	**2**	**4**	**1**			**2**
	x2=1.875 df=1 p =.171					

APPENDIX III: The 7 KMTCs involved in the study and the Basic Diploma courses offered (2008-2009)

S/NO	Campus	Total No. of basic and post Students	No. of 1st and 2nd yr. Basic Dip Students	Basic Diploma courses offered
1.	**Nairobi**	3267	1500	**14** Basic diploma courses offered Nursing, Medical Records and information sciences, Community Oral Health, Laboratory sciences, Public Health Sciences, Medical Imaging sciences, Neurophysiology, Clinical medicine, Dental technology, Occupational Therapy, Optometry, Orthopaedic Technology, Physiotherapy, pharmacy and Medical engineering Sciences,
2.	**Nakuru**	882	351	**5** Basic Diploma courses offered are; Nursing, Clinical Medicine, pharmacy, Medical Laboratory sciences and Public Health Sciences
3.	**Kisumu**	852	313	**5** Basic Diploma courses offered are; Nursing, Clinical Medicine, pharmacy, Medical Laboratory sciences and Public Health Sciences
4.	**Mombasa**	845	303	**5** Basic Diploma courses offered are; Nursing, Clinical Medicine, pharmacy, Medical Laboratory sciences and Public Health Sciences
5.	**Port Reiz**	900	353	**4** Basic Diploma courses offered are; Clinical Medicine, pharmacy, Medical Laboratory sciences and Physiotherapy
6.	**Muranga**	752	283	**5** Basic Diploma courses offered are; Nursing, Clinical Medicine, Public Health Sciences, Medical Laboratory sciences and Medical Records and information sciences
7.	**Meru**	702	283	**5** Basic Diploma courses offered are; Nursing, Clinical Medicine, Public Health Sciences, Medical Laboratory sciences and Medical Records and information sciences

APPENDIX IV: Kenya Medical Training College, student population undertaking basic diplomas per college

S/NO	Campus	Total No. of Students in college	No. of 1st and 2nd yr. Basic Dip Students	Certificate offered
1	**Nairobi**	3267	1500	Higher and Basic Diploma
2	Nakuru	882	351	Basic Diploma/cert
3	Kisumu	852	313	Basic Diploma/cert
4	Mombasa	845	303	Basic Diploma/cert
5	Port Reiz	800	353	Basic Diploma/cert
6	Muranga	752	283	Basic Diploma/cert
7	Meru	702	283	Basic Diploma/cert
8	Nyeri	557	230	Basic Diploma/cert
8	Machakos	551	200	Basic Diploma/cert
10	Kisii	543	210	Basic Diploma/cert
11	Embu	576	190	Basic Diploma/cert
12	Thika	313	150	Basic Diploma/higher
13	Musambweni	487	180	Basic Diploma/cert
14	Kakamega	448	190	Basic Diploma/cert
15	Eldoret	431	189	Basic Diploma/cert
16	HomaBay	425	180	Basic Diploma/cert
17	Kitui	297	90	Basic Diploma/cert
18	Siaya	146	95	Basic Diploma
19	Webuye	142	98	Basic Diploma
20	Kabernet	124	100	Certificate
21	Garrisa	135	85	Certificate
22	Msambweni	133	40	Basic Diploma
23	Lodwar	107	60	Certificate.
24	Kilifi	101	32	Basic Diploma
25	Loitokitok	78	30	Basic Diploma/Cert
26	Kapkatet	60	30	Basic Diploma
27	Siaya	90	60	Basic Diploma
28	Kareen	100	90	Basic/Cert.
29	Mathare	30	-	Higher Diploma
KMTC Total		**14070**	**7885**	

APPENDIX V: Psycho-Education Time table

Day	Duration	Objectives
DAY I	2 hours	**Psycho-education A** 1. Introduce to Psycho-education. 2. Describe health and mental health. 3. Describe depression. 4. Describe suicidality. 5. Describe anxiety. 6. Describe substance related disorders.
DAY II	2 hours	**Psycho-education B** Discuss the general predisposing and precipitating causes of depression suicidaltiy anxiety and substance related disorders.
DAY III	2 hours	**Psycho-education C** Describe and demonstrate/illustrate through simulations and role plays the following coping strategies accordingly. a) Improving self image/esteem (b) Assertiveness skills (c) Communication skills (d) Structured problem solving e) Scheduling (f) General exercise/activity (g) sleep hygiene
DAY IV	2 hours	**Psycho-education C** Describe and demonstrate/through simulations the following coping strategies. (a) Anger management skills (b) De-arousal through hyperventilation (control breathing exercise) (c) Relaxation exercises training (d) Adherence **NB Small group discussions on all the above in the 2nd psycho education and role plays were employed**

APPENDIX VI (a): Consent Explanation (For Experimental Group)

Effectiveness of psycho-education on common mental disorders in students at the Kenya Medical Training College, Kenya

Serial no.....

Dear student,

My name is Susan Muriungi, a Ph D student at the Department of Psychiatry, University of Nairobi. I am carrying out a study **on effectiveness of psycho-education on common mental disorders in students at the Kenya Medical Training College, Kenya.**

This will be fulfilment for the degree award 0f PhD in Clinical Psychology. I am being supervised by;

1. Prof. David Ndetei, (Tel. 0722518365)
   Professor of Psychiatry,
   Dept of Psychiatry, U.O.N
2. Dr. M. Maathai
   Lecturer, Department Of Psychiatry
   University Of Nairobi
3. Professor, M. Boy Sebit
   Professor of psychiatry,
   University of Zimbabwe

I am requesting you to participate in this study by completing a set of questionnaires that ask you about your socio-demographic data, another set that measures whether you experience symptoms of; Depression, Hopelessness, Suicidality, Anxiety disorder, or risk of alcohol and drug abuse.

The instruments that you will complete are internationally tested and have been used in many studies in various parts of the world including Kenya. They have been accepted to assess whether you have any of the sought for mental disorders. I developed the socio-demographic questionnaire. . The questionnaire takes an average of 1 and half hour to complete.

Although this study has been approved by Kenyatta National Hospital and Nairobi University Research and Ethical Committee, and approved by the KMTC administration, your participation is completely voluntary and you may withdraw your participation anytime in the

course of completing the questionnaire. However, I request you that if you do decide to complete the questionnaire to do so as truthfully as possible. It takes an average of 1 hour to complete all the questionnaires. Do not discuss your responses with anybody and try to complete it in the space provided. Do not write on it any personal identity. Confidentiality will be ensured by serialising the questionnaires by an anonymous serial number.

Once you have completed the questionnaires, fold it, staple it and insert in the ballot box provided in front of the classroom. In case you are not willing to participate in the study, you are kindly requested to sit in with the others for confidentiality purposes, staple them and insert them in the ballot box provided as the others do so. The data will only be accessible to the researcher and for purposes of research only.

I will gladly give you a series of psycho-education lectures on Depression, Hopelessness, Suicidality, Anxiety, alcohol and drug abuse which will not be examinable since this is purely for purposes of this study. The allocation of time for these lectures will be done in consultation with your head of department and yourselves and will be during the normal learning hours. These lectures will include symptom recognition of the above stated conditions, general predisposing and precipitating courses and stress coping strategies/skills, some of which will be simulated and role played.

The knowledge you will acquire will go a long way in not only enlightening you about the disorders but how to recognise them on yourself, among friends, relatives or the patients you deai with so that you may take appropriate informed action. This will equip you further with techniques of preventing, diagnosing, and coping with stress which is a major precipitating course of all the stated conditions.

If in the process of completing the questionnaire or after the psycho education you feel that you have a psychological problem that needs immediate attention of a mental health professional/counsellor, you could get back to me/research assistant later for advice after the session on where you can self refer yourselves. You can alternatively self refer directly in case you feel you have symptoms of Depression, Hopelessness, Suicidality, Anxiety or Substance related disorders. The self referral could be to **KMTC counselling clinic**, to the **High Risk Adolescent clinic at Kenyatta National Hospital (at no charge at all)** or to **any other** mental health professional/counsellor of your choice. Those respondents who may feel that they have suicidal tendencies or feelings may contact the Samaritans on Telephone number **0721972757** at any time of day or night at no charge at all.

After 3 months, the researcher will come back and re-assess you. This will give her an idea of how well the taught knowledge/skills will have worked for you or what challenges you may be

encountering as you employ them. This will immediately be followed by another session of psycho education.

We will repeat the re assessment after another 3 months in order to make conclusive findings on the benefits of psycho education in symptom recognition or symptom reduction.

KMTC as an institution will receive a copy of the findings in a report from and the recommendations which they could use to improve the mental health issues/facilities among students/KMTC campuses respectively. For instance revamp student staff clinic counselling unit with mental health professionals, train medical staff at the student clinics on mental health issues, revamp the student clinic pharmacy with respective drugs, reenergise factual policies that may affect students with disciplinary issues, endeavour to train peer councillors among the student body, improve the curricula to incorporate a mental health component and other relevant strategies.

You signing the consent form and completion of the questionnaire will be taken as your indication of your consent to voluntarily participate in the study. If you need any clarification do not hesitate to get in touch with me on the contacts given below or the research assistant with me. In case you have suicidality symptoms, you can contact THE SAMARITANS on telephone number **0721972757** at any time of day or night.

Thank you.

SUSAN MURIUNGI

PhD Student,

Department of Psychiatry

University of Nairobi

Tel. 2725711 Ext.47080 or 47057

APPENDIX VI (b): Consent Explanation (For control Group)

Effectiveness of psycho-education on common mental disorders in students at the Kenya Medical Training College, Kenya.

Serial no .....

Dear Student,

My name is Susan Muriungi, a Ph D student at the Department of Psychiatry, University of Nairobi. I am carrying out a study of depression, hopelessness, suicidality, anxiety, risk of alcohol and drug abuse among basic diploma students in the Kenya medical Training College Nairobi. This will be as fulfilment for the degree award. I am being supervised by;

1. Prof. David Ndetei, (Tel. 0722518365)
   Professor of Psychiatry, Dept of Psychiatry, U.O.N
2. Dr. M. Maathai
   Senior Lecturer, Department Of Psychiatry
   University Of Nairobi
3. Professor M. Boy Sebit,
   Professor of psychiatry, University of Zimbabwe

I am requesting you to participate in this study by completing a set of questionnaires that ask you about your socio-demographic data, another set that measures whether you suffer from Depression, Hopelessness, Suicidality, Anxiety, risk of alcohol or drug abuse.

The instruments that you will complete are internationally tested and have been used in many studies in various parts of the world including Kenya. They have been accepted to assess whether you have any of the sought for mental disorders. I developed the socio-demographic questionnaire. The questionnaire takes an average of 1 and half hour to complete.

Although this study has been approved by Kenyatta National Hospital and Nairobi University Research and Ethical Committee, and approved by the KMTC administration, your participation is completely voluntary and you may withdraw your participation anytime in the course of completing the questionnaire. I however request that if you do decide to complete the questionnaire, do so as truthfully as possible. Do not discuss it with anybody and try to complete it in the space provided. Do not write on it any personal identity. Confidentiality will be ensured by serialising the questionnaires by anonymous serial numbers.

Once you have completed the questionnaires, fold it, staple it and insert in the ballot box provided in front of the classroom. In case you are not willing to participate in the study, you

are kindly requested to sit in with the others for confidentiality purposes, staple them and insert them in the ballot box provided like the others. The data will only be accessible to the researcher and for purposes of research only.

We will have a repeat of the reassessment after 3 months and again after another 3 months. This data will be useful in making a comparison between your results and those from other students in other colleges.

There will be no immediate benefit to you for participating in the study. After analysis of the individual questionnaires however, .KMTC as an institution will receive a copy of the findings in a report and the recommendations which they could use to improve the mental health issues/facilities among students. For instance revamp/start a student staff clinic counselling unit with mental health professionals, endeavour to train peer councillors among the student body, improve the curriculum to incorporate a mental health component and other relevant strategies.

If in the process of completing the questionnaire you feel that you have a severe psychological problem with symptoms similar to those in the questionnaires that need immediate attention of a mental health professional/counsellor, you could self refer to the **college student clinic** (if there is), to the **college counsellor (if there is), in the nearest hospital to your campus** or **any other** place you feel you could get counselling help. Those respondents who may feel that they have suicidal tendency or feelings may contact the Samaritans on Telephone number **0721972757** at any time of day or night at no charge.

You signing the consent form and completion of the questionnaire will be taken as your indication of your consent to voluntarily participate in the study. If you need any clarification do not hesitate to get in touch with me, the research assistants or any of my supervisors whose telephone numbers are given above against their names.

Thank you.

SUSAN MURIUNGI

PHD Student

Department of Psychiatry, University of Nairobi **Tel. 2725711 Ext.47080 or 47057**

Appendix VII: Subject Statement

The above study has been explained to me and I agree to take part. I understand that this is my choice. If I change my mind, I understand that I will continue to be a student in this Department and in this College without any intimidation whatsoever.

Respondent's signature.....

Date.....

APPENDIX VIII: Research Instruments

Section (1a): Social Demographic Questionnaires (For 1st Baseline Assessment for both groups

Serial No: .....

Specify whether consent is signed: Yes ..... No: .....

Participant's Department ..... Year of Study .....

Date of interview: .....

1. Gender: Male ..... Female .....
2. How old are you .....
3. Your year of study 1st year..... 2nd year.....
4. Marital status: Single ..... Married ..... Separated .....
   Divorced ..... Widowed ..... Others.....

5. Specify your religion: Protestant ..... Catholic ..... Muslim.....
   Others .....

6. Tick your current place of residence while you undertake your studies.

   Within college hostels ..... Outside College hostels.....

7. Do you feel /think you are well equipped to deal with any psycho stressors (environmental stress/problems) within and without the college?

   Yes ..... No..... I do not know .....

Section 1 (b): Social Demographic Questionnaires for experimental group 2nd and 3rd Assessment

Serial No: .....

Respondent's Department ..... Year of Study .....

1. Gender: Male..... Female .....
2. How old are you? .....
3. Your year of study 1st..... 2nd.....
4. Marital status: Single: ..... Married: ... Separated: ... Widowed: ... Others specify....
5. Specify your religion: Protestant ..... Catholic ..... Muslim..... Others specify.....
6. Tick your current residence as you study
   Within college hostels ..... Outside college hostels.....
7. Did you participate in the assessment in the current study about 3 months ago?
   Yes ..... No.....

8. Do you now feel better equipped to deal with any environmental challenges/problems within and without the college?

   Yes ..... No .....

9. After the last assessment, have you sought professional help from any mental health professional/counselor due to any psychological problem you may have had?

   Yes ..... No .....

Section 1 (c): Social Demographic Questionnaires for control group 2nd and 3rd Assessment

Serial No: .....

Respondent's Department ..... Year of Study .....

1. Gender: Male..... Female .....

2. How old are you? .....

3. Your year of study 1st..... 2nd.....

4. Marital status: Single: ..... Married: .... Separated: ... Widowed: ..... Others specify.....

5. Specify your religion.
   Protestant ..... Catholic ..... Muslim ..... Others specify .....
6. Tick your current residence as you study.
   Within the college hostels ..... Outside college hostels .....

7. Did you participate in the assessment in the current study about 3 months ago?
   Yes ..... No.....

10. Do you now feel better equipped to deal with any environmental challenges/problems within and without the college? Yes ..... No .....

8. After the last assessment, have you sought professional help for any psychological problem you may have had? Yes ..... No .....

Section 2: Beck's Depression Inventory scale (BDI)

Now I would like to ask you about your feelings. Some people feel sad, some people feel happy and some people have feelings somewhere in the middle. [**SHOW VISUAL ANALOGUE SCALE OF FACES WITH FEELINGS**] It is normal to feel all of these feelings. Please tell me honestly which one statement in each group best describes the way you have been feeling during the past two weeks, including today.

The first groups of statements are about;

1. Sadness

I do not feel sad 0
I feel sad much of the time 1
I am sad all of the time 2
I am so sad or unhappy that I can't stand it...3
Do not Know 7
Refused..... 8

The next statements are about;

2. Pessimism

I am not discouraged about my future..... 0
I feel more discouraged about my future than I used to be. 1
I do not expect things to work out for me 2
I feel my future is hopeless and will only get worse. 3
Do not Know 7
Refused..... 8

3. Past Failure

I do not feel like a failure 0
I have failed more than I should have 1
As I look back, I see a lot of failures. 2
I feel I am a total failure as a person 3
Do not know..... 7
Refused..... 8

4. Loss of Pleasure

I get as much pleasure as I ever did from the things I enjoy.....0
I do not enjoy things as much as I used to..... 1
I get very little pleasure from the things I used to enjoy..... 2
I cannot get any pleasure from the things I used to enjoy..... 3
Do not know..... 7
Refused..... 8

5. Guilty Feelings

I do not feel particularly guilty..... 0
I feel guilty over many things I have done or should have done.....1
I feel quite guilty most of the time 2
I feel guilty all of the time 3
Do not know..... 7
Refused..... 8

6. Punishment Feelings

I do not feel I am being punished 0
I feel I am being punished 1
I expect to be punished 2
I feel I am being punished 3
Do not know 7
Refused 8

7. Self -Dislike

I feel the same about myself as ever.. 0
I have lost confidence in myself 1
I am disappointed in myself 2
I dislike myself 3
Do not know 7
Refused 8

8. Self-Criticalness

I do not criticize or blame myself more than usual 0
I am more critical of myself than I used to be 1
I criticize myself for all of my faults. 2
I blame myself for everything bad that happens 3
Do not know 7
Refused 8

9. Suicidal Thoughts

I do not have any thoughts of killing myself. 0
I have thoughts of killing myself, but I would not carry them out.... 1
I would like to kill myself 2
I would kill myself if I had the chance 3
Do not know 7
Refused 8

10. Crying

I don't cry anymore than I used to 0
I cry more than I used to 1
I cry over every little thing 2
I feel like crying, but I can not cry 3
Do not know 7
Refused 8

11. Agitation

I am not more restless or wound up than usual 0
I feel more restless or wound up than usual 1
I am so restless or agitated that it is hard to stay still 2
I am so restless or agitated that I have to keep moving or doing something. 3
Do not know 7
Refused 8

12. Loss of Interest

I have not lost interest in other people or activities... 0
I am less interested in other people or things than before 1
I have lost most of my interest in other people or things 2
It is hard to get interested in anything 3
Do not know..... 7
Refused..... 8

13. Indecisiveness

I make decisions about as well as ever..... 0
I find it more difficult to make decisions than usual. 1
I have much greater difficulty in making decisions than I used to ...2
I have trouble making any decisions. 3
Do not know..... 7
Refused..... 8

14. Worthlessness

I do not feel I am worthless 0
I do not consider myself as worthwhile and useful as I used to 1
I feel more worthless as compared to other people... 2
I feel utterly worthless 3
Do not know..... 7
Refused..... 8

15. Loss of Energy

I have as much energy as ever..... 0
I have less energy than I used to have..... 1
I do not have enough energy to do very much2
I do not have enough energy to do anything . 3
Do not know.. 7
Refused..... 8

16. Changes in Sleeping Pattern

I have not experienced any change in my sleeping pattern... 0

I sleep somewhat more than usual..... ....1a
I sleep somewhat less than usual..... ....1b

I sleep a lot more than usual 2a
I sleep a lot less than usual 2b

I sleep most of the day 3a
I wake up 1-2 hours early and can't get back to sleep 3b
Do not know..... 7
Refused..... 8

17. Irritability

I am no more irritable than usual..... 0
I am more irritable than usual 1
I am much more irritable than usual.. 2
I am irritable all the time 3
Do not know.. 7
Refused..... 8

18. Changes in Appetite

I have not experienced any change in my appetite. 0

My appetite is somewhat less than usual..... .... 1a
My appetite is somewhat greater than usual 1b

My appetite is much less than before 2a
My appetite is much greater than usual..... .... 2b

I have no appetite at all 3a
I crave food all the time 3b
Do not know..... 7
Refused..... 8

19. Concentration

I can concentrate as well as ever 0
I cannot concentrate as well as usual. 1
It is hard to keep my mind on anything for very long..... 2
I am irritable all the time 3
Do not know..... 7
Refused..... 8

20. Tiredness or Fatigue

I am no more tired or fatigued than usual 0
I get more tired or fatigued more easily than usual... 1
I am too tired or fatigued to do a lot of the things I used to do..... 2
I am too tired or fatigued to do most of the things I used to do 3
Do not know..... 7
Refused..... 8

21. Loss of Interest in Sex

I have not noticed any recent change in my interest in sex... 0
I am less interested in sex than I used to be 1
I am much less interested in sex now 2
I have lost interest in sex completely 3
Do not know..... 7
Refused..... 8

Section 3: Beck's Hopelessness scale (BHS)

This questionnaire consists of **20 statements.** Please read the statements carefully one by one. If the statement **describes your attitude for the past week including today,** circle around 'T' indicating **TRUE** before the statement. If the statement does not describe your attitude, circle **'F'** indicating **FALSE** to statement. Please be sure to read each statement carefully.

BSS B

1. I look forward to the future with hope and enthusiasm. **T F**
2. I might as well give up because there is nothing I can do about making things better for myself. **T F**
1. When things are going badly, I am helped by knowing that they cannot stay that way forever. **T F**
2. I can't imagine what my life would be like in ten years. **T F**
3. I have enough time to accomplish the things I want to do. **T F**
4. In the future, I expect to succeed in what concerns me most. **T F**
5. My future seems dark to me. **T F**
6. I happen to be particularly lucky, and I expect to get more of the good things in life than the average person. **T F**
7. I just can't get the breaks, and there's no reason I will in the future. **T F**
8. My past experiences have prepared me well for the future. **T F**
9. All I can see ahead of me is unpleasantness rather than pleasantness. **T F**
10. I don't expect to get what I really want. **T F**
11. When I look ahead to the future, I expect that I will be happier than I am now. **T F**
12. Things just won't work out the way I want them to. **T F**
13. I have great faith in the future. **T F**
14. I never get what I want, so it's foolish to want anything. **T F**
15. It's very unlikely that I will get any real satisfaction in the future. **T F**
16. The future seems vague and uncertain to me. **T F**
17. I can look forward to more good times than bad times. **T F**
18. There's no use in really trying to get anything I want because I probably won't get it. **T F**

Section 4: Beck's Suicidality scale (BSIS)

Please carefully read each group of statements below. Circle the **one** statement in each group that best describes how you have been feeling for the **past week, Including today**. Be sure to read all of the statements in each group before making a choice.

BSS A

1.	0. I have a moderate to strong wish to live. 1. I have a weak wish to live. 2. I have no wish to live.	6	0. I have brief periods of thinking about killing myself which pass quickly. 1. I have periods of thinking about killing myself which last for moderate amounts of time. 2. I have long periods of thinking about killing myself.
2.	0. I have no wish to die. 1. I have a weak wish to die. 2. I have a moderate to strong wish to die.	7.	0. I rarely or only occasionally think about killing myself. 1. I have frequent thoughts about killing myself, 2. I continuously think about killing myself.
3.	0. My reasons for living outweigh my reasons for dying. 1. My reasons for living or dying are about equal. 2. My reasons for dying outweigh my reasons for living.	8.	0. I do not accept the idea of killing myself. 1. I neither accept nor reject the idea of killing myself. 2. I accept the idea of killing myself.
4	0. I have no desire to kill myself. 1. I have a weak desire to kill myself. 2. I have a moderate to strong desire to kill myself.	9.	0. I can keep myself from committing suicide. 1. I am unsure that I can keep myself from committing suicide. 2. I cannot keep myself from committing suicide.
5	0. I would try to save my life if I found myself in a life-threatening situation. 1. I would take a chance on life or death if I found myself in a life-threatening situation. 2. I would not take the steps necessary to avoid death if I found myself in a life-threatening situation.	10.	0. I would not kill myself because of my family, friends, religion, possible injury from an unsuccessful attempt, etc. 1. I am somewhat concerned about killing myself because of my family, friends, religion, possible injury from an unsuccessful attempt, etc. 2. I am not or only a little concerned about killing myself because of my family, friends, religion, possible injury from an unsuccessful attempt, etc.
	If you have circled the zero (0) statements in both Groups 4 and 5 above, then skip down to Group 20. If you have marked a 1 or 2 in either Group 4 or 5, then open here and go to Group 6.	11.	0. My reasons for wanting to commit suicide are primarily aimed at influencing other people, such as getting even with people, making people happier, making people pay attention to me, etc. 1. My reasons for wanting to commit suicide are not only aimed at influencing other people, but also represent a way of solving my problems. 2. My reasons for wanting to commit suicide are primarily based upon escaping from my problems.

12.	0. I have no specific plan about how to kill myself. 1. I have considered ways of killing myself, but have not worked out the details. 2. I have a specific plan for killing myself.	17.	19. I have not written a suicide note. 20. I have thought about writing a suicide note or have started to write one, but have not completed it. 21. I have completed a suicide note:
13.	0. I do not have access to a method or an opportunity to kill myself. 1. The method that I would use for committing suicide cakes time, and I really do not have a good opportunity to use this method. 2. I have access or anticipate having access to the method that I would choose for killing myself and also have or shall have the opportunity to use it.	18.	0. I have made no arrangements for what will happen after I have committed suicide. 1. 1 I have thought about making some arrangements for what will happen after I have committed suicide. 2. I have made definite arrangements for what will happen after I have committed suicide.
14.	0. I do not have the courage or the ability to commit suicide. 1. I am unsure that I have the courage or the ability to commit suicide. 2. I have the courage and the ability to commit suicide.	19.	0. I have not hidden my desire to kill myself from people. 1. I have held back telling people about wanting to kill myself. 2. I have attempted to hide, conceal, or lie about wanting to commit suicide.
15.	0. I do not expect to make a suicide attempt. 1. I am unsure that I shall make a suicide attempt. 2. I am sure that I shall make a suicide attempt.	20.	0. I have never attempted suicide. 1. I have attempted suicide once. 2. I have attempted suicide two or more limes. **If you have previously <u>attempted suicide,</u> please continue with the next statement group.**
16.	0. I have made no preparations for committing suicide. 1. I have made some preparations for committing suicide. 2. I have almost finished or completed my preparations for committing suicide.	21. 22. 23.	0. My wish to die during the last suicide attempt was low. 1. My wish to die during the last suicide attempt was moderate. 2. My wish to die during the last suicide attempt was high. The method I tried to use was?_____ I have attempted _____ number of time

Section 5: Beck's Anxiety Inventory (BAI)

I would like to ask you some different questions about how you have been feeling. Please listen to each group of statements carefully, look at the choices on this section and then tell me which statement from the section best describes the way you have been feeling during the past two weeks, including today.

(EXPLANATION OF THE SCALE)
0 = Not At All
1 = mildly - but it did not bother me much.
2 = moderately - it was not pleasant at times
3 = severely – it bothered me a lot

1. Numbness or tingling

Not At All..... 0
Mildly but it did not bother me much 1
Moderately - it was not pleasant at times.....2
Severely – it bothered me a lot..... 3
Do not know.. 7
Refused..... 8

2. Feeling hot

Not At All..... 0
Mildly but it did not bother me much 1
Moderately - it was not pleasant at times.....2
Severely – it bothered me a lot..... 3
Do not know.. 7
Refused..... 8

3. Wobbliness in legs

Not At All..... 0
Mildly but it did not bother me much 1
Moderately - it was not pleasant at times.....2
Severely – it bothered me a lot..... 3
Do not know.. 7
Refused..... 8

4. Unable to relax

Not At All..... 0
Mildly but it did not bother me much 1
Moderately - it was not pleasant at times.....2
Severely – it bothered me a lot..... 3
Do not know.. 7
Refused..... 8

5. Fear of the worst happening

Not At All..... 0
Mildly but it did not bother me much 1
Moderately - it was not pleasant at times.....2
Severely – it bothered me a lot..... 3
Do not know.. 7
Refused..... 8

6. Dizzy or lightheaded

Not At All..... 0
Mildly but it did not bother me much 1
Moderately - it was not pleasant at times.....2
Severely – it bothered me a lot..... 3
Do not know.. 7
Refused..... 8

7. Heart pounding/racing

Not At All..... 0
Mildly but it did not bother me much 1
Moderately - it was not pleasant at times.....2
Severely – it bothered me a lot..... 3
Do not know.. 7
Refused..... 8

8. Unsteady

Not At All..... 0
Mildly but it did not bother me much 1
Moderately - it was not pleasant at times.....2
Severely – it bothered me a lot..... 3
Do not know.. 7
Refused..... 8

9. Terrified

Not At All..... 0
Mildly but it did not bother me much 1
Moderately - it was not pleasant at times.....2
Severely – it bothered me a lot..... 3
Do not know.. 7
Refused..... 8

10. Nervous

Not At All..... 0
Mildly but it did not bother me much 1
Moderately - it was not pleasant at times.....2
Severely – it bothered me a lot..... 3
Do not know.. 7
Refused..... 8

11. Feeling of choking

Not At All..... 0
Mildly but it did not bother me much 1
Moderately - it was not pleasant at times.....2
Severely – it bothered me a lot..... 3
Do not know.. 7
Refused..... 8

12. Hands trembling

Not At All..... 0
Mildly but it did not bother me much 1
Moderately - it was not pleasant at times..... 2
Severely – it bothered me a lot..... 3
Do not know.. 7
Refused..... 8

13. Shaky

Not at all..... 0
Mildly but it did not bother me much 1
Moderately - it was not pleasant at times..... 2
Severely – it bothered me a lot..... 3
Do not know.. 7
Refused..... 8

14. Fear of losing control

Not At All..... 0
Mildly but it did not bother me much 1
Moderately - it was not pleasant at times..... 2
Severely – it bothered me a lot..... 3
Do not know.. 7
Refused..... 8

15. Difficulty breathing

Not at all..... 0
Mildly but it did not bother me much 1
Moderately - it was not pleasant at times..... 2
Severely – it bothered me a lot..... 3
Do not know.. 7
Refused..... 8

16. Fear of dying

Not at all..... 0
Mildly but it did not bother me much 1
Moderately - it was not pleasant at times..... 2
Severely – it bothered me a lot..... 3
Do not know.. 7
Refused..... 8

17. Scared

Not at all..... 0
Mildly but it did not bother me much 1
Moderately - it was not pleasant at times..... 2
Severely – it bothered me a lot..... 3
Do not know.. 7
Refused..... 8

18. Indigestion or discomfort in abdomen

Not at all 0
Mildly but it did not bother me much 1
Moderately - it was not pleasant at times 2
Severely – it bothered me a lot 3
Do not know 7
Refused 8

19. Faint

Not at all 0
Mildly but it did not bother me much 1
Moderately - it was not pleasant at times 2
Severely – it bothered me a lot 3
Do not know 7
Refused 8

20. Face flushed

Not at all 0
Mildly but it did not bother me much 1
Moderately - it was not pleasant at times 2
Severely – it bothered me a lot 3
Do not know 7
Refused 8

21. Sweating (not due to heat)

Not at all 0
Mildly but it did not bother me much 1
Moderately - it was not pleasant at times 2
Severely – it bothered me a lot 3
Do not know 7
Refused 8

22. Is there anything else that you feel or think about that is bothering you?

_____

_____

_____

(WRITE ON EXTRA PAPER IF REQUIRED)

Section 6: The Alcohol, Smoking and Substance Involvement Screening and Test (ASSIST)

1. In your life, which of the following substances have you ever used? (Put a tick inside the appropriate box)	0=No	1 = Yes
1. Tobacco products (cigarettes, chewing tobacco, cigars, etc.)		
2. Alcoholic beverages (beer, wine, spirits, changaa, (kumi kumi.)		
3. Cannabis (marijuana, pot, grass, hash, bhang)		
4. Cocaine (coke, crack, etc.)		
5. Amphetamine type stimulants (speed, diet pills, ecstasy, Khat/Miraa)		
6. Inhalants (nitrous, glue, petrol, paint thinner, etc.)		
7. Sedatives or Sleeping Pills (Valium, Serepax, Rohypnol,)		
8. Hallucinogens (LSD, acid, mushrooms, PCP, Special K,)		
9. Opioids (heroin, morphine, codeine, Brown sugar)		
10. Other - specify:		

Q2 – Q5 tick: 0=Never, 1=once or twice, 2=Monthly, 3=Weekly 4=Daily or almost daily

2. In the past 3 months, how often have you used the substances you mentioned in Question ONE?	0	1	2	3	4
1. Tobacco products (cigarettes, chewing tobacco, cigars, etc.)					
2. Alcoholic beverages (beer, wine, spirits, changaa, (kumi kumi.)					
3. Cannabis (marijuana, pot, grass, hash, bhang)					
4. Cocaine (coke, crack, etc.)					
5. Amphetamine type stimulants (speed, diet pills, ecstasy, Khat/Miraa)					
6. Inhalants (nitrous, glue, petrol, paint thinner, etc.)					
7. Sedatives or Sleeping Pills (Valium, Serepax, Rohypnol,)					
8. Hallucinogens (LSD, acid, mushrooms, PCP, Special K,)					
9. Opioids (heroin, morphine, codeine, Brown sugar)					
10. Other - specify:					
3. During the past 3 months, substance you have mentioned in Question ONE how often have you had a strong desire or urge to use them?					
1. Tobacco products (cigarettes, chewing tobacco, cigars, etc.)					
2. Alcoholic beverages (beer, wine, spirits, changaa, (kumi kumi.)					
3. Cannabis (marijuana, pot, grass, hash, bhang)					
4. Cocaine (coke, crack, etc.)					
5. Amphetamine type stimulants (speed, diet pills, ecstasy, Khat/Miraa)					
6. Inhalants (nitrous, glue, petrol, paint thinner, etc.)					
7. Sedatives or Sleeping Pills (Valium, Serepax, Rohypnol,)					
8. Hallucinogens (LSD, acid, mushrooms, PCP, Special K,)					
9. Opioids (heroin, morphine, codeine, Brown sugar)					
10. Other - specify:					
4. During the past 3months, how often has your use of drugs mentioned in question ONE led to health, and social, legal or financial problems?	**0**	**1**	**2**	**3**	**4**
a) **Health Problems**					
1. Tobacco products (cigarettes, chewing tobacco, cigars, etc.)					
2. Alcoholic beverages (beer, wine, spirits, changaa, (kumi kumi.)					
3. Cannabis (marijuana, pot, grass, hash, bhang)					
4. Cocaine (coke, crack, etc.)					
5. Amphetamine type stimulants (speed, diet pills, ecstasy, Khat/Miraa)					
6. Inhalants (nitrous, glue, petrol, paint thinner, etc.)					

7. Sedatives or Sleeping Pills (Valium, Serepax, Rohypnol,)					
8. Hallucinogens (LSD, acid, mushrooms, PCP, Special K,)					
9. Opioids (heroin, morphine, codeine, Brown sugar)					
10. Other - specify:					
b) Social Problems					
1. Tobacco products (cigarettes, chewing tobacco, cigars, etc.)					
2. Alcoholic beverages (beer, wine, spirits, changaa, (kumi kumi.)					
3. Cannabis (marijuana, pot, grass, hash, bhang)					
4. Cocaine (coke, crack, etc.)					
5. Amphetamine type stimulants (speed, diet pills, ecstasy, Khat/Miraa)					
6. Inhalants (nitrous, glue, petrol, paint thinner, etc.)					
7. Sedatives or Sleeping Pills (Valium, Serepax, Rohypnol,)					
8. Hallucinogens (LSD, acid, mushrooms, PCP, Special K,)					
9. Opioids (heroin, morphine, codeine, Brown sugar)					
10. Other - specify:					
c) Legal Problems					
1. Tobacco products (cigarettes, chewing tobacco, cigars, etc.)					
2. Alcoholic beverages (beer, wine, spirits, changaa, (kumi kumi.)					
3. Cannabis (marijuana, pot, grass, hash, bhang)					
4. Cocaine (coke, crack, etc.)					
5. Amphetamine type stimulants (speed, diet pills, ecstasy, Khat/Miraa)					
6. Inhalants (nitrous, glue, petrol, paint thinner, etc.)					
7. Sedatives or Sleeping Pills (Valium, Serepax, Rohypnol,)					
8. Hallucinogens (LSD, acid, mushrooms, PCP, Special K,)					
9. Opioids (heroin, morphine, codeine, Brown sugar)					
10. Other - specify:					
d) Financial					
1. Tobacco products (cigarettes, chewing tobacco, cigars, etc.)					
2. Alcoholic beverages (beer, wine, spirits, changaa, (kumi kumi.)					
3. Cannabis (marijuana, pot, grass, hash, bhang)					
4. Cocaine (coke, crack, etc.)					
5. Amphetamine type stimulants (speed, diet pills, ecstasy, Khat/Miraa)					
6. Inhalants (nitrous, glue, petrol, paint thinner, etc.)					
7. Sedatives or Sleeping Pills (Valium, Serepax, Rohypnol,)					
8. Hallucinogens (LSD, acid, mushrooms, PCP, Special K,)					
9. Opioids (heroin, morphine, codeine, Brown sugar)					
10. Other - specify:					
5. During the past 3 months, how often have you failed to do what was normally expected of your because of your use of:					
1. Tobacco products (cigarettes, chewing tobacco, cigars, etc.)					
2. Alcoholic beverages (beer, wine, spirits, changaa, (kumi kumi.)					
3. Cannabis (marijuana, pot, grass, hash, bhang)					
4. Cocaine (coke, crack, etc.)					
5. Amphetamine type stimulants (speed, diet pills, ecstasy, Khat/Miraa)					
6. Inhalants (nitrous, glue, petrol, paint thinner, etc.)					
7. Sedatives or Sleeping Pills (Valium, Serepax, Rohypnol,)					
8. Hallucinogens (LSD, acid, mushrooms, PCP, Special K,)					
9. Opioids (heroin, morphine, codeine, Brown sugar)					
10. Other - specify:					

Q6-Q8; Tick 0=No, never, 1=Yes, but not in the past 3 months, or 2=Yes in the past 3months			
6. Has a friend of relative or anyone else ever expressed concern about your use of	**0**	**1**	**2**
1. Tobacco products (cigarettes, chewing tobacco, cigars, etc.)			
2. Alcoholic beverages (beer, wine, spirits, changaa, (kumi kumi.)			
3. Cannabis (marijuana, pot, grass, hash, bhang)			
4. Cocaine (coke, crack, etc.)			
5. Amphetamine type stimulants (speed, diet pills, ecstasy, Khat/Miraa)			
6. Inhalants (nitrous, glue, petrol, paint thinner, etc.)			
7. Sedatives or Sleeping Pills (Valium, Serepax, Rohypnol,)			
8. Hallucinogens (LSD, acid, mushrooms, PCP, Special K,)			
9. Opioids (heroin, morphine, codeine, Brown sugar)			
10. Other - specify:			
7. Have you ever tried to control, cut down or stop using			
1. Tobacco products (cigarettes, chewing tobacco, cigars, etc.)			
2. Alcoholic beverages (beer, wine, spirits, changaa, (kumi kumi.)			
3. Cannabis (marijuana, pot, grass, hash, bhang)			
4. Cocaine (coke, crack, etc.)			
5. Amphetamine type stimulants (speed, diet pills, ecstasy, Khat/Miraa)			
6. Inhalants (nitrous, glue, petrol, paint thinner, etc.)			
7. Sedatives or Sleeping Pills (Valium, Serepax, Rohypnol,)			
8. Hallucinogens (LSD, acid, mushrooms, PCP, Special K,)			
9. Opioids (heroin, morphine, codeine, Brown sugar)			
10. Other - specify:			
8. Have you ever used any drug by injection (non-medical use only)?			
1. Cocaine (coke, crack, etc.)			
2. Amphetamine type stimulants (speed, diet pills,)			
3. Sedatives or Sleeping Pills (Valium, Serepax, Rohypnol,)			
4. Hallucinogens (LSD, acid, mushrooms, PCP, Special K,)			
5. Opioids (heroin, morphine, codeine, Brown sugar)			
6. Other - specify:			

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Ref: KNH/UON-ERC/ A/25

6th August 2008

Susan K. Muriungi
Dept. of Psychiatry
School of Medicine
University of Nairobi

Dear Susan

RESEARCH PROPOSAL: "A COMPARATIVE AND INTERVENTIONAL STUDY ON EFFECTS OF PSYCHOEDUCATION ON DEPRESION, SUICIDALITY, ANXIETY AND SUBSTANCE RELATED DISORDERS AMONG BASIC DIPLOMA STUDENTS AT THE K.M.T.C." (P145/07/2008)

This is to inform you that the Kenyatta National Hospital Ethics and Research Committee has reviewed and **approved** your above revised research proposal for the period 6th August 2008 – 5th August 2009.

You will be required to request for a renewal of the approval if you intend to continue with the study beyond the deadline given. Clearance for export of biological specimen must also be obtained from KNH-ERC for each batch.

On behalf of the Committee, I wish you fruitful research and look forward to receiving a summary of the research findings upon completion of the study.

This information will form part of database that will be consulted in future when processing related research study so as to minimize chances of study duplication.

Yours sincerely

PROF A N GUANTAI
SECRETARY, KNH/UON-ERC

c.c. Prof. K.M.Bhatt, Chairperson, KNH-ERC
The Deputy Director CS, KNH
The Dean, School of Medicine, UON
The Chairman, Dept. of PsychiatryUON
Supervisors: Prof. D.M. Ndetei, Dept. of Psychiatry, UON
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Please address all correspondence to:
The Director
When replying please quote

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P.O. BOX 30195-00
NAIRO

Ref: No. KMTC/ADM/74/VOL.I

Date 11th September 2008

Susan K. Muriungi
Department of Physiotherapy
Kenya Medical Training College
P.O. Box 30195
NAIROBI

RE: AUTHORITY TO CONDUCT RESEARCH

Your letter dated 10th September 2008 on the above issues refers.

We are glad to inform you that your request to conduct research in various KMTC Campuses has been granted by the College Research and Ethics Committee as you requested.

V.M. KANGERO
FOR: DIRECTOR

cc. Director, KMTC

APPENDIX XI: PSYCHO-EDUCETION INTERVENTION MODULE USED IN THE RESEARCH STUDY

Introduction

The psycho-education which was employed in this study constituted three (3) components. These components included;

A) Description of Depression, Hopelessness, Suicidality, Anxiety, alcohol and drug abuse.

B) General predisposing and precipitating causes of Depression, Hopelessness, Suicidality, Anxiety, alcohol and drug abuse.

C). Stress coping strategies/skills

The psycho-education was given department by department during the normal working hours (8am to 5pm) among the experimental group respondents in their individual classes according to their years of study. It was in form of lectures, small group discussions, simulations and role plays. The psycho-education was given in 2 blocks of 8 hours each immediately after the 1st assessment and 3 months later immediately after the 2nd assessment (details are given in the psycho-education methodology).

General Objective

To give psycho education to the respondents on Depression, Hopelessness, Suicidality, Anxiety and Substance related disorders.

Specific Objectives

1. Describe health
2. Describe mental health
3. Describe Depression
4. Describe hopelessness and suicidality
5. Describe Anxiety
6. Describe alcohol and drug disorders
7. Discuss the general precipitating and predisposing causes of Depression, Hopelessness, Suicidality, Anxiety as well as alcohol and drug abuse.
8. Discuss the following stress coping strategies/skills as forms of intervention in the management of Depression, Suicidality Anxiety and Substance related disorders; improvement of self image/esteem, assertiveness, effective communication, structured

problem solving, scheduling, general exercise/activities, sleep hygiene, anger management, de-arousal, relaxation and adherence.

Description of Health

According to the World Health Organization health is defined as the biological, social/cultural, psychological and spiritual well being of an individual. (Bio-psycho-social/cultural-spiritual model).

(i) Biological well being is concerned with the normal physiological body functioning. (The normal functioning of the body cells, organs and systems).

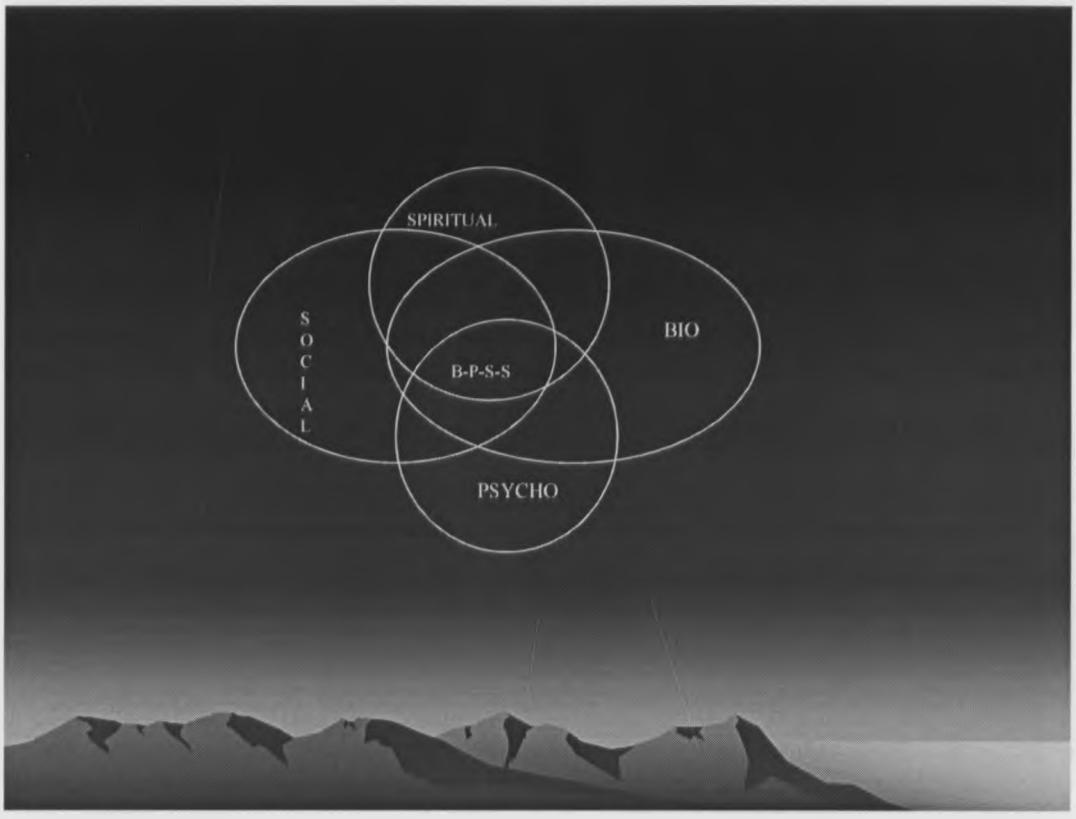
(ii) Psychological well being is concerned with the normal working of the mind/thought processes in relation to brain functioning. This is influenced by specific chemicals, cognitions/thought processes which influence one's attitudes, opinions and ultimately one's behaviour.

(iii) Social/cultural well being denotes the congruence of one's value system with that of the society/cultural orientation. It is influenced by one's socialization in relation to societal values and norms.

(iv) Spiritual well being deals with an individual's believe system.

All the four areas of health are interlinked in that a problem in one will influence/affect the other which may precipitate one to develop a mental problem area(s), thus, the wellness /illness wheel illustrated below.

THE WELLNESS/ILNESS WHEEL



Note the interrelationship of the four spheres of ultimate health in the description of health and ultimately mental health.

Description Mental Health

According to World Health Organization (WHO) mental health is defined as an essential and integral part of health as a whole. It is not merely absence of mental disorder or illness, but also includes a negative state of mental well being.

Mental health is associated with behaviour, discipline and psychosocial well being. It is important to note that several factors affect mental state of health. These factors include individual/personal, genetic and environmental factors.

PSYCHO-EDUCATION COMPONENTS

In addition to the information above, the psycho education employed in this study constituted of 3 components. Respondents were taught how to recognize Depression, Hopelessness, Suicidality, Anxiety, alcohol and drug abuse disorders through symptom recognition. Discussion of the predispositions and precipitation of these disorders, as well as stress coping strategies/skills were comprehensively taught.

DESCRIPTION OF DEPRESSION, HOPELESSNESS, SUICIDALITY, ANXIETY, ALCOHOL AND DRUG ABUSE – COMPONENT A

(i) Depression

Depression is categorised as a mood disorder characterized by altered mood or feelings which may be extreme happiness (manic disorder) or unusual sadness (depressive disorder). Generally, a depressed person reacts with a maladaptive depressed mood to some identifiable stressor within the 2 weeks and can be traced in the last 3 months.

The general symptoms for depression include:-

- Depressed mood or loss of interest or pleasure in things/activities one had interest or pleasure in doing most of the day nearly every day.
- Depressed mood most of the day nearly every day.
- Significant weight loss or gain when not dieting (more than 1 Kg body weight in a month).
- Insomnia or hypersomnia nearly every day.
- Psychomotor agitation or retardation almost daily.
- Fatigue or loss of energy almost daily.
- Change of appetite (over/under eating)
- Feelings of worthlessness or excessive or inappropriate guilt nearly every day.
- Diminished ability to think or concentrate or indecisiveness nearly every day.
- Hopelessness, worthlessness and pessimism

- Recurrent thoughts of death suicidal ideation without a specific plan or a suicidal attempt or a specific plan for community suicide.

ii) Hopelessness

Hopelessness is a symptom of an underlying condition, for instance depression. A person who experiences it may be going through some overwhelming environmental stress/problem. They feel inadequate to deal with the situation and feel there is no hope for them to resolve their issues and their future is bleak. They luck enthusiasm for a good future and feel they will not be satisfied with the future.

Characteristics of a hopeless person

- They give negative verbalizations about the future

-They luck enthusiasm to plan for a positive future

-They are pessimistic about the future

-They may express negative connotations about self

-They underestimate their ability to deal with issues

iii) Suicidality

Suicidality is an underlying symptom of an underlying condition like depression, psychosis, schizophrenia or can be ignited by substance abuse. Suicide is the intentional act of killing oneself. Attempted suicide/parasuicide is the unsuccessful attempt by one to end their life by taking a lethal action. A person with suicidality may present with active suicidal ideas which may progress to suicidal plans and may progress to suicidal attempts. One may however have sudden suicidal attempts.

Characteristics of Suicidal Person

- They are in a state of acute crisis.
- Those who have attempted suicide before.
- People who engage in self destructive acts like alcohol and drug abuse. They may lack self control and act impulsively during moments of intolerable stress/intoxication.
- Those who threaten to commit suicide.
- They lack the ability to communicate their needs to others.

- They often believe that those closest to them are emotionally uncaring and do not involve themselves in their affairs.
- They find the world confusing i.e. both bad and good, evil yet kind, frustrating, yet helpful.

  NB. During the period immediately leading to the time of a probable suicide act, suicidal persons progressively lose interest in life, contemplate death more and more, may becomes aggressive, loose interest in social contact, communicate their wish to die and may make preparations to die.
- They believe their action will end their troubles or earth.
- They lack wide range of problem solving skills.
- May have had an unhappy childhood or long lasting marital and family conflict or child abuse, or parental history of depression and substance dependence.
- Have a history of suicide in the family.
- May be suffering from another mental disorder like severe depression, psychosis of schizophrenia.

iv). Anxiety

Anxiety is characterised by an overwhelming stress which can produce psychological symptoms. It is characterised by a general feeling of tension and apprehension about possible danger. This elicits hyperactivity of the autonomic nervous system (increases in heart rate, pulse rate, breathing rate, blood pressure, diarrhoea, maturation, sweating etc) as a natural response to perceived threat.

The symptoms elicited by the perceived threat are irrational since they are out of proportion when compared to situations that trigger them. These exaggerated symptoms may become disabling and interfere with normal functioning of the individual.

Symptoms include;

1. Feelings of apprehension, a sense of impending danger and feelings of inability to cope. (cognitive component)
2. Increased heart rate, blood pressure, breathing rate, muscle tension, nausea, dry mouth, diarrhoea and frequent urination (physiological responses)

3. Avoidance of certain situations and impaired task performance restless (Behavioural response).
4. Fear and nervousness
5. Physical body pains and aches, insomnia or hypersomnia, poor appetite or over eating.
6. Psychological symptoms like unwarranted fear, feelings of running and hiding, fatigue, luck of concentration, low libido etc
7. Emotional symptoms like being tearful, irritable, quarrelsome, apathetic,
8. Agressive (verbal/physical), hyper vigilant etc.

v) Alcohol and drug abuse

Substance abuse is caused by utilization of substance(s) of abuse. These substances constitute the category of alcohol and drugs of dependence if abused.

Drug refers to any chemical agent that once taken in the body is capable of causing physiological and psychological changes. They are referred to as psychoactive substances. Once taken into the body through the various roots of entry, they produce emotional, cognitive or behavioural changes which may be pleasurable or desirable to the user with resulting adverse medical consequences.

Criteria for Substance Abuse

1. Maladaptive pattern of use which leads to;

Clinically significant impairment or distress which results to;

- Failure to fulfil major role obligations

- Recurrent use in situations which it is physically hazardous e.g. driving an automobile when intoxicated

- Recurrent substance related legal problems

- Continued substance use dispute persistent recurrent social or interpersonal problems.

2. Dependence

This refers to the compulsion to take the substance on a continuous basis in order to experience its effects and avoid discomfort of its absence, which may be physical or psychological.

Indicators of Dependence

-Need for markedly increased amounts of the substance to achieve intoxication or desired effect.

- Marked decrease of effects with continued use of same quantity.

- Withdrawal symptoms

- Same or closely related substance is taken to relieve the withdrawal symptoms.

- Substance is taken in larger amounts or a longer period than was intended.

- Persistent desire or unsuccessful effort to cut down or control its usage.

- Great deal of time is spent in activities necessary to obtain the substance.

- Important social, occupational or recreational activities are given up or reduced because of substance use.

- Substance use is continued despite knowledge of having a persistent/recurrent physical or psychological problem likely to have been caused/exacerbated by the substance.

3. **Substance Withdrawal**

- Development of a substance specific syndrome due to cessation/reduction in substance use that has been heavy and prolonged.
- The substance – specific syndrome causes clinically significant distress or impairment in social, occupational or other important areas of functioning.
- Syndrome not due to general medical condition (GMC) or any other mental disorder.

PSYCHO-EDUCATION - COMPONENT B

The General precipitations and predispositions for one to develop Depression, Hopelessness, Suicidality, Anxiety, Alcohol and drug abuse disorder.

(i) Precipitations and predispositions of Depression

Not well known but the following are believed to be predispositions and/or precipitation

(a) Genetic factors – depression seems to run in families. This is a predisposition.

(b) Stressful life events seem to precipitate the development of depression. These events usually overwhelm the coping strategies of the affected individual. The events may be

positive of negative in nature. E.g. conflicts, traumatic experiences, loss of loved one, terminal illness, financial difficulties, loneliness, birth of a baby, sudden acquisition of something unexpected for example big salary rise etc.

(c) An individual's personality characteristics. Those with low self esteem, negative view of themselves and the world, personality type A, which is characterized by tendency to multitask and hyperactivity, introverted people etc are predisposed to develop depression.

(d) Physical illness e.g. untreated hyperthyroidism.

(e) Substance of abuse e.g. alcohol and psychoactive drugs which may make one to develop substance induced depression.

(ii) Precipitations and predispositions of suicidality

Reasons as to why people attempt to end their lives are not obvious but can only be uncovered in a professional interview. Some of the reasons include;

- Trying to end personal problems, suffering and pain.
- A means to achieve peace and rest and escape conflict.
- An aim to punish enemies and uncaring family relatives and friends.
- Join the dead loved one(s).
- Punish oneself (for imagined or real personal failures and sin)
- Intense psychic pain (sadness and distress)
- Process of growth and development (re – incarnation)
- Cry for help.
- In a state of intoxication.
- Psychiatric disorder e.g. schizophrenia or acute depression (due to hallucinatory perceptions and/or delusional ideas or very acute stress.

(iii) Precipitations of Anxiety

Anxiety may begin at a time when one is;

a) Overwhelming psychological stress (Environmental problems) like-

- Sudden death, traumatic experience, sudden sad/good news, day to day challenges where one is unable to cope
- Making an important decision
- Meeting deadlines
- Changing jobs/environments/routines
- Dealing with others where one requires constant adjustment

NB: single major problem or several smaller problems may exceed one's normal ability to cope/adapt.

(b) **Personality type**

This refers to the consistent unique way one reacts, feels and behaves. For instance one may be a nervous person, sensitive, emotional, fearful, multi-tasker, easily worried. Any slight change in their life may overwhelm them and cause anxiety.

iii) Predispositions and Precipitations) of substance abuse

It is difficult to state categorically what the specific causes of abuse and dependence of substances are in a particular individual. It is however known that the interactions of the following agents play a significant aetiological role:-

(a) The agent (substance)

(b) The host (individual)

(c) Environment

(a) Agent (substance)

Substances vary in their ability to induce dependence and speed with which it can happen. For example the dependence speed of heroin is much greater than cannabis. Due to the psychoactive drug's euphoric effects, they can easily be abused. The demand by the body for the substance increases and the quantity demand increases as well.

(b) The host (individual)

Individuals who are prone to alcohol and substance abuse have some inherent predisposing factors. These include;

- **Genetic predisposition-** 99 and 33 of males and females who are addicted to alcohol are genetically predisposed respectively.
- **Family history of substance abuse** – socialization
- **Peer pressure** – sense of belonging, personality – psycho dynamical expectancy (effects expected), Mental set (emotional attitude towards substance).
- **Age;** certain substances are abused more in certain age than others. For example illicit substances are more abused by younger age and tranquilizers are abused more by over 30 year olds.
- **Gender;** due to socio – cultural – economic factors there are gender differences in patterns of substance use e.g. males start earlier than girls.
- Underlying mental disorder like depression or anxiety may precipitate one to abuse a substance to reduce the underlying symptoms

(c) Environmental Factors

Environments where supply and availability of the substance is widespread, susceptibility increases. These are;

- Poverty, unemployment, dysfunctional families, migration and rapid urbanization influence the nature and type of substance abuse.
- Cultural norms dictate intake of some substances.
- Overwhelming psychological stress can precipitate one to abuse a substance as a way of calming themselves or temporarily dulling their stressful feelings.

THE STRESS COPING STRATEGIES/SKILLS - COMPONENT C

Coping strategies are ideal for helping one to cope with psycho stressors (environmental stresses/problems/challenges) and thus prevent or reduce the intensity of above mental health problems in case they occur. When one has already developed the problem, coping strategies

employed appropriately, will help in symptom reduction. There are various coping strategies which can be used across the board as intervention for all the above disorders.

(1) Structured Problem Solving Techniques

When one is faced with a stressful or challenging issue/situation/event, they will require this skill. This is a process that involves:-

(a) Definition of the problem(s) (one at a time) and making a priority list depending on urgency and importance of the problem.

(b) Listing down all the possible solutions and ideas to deal with each of the problems.

(c) Definition of the alternative solutions/ideas in terms of current needs and resources.

(d) Carefully consider the advantages and disadvantages of each solution/idea.

(e) Choose the best in terms of number (d) above.

(f) Planning – detailed systematic plan of action and implementation of the chosen solution.

(g) Evaluate the outcome of the implemented solution e.g. how effective was the solution, what was right or wrong with the solution/idea you implemented, what are the other alternatives and try again.

2. Assertiveness Training

This is most ideal for individuals who have difficulty in expressing their emotions, thoughts and feelings to others. Instead of taking control of difficult situations by expressing their thoughts, feelings and emotions, they internalise them and may become frustrated, angry and distressed which may make them anxious, stressed, and depressed or turn to substance abuse.

Assertiveness helps one acquire the ability to communicate opinions, thoughts, needs, emotions, and feelings in a direct, honest and appropriate manner. It involves standing up for your rights in a non offensive manner as well as speaking their mind, expressing their emotions and feelings. It helps one have control of their lives and make it less likely for anyone to take advantage of them. This is achieved by:-

(a) Identify areas where you are non assertive that you would like to change.

(b) Identify what you gain for being non assertive e.g. achieve harmony, avoid responsibility, avoid conflict etc

(c) Identify what you lose by being non assertive e.g. what you gain by not making decisive decisions, communicating honesty in a relationship, demanding respect from others, falling in bad habits which you would not ordinarily do, circuming to negative pressure, do things you ordinarily do not want etc.

(d) Ask yourself, "Do the gains of staying non assertive out weigh those of acting assertively"?

If so how, and if not, are you willing to change?

How to acquire assertive skills

Assertive Skills Should be only used where more constructive solutions are not going to work. These are:-

(a) Broken record;

It involves repeating your no or yes answers over and over again until the other person gets the message and the idea that you are serious with what you have said. You do not have to give reasons why you are in agreement or disagreement.

(b) Selective Ignoring;

It involves refusing to respond to inappropriate conversation or requests until the other person gives up.

(c) Disarming anger;

This involves a trade off. This is done by ignoring or refusing to respond to another's anger until his/her anger dies down.

(d) Separating Important Issues;

Refusing others to confuse you in order to persuade you to act their way. This is done by, identifying the important/main issue according to you and refuse to be put off.

(e) Dealing with guilt;

Because of our irrational desire to appear perfect, we feel guilty if we are less perfect. Recognize your right to your own opinion and life and stop feeling sorry you did not circum to other's pressure.

(f) Giving of apologies;

There are some instances when apologies are appropriate. Be specific in what you are apologizing about to avoid being taken advantage of or misunderstood.

(g) Agreement;

Use of choice phrases that "seemingly" appear to agree with others while not really doing so e.g. give statements like you may be right or really?.....

(h) Practicing what you have learnt

Assertiveness does not occur overnight. It takes practice, consistency, commitment and time.

3. Communication Skills.

One must learn to keep the message simple, clear and positive. This is done by:-

(a) Using short statements or questions;

- Ask one question or make one request at a time.
- Be specific e.g. instead of saying, let us meet in the afternoon say, let us meet at 2 p.m. or 300 p.m.
- Avoid strong emotional statements e.g. I cannot stand you

(b) Praise someone

- Everyone needs to be appreciated. This reinforces them to continue with the good behaviour towards you. It helps others to feel motivated to praise you as well. As you praise the other person you should:-

- Look at them
- Be specific in what you are praising them for.
- Tell them honestly how you feel
- Give praise for small compliments
- Avoid back hand compliments e.g. you are smart **but**.....

(c) If you are asking one to do something for you should;

- Look at the person- eye contact.
- Say exactly what you would like them to do for you.
- Say how you feel NB: use polite words

(d) Expressing Negative feelings e.g., anger, frustrations, sadness etc

If these are not expressed, it will result to resentment which leads to stress and precipitate one to develop other mental health disorders later. When expressing negative feelings;

- Maintain eye contact.
- Say exactly what has upset you (be specific).
- Say how you feel.
- Suggest how the other person may prevent this from happening in future.

NB: always use polite words and moderate tone of your voice.

(e) Listening to others;

Communication is a two way process. Be an effective listener by:-

- Maintaining eye contact.

- Look interested.
- Show that you are paying attention by facial and verbal expressions.
- Minimize distractions e.g. TV, book etc.
- Ask questions where necessary.
- Confirm you have understood what the other is saying.
- Show empathy and positive feelings.

4. Scheduling

This refers to goal oriented time tabling of one's daily activities. It fosters good time management. This is done by;

- Setting aside time to plan the day, week, month or year (in the previous day)
- List the activities of the day by priority (urgent and important then others), make long term and short term goals as per the priorities. NB; List exercise as one of the activities.
- Identify the pleasant things to do to break monotony.
- Break the day into hours or sessions and allocate prioritised things in specific time/session.
- Ensure you balance pleasure and achievement activities. Do not make activities rigid.
- Identify a partner/friend who will motivate you to remind you on what you had planned to do.

NB: Goal planning principles are helping one have clarity on achievement. This involves:-

- Specifying exactly what you want to achieve when
- Break the tasks in small steps.
- Use problem solving technique to plan each step.
- Put your plans into action.
- Focus on what has been achieved in each step.
- Continue with each step until the task is completed.

5. General Exercises/Activities

When one is depressed, he/she slows downs both mentally and physically. This is because of the feeling of mental and physical drain/fatigue which is not directly proportional to the physical or mental work one may have been engaged in. When one has anxiety, they feel fatigued and have body aches and pains.

A good exercise program/activity carried out regularly and consistently will activate the body functioning mentally and physically and improves one's feeling of well being. Exercises/activities to be employed should be:-

- Chosen by the respondents guided by their interests and what gives them pleasure e.g. running, brisk walking, swimming or other games, aerobics, gardening etc (which will make one sweat and pant).
- One should plan to exercise/ do the activities in advance by setting aside time as they plan for the day (30 minutes each day).
- Vary the activities to avoid monotony.

6. De-arousal through hyperventilation (controlled breathing exercises).

Hyperventilation may become a way in which the body reacts to a fearful situation or when there is acute anger or acute stress. This can be achieved by slow and controlled breathing exercises. This is done by following the steps given bellow at the first sign of anxiety or anger which are characterised by increased breathing rate and increased heart rate;

- Hold your breath and count from 1 to 5 silently in your mind (do not take a deep breath).
- When one gets to 5, breathe out and say the word 'relax' to self in calm, soothing manner.
- Breathe in slowly through your nose and out through the mouth as you blow out in a six second cycle as you say "relax" every time you breathe in for 3 seconds and out for 3 seconds. (NB this will produce a breathing rate of 10 breaths per minute
- At the end of each minute (10 breaths), hold your breath again for 5 seconds and then continue the cycle again.
- Continue breathing in this manner until all the symptoms of over breathing/over ventilation have gone. (This will be practiced in the session).

7. Relaxation Exercise Training.

This is the voluntary letting go of tension, which may be muscular or psychological due to chronic stress or fatigue. Indicators of tension include;

Irritability, apprehension feeling, jumpy, and body aches pains, digestive complains, clenching of muscles.

Components of relaxation training includes:-

- Recognition of tension.
- Relaxation exercises.

Recognizing tension includes;

- Identifying which muscles are tensed.
- Characteristics of the tension e.g. fatigues, sore muscles and fatigue.
- Which events within self lead to increased tension e.g. anger, frustration, events/situations, loneliness, impatience etc

- Which external events lead to an increase in tension e.g. people (which ones) noise, waiting relationship etc (give homework for individual identification)

Progressive muscle relaxation involves;

- Relaxing the muscles progressively from one part of the body to the other while in a comfortable sitting position. This includes;
- Purposely, tense the muscles (contract) them group by group for example palm, them arm, then shoulder etc
- Relax the muscles letting the tension flow out of the body (for 10 sec)

NB: Repeat for each group of muscle at least 8 times and progress to the next group. - --- - - position for the exercises is – sited on a straight backed chair with feet flat on the floor and hands. Resting on the lap and eyes closed.

NB: lying down is discouraged to avoid falling asleep.

8. Improving Self Esteem/Image

Negative self esteem/image may result from:-

- Constant negative thought and feeling about one' self.
- Constant negative verbalization and negative behaviour directed towards the person may damage their self image and lower their self esteem. People with depression or hopelessness have negative self image. Those people who are anxious about their situations may develop low self image and may end up taking substances of abuse to temporarily banish their negative feelings.

Self image can be improved by:-

- Making a list of your 5 best features/attributes, perhaps with help of a loved one. Read the list to yourself constantly whenever you feel negative thought about yourself coming.
- Keep daily record to all the past small pleasant things that happen to you and discuss them with loved ones or with self .Recall pleasant occasions in the past plan pleasant occasions for the future.
- Avoid constant/repetitive discussions about your bad feelings/views concerning self i.e. expressing unreasonable thoughts about yourself but aim at solving realistic problems one at a time is helpful.
- Consider alternative explanations for unpleasant events/thoughts. (Write down all the other possible explanations for each event or thought).
- Keep yourself busy doing useful activities. Avoid idleness

9. Sleep hygiene

Hypo or hypersomnia may be an indication of depression or anxiety. In hyposomnia, one may wake up too early or have trouble getting to sleep. In hypersomia, one oversleeps excessively. The following can be practical as sleep hygiene.

- Establish a proper sleep environment.
- Allow a wind down prior to sleep.
- Remove all stimuli that are not associated with sleep from the bedroom.
- Avoid spending time in bed worrying.
- Avoid alcohol, caffeine and nicotine and other stimulants.
- Take a late glass of warm milk, it sooths one to sleep.
- Take regular exercise in the late afternoon or early morning.
- Go to bed when you are sleepy.
- Do not use your bed for anything except sleeping (sexual activity is an exception)
- If you do not fall asleep in 10 minutes, get up to another room/do some simple tasks and stay up till you feel sleepy.
- Get up the same time each morning no matter how long you slept.
- Set aside problem solving time during the day.
- Avoid napping during the day
- Avoid sleeping pills.
- Do not use alcohol to help you sleep, it is a depressants.

10. Anger Management Skill

When one is too angry they exhibit increased breathing rate, heart rate and blood pressure. Depending on the intensity of the anger, they may experience body tension, aches and pains. To control anger one needs to:

2. Recognize the anger symptoms
3. Practice controlled breathing
4. Progressively muscle contracting and relaxation
5. Take time out. This may include the following: take a walk away from the source of anger, choose to keep quiet momentarily until anger subsides, may count one to ten until anger subsides, choose to do something positive that will allow the anger to ease e.g. take a run, go for a swim, read, sing etc

11. Adherence

This incorporates consistent, holistic and persistent application of or them. Psycho education knowledge and employ it to manage the mental disorders.

Methodology of the psycho-education intervention

In the 1st block of psycho-education; Duration- 4 sessions of 2 hours each through Lecture method and simulations

In the 2nd block of psycho-education; Duration- 1 sessions of 2 hours and 2 sessions of 3 hours, through lecture method, small group discussions and role plays.

A hand out of the covered content was given to all students.